

BUFFER ENHANCEMENT AND MONITORING PLAN

**Bridleside
June Road
Town of North Salem, New York**

Lead Agency: Town of North Salem Planning Board
North Salem Town Hall
266 Titicus Road
North Salem, New York 10560

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February 15, 2012

Buffer Enhancement and Monitoring Plan

Project Description

The Bridleside plan proposes 65 affordable residential units in 8 buildings. The plan also includes a separate clubhouse for future residents, parking, roads and stormwater management facilities. A Wastewater Treatment Plant (WWTP) will be built for the treatment of wastewater from the development. Treated wastewater from the plant will be discharged to the SSDS located in the east-central portion of the site.

Construction of the FEIS Plan includes on-site disturbance to wetland buffers of 0.55 acres. Wetland buffer disturbance will occur for the entrance road (affecting the Wetland D buffer), temporary disturbance required for utilities, including a water line affecting Wetland B buffer (200 square feet), and stormwater lines and wastewater lines affecting Wetland D buffer. The project may also include a foot bridge in Wetland D and an off-site stormwater conveyance pipe in the Wetland D buffer adjacent to June Road. The applicant has proposed mitigation for the total 0.55 acres of wetland buffer impact by providing 0.58 acres of wetland buffer enhancement planting in the buffers of Wetlands A, C, and D. The footbridge will only be constructed if it receives the necessary governmental approvals.

Mitigation Proposal

The following elements have been incorporated into this wetland mitigation plan for mitigating impacts to the Town wetland as a result of buffer disturbance:

1. The removal of invasive species within wetlands and buffer areas. The specifics of this task are described in more detail in the Invasive Species Eradication Program.
2. Planting of appropriate native species in select buffer areas. Species will be chosen which are known to be resistant to deer browsing, which is known to be a serious issue on the Bridleside site. It is the intense deer browsing that is occurring at the site which has eliminated many native species, with only resistant invasive species, i.e., japanese barberry left to dominate the shrub layer. The submitted landscape plans show approximately one half acre of buffer where additional plantings will be provided, and identify an additional one half acre of wetland that will be restored with the removal of multifloral rose and phragmites (near June Road and the proposed site access).
3. Conservation and other easement agreements will be established for approximately 17.3 acres (43 percent of the site) including buffer and all wetland areas, and are likely to also include a maintenance agreement with the Bridle Trails group.

Further, native berry and cover trees are proposed to be used in landscaping throughout the project, as well as on the outer boundary of the development. The following species are proposed for the buffer enhancement areas as shown on the landscaping plan (refer to sheets SP-2.1 and SP-2.2):

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<u>Scientific Name</u>	<u>Common Name</u>
<i>Amelanchier canadensis</i>	Shadblow
<i>Cornus amomum</i>	Silky Dogwood
<i>Cornus racemosa</i>	Gray Dogwood
<i>Salix discolor</i>	Pussy Willow
<i>Viburnum dentatum</i>	Arrowwood
<i>Viburnum lentago</i>	Nannyberry Viburnum
<i>Hamamelis virginiana</i>	Witch hazel
<i>Lindera benzoin</i>	Spicebush
<i>Aronia arbutifolia</i>	Red Chokeberry
<i>Kalmia latifolia</i>	Mountain Laurel
<i>Cercis canadensis</i>	Eastern Redbud
<i>Acer rubrum</i>	Red Maple
<i>Ilex verticillata</i>	American Winterberry
<i>Viburnum prunifolium</i>	Blackhaw Viburnum
<i>Juncus Effusus</i>	Soft rush
<i>Carex Stricta</i>	Tussock Sedge

All of these species are native and locally common, and are known to provide wildlife food or cover. Most bird and many of the mammal species that utilize the site can make use of the berries, flowers or twigs produced by these plants.

Planting Details

Plant choices for the wetland buffer enhancement were made according to existing site conditions and locally common species.

All planting will proceed by hand. Materials will be brought to the site in good condition (see below) and then placed in central drop locations. The materials will then be hand-carried to their planting locations and in turn, planted by hand. Only rounded, shallow planting shovels will be used in this effort.

Criteria for selecting plant material will include (1) the plant's ability to withstand the expected light and saturation conditions; (2) its demonstrated survival on this site and other nearby sites; (3) the plant must be native and non-invasive; and (4) whether the plant material is available at nurseries in the same region as the site. A complete plant species list is provided in Drawing No. SP-2.1, in the table "Wetland Buffer Enhancement Plant List". Seed mix was chosen based on the species' ability to survive in moist areas adjacent to the road with some sun.

Planting will be done in spring or early summer (between April 1 and July 1). Shrubs may also be planted in the late summer to early fall (September 1 to October 30). In all cases, a hole will be dug twice as deep as the root ball. The only shovels allowed are rounded, shallow spades. The hole will then be backfilled with a thin layer (two to four inches) of rich, organic topsoil, the plant placed inside, the hole backfilled to the top and then gently tamped down. Routine inspections will occur for evidence of deer browsing and deer repellent applied every three months as specified on the Landscaping Plan. If necessary deer fencing will be considered in areas where browsing is most intense.

Container-grown plant material delivered to the job site will be inspected to assure moist soil/root masses. Any dry and light weight plants will not be accepted. If not planted immediately

the container will be stored out of the sun and wind and kept moist (i.e., a means of watering will be provided and watering will occur daily). When removed from the containers, the plants will be the size of the specified container. If in leaf, the plants will appear healthy with no spots, leaf damage, discoloration, insects or fungus. If not in leaf, the buds will be firm and free of damage, discoloration, insects or fungus. Containers will be a minimum of quart size for shrubs and gallon size for trees.

Plants not having an abundance of well developed terminal buds on the leaders and branches will be rejected. The stems and branches of all plants will be turgid and the cambium healthy or the plants rejected.

Seeding within and adjacent to wetland areas should not be completed when there is more than two inches of standing water, or in areas that are likely to be flooded. Seeds should be broadcast by hand or knapsack seeder using the proper seeding rate (15 pounds per acre), and carefully proportioning seed for the entire area. If area has been recently cleared and raked, cover with a light layer of straw mulch following seeding.

Monitoring and Maintenance

At least one pre-construction meeting will occur between the chosen planting contractor/subcontractor and the site environmental systems planner prior to beginning construction on site. The construction monitor will have experience in wetland construction and a Bachelor of Science degree in Natural and/or Physical Resources.

Monitoring and maintenance efforts for the buffer enhancement plantings will take place over a three year period following construction. A site inspection by the Town Wetlands Inspector and Building Inspector will be scheduled at the completion of the planting. Approval of the completed initial planting by the Town Wetlands Inspector will constitute the beginning of the three year monitoring period. This will include site visits twice a year, with additional inspections as required depending on conditions. The applicant's environmental monitor will conduct a survey of the site and site conditions will be noted and adjusted as necessary. An annual report will be provided to the Town of North Salem at the end of the growing season for each of the three years. These reports will include the following information:

1. Photographs showing all representative areas of the mitigation site shall be taken at least once each year during the period between 1 June and 15 August.
2. A visual count of all newly installed plantings with a description of health, vigor, size and other physical factors.
3. Recommendations for replacement of dead plant material or exchange with a different species if one species does not appear to be well adapted to final site conditions.

Plantings will meet or exceed an 80 percent survival rate by the end of the third growing season. If this goal is not met, the site will be re-evaluated, and replanting will be completed as necessary. Invasive species (i.e., *Lythrum salicaria* and *Phragmites australis*) will not constitute more than 10 percent of the vegetative community. If this goal is exceeded, measures will be taken to eradicate the invasive species. A site inspection by the Town Wetlands Inspector will be scheduled at the end of the three year period for confirmation of the satisfactory completion of the enhancement plan.

HERPTILE PROTECTION PLAN

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Herptile Protection Plan

Herpetological Associates, Inc. (HA) was contracted by the applicant at the request of the Town's environmental consultant to conduct an Eastern box turtle habitat evaluation of the subject property. The results of HA's evaluation concluded the project site contains foraging and potential hibernating sites for the species. However, the site does not provide suitable nesting locations for the Eastern box turtle. Along with a reduced site plan, additional mitigation measures, as recommended by HA, have been incorporated by the Applicant's engineer into a Herptile Protection Plan that was created to limit impacts to box turtles and other herptiles utilizing the project site. The primary intent of this plan is to protect turtles and secondarily some of the larger frogs and toads. These mitigation measures include:

- *Barriers and Fencing to Keep Turtles and Other Reptiles from Development Areas*

The entire development area will be bounded by a turtle fence to preclude turtles and other herptiles from entering the developed portions of the property. As detailed in Figure 1 - Herptile Protection Plan (attached), the turtle fence will consist of a three foot high post and rail fence with 12-18 inch-high wire mesh (with a maximum of one inch mesh opening) attached at the bottom and buried at least six inches into the soil. Burying the fence serves to keep turtles and other small wildlife from crawling under the fence. The primary intent of this plan is to protect turtles and secondarily some of the larger frogs and toads. It is possible that snakes, salamanders and some of the smaller frogs could pass through the wire fence as proposed. It is also noted that areas of the site that are under active construction will be enclosed to the extent practicable with silt fence, which will keep all herptiles out of the development area during the time they are most susceptible to impacts, i.e., during construction and earth movement. Access to the power line easement along the north boundary of the site will remain in case turtles are using this existing open area for movement. At the openings in the turtle fence for the proposed path, an 8-inch by 8-inch wooden beam or similar material will be placed across the opening to keep turtles from accessing areas that are open to the development.

- *Culvert Under the Roads*

A wildlife tunnel will be placed under the main access road that leads to and from the proposed development. A 24 inch diameter by 60 feet in length high density plastic (HDPE) pipe with a smooth interior will be placed under the entrance road as seen in Figure 1 - Reptile Protection Plan. Corrugated pipe will not be used as it hinders the ease in which some herptiles, particularly turtles, can traverse under the road. The culvert location has been carefully engineered and positioned so that it does not serve for drainage during rain events. Due to the requirement that all runoff from road surfaces be captured and treated, the plan does not show a grate or other surface opening for this culvert. However, the distance from one side of the culvert is relatively short, and good light penetration is expected. The fence and rail turtle fencing will be placed flush with the opening of the pipe to direct turtles and other herptiles into the tunnel under the road. The construction of the tunnel, in conjunction with the turtle fencing, will greatly reduce road mortality of wildlife once the site is developed.

INVASIVE SPECIES MONITORING AND CONTROL PROGRAM

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Invasive Species Monitoring and Control Program

Tree-of-heaven, Black locust and Norway maple are all noted as present within the project site. These invasive species favor areas of disturbed soils and edge areas, aspects which will be prevalent with construction of the proposed action as currently designed. This plan will implement an invasive species monitoring and manual control program for the duration of construction and development of the project. It has been designed to carry over into the needed maintenance plans that will need to be developed and implemented by the Project Owner.

Approximately 62 percent of the site (24.8 acres) is proposed to be preserved as open space in a conservation easement, including the on-site watercourses and wetlands. However, these preserved areas are known to support invasive species which are altering the character of the woodlands and represent a long term risk to the native vegetative community.

By controlling exotic vegetation, and reducing deer populations due to increased human activity on the site, nearby native plants will have less competition and therefore have more resources available for their own growth. An invasive species monitoring and control program will be implemented at the project site as part of the overall development plan. Species targeted for removal include the following:

Tree-of-heaven (Ailanthus altissima)
Multiflora rose (Rosa multiflora)
Mugwort (Artemisia vulgaris)
Autumn olive (Eleagnus umbellata)
Garlic mustard (Alliaria petiolata)
Purple loosestrife (Lythrum salicaria)
Common reed (Phragmites australis)
Oriental bittersweet (Celastrus orbiculatus)
Porcelainberry (Ampelopsis brevipedunculata)
Japanese Barberry (Berberis thunbergii)
Japanese Stilt Grass (Microstegium vimineum)
Winged Euonymus (Euonymus alatus)

The above listed species and all other invasive non-native plants that are detrimental to the ecology of the project site will be removed during site development to the extent practicable. The goal of this program is to reduce the presence of exotic/invasive species to a threshold of less than ten percent total cover. A qualified biologist/botanist will supervise the removal of invasive species. Invasive species can be removed in several ways, depending on the location and species of the plant:

1. If a shrub is isolated and does not have its root system entwined with other plants, it may be removed mechanically. As much of the root system as possible should be removed to prevent the possibility of the invasive plant sprouting from root pieces left behind.
2. If a shrub is growing amongst other native plants in a way that uprooting it may disturb surrounding native plants warranting preservation, the plant will be most safely and effectively removed by chemical means. To remove by chemical means, the plant shall first be cut back to a few stubs and stumps, about twelve inches from the base. An EPA approved solution of glyphosate (Round-up or equivalent) shall be painted on the ends of the stumps. This technique shall be applied in the early fall months before the onset

Invasive Species Monitoring and Control Program

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of plant dormancy. The use of pesticides in some townships is restricted due to health and safety concerns. Proper notification must be made prior to the application of all restricted pesticides, and application made by a licensed applicator, if required. It is noted that Round-up and other equivalent glyphosate products are commercially available at home improvement and landscape centers and do not require licensing for application. Nevertheless, following project construction the use of glyphosate by non-licensed herbicide applicators will be coordinated and supervised by the IPM Coordinator, who will be a licensed pesticide / herbicide applicator. During project construction, glyphosate will only be applied by a licensed herbicide applicator, as coordinated with the Environmental Site Monitor. Only hand-cutting and removal will be allowed within the Wetland Controlled Area. This approach is consistent with the goals and objectives of the Integrated Pest Management Program.

3. Highly invasive groundcovers, such as Japanese honeysuckle, are difficult to eliminate due to their habit of rooting along the stem. Groundcovers of this type shall be sprayed with glyphosate, using a very close and targeted application during the active growing season. If the plant is growing among other herbaceous or shrub material that would be harmed by spraying, the glyphosate shall be applied by brush or mechanical removal should be considered. Repeated treatments may be necessary to remove the plant completely. Only hand-cutting and removal will be allowed within the Controlled Area.
4. Highly invasive annuals, such as garlic mustard, are difficult to eliminate due to their growth from seed that is widespread among the soil seed bank where the plants are found. Several methods may be utilized in removing this type of invasive plants. If the species is growing densely without other plants, the area will be sprayed with glyphosate during the active growing season, following the manufacturer's recommendations. Species will also be removed by hand. Both methods should be performed before plants set seed. Both methods shall be performed multiple times over a season and possibly over several seasons to completely eradicate the target species. Only hand-cutting and removal will be allowed within the Controlled Area.

Monitoring and Maintenance Schedule

Following development of the site, a maintenance plan will include the regular inspection of undisturbed areas within 100 feet of the development envelope, and removal of these species as necessary. This represents the transitional areas that are most susceptible to opportunistic settling of invasive species. It is anticipated that a schedule of inspections three times a year for the first three years following full project build out (early, mid and late growing season) will be adequate for the identification and removal of the invasive species in this area.

The Town Building Inspector and Wetlands Inspector will be consulted prior to the proposed removal of invasive species within the controlled area. In addition, all activities related to invasive species control, monitoring and assessment of achievement of the 10 percent tolerance threshold for coverage by all invasive species on the project site will be coordinated with the IPM Supervisor (post-construction) or the Environmental Site Monitor (during construction). These inspections will include the mapping and identification of locations and extent of cover of invasive species, and identify the methods to be used for the subsequent removal. Following treatment, a brief report outlining extent, location and removal method for each species shall be prepared and filed with the Town Planning Office. The Town might also want to enter into an agreement with the entity that will be holding the conservation easement

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to determine if a regular program for monitoring of the conservation easement areas is also feasible.

INTEGRATED PEST MANAGEMENT PLAN

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Bridleside
Integrated Pest Management Plan

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1.0 OBJECTIVES AND GOALS

The overall objective of Integrated Pest Management (IPM) Plan for the Bridleside project is to provide a safe, comfortable and attractive living environment for the residents of Bridleside, while effectively and safely managing biological pests at the development with minimum impacts to human health and the environment. This plan is intended to be used by the Bridleside Project owner as a site specific, hands-on guidance document for pest management. It is not intended to supersede NYS law or NYSDEC guidance procedures for the application and management of pesticides.

The Bridleside project owner will be responsible to: maintain the integrity of the buildings and grounds, protect the health and safety of the residents and general public, maintain a viable living environment and reduce potential impacts to the watershed. Following are the goals of the IPM Plan:

- minimize pesticide exposure to residents and the watershed.
- manage pests and the environment so as to balance costs, benefits, public health, and environmental quality.
- reduce the use of pesticides through proactive application of non-chemical management practices; by maximizing spot treatments and eliminating broadcast treatments; by making applications only where development of a pest has exceeded an established tolerance threshold as determined by routine monitoring; by selecting and using conventional pesticides through favoring products that minimize risks to human health and safety and are least-toxic to the watershed and the environment in general.
- reduce phosphorus pollution caused by the excessive use of fertilizers and roadway deicers containing phosphorus.

2.0 POLICY STATEMENT

The Bridleside project owner recognizes that (1) pests can pose a significant risk to health and property, (2) that there may be significant risks inherent in using chemicals in a residential environment, and, (3) that there are alternatives to conventional treatments. Therefore, policies of the Bridleside project owner will be as follows:

- implement and practice a comprehensive IPM program for all properties contained within and under the jurisdiction of the Project owner;
- control pests within and on those lands and facilities under the regulation of the Project owner. Pests can pose hazards to human health, damage property, and create unappealing visual blight;
- reduce potential exposure to pesticides to residents and to the watershed. Exposure to pesticides can pose a health risk to Bridleside residents families, which can be minimized by practicing IPM;
- Prohibit regularly scheduled broadcast applications of pesticides; and,
- Prohibit use of phosphorus laden deicers.

3.0 DEFINITIONS - ROLES & RESPONSIBILITIES

Integrated Pest Management:

The Integrated Pest Management approach essentially involves: the practice of prevention, treating only when necessary, and use of the safest available alternative to do the job. The key to IPM is accurate pest identification and the knowledge of the pest's life cycle and vulnerability.

Integrated Pest Management involves careful monitoring for pests, and the use of a wide range of methods to exclude, remove, drive away, or kill pests with the least possible hazard to people, property, and the environment. A combination of cultural, mechanical, biological, and other techniques is used; chemical controls are a last resort.

An important aspect of the IPM approach involves planning ahead to avoid or minimize future pest problems. Decisions made during the landscaping design, turf and plant selection and maintenance of a turf area can significantly reduce the potential for pest development.

Bridleside was designed to minimize the total area of managed turfgrass, reducing the need for landscaping maintenance. Lawn is proposed in limited areas around the residential buildings and the clubhouse. The proposed Subsurface Septic Disposal System (SSDS) will be planted with a wildflower conservation seed mix and will be minimally maintained. A conservation seed mix is also proposed at the edges of the development, between managed lawn and existing native vegetation. Native species of shrubs and trees were selected for pest and disease resistance. Reducing the area of maintained turfgrass has several advantages. The area requiring mowing, fertilizing, and potential pesticide use is substantially reduced. Secondly, smaller, more isolated patches of turfgrass are less prone to disease and pest infestations.

The Integrated Pest Management approach stresses less emphasis on traditional pesticide (insecticide, herbicide, fungicide, etc) use. Less pesticide use and disposal by Bridleside homeowners and maintenance contractors also means less pesticide to make its way into streets, storm drains, streams and eventually, into the watershed. In rural residential areas such as North Salem, even a small reduction in the use of pesticides by individual homeowners can have a significant impact on the reduction of pollutants that make their way into the watershed.

The Integrated Pest Management approach goes beyond routine applications of pesticides. Rather, the IPM Coordinator will assess why a pest outbreak has occurred, and whether cultural practices can be adjusted to reduce damage and the risk from future problems. All appropriate management options are considered. Pesticides are only applied when necessary.

IPM is a common sense pest control strategy based on two simple tenets:

- 1) treat only when necessary, and,
- 2) use the safest available alternative to do the job.

Thus, in practice, IPM involves careful monitoring for pests, and the use of a wide range of methods to exclude, remove, drive away or kill pests with the least possible hazard to people, property, the watershed and the environment in general.

Project Owner

The Bridleside project owner is responsible for the maintenance of common areas, including all common landscaping, the clubhouse, streets and common utilities. While the project owner is ultimately responsible for the implementation of the IPM policy, the duties and responsibilities of day-to-day pest management will fall to the IPM Coordinator/Contractor.

IPM Coordinator

The IPM Coordinator is a qualified individual or company designated (hired) by the Project owner to oversee the IPM program and perform notification duties. For the Bridleside Development, the facility landscaping contractor will serve as the IPM Coordinator. One individual staff member of the Bridleside landscaping contractor firm will be designated as the IPM Coordinator.

The IPM Coordinator will be responsible for making decisions regarding pest control and shall have an understanding of the pest control needs of the project owner. This person shall also partake in continuing education and have access to Integrated Pest Management resources. The IPM Coordinator shall have primary responsibility for ensuring that this IPM policy is carried out. Duties shall include:

- Reporting IPM activities to the project owner;
- Accurate identification of pests, and research and development of suitable and cost-effective IPM methods to enable continued reduction of pesticide use;
- Coordination with project owner, residents and staff to gather current information on pesticide or pest-related health and safety issues;
- Coordination with custodial, building and grounds maintenance staff and service providers to ensure implementation of pest prevention measures;
- Oversight of any staff engaged in monitoring of pest problems and pest management actions;
- Carrying out posting and notification, record keeping, education and IPM training provisions of this policy;
- Oversee the use of approved deicing methods and materials for snow and ice removal;
- identifying sites of pest shelter and access, and for making objective assessments of pest population levels; and,
- Establishing population levels (tolerance thresholds) that constitute unacceptable levels of pest presence in residences and in Bridleside common areas.

Action/Tolerance Threshold

The action threshold is the population level of a pest, above which it becomes necessary to actively manage its population. Action thresholds are unique to both specific pests and specific locations, and reflect the priority that is attached to controlling a particular pest. High priority pests are considered a threat to human health and immediate action is warranted (e.g., wasps, roaches, rodents, in close proximity to human habitations). Those that do not pose such a

threat have lower priority, and treatment or removal can be delayed. The Bridleside project owner in cooperation with the IPM Coordinator will establish pest tolerance thresholds to indicate pest population levels at which control measures will be undertaken. An example of action thresholds for common pests is provided as Appendix A. The IPM Coordinator will modify action thresholds as needed to address the specific requirements of the Bridleside development.

Monitoring

Monitoring is the regular inspection of the buildings, grounds and facilities throughout the year, allowing pest managers to detect pests early before they reach damaging levels. By monitoring, the designated IPM Coordinator shall assess the need for action, evaluate how well control tactics have worked, and develop site history information that helps in anticipating future problems. Careful monitoring that is documented is the key to IPM and distinguishes it from conventional pest control programs. Monitoring identifies those areas that are most likely to need treatment and will determine the type and nature of treatment. While comprehensive, the monitoring aspect of the program shall be as simple as possible.

Monitoring procedures are further described in Section 4.1 Monitoring, below.

Pest

Article 33 of the New York State Environmental Conservation Law defines a pest in part as: (1) any insect, rodent, nematode, fungus, weed, or (2) any other form of terrestrial or aquatic plant or animal life which the commissioner declares to be a pest.

Pesticide

Article 33 of the New York State Environmental Conservation Law defines a pesticide as (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. Commonly, pesticides are known as insecticides and herbicides.

4.0 PEST MANAGEMENT PROCEDURES

4.1 Monitoring

Monitoring Techniques

Monitoring involves regular inspections of areas and features where pest problems might occur to provide information for determining if, when, where, and how pest management practices shall be implemented. Once treatments have been applied, monitoring is done to record the results of those treatments. Over time, as monitoring results accumulate, patterns in the occurrence of pests and the results of applied pest management practices become evident. This information shall then be used to evaluate and then improve the integrated pest management program.

Successful management of pests and insects depends on the early detection of pests before they reach damaging levels. This shall be accomplished through frequent facility and plant inspections to detect early signs of insects and their damage. Monitoring is a systematic

method of inspecting structures, turf and landscaping for pests and cultural problems, and is the backbone of the pest management program. Its primary goal is to detect, identify, delineate, and rank pest infestations.

The IPM Coordinator shall inspect turfgrass, planted bushes and trees, and rain garden plantings on a weekly basis during the growing season (May through October). Designated meadow areas (including the proposed Subsurface Septic Disposal System), planted stormwater basins, and wetland mitigation plantings, shall be inspected on a monthly basis during the growing season. Any indications of plant disease, stressed or dying plants or turf, and/or pest infestations will be documented in writing and records maintained of potential pest problems (see Section 6.0. Record Keeping).

The Bridleside project owner, through informational outreach, will encourage residents to report any pest problems (indoor or outdoor) to the Project owner representative. The Project owner representative shall contact the IPM Coordinator to inspect or follow-up on potential pest problems reported by homeowners. The Project owner will encourage Bridleside residents to coordinate any pest treatment with the IPM Coordinator and avoid pesticide application by individual residents.

4.2 Tolerance Thresholds

Tolerance thresholds are flexible guidelines that are usually defined in terms of the level of pest abundance or damage that can be tolerated before taking action. They are typically based on a number of variables including pest species, abundance, and life stage; variety and value of the impacted resource (turf, trees); relative effectiveness and cost of control measures; and time of year. Treatment thresholds are not hard rules that apply to every situation, but when used conscientiously they help IPM Coordinators make effective pest management decisions.

The Project owner in cooperation with the IPM Coordinator shall establish pest tolerance thresholds to determine pest population levels at which control measures will be undertaken. These thresholds will be consistent with the Project owner goals of maintaining the integrity of buildings and grounds, protecting the health and safety of residents and tenants and maintain a viable living environment. Thresholds will not be set based on aesthetic criteria alone. Control measures will not be undertaken if pest damage or populations are below these levels.

When thresholds are exceeded, some pest management action shall be necessary, but not necessarily chemical application. Although pests may be below threshold correction levels, it is still important to monitor and maintain records, correct sanitation problems and conduct preventative measures.

Table 1 (attached) provides examples of tolerance thresholds. While reasonable, these are only examples and thresholds shall be modified based on Project owner input and IPM Coordinator experience.

4.3 Non-Chemical Pest Control

Integrated Pest Management is a strategy that combines accurate pest monitoring and appropriate control methods to exclude, prevent, and manage pest problems. Following the identification of specific pests, an initial assessment shall be made by the IPM Coordinator

whether non-chemical methods can be used to exclude, prevent or manage pests. Non-chemical methods include the following:

Cultural Management

Cultural management methods reduce the amount of pesticides used in the home and in outdoor landscaped areas. Examples include:

- Remove and destroy over-wintering or breeding sites of pests.
- Select disease and insect resistant plant varieties.
- Cut turfgrass at the correct mowing height.
- Use the appropriate amount of water for irrigation of flowers, trees, shrubs, and turfgrass.
- Mulch landscape-planting areas. Mulches can be very useful for the suppression of weeds, insect pests, and some plant diseases. If heavy enough, mulch can also conserve water and prevent germination of many annual weed seeds.
- Cultural control: Avoid areas of open standing water to minimize mosquito breeding, ensuring that screens are maintained, covering and securing garbage.

Mechanical Management

Potential pest problems can be reduced by physical methods to either exclude or trap pests. Examples of mechanical management include:

- Physical Controls - Use of traps, screens, nets, and sticky paper to serve as physical barriers to pest entry/attack.
- Sanitation - Clean up and removal of pest food sources and harborages and removal of the pests themselves. Ensuring that garbage containers are kept secure (covered) and clean can avoid attracting pests.
- Physically pulling weeds or removing and disposing of insects.

Biological Management

Biological control is the use of living organisms such as parasites, predators, or pathogens. These organisms may occur naturally or be applied. Biological control results when naturally occurring enemies maintain pests at a lower level than would occur without them. Birds, bats, insects, fungi, and bacteria all play a role as predators or parasites in the local ecology. Employing biological control involves the purchase and release of natural enemies into an area as well as the conservation and support of natural enemies already present. Examples include:

- Predators, such as lady beetles, green lacewing larvae, fly larvae, damsel bugs, and predatory mites. Bats can also reduce flying insect populations.
- Parasites, such as parasitic wasps and flies.
- Pathogens, such as bacteria, viruses, fungi, nematodes, and protozoa.
- Weed feeders, such as weevils, leaf beetles, caterpillars.

Alternatives to Synthetic Chemical Pesticides

Botanical pesticides

Because botanical pesticides are derived from natural plant material, they are perceived to be safe. However, "natural" does not mean "nontoxic." It is important to be aware that they are still pesticides and fall under the same federal and state regulations as synthetic or chemical pesticides. All pesticides require an EPA pesticide registration number that can be found on the product label. Some examples include ryania, sabadilla, rotenone, neem, pyrethrum, and pyrethrins.

Microbial insecticides

These products combat insects with microscopic living organisms: viruses, bacteria, fungi, protozoa, and nematodes. Most affect a single species or group of insects, often with minimal impact on beneficial insects and other nontarget organisms. One example is *Bacillus thuringiensis* (Bt), a bacterium that is used to kill the larval stage of the gypsy moth. Another example is *Beauveria bassiana* (Naturalis-O", Botanigard") a fungus used to control aphids, whiteflies and other pests.

Insecticidal soap

Similar to other soaps, insecticidal soap is generally considered to be among the least toxic pesticides available. Soaps are used to control soft-bodied pests such as aphids and mealybugs. Soaps are effective only against those insects that come in direct contact with the spray before it dries.

Horticultural oil

Horticultural oil has gained wide acceptance in recent years in pest management programs because of its environmental safety and effectiveness in controlling many types of insect and mite pests. Dormant and summer oil applications interfere with the pest's respiration and membrane function. For oil to be effective, it must come in direct contact with the pest or egg; therefore, thorough coverage is essential for proper control. Some plants may be sensitive to horticultural oil, particularly when under stress.

5.0 CHEMICAL USE and MANAGEMENT

The decision to use chemical controls at Bridleside will be made only when other measures, such as biological or cultural controls have failed to keep pest populations from approaching damaging levels. When chemical pesticides must be used, the licensed applicator shall use the lowest labeled rate of the least toxic pesticide that will manage the pest.

5.1 Deicer Use in Winter Operations

Certain winter time roadway deicer products have been identified by the State of New York as significant sources of phosphorus pollution. Based upon the desire to minimize phosphorus, no chemical, or salt based deicers will be used at the Bridleside development, by residents, or contracted winter maintenance operators. Sand will be used for vehicle and pedestrian traction. The Project owner shall require documentation that this policy is adhered to.

5.2 Fertilizer and Soil Amendment Use

When fertilizers are applied to lawns and landscaping, care will be taken to apply only what the plants will use. Too much fertilizer can damage plants and can impair water quality. The key is to determine proper nutrient applications for each landscape. The IPM Coordinator will develop a site specific fertilizer application program for Bridleside, based upon: 1) soil properties and chemistry 2) turf and landscaping drainage, 3) specific turf and plant requirements, and 4) application timing. The application of fertilizers will be minimized to the extent possible, and will likely occur once annually, at the beginning of the growing season. Newly planted shrubs and trees may require specific root fertilizers to ensure the health of the plant. Turf and managed lawn areas will not be routinely fertilized throughout the growing season.

Fertilizers are most effective when applied in the spring, when plants are naturally growing. Turf areas at Bridleside will be routinely fertilized one time per year at the beginning of the growing season. If turf is stressed or damaged during the summer months due to drought, fertilizer shall be applied in the fall season to boost growth before the winter months. The decision to fertilize in the fall shall be made by the IPM Coordinator after inspection of the turf at Bridleside.

5.3 Weed Control and Herbicides

To preserve aesthetics, it is necessary to manage weeds in landscaped areas. Weeds can detract from the appearance of annual or perennial flower beds. Weeds also compete with desirable vegetation for water, nutrients, and space, and can prevent landscape plants from achieving maximum growth and health. Effective weed management requires a combination of Integrated Pest Management approaches including cultural and mechanical practices as well as chemical control, if needed.

The Bridleside IPM Coordinator will use mechanical means to control weeds, wherever possible. The use of mulches, weed barriers and maintaining healthy turf will reduce the need for herbicide application. Chemical herbicides will only be used by the Bridleside IPM Coordinator, when other methods have not effectively reduced the number and spread of weeds to a manageable level (see Section 5.5 Pesticide Application and Use).

An Invasive Species Management and Control Plan has been prepared specifically to manage existing invasive species that are present on the site. While that plan is specific to invasive species, it is consistent with the goals and objectives of this Integrated Pest Management Plan. Consistent with this IPM, herbicides will only be used when required and when physical methods of weed control are not effective. Commercially available herbicides such as "Round-Up", or similar glyphosate based products, shall be used, in those areas when hand clearing is not effective. Herbicides shall not be used in any wetlands, or Town designated 100-foot areas of control (buffer areas).

5.4 Pesticide Selection on Turfgrass

Depending upon specific conditions, pesticides may be required for the health and maintenance of turfgrass at Bridleside. A key to the long term success of turfgrass is the selection of a turf seed and species that is hardy and appropriate for the Bridleside setting. Bridleside was designed to minimize the total area of managed turfgrass. Lawn is proposed in limited areas around the residential buildings and around the clubhouse, as shown in the Landscaping Plan. The proposed Subsurface Septic Disposal System (SSDS) will be planted with a wildflower

seed mix and will be minimally maintained. Meadow seed mix is also proposed at the edges of the development, between managed lawn and existing native vegetation. Reducing the area of maintained turfgrass has several advantages. The area requiring mowing, fertilizing, and potential pesticide use is substantially reduced. Secondly, smaller, more isolated patches of turfgrass are less prone to disease and pest infestations.

The selection of specific pesticides to be used on the turf area will be based on several criteria including: the pest to be controlled, the turfgrass species, the season and growth stage of the pest, the level of control desired, and the pesticide persistence and environmental characteristics. After all factors are considered, the appropriate pesticide for the control of the pest shall be selected.

Pesticides currently available for use in New York State have been thoroughly tested by the various pesticide manufacturers and have been approved by the United States Environmental Protection Agency (EPA) before registration and release to the public. Pesticide applicators shall be aware that the pesticide label is an official and binding contract between the chemical manufacturer, the EPA, and the purchaser of the product. If the label directions are not followed, the applicator can be subject to prosecution.

5.5 Pesticide Application and Use

A qualified individual or contractor shall be responsible for application of pesticides according to the product label. All pesticides used by the individual or contractor must be registered with the U.S. Environmental Protection Agency (EPA) and by the State of New York. Transport, handling, and use of all pesticides shall be in strict accordance with the manufacturer's label instructions and all applicable federal, and NY State regulations. Specifically, 6 NYCRR Part 325 provides the requirements for the training and licensing of pesticide applicators.

When it is determined that a pesticide must be used in order to obtain adequate control, the licensed applicator shall employ the least hazardous material, most precise application technique, and minimum quantity of pesticide necessary to achieve control. Containerized and other types of crack and crevice-applied bait formulations, rather than sprays, shall be used for cockroach and ant control wherever appropriate.

Application of pesticide liquid, aerosol, or dust to exposed surfaces, and pesticide sprays (including fogs, mists, and ultra-low volume applications), shall be restricted to unique situations where no alternative measures are practical. The qualified applicator shall obtain the approval of the IPM Coordinator prior to any application of pesticide liquid, aerosol, or dust to exposed surfaces, or any space spray treatment. The qualified applicator shall take all necessary precautions to ensure public safety, and all necessary steps to ensure the containment of the pesticide to the site of application.

Pesticide Use Recommendations

- The intent of the policy is to minimize the use of pesticides.
- Pesticide application shall be according to need and not by schedule. Application of pesticides in any inside or outside area shall not occur unless visual inspections or reports by homeowners indicate the presence of pests in that specific area. Preventive pesticide treatment of areas where surveillance indicates a potential insect or rodent infestation shall be done on a case-by-case basis, as approved by the IPM Coordinator.

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- Pesticides shall be used only when other pest prevention and non-chemical control measures are unavailable, impractical, ineffective, or are likely to fail to reduce pests below tolerance thresholds.
- All pesticides shall be applied by commercial certified pesticide applicators in ways that are consistent with label restrictions and use directions.
- Routinely scheduled (e.g., seasonal, monthly, or weekly) pesticide applications shall be avoided.
- Pesticides shall be applied when no building occupants are in the treatment area, and when these areas will remain unoccupied for the reentry time span specified on the pesticide label. Building use and occupants shall be considered prior to any pesticide application.
- When more than one option exists, pesticides and application methods will be chosen that reduce exposure:
 1. Lowest volatility formulations shall be preferred.
 2. Application methods that place pesticides into inaccessible locations (tamper-resistant bait stations, void, and crack and crevice treatments) shall be preferred over fogging or space spraying.
 3. Spot treatments shall be preferred over area-wide treatments.
- pesticides which have a low pesticide leaching potential index shall be used, when possible.
- Determine the size of the area of application and mix only the quantity of pesticide needed in order to save money, avoid disposal, and protect the environment.
- Spot treat whenever possible.
- Note groundwater advisories on the label.
- Pesticides shall be used only when their application is a necessary component of an IPM prescription.
- All IPM prescriptions, including those that involve pesticide use, shall be reviewed and approved by the IPM Coordinator before implementation and periodically thereafter as long as they remain part of the IPM program.

Posting

Prior to any applications in common areas, written announcements shall be made by the Project owner notifying residents of any outdoor pesticide applications. The announcements will instruct residents and visitors to avoid posted and flagged areas until signs are removed. Outdoor application areas shall be posted in accordance with New York State Laws and Regulations as set forth in Article 33, Title 10 of the Environmental Conservation Law. This regulation requires that: markers must be affixed within or along the perimeter of the area where pesticides will be applied, and clearly instruct persons to not enter the treated area.

6.0 MAINTENANCE SCHEDULE

As indicated in the above discussion, pesticides will not be routinely applied at Bridleside, but rather on an as needed basis, based upon monitoring, inspections and to address specific pest

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problems. The following provides a general schedule for landscaping maintenance at Bridleside.

- Turf Maintenance Lawn will be cut generally on a weekly basis during the growing season. Lawn may be cut more or less frequently, based upon precipitation and growing conditions.

All landscaped areas, including turf, meadow areas, and planted bushes and trees will be inspected on a weekly basis, during the growing season, for indications of disease, insect infestations, or plant stress.

Fertilizer will be applied to turf areas, once per year, at the beginning of the growing season. If turf is stressed or damaged during the summer months due to drought, fertilizer may be applied in the fall season to boost growth before the winter months. The decision to fertilize in the fall will be made by the IPM Coordinator.

Herbicides will not be applied on a routine basis. Herbicides will only be used in response to a specific weed problem that cannot be managed by mechanical means.

- Meadow Areas Maintenance Areas planted with conservation seed mix, including the SSDS area and transition borders, between lawn and native vegetation will be cut once per year during the fall. No fertilizers will be applied to these areas. If disease or drought damage the meadow area, replacement seeding will be done.
- Pesticide Application Pesticides will not be applied on a routine basis, as described in Section 5.5 above. Chemically based pesticides will only be used for specific pest control problems, after it is determined by the IPM Coordinator that either mechanical or natural pest control measures are not effective.
- Invasive Species Monitoring and Control Inspections will be conducted three times a year for the first three years following full project build out (early, mid and late growing season) for the identification and removal of the invasive species (see Invasive Species Monitoring and Control Plan).

7.0 RECORD KEEPING

Accurate records are essential for the success of an Integrated Pest Management program. Effective record keeping greatly increases the long-term value of this information by providing the IPM Coordinator with historical, site-specific knowledge of pest activity. This information can assist in predicting when certain pest problems are most likely to occur later in the season and in subsequent seasons. In addition, records call attention to patterns and associations that may be overlooked during a pest outbreak.

The IPM Coordinator shall be responsible for maintaining a pest control logbook or file for all applicable grounds and buildings. At a minimum the logbook shall contain the following items:

- Pest Control Plan: A copy of the Contractor's approved Pest Control Plan for Bridleside, including labels and MSDS sheets for all pesticides used, brand names of all pest control devices and equipment used in the application, and the Contractor's service schedule for the area.

- Service Report and Complaint Logs: A logbook for recording service visit activities, complaints from residents concerning pest sitings, and detailed information regarding pesticide applications. These logs shall also provide information on pest sitings, sanitation issues, and building and grounds maintenance issues as they relate to pest control (missing screens, drainage problem attracting mosquitoes).

The IPM Coordinator will record:

- 1) the kinds and numbers of pests present
- 2) when and where they were found
- 3) physical setting and conditions
- 4) temperature and weather
- 5) locations and extent of any vegetation/ turf damage or abnormalities observed

Information recorded will be as specific and quantitative as possible. Record the actual number of insects per unit area and assign damage ratings to injured turf (e.g., 1= severe damage, 3= moderate damage, 5= no observable damage).

If physical or biological methods are employed, then routine inspections will be made and the results of the non-chemical pest control methods will be recorded. Therefore, the effectiveness of these methods will be documented for future reference and use.

If pesticides are used, the IPM Coordinator will record:

- 1) Date of pesticide application
- 2) Name, classification, and amount of active ingredient
- 3) Amount of material and water mixed for the application
- 4) How much of the pesticide was actually applied
- 5) Where the pesticide was applied
- 6) Size of the area
- 7) Type of application method (spray, granular, etc.)
- 8) Applicator' name
- 9) Labor hours.

Keeping good records enables the IPM program to ascertain important pest and control trends. For example, have there been reductions in total amounts applied, or has there been a shift to pesticides of a higher or lower toxicity? Comparing annual information points out recurrence and trends of pests.

The IPM Coordinator shall prepare an IPM Program Summary Report at the end of the growing season, which will provide a summary and documentation of pest management activities at Bridleside including: pesticide and fertilizer application records (as outlined above), Service Reports and Complaint Logs, non-chemical treatment methods employed and any recommendations for changing or modifying pest management practices. This IPM Program Summary Report will be submitted to the Planning Board on an annual basis, prior to the new year. After a period of five years, the need for annual reporting to the Planning Board will be re-evaluated by the Board.

8.0 PROGRAM EVALUATION/ QUALITY CONTROL

The IPM Coordinator shall continually evaluate the progress of the Integrated Pest Management plan in terms of effectiveness and safety, and will recommend such changes as are necessary. The Coordinator and grounds crew shall take prompt action to correct all identified deficiencies.

Assessing the effectiveness of cultural and pest control practices is an important yet often overlooked component of an IPM program. The IPM Coordinator will use the evaluation process to determine management approaches that were effective and those that need to be modified. At the end of the season, this information shall be reviewed in order to plan and prioritize monitoring and management activities for the future. The end of a growing season will also provide sufficient records and data to notice trends, recurring pest issues, and areas where improvements can be made to the plan.

While pesticide use is a critical factor in an IPM program, other IPM elements shall also be reviewed, including:

- monitoring system,
- record keeping system,
- training of grounds and maintenance staff,
- communication with the residents and building occupants, and
- budgeting,

As indicated above, a summary report of pest management activities at Bridleside will be prepared by the IPM Coordinator at the end of the growing season and the report will be submitted to the Planning Board on an annual basis, prior to the new year.

9.0 IPM EDUCATION AND TRAINING

Education and communication are important not only in implementing the IPM but also in developing program support by Bridleside residents.

Continuing education and training shall be an objective of the IPM program, including education of the Project owner, the IPM Coordinator, and residents. The IPM Coordinator and any required subcontractors shall partake in continuing education and training that focuses on current landscaping, turf and pest management to assure that participating parties will have the knowledge to make sound management decisions.

The Project owner shall develop as a part of this Integrated Pest Management a policy to:

- issue periodic information bulletins for residents, as appropriate, to inform them of important issues relating to the Project Owner IPM policy, their respective roles in pest prevention and sanitation, and pesticide use guidelines,
- annually review its Integrated Pest Management program to evaluate how well its pest prevention and control objectives are being met and to identify areas where more work is needed, and

- ensure contractor and staff who apply pesticides are trained and certified applicators.

10.0 CONCLUSION

The primary goal of Integrated Pest Management is improved safety and quality of life with minimal adverse impacts to the watershed and environment. The Bridleside Project owner shall provide leadership and education to homeowners to implement this Integrated Pest Management Plan. The Project owner, the IPM Coordinator and the Bridleside residents will work towards the common goal of minimizing the use of pesticides and fertilizers to manage pests and implement an effective IPM Plan.

Appendices

A. Tolerance Thresholds for Common Pests

Ants (common house-infesting)

Public areas: 5 ants/room; kitchen: 3 ant/room; maintenance and storage areas: 5 ants/100 square feet in two successive monitoring periods; outside grounds: 2 field ants mounds/square yard.

Ants (carpenter)

Public areas, maintenance areas: 3 ants/room; kitchen: 2 ant/room; immediate action if ant colony suspected inside or within 25 feet of any building.

Bagworms

Control on conifers when 2 or more large bags/tree or bush. In light infestations, hand pick and destroy; in heavy infestations, spray with B.t. between June 15 and July 15, or spray residual insecticides after July 15.

Bees (honey)

Kitchen and public areas: 1 bee; maintenance areas: 3 bees; outdoors: no action unless public are threatened.

Bees (bumble)

Kitchen and public areas: 1 bee; maintenance areas: 3 bees; outdoors: action necessary if communal nests are present in common areas. Also action whenever public is threatened.

Bees (carpenter)

Kitchen and public areas: 1 bee; maintenance areas: 3 bees; outdoors: 1 carpenter bee/5 linear feet if susceptible, unfinished wood. Also action whenever the public is threatened.

Cockroaches

Public areas: 2 cockroaches/room. If 2-10 cockroaches per room, apply cockroach bait. If 10 or more, track down infestations, review sanitation, trash handling, clutter, etc.; open equipment, check inaccessible areas; vacuum and otherwise clean room, and apply baits or other insecticides as necessary. kitchen: 1 cockroach/room; maintenance areas: 5 cockroaches/room; outside grounds: no action unless noticeable infestation.

Crickets

Public areas: 3 crickets/room; kitchen: 2 crickets/room; maintenance areas: 10 crickets/room; outside grounds: no action unless causing problems.

Grain and flour pests

Found in food for human consumption: 1/package or container; pet food: 1 if escaping from packaging; if found in pheromone traps: 2 of any one species (total of all traps)

House flies

Public areas: 3 flies/room; kitchen: 1 fly/room; maintenance areas: 5 flies/room; outside grounds: 5 flies around any one trash can or 10 flies around a dumpster.

Landscape plants (general)

Whenever pest damage approaches 10 percent/plant.

Lawn pests (insects, nematodes, disease)

Whenever visible damage approaches 10 percent in any 100 square foot area.

Mice

Indoors: any mouse sighting or evidence of mice (such as new mouse droppings, tracks, etc.) triggers pest management action; outdoors: any noticeable burrows or activity in student areas.

Pigeons

Roof ledges: 10/building for 3 consecutive inspections; public area or roof: whenever droppings accumulate more than 1-inch or nests obstruct gutters or equipment.

Poison ivy

Common areas: 1 plant; wooded areas: no control necessary unless near path or common area.

Rats

Indoors: any rat sighting or evidence of rats (such as new droppings, tracks, etc.) triggers pest management action; outdoors: any active burrows or activity.

Silverfish

Wherever books, paper, files are stored: 1/room; other indoor areas: 2/room

Spiders

Take immediate action if a brown recluse is suspected in any area; other spiders—
classrooms: 1 spider/room; kitchen/cafeteria: 1 spider/room; hallways: 2 spiders/hallway;
maintenance and unoccupied areas: 3 spiders/room; outdoors: only if in large numbers or
causing problems.

Tent caterpillars

Desirable ornamental plants: 1 tent or egg mass/tree; woodland trees, non-ornamental trees: if
potentially damaging or aesthetically intolerable, or after two complaints in two weeks (to
prevent repeated infestations, remove wild cherry hosts).

Ticks

Outdoor common areas: 3 tick, any species; outdoor wooded and other areas of low activity:
keep grass and weeds trimmed; if any blacklegged ticks found, treat wood edges; for other
species, take action if moderate to heavy populations.

Weeds

Lawns: whenever weeds approach 15 percent in any 100 square foot area; ornamental
plantings: whenever competing with ornamental plants or whenever aesthetically displeasing.

Yellow jackets/hornets

Public areas: 1 yellow jacket or hornet; outdoors: action necessary if nests are present in or
near student activity area; 10/10 minutes at trash can or dumpster; 1 yellow jacket or hornet
anywhere if public is threatened.

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New York State Department of Environmental Conservation (NYSDEC)

New York State Education Department (NYSED)

New York State Office of Government Services (NYSOGS)

New York State Office of the Attorney General (NYSOAG)

Northwestern Coalition for Alternatives to Pesticides (NCAP)

Pesticide Management and Education Program (PMEP), Cornell University

Texas Agricultural Extension Service (TAEX)

United States Environmental Protection Agency (EPA)

University of Florida Institute of Food and Agricultural Sciences (UF/IFAS)

Member Organizations: New York State Urban IPM Coordinating Council:

County Associations of Cornell Cooperative Extension

Environmental Advocates

Legislative Commission on Toxic Substances & Hazardous Wastes

Long Island Pest Control Association

Nassau/Suffolk Landscape Gardeners

New York Audubon Society

New York Coalition for Alternatives to Pesticides (NYCAP)

New York Public Interest Research Group (NYPIRG)

New York State Office of the Attorney General (NYSOAG)

New York State Department of Agriculture and Markets

New York State Education Department (NYSED)

New York State Department of Environmental Conservation (NYSDEC)

New York State Department of Health

New York State Office of Government Services (NYSOGS)

New York State Turfgrass Association (NYSTA)

Program on Breast Cancer & Environmental Risk Factors in New York (BCERF)

The Integrated Pest Management Program at Cornell University

Pesticide Management and Education Program (PMEP), Cornell University

C. IPM Information Sheet for Residents and Tenants

Integrated Pest Management

It is the policy of the Bridleside project owner to control pest problems in a way that poses the least hazard to human health and the environment. Therefore, we have adopted an Integrated Pest Management (IPM) program. IPM is a pest control program that combines prevention, non-chemical pest control methods, and the appropriate use of pesticides with preference for products that are the least harmful to human health and the environment. By addressing and correcting the root causes of pest problems, IPM can provide long-term, economical pest control while minimizing the potential risk posed by frequent pesticide applications.

How Can I Help?

We are asking for your cooperation with our IPM program! The success of IPM depends on the involvement of many individuals. Together we can help reduce pest problems and pesticide applications.

You can have a positive impact on the Bridleside development's goal to reduce pest problems by doing the following and encouraging others to do the same:

- Report pest sightings to the IPM Coordinator
- Clean up leftover or spilled food and beverages immediately
- Store food, including animal food, in tightly sealed containers in designated areas
- Keep refrigerators and microwaves clean and free of spills
- Do not prop open window screens or doors that could allow pests to enter common buildings
- Remove trash daily
- Keep areas dry and report leaks
- Do not pressure staff to apply pesticides; since there are other effective means of controlling pest problems
- Do not tamper with sticky traps, bait stations, bait boxes, and traps laid out to monitor or kill pests

For more information:

If you would like more information on the Bridleside development pest control practices or IPM, please contact the IPM Coordinator or the project owner.

D. Sample Pesticide Application Notice

Dear Resident / Tenant:

The Bridleside project owner practices Integrated Pest Management (IPM), an approach to pest control that reduces pest populations while minimizing pesticide applications.

After trying non-chemical means to control a current pest problem, a pesticide has been deemed necessary.

On _____ (date), an application of _____ (name of pesticide) will be applied at _____ (location) for the control of _____ (pest).

If you have any questions or comments, please contact _____ (name of responsible person) at _____ (phone).

E. Sample Pesticide Application Registry Notice

Dear Resident / Tenant:

The Bridleside project owner practices Integrated Pest Management, a program that combines preventive techniques, non-chemical pest control methods, and the appropriate use of pesticides with a preference for products that are the least harmful to human health and the environment.

Applications of pesticides are made only when deemed necessary to control a pest problem and after trying other means to control the problem. The term "pesticide" includes insecticides, herbicides, rodenticides, and fungicides.

The Project Owner is establishing a registry of people who wish to be notified prior to pesticide applications. To be included in this registry, please complete the attached form and submit it to _____ (name of responsible person).

I would like to be notified two days before the use of pesticides on properties managed by the Bridleside project owner. I understand that if there is an immediate threat to health or property that requires treatment before notification can be sent out, I will receive notification as soon as practicable.

Resident / Tenant Name _____

Signature / Date _____

Address _____

WELL MONITORING AND MITIGATION PLAN

**Bridleside
June Road
Town of North Salem, New York**

Lead Agency: Town of North Salem Planning Board
North Salem Town Hall
266 Titicus Road
North Salem, New York 10560

Prepared By: Tim Miller Associates, Inc.
10 North Street
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February 15, 2012

Well Monitoring and Mitigation Plan

The project sponsor for the Bridleside development in North Salem, New York, Wilder Balter Partners, LLC. (the Applicant) proposes to provide water supply to 65 new residences on the subject 40-acre property by a community water supply system, subject to the approval of the New York State Department of Environmental Conservation (NYSDEC), Westchester County Department of Health (WCDOH) and the New York State Department of Health (NYSDOH). Wastewater will be returned to the ground by a subsurface sewage disposal system, following treatment by a wastewater treatment plant.

At the suggestion of the hydrogeologic consultant to the Town of North Salem Planning Board, The Chazen Companies, the Applicant has agreed to conduct an off-site well water level monitoring program in accordance with this Well Monitoring and Mitigation Plan. The purpose of the plan is to identify any adverse effects to offsite residential wells that may be caused by the use of wells on the Bridleside development parcel so that any such problems may be confirmed for cause and corrected if necessary.

The applicant has offered to provide a renewable bond or letter of credit in order to cover the cost of any corrective measures resulting from the long term effects of the three Bridleside production wells. The four (4) wells recommended for monitoring are known as the Havell well located south of the property, Red Horse Farm well, located west of the property, the Seeley well located northeast of the property, and the Town Highway Facility well located southeast of the property. Drawdowns were observed in each of these wells during the 2006 Bridleside pump test. In addition, based upon concerns raised by a neighbor and the Planning Board, the Cindrich well located east of the property, will be monitored, if agreed upon by the property owner. The applicant has agreed to monitor these four or five wells once the proposed water supply system has been approved by the applicable agencies.

All neighboring wells included in the 2006 study, including the Havell, Red Horse Farm, Seeley, and Town Highway Facility wells, are to be covered by a letter of credit. Should a claim of well impact be made by a neighbor not included in the 2006 study, that claim will be reported and investigated, as described below. A letter of credit in the amount of \$10,000 will be provided to the Town, for the purpose of covering the costs of water quality testing and the correction of any problems with neighboring wells, which may be due to the proposed Bridleside water supply system. The letter of credit shall cover a period of three (3) years from the date of issuance of the 40th certificate of occupancy. Should the funds be utilized for any specific investigation or mitigation, the applicant will replenish the letter of credit up to the amount of \$10,000, to cover potential additional off-site well mitigation.

Well Monitoring Procedures

Monitoring will consist of making periodic measurements of the depth to static water in the four or five (4 or 5) selected private wells, described above. The applicant's hydrogeologist will be responsible for the water level monitoring and reporting to the Town. Monitoring would be limited to the collection of water level data. Measurements will be collected by electronic recording devices known as pressure transducer/data logger units. These instruments will be installed in each of the selected wells to a depth substantially below the static water level.

The data loggers will be programmed to collect continuous measurements at 15 minute intervals, and to run independently for a three month period. Data loggers will be used for the

months of April through November, when the seasonal water table may vary greatly and when water use/demand may be greater. The measurements, accurate to +0.04 foot (about 1/2 inch), will record water level changes caused by natural conditions and drawdown trends caused by wells. The data from the monitoring will be collected by a qualified hydrogeologist, retained by the applicant.

The monitoring program will begin at least one year before occupancy of Bridleside, before the community wells on the property are put to use, to measure existing ambient water levels in each of the off-site private wells. The program will continue until at least two full years after completion and full occupancy of the Bridleside Development.

Data Reporting

Two reports per year will be prepared by the applicant: the first a mid-summer data plot submitted by July 31, and the second an annual letter report submitted within 30 days of the end of the recording season. The annual letter report will present collected water level data visually, using graphic plots for the completed year and prior years. The report will describe any changes relative to the prior years' data and provide discussion of any evident impacts and trends resulting from the use of wells on the Bridleside site. Precipitation data will also be provided. Similar reports will be mailed twice yearly to each participating individual off-site property owner, with the content to each participant limited to the data from that individual's well.

The reports will be provided to Wilder Balter Partners, to the Town's consulting hydrogeologist, to the Town Planning Board, to the WCDOH, and to each of the four or five (4 or 5) individual participating well owners. In the event of a problem or claim, such information will be shared only with the Planning Board, the WCDOH, the applicant and the property owner reporting a problem/ claim, to protect the well owner's privacy.

Water Supply Impairment Claims

Should any well owner experience loss of supply, inadequate supply or other problems believed to be related to operation of the wells at the Bridleside Development, the office of the Town Building Inspector should be notified. The Building Inspector will request that the Applicant's designated representative and the Town's hydrogeologic consultant jointly investigate the problem. If a well owner needs interim drinking water, bottled water will be provided by the Applicant during the investigation and any required remedial action. Costs for the Town's consulting hydrogeologist to jointly investigate well impairment claims will be paid from the renewable bond.

Investigation of a well-supply problem would involve reviewing the current and historic water level data from the involved well and determining whether any drawdown was caused by operation of community wells at the Bridleside development. This determination is one of experienced professional judgment and can involve interpretation of data. The Town's consultant and the Applicant's representatives will make their best assessment of the situation, and will recommend appropriate remedial action if necessary. Remedial actions, if required, may include one or more of the following:

1. lowering a pump to a deeper level;
2. replacing a shallow-well pump with a submersible pump;

3. replacing a shallow-lift submersible pump with one of adequate supply capacity;
4. conducting airlift well development to clean a well that produces colored or sediment-laden water;
5. hydrofracturing a well;
6. deepening a well; or
7. drilling a replacement well.

The Applicant will not be responsible for correcting pre-existing conditions; conditions caused by an increase in water consumption by the homeowner; conditions resulting from equipment failure; or any condition not directly related to operation of the community water supply wells located at the Bridleside development. The Applicant would prefer that no remedial action be taken by a well owner until an investigation is completed, but no well owner is restricted from taking such action at his own risk.

The decision as to whether remedial action is required will be agreed upon by the Town's consultants and the Applicant's designated representatives. If it is determined that a well problem is unrelated to the use of the wells at the Bridleside development, the well owner will be advised to contact a competent well or pump contractor at their own cost. If any well owner feels aggrieved by the results, an appeal to the Town Planning Board is available, as is referral by the Planning Board to an independent third party for arbitration if the Town's representative and the Applicant's representative do not agree. Costs for third party review will be paid by the Applicant. The Applicant is also responsible for the costs incurred for those complaint investigations that are determined to be unrelated to the Bridleside wells. There is nothing in this monitoring program that deprives anyone of property or legal rights.

North Salem High School - Middle School Well Testing

According to the Town of North Salem hydrogeologic consultant, the Town of North Salem School District may drill new wells to improve water supply for the North Salem High School - Middle School facility. The High School - Middle School property lies directly southeast of the Bridleside property. The Town's hydrogeologic consultant has requested permission to monitor the Bridleside water supply wells, in the event that new wells are drilled for the High School - Middle School and a pumping test is performed. The Applicant has agreed that the Bridleside wells can be monitored for any future well testing for the High School Middle School property. If such testing occurs, the Town of North Salem School District, its consultant's and its contractors will ensure that water supply for Bridleside is not interrupted or negatively impacted.



NON-SALT WINTER TRACTION MATERIALS MONITORING & MAINTENANCE PROGRAM

Prepared For

BRIDLESIDE

Town of North Salem, New York

February 15, 2012

The project owner will be responsible for the Monitoring and Maintenance Program of the Bridleside Residential Development. The site maintenance at Bridleside will be performed by a contracted property management company who will be responsible for implementation of the program. As part of the program, the development will utilize traction sand on the development's roadways, parking areas and sidewalks during the winter months. The traction sand will accumulate on paved surfaces, in catch basin and drain inlet sumps, drainage pipes and stormwater management basin inlets.

The Monitoring and Maintenance will require that each spring, the paved areas (roads, parking areas, and sidewalks) will be swept clean to remove the winters accumulation of traction sand. The pervious pavement will be vacuum swept and high pressure washed to clean the voids of traction sand and debris. After this is completed, all catch basin and drain inlet sumps and stormwater management basin inlets shall be cleaned of deposited traction sand. Storm drainage pipes shall be checked for deposited traction sand and debris and cleaned as required. During spring cleanup any accumulated traction sand in the snow storage areas will be raked and removed from these areas. After cleanup, all deposited traction sand shall be removed from site.