

Position Paper in Support of Park Development and Conservation Versus Housing and Commercial Development Around Hallett's Quarry Lake Story County, Iowa

This position paper was prepared by Friends of Hallett's Quarry, a group of concerned citizens who oppose residential or commercial development in the watershed on and around Hallett's Quarry. We support the conservation of the area for water quality protection with parkland open space. We oppose the Hubbell Development Company's proposal for a zoning change to allow residential development for the following reasons.

First, the quarry lake and its connected groundwater aquifer is a crucial source of water for the City of Ames during drought. A recent report (April 2000) to the City of Ames from Bonostroo, Rosene, Anderlik, and Associates, concludes that the drainage basin and flood plain surrounding Hallett's Quarry is an environmentally sensitive area, and that land uses in this basin directly affect the water quality of the lake. Therefore, we believe the watershed and aquifer should be protected as open space to protect the drinking water for area residents.

Second, we are concerned about the unacknowledged and hidden costs of any large scale development like this one. All the taxpayers bear various costs of development such as fire protection, transportation, water, storm water management, sanitation, and other public investments. These costs need to be considered. Open space conservation can reduce a community's expenditures for municipal services.

Third, this proposed development is within the 2-mile radius of the City of Ames and the proposed housing development is inconsistent with the city's land Use Policy Plan. The Plan designates this land as environmentally sensitive and directs city infrastructure investment toward the southwestern sectors of the city. Ames City Council has recently decided not to annex this land for residential development.

Fourth, community leaders have acknowledged the need for affordable housing in the Ames area. The proposed housing development does not address the need for affordable housing. A few developers and realtors, however, think there is a need for executive-type housing.

Fifth, we believe Story County and the surrounding region would benefit from a well designed ecological park. The lake has been recognized as an important stopover place for migrating birds and restored native prairie and wetlands would further benefit wildlife. This region as well as the entire state of Iowa has lost more than 95 % of its native prairie and wetlands. We believe the time has come to recover some of our natural heritage while offering the people of our county high quality recreational resources.

In summary, we believe that housing and commercial development adjacent to the Hallett's Quarry lake will compromise the water quality of the lake and the interconnected groundwater aquifer. The area's potential for ecological restoration and open space recreation and education is also an important consideration. Therefore, we urge the Story County Planning and Zoning Commission to reject the Hubbell Development Company's proposal for a zoning change to rural residential.

We support the announced intention of the City of Ames to purchase this land for open space and watershed protection. We hope that Story County and even neighboring counties would join with the City of Ames to restore this area to prairie and wetlands.

The following sections provide more in-depth review of the points listed above.

Water Quality in Hallett's Quarry Lake

The risk of residential development in the immediate watershed to the water quality of Hallett's Quarry Lake has been demonstrated in a report prepared by Bonestroo, Anderlik, Rosene, and Associates, consultants to the City of Ames. The consultants used state-of-the-art models to conclude that residential development would lead to severe water quality degradation caused by high phosphorus (P) input from residential developments. Among the consequences of residential development would be: decreased water clarity; blooms of Cyanobacteria; taste, odor and toxin problems that elude conventional water treatment; decreased visual appeal; decreased oxygen concentrations; increased ammonia and hydrogen sulfide concentrations; and high future mitigation and restoration costs of impaired waters.

In addition to the report from Bonestroo et al., there are other factors that give us reason to believe that residential development is incompatible with the need to maintain good water quality for drinking water and the maintenance of the community amenity value of this resource.

In discussions with the City of Ames, experts have underscored repeatedly that residential development of this site is incompatible with the maintenance of good water quality in these lakes. Bonestroo et al. recommended that concentrations of P in Hallett's Quarry Lake be kept below 60 parts per billion (ppb). Even the attainment of this goal would lead to water quality degradation. At a P concentration of 60 ppb, water would be dominated by cyanobacteria about 40% of the time. Thus, a level of 60 ppb is too high to adequately protect a potential drinking water source. Cyanobacteria in drinking water have been linked to human illness and death, and is probably impossible or extremely costly to mitigate. A 30-40 ppb goal would be significantly safer and more in line with future federal and state regulatory criteria for nutrients. This margin of public safety requires that the watershed be stringently protected.

Further, it is unlikely that significant development could occur in the watershed without serious repercussions. Nutrient inputs would be very difficult to mitigate because (1) significant internal loading and remobilization of P within the lake would occur, (2) a significant ground-water nutrient budget has been ignored in all calculations (groundwater would be fouled by percolation of residential run-off and septic waste), and (3) P run-off from residential areas in Iowa is largely soluble and very costly to remove.

One of the development plans presented to the Story County Planning and Zoning Commission includes the use of septic systems. A septic tank system would be even more seriously damaging than previous proposals because it would release septic effluent directly into the groundwater. Subsurface soils such

as these are extremely poor adsorbers of phosphorus, thus such a plan would have all the drawbacks of residential development plans rejected by experts in the past, plus the added average phosphorus addition of around 0.8 kilograms of phosphorus per capita per year.

If the watershed is protected, Hallett's Quarry Lake would represent a unique water resource for Central Iowa. If developed, Hallett's Quarry Lake could represent a costly liability to Story County. A large park centered on this high quality water body will be an important attraction. Such water bodies typically generate between \$30,000 and \$60,000 per acre per year in monetary benefits to their communities (130 acres could yield \$4M-\$8M per year), not including other immense social benefits. On the other hand, communities forced to mitigate impaired waters can count on very high costs and bad publicity. Mitigation can cost more than \$8,000 per acre, depending greatly on the source of the impairment (impairments originating in residential developments are most costly). The social benefits of protection of this watershed are very clear.

Given the high probability of water quality degradation of areas near lakes that are developed into residential land use, most communities opt to protect the watersheds of their potential emergency drinking-water source-lakes by keeping them in parkland. St. Paul, Minnesota has chosen this course with their Vadnais Lake water supply and Des Moines protects Maffitt Reservoir for similar reasons. There are many other precedents.

Story County should undertake all due diligence to make sure that the County is not responsible for impairing the quality of public waters. Because Hallett's Quarry Lake has both an inlet and an outlet (mining dug through stream beds to connect with existing surface streams), it is part of the public waterway system of the State of Iowa. Therefore, the County should ensure that land-use plans and zoning recognize the sensitive qualities of the watershed of this low-nutrient lake. Protection of the entire 300-acre basin around the lake with prairies, wetlands, and other parkland is compatible with keeping the Hallett's Quarry lakes off of EPA's impaired list, whereas residential development close to the lake will certainly lead to impairment. Communities permitting development responsible for impairment of public waters will ultimately be held responsible by society for the costs of mitigation. It is in the best interests of all Story County residents to deny any plan calling for further residential development near the Hallett's Quarry lakes.

Protecting Drinking Water Sources

Story County is blessed with a good but finite groundwater supply. We know that this aquifer is relatively shallow (about 100 feet or less) and that it follows old glacial river beds that are connected in various ways to our surface waters. Therefore, it is very important to protect our surface waters because our aquifers are regularly recharged from above. When this region experienced a severe drought in 1977, the late Merwyn Dougal, an ISU hydrologist who had done extensive research on local aquifers, advised the city that water levels in the city's wells might be restored by pumping water from Hallett's Quarry into the dry bed of the South Skunk River. A temporary low-head dam was placed across the stream at Riverside Park to hold several feet of water in the river. This move was successful and later

Ames constructed a permanent dam across the river for future emergencies. The city had to rely again on Hallett's Quarry in 1988 when severe drought hit the area. As the region grows in population and more industry locates here, the demand for high quality water will increase. Recent studies have shown that surface water flowing into Hallett's lake is already threatening its water quality. The County and the City of Ames cannot afford to risk further contamination of the Hallett aquifer or the South Skunk River with nutrient and pesticide laden storm water or sewage effluents. Remedial measures need to be taken soon to further protect the lake and groundwater.

Drinking water protection has become a new national focus, in fact it is a global issue. When drinking water sources become contaminated, the cost to industry and public health is high due to additional treatment and clean up needs. There is a growing recognition that effective drinking water system management includes addressing both the quality and protection of water sources. Drinking water source protection extends beyond controlling point or nonpoint sources of contamination. Many states and local governments are already managing water quality programs with a watershed approach. Solutions include developing partnerships between local governments and water utilities, purchasing land or easements to prevent or limit development, and engaging with private land owners to implement best management practices aimed at protecting sources of drinking water.

A recent document entitled *Protecting Sources of Drinking Water, Selected Case Studies in Watershed Management* (U.S. Environmental Protection Agency, 1999) presents case studies of 17 drinking water systems committed to extensive efforts to incorporate source water management and protection as an integral part of their business of providing safe drinking water to their customers. The common thread that ran among all of the water systems that were reviewed was the importance of cross-program coordination aimed at aquatic ecosystem restoration and watershed protection. For an increasing number of cities in the United States, and in fact for cities around the world, land acquisition is becoming the most cost-efficient method for protecting water sources. Most of the 17 municipalities in the EPA report are giving top priority to land acquisition. We are pleased that the City of Ames has announced their intentions to take this approach.

Sanitary Waste Treatment Considerations of the Proposed Housing Development

The current development proposal(s) submitted by the Hubbell Development Company to Story County for the Hallett's Quarry area raises new issues in addition to the previously considered issues of nitrate and phosphorous contamination of the lake from erosion and surface run-off. The new proposal(s) would use either individual septic systems for waste treatment from 208 units around the lake or a common sanitary sewer system for 334 units around the lake. This raises a public health concern related to the proper treatment and disposal of approximately 100,000 gallons of sewage per day.

In a recent telephone interview with Steve Veysey, Mr. Don Nolting, Story County Sanitarian, said that he conducted a site review of the Hallett's Quarry area in May in response to inquiries from the developer, and has had discussions with the developer regarding the site. His written report documenting concerns and basic engineering points is being prepared. In summary, his site review

showed that the sandy soils near the lake would not perform well for individual septic systems, nor would the areas of steep slopes or previously disturbed soils. The area of the proposed development with conducive soils is the high ground to the west, representing only about one-third of the proposed development area. The concept of using fill dirt to raise the level of the development area and reduce the slopes is not considered by Mr. Nolting to be a good solution to the problem. In Mr. Nolting's opinion, the area presents extreme difficulties and he is pessimistic that a proposal based on individual septic systems would be acceptable.

In addition, if swimming in the lake is to be allowed by the proposed homeowner association, Iowa water quality standards mandate that a Class A use designation protective of "primary contact recreation" be imposed. This requires that the fecal coliform count in the lake be maintained at less than 200 colonies per 100 milliliters of water. Any design or design approval for a plan using individual septic systems located near the lake must consider this factor.

The alternative proposal to individual septic systems is a "shared" system that would be managed by a homeowners' association. There appear to be two possible options. One scenario is a large-scale mound system located on top of the hill, or a group of smaller mound systems all located on the top of the hill. This would require an engineering plan and approval by the state. Mound systems are essentially large septic fields, typically capable of absorbing about 1.25 gallons of wastewater per square foot per day. There would be no discharge; all of the waste would be absorbed and, in theory, treated by the mound. A mound system designed to treat the effluent from 334 homes would require approximately 80,000 square feet. A network of sewer pipes and lift stations, along with pretreatment area to remove solids also would be required.

A second scenario would use a centralized package treatment facility and a series of sewer pipes and lift stations. The facility would discharge treated waste and would require both a licensed operator and a permit that meets the standards of the National Pollution Discharge Elimination System (NPDES), a federal program administered by the state in relation to the Clean Water Act and point source dischargers.

It is unlikely that approval from the Iowa Department of Natural Resources (DNR) could be obtained for discharging into the lake. The developer plans that were displayed at the County Conservation Board meeting in August showed the location of the sewage plant to be at the far northwest corner of the property. The discharge would be directed to a road ditch running east to a small stream near the Moose Lodge just west of Hwy 69. The stream then flows through a small housing development before joining with the Skunk River near the gaging station due east of Hallet's quarry. This presents several difficulties. An open travel discharge might not be approved by DNR. Secondly, the discharge would empty into the Skunk River in an area of heavy use, including a canoe access point. The section of the Skunk River from the low-head dam in River Valley Park and extending northward to the Hamilton County border has historically been protected for primary contact recreation with a Class A use designation. Moreover, the low-head dam was installed to hold water for recharging the Ames drinking water aquifer. The Class A use designation would require the discharger to include tertiary treatment and possibly a disinfection step in order to meet the bacterial permit requirement of less than 200 fecal

coliform colonies per 100 ml of wastewater. NOTE: In 1993 the Class A use designation for this section of the Skunk River was removed by the Iowa DNR's Environmental Protection Commission. By federal law, such changes to Iowa water quality standards must be approved by EPA. In a recent decision (letter to DNR, July 1999) the removal of the Class A use designation from this section of the Skunk River was specifically denied by EPA. Therefore, all future NPDES permits and permit renewals related to discharges into this river segment can be expected to include Class A restrictions for the amount of bacteria in the effluent.

Housing Needs in the Ames Area

During the past ten years, considerable attention has been focused on the need for affordable housing in Ames, as real estate developers and home builders have provided a steady supply of houses for the middle and upper-income brackets. Several factors drive up the price of real estate in Ames, one of the most significant being the 25,000 students who live here while attending the university.

The need for affordable housing is widely acknowledged in Ames. The recently convened think-tank called Ames 2020 called attention to the desirability of providing more affordable housing, the topic being important enough to warrant a separate committee. The Story County Land Trust, unlike most land trusts that are devoted to preserving natural areas, is devoted to buying urban properties so working people can pay for the house, while the trust holds the real property, (lots can sell for \$40,000 in Ames). The Chamber of Commerce is concerned about affordable housing because working people find Ames expensive to live in, and hence businesses find it difficult to hire entry-level personnel. Many workers are now commuting up to 50 miles for jobs that pay \$12/hour or less. Even emerging high-tech businesses locating in Ames are finding it difficult to recruit new employees from other parts of the country because of the high cost of housing and limited outdoor recreational opportunities.

The city government, through its office of Planning and Housing, has cooperated with the private sector in at least five projects aimed at adding to the city's stock of low-priced housing affordable to working people. Those include the recent Bentwood Subdivision (1997).

An on-going broad conversation about the need for affordable housing is continuing in Ames; a conversation that includes Planning and Housing chief Brian O'Connell, David Mahs of the Ames Chamber of Commerce, home builder Dean Hunziker, State Representative Jane Greiman, Mr. Merle Prater, and Mr. Scott Miller. While some minor disagreements exist on tactics, for example the cost of modular housing, wide agreement exists that the major problem facing the housing market or situation in Ames is a very tight market for lower-end, decent housing. Developers and real estate agents may have a higher profit margin on more expensive houses, thus predisposing them to focus on building for the upper-end market. A 1998 housing assessment study suggested that in the next 10 years, Story County needs 832 new rental units under \$400/mo., 728 units at \$400 to \$500, 501 new homes in the \$60,000 to \$80,000 range and 606 homes in the \$80,000 to \$110,000. Ames is currently building 50 units per year, most of them in the upper, not the lower, brackets.

An interesting component of this conversation about community housing needs has been the introduction of the village concept in Ames. In this context, the idea is important because it calls for a mix of housing types. This builds a better community, many feel, rather than a de facto segregation of income brackets by building expensive homes in one area here and inexpensive homes in another.

In summary, there has been considerable focus by the Ames community on the need for affordable housing, while no one to the best of our knowledge has mentioned any lack of upper-end housing, until a representative of Hubbell Development Company recently made this claim.

References: Prominent display in Ames city building, first floor. Merle P. Prater, Affordable Housing, @ Tribune July 28, 2000. Scott Miller, Affordable Housing is key to reducing poverty, @ Tribune July 17, 2000.

Hallett's Quarry as Wildlife Habitat

Hallett's Quarry is valuable to wildlife in the Ames area because of the variety of birds that prefer deepwater, lake-like conditions that it attracts. In general, Story County has few wetlands and none of those match the expanse of deep, open water found at Hallett's Quarry. As a result, Hallett's attracts flocks numbering in the hundreds of migrating ducks, geese, and gulls as well as smaller numbers of loons, grebes, cormorants, and terns. In addition, herons, egrets, and shorebirds often occupy the sandbars along the edge of the lake and Bald Eagles and Osprey are regular visitors, especially in late fall. The total number of bird species found in a year at Hallett's lake easily exceeds 30 including a number of species that are seldom found elsewhere in the county or the state. To have this variety of wildlife so readily visible to the citizens of Ames and Story County adds to the value of Hallett's Quarry as a natural resource area. The placement of a large housing development in the area would undoubtedly have a negative effect on the number of birds using this area.

Potential for Ecological Restoration

The Hallett's Quarry area offers a special opportunity for Ames and Story County to restore a portion of our prairie and wetland heritage, that would benefit all our citizens as well as the environment. Once, most of Story County was covered by prairies and prairie wetlands. Only a tiny percentage of those natural areas now survive. But at Hallett's, there is an opportunity to construct new prairies and wetlands through the use of high-quality ecological restoration.

There is a growing global movement to use ecological restoration to restore and improve our environment. Much has been learned about restoration in just the past ten years. At the Hallett's Quarry area, state-of-the-art techniques could be used to create prairies and wetlands with dozens of wildflower and grass species, using seed descended from local prairie and wetland remnants. These high-quality reconstructed ecosystems would provide natural beauty, wildlife habitat, water quality

protection, cleaner air, and environmental education, as well as an accessible local opportunity to experience our Story County heritage.

Using the restoration expertise available through the Story County Conservation program, Iowa State University, and private consultants, an outstanding park could be created that would be a model for the Midwest.

Private versus Public Rights

At various times during public hearings before the Ames Planning and Zoning Commission and City Council, representatives of Hubbell Development Company and the private land owners in the area under consideration have argued that they have legal rights as private property owners to develop their land as they see fit. Opponents to their plans have stressed the need to protect public drinking water supplies, the rights of local governments to regulate land use through zoning, and the collective need of the community for open space and low-impact recreation in this area.

This debate strikes at the heart of how we as humans relate to nature and the natural resources that are important to our survival and quality of life. Many developers strive to engineer any project to make it feasible, or even environmentally acceptable, despite solid non-technological reasons, as well as technological reasons, for not doing a project. Engineering has to meet ethics at some point if we can ever hope to survive as a system of linked plural communities. Land development is not merely a technical problem, though it does indeed have its complex technical aspects. It is just as much an ethical, socio-economic, ecologic, and aesthetic problem.

There is growing public impatience with the plans of developers that do not match the realities and aspirations for a quality of life that most people in a community hold dear. The lack of attention to such issues as drainage and groundwater often presents decision-makers with an intractable set of choices. Many of our land use problems arise when developers attempt to socialize costs while privatizing benefits. It's becoming a familiar story to those of us who care about the land and the quality of life it can provide.

Fortunately, western civilization also has a rich history of public stewardship in the form of the public trust principle, which has persisted through centuries as an institutional safeguard to prevent inappropriate privatization. This is the idea that public access and use of resources such as water, air, and the open seas are so important to civic society that the exercise of private property rights cannot be allowed to interfere with transcendent public values. Title to most of Iowa's water, including groundwater, is held in trust for the benefit of all Iowa citizens and private rights normally cannot supersede the public trust.

It is appropriate that public discussion surrounding the Hallett's Quarry issue include consideration of the principle of public trust and its growing relevance to protection of our water resources. There are solid reasons why some public resources are considered inalienable and held in trust and why some

public duties cannot be delegated. Tradition helps us to recognize that our quality of life and very existence depend on the natural resource systems that ultimately support us.

Economics of Water Protection and Green Space

The following is a list of examples from the recent literature concerning economics of protecting drinking water and managing storm water with green space.

- Milwaukee has had to spend \$54 million to protect their drinking water from Cryptosporidium bacteria, which killed 103 people in 1993.⁹
- The city of Chicago has had to increase the chlorine content of its drinking water by 30% since 1965 due to source contamination.⁹
- The City of Des Moines has spent \$4 million to build the largest nitrate removal plant in the world to address high nitrates in the water from the Raccoon River. They are now building another \$25 million water treatment facility at Maffit Reservoir to clean the drinking water.
- New York City chose to spend \$1.5 billion to buy land to protect their drinking water rather than \$6-8 billion for a filtration plant.⁹
- Voters in Johnson County, Kansas, approved raising \$600,000 in taxes to handle the region's flooding problems by protecting open space and creating a greenway instead of spending \$120 million on extensive stormwater control structures.⁷
- The average annual cost to maintain public open space (including debt service on land purchases and administrative costs) in Boulder, Colorado, was found to be \$328 per acre; in contrast, the cost to maintain developed and developable land (including sewer, fire, police, schools, and roads) was calculated to be \$2,524 per acre.⁸
- For the city of Floyd Harbor, New York to acquire land to use as open space, taxes would increase by 18%, while development would increase taxes by 51%.¹
- According to a 1989 survey of CEOs conducted by Cushman and Wakefield, quality of life ranked in the top three factors considered when locating a business.⁴
- A poll of over 800 participants conducted by a group of home builders in California, Texas, North Carolina, Florida, and Georgia revealed that 77% of the respondents rated natural, open space as one of the most desired amenities when shopping for a new home.³
- A 1995 Urban Land Institute study asserts that, according to real estate developers, open space and trails can boost development profits between 5 and 15%.
- The Centers for Disease Control estimates that nearly one million Americans become ill every year (900 of them fatally) because of polluted drinking water.¹⁰

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