

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. *Applicant/Contact name and address:* **Fieldstone Estates LLC
% Bruce Martin
692 Oilfield Rd.
Conrad, MT 59425-9635**
2. *Type of action:* **Application for Beneficial Water Use Permit No. 41I-30018527**
3. *Water source name:* **Ground Water Wells**
4. *Location affected by action:* **Two wells in the SENESW Sec 17, Twp 11N, Rge 03W,
Lewis and Clark County**
5. *Narrative summary of the proposed project, purpose, action to be taken, and objectives:*

This application proposes to appropriate ground water from two manifold wells. Well #1 and well #3 are located in the SENESW Sec 17, Twp 11N, Rge 03W, Lewis and Clark County. A licensed well driller, O'Keefe Drilling Co Inc, drilled well #1 February 2000 to a depth of 200 feet. Lindsay Drilling drilled well #3 in November 2002 to a depth of 240 feet. Water would be diverted at a combined maximum rate of 1,200 gpm (600 gpm per well) up to 537 acre-feet per year. The water would be used for multiple domestic (322 households) and commercial (4 lots) from January 1 through December 31, and for lawn, garden, and park irrigation (135 acres) from April 15 through October 15. The place of use is the Fieldstone Estates Subdivision (formerly known as Mountain Trade Estates) located in Sec 17, Twp 11N, Rge 03W.

The DNRC shall issue a water use permit to the applicant if the criteria in 85-2-311, MCA are met.

6. *Agencies consulted during preparation of the Environmental Assessment:
(include agencies with overlapping jurisdiction)*

Contacted L & C County and received copy of the Fieldstone EA submitted by the developer.

**Montana State Historic Preservation Office (SHPO)
Montana Natural Heritage Program (MTNHP)
Montana Department of Environmental Quality (DEQ)
Russ Levens – DNRC Hydrogeologist**

Part II. Environmental Review

1. Environmental Impact Checklist:

<h2>PHYSICAL ENVIRONMENT</h2>

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity - *Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.*

Determination: No significant adverse impact. This proposed project would not affect chronically dewatered streams as identified by DFWP; it does not seek to develop water from a surface water source. The proposed project is located within the North Hills Controlled Ground water Area (NHCGWA) where ground water quantity and quality concerns have been identified (see ground water section below).

Water quality - *Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

Determination: No significant adverse impact. This project would not affect water quality in perennial streams, but could affect ground water quality. See ground water section below.

Ground water - *Assess if the proposed project impacts ground water quality or supply. If this is a water appropriation, assess if it could impact adjacent surface water flows.*

Determination: No significant adverse impact. Two wells will supply water to the proposed project. Wells #1 and #3 are 200 feet and 244 feet deep respectively, and are completed in unconsolidated gravel alluvium. Wells #1 and #3 produced 800 gpm and 1,000 gpm when drilled, and are located approximately 100 feet apart.

The project is in a transition zone along the base of the North Hills where the thickness and properties of unconsolidated alluvium change significantly over a short distance. Alluvium thins and narrows within a mile north of the project, eventually becoming a thread-like veneer on fractured bedrock. South of the project, the alluvium merges with the Helena Valley aquifer and becomes thicker. Therefore, the ability of the aquifer to transmit water is expected to decrease toward the north and to increase toward the south. Further, the presence of clay and clay-rich gravel above the water-producing horizon in wells #1 and #3 of the proposed project, and the water level responses observed during constant-rate aquifer tests conducted using these wells indicate that the aquifer can be considered a leaky-confined aquifer or an unconfined aquifer with delayed drainage from the water table. Regardless, pumping is expected to initially affect water levels only in the water-producing horizon intercepted by wells #1 and #3. Ultimately, the water level response should approach that of an unconfined aquifer with drawdown in shallow wells approaching the drawdown observed in the water-producing horizon of wells #1 and #3. In addition, unconsolidated alluvium probably is hydraulically connected to fractures in

bedrock that underlies the proposed project and long term pumping also may affect water levels in wells completed in bedrock.

The water level in well #1 drew down 4.8 feet and generally stabilized after 24 hours of the 72-hour constant-rate aquifer test of well #3. The rate of water level decline probably stabilized in response to leakage from clay-rich gravels overlying the water-producing interval. Again, over longer periods of pumping water levels are expected to resume a slow decline once drainage from the water table begins. The maximum predicted drawdowns in each well at pumping rate of 600 gpm over the entire 182 day irrigation season are 12.6 feet and 6.97 feet. Projections for different distances over an irrigation season based on data from the 72-hour pumping test of well #3 are listed in the following table.

Table 1. Estimated maximum drawdown during the irrigation season from the pumping wells.

Distance (miles)			
1/4	1/2	1	2.5
2.11 feet	1.25 feet	0.51 feet	0.03 feet

Actual drawdowns will depend on the consumptive use of the proposed project, the effects of aquifer geometry, and the effects of ground-water drains. The maximum drawdown is predicted to occur on August 15th. Drawdowns under a lower rate of consumptive use would be less than the values in Table 1. Further, actual drawdowns could be greater than predicted where the aquifer thins north of the proposed project and less than the predicted values south of the proposed project where the aquifer merges with the Helena Valley Aquifer.

Many of the wells within the notice area for the proposed project are shallow enough (many are less than 50 feet deep) that pumping for the proposed project could reduce their yields. With the exception of the area north of the proposed project, there should be opportunities for owners of shallow wells to deepen their wells and obtain sufficient water from the alluvial aquifer if they are impacted by the proposed project. Owners of shallow wells north of the proposed project may need to drill into bedrock to obtain sufficient water if they are impacted by the proposed project. Review of wells listed in Montana Bureau of Mines and Geology Ground-Water Information Center database indicate that water is available from fractured bedrock north of the project. Therefore, based on consideration of the criteria found in DNRC New Appropriations Rule 36.12.1706, "Adverse effect", the impact of the proposed project on shallow wells is deemed to be moderately adverse but not significant because owners of shallow wells should be able to deepen existing wells or drill new wells to obtain water.

Water levels in wells near the proposed project that currently are completed in fractured bedrock could be affected by pumping for the proposed project but their greater depths provide longer water columns and therefore the effects on production from these wells will be less than in shallow wells. Therefore, the impact of the proposed project on bedrock wells is deemed to have a minor adverse impact but not significant because ground water should be available to these wells.

The Final Environmental Assessment (EA) for the North Hills Controlled Ground Water Area (NHCGWA)(February 25, 2002), reports elevated concentrations of nitrates in ground water have been documented in the areas of concentrated septic systems, including areas of the Helena Valley. Nitrate levels are documented in USGS bedrock study (Thamke, 2000) and sampling by the Lewis & Clark Water Quality Protection District for nitrate analysis is on going. The extent to which nitrate concentrations in ground water could increase because of the project is unknown.

The proposed ground water appropriation has been calculated to have the potential to deplete surface water flows from Silver Creek at a maximum rate of 228 gpm. If one or more confining layers are present between the deeper aquifer and the shallow aquifer connected to Silver Creek, much smaller depletion rates than calculated could occur. The applicant will be responsible for augmenting any surface water depletion as a result of pumping the wells. Additionally, pumping and water consumption in the subdivision could capture ground water that would ultimately flow to Lake Helena and the Missouri River, or to drains that empty to Lake Helena and the Missouri River.

The proposed project is not within a delineated (regulatory) 100-year floodplain according to available data from the DNRC Floodplain Management Program.

DIVERSION WORKS - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

Determination: No significant adverse impact. The project would not affect streams or riparian areas. Well #1 was drilled in February 2000 to a depth of 200 feet and well #3 was drilled in November 2002 to a depth of 240 feet. Both wells were drilled by a licensed well driller in accordance with the Montana Board of Water Well Contractors and the Administrative Rules of Montana and subject to DEQ requirements. Both wells are cased and grouted with bentonite to avoid well contamination.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species - *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern," or create a barrier to the migration or movement of fish or wildlife. For ground water, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."*

Determination: No significant adverse impact. According to the MTNHP, there are two species of concern, the Black-tailed Prairie Dog and a Bird Rookery, within the general area. Per the map submitted from the MTNHP, the Bird Rookery is located near Lake Helena in Sec 27, Twp 11N, Rge 03W and the Prairie Dog habitat is west and north of the property. Although antelope, deer, and small mammals frequent this area, the proposed subdivision is not located in an area with a high wildlife resource value. There are several established residences on the north and east sides of this property and Interstate 15 is near the subdivision's western boundary which discourage wildlife habitat. FWP listed many

recommendations and according to information submitted with the file, these are being addressed in the covenants and design standards for the subdivision.

There were no plant species of concern identified within the project vicinity. The project area has been previously disturbed as a result of past and current agricultural practices.

Wetlands - *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

Determination: **No functional wetlands have been identified.**

Ponds - *For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

Determination: **No pond development is involved in this project.**

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE - *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

Determination: **No significant adverse impact.** **The main soil type found within the project area, Musselshell-Crago Complex, is comprised mainly of very gravelly sandy loam. This soil type consists of very deep, well-drained soils that formed in alluvium and has a moderate permeability. The soils are used mainly for rangeland or irrigated to hay and pasture. The current land use is agricultural. The project is not in an area known to be susceptible to saline seep problems.**

There would be some ground disturbance from trenching the water lines and utilities, installing the septic systems and drainfields, developing roads, and constructing homes, etc., but this would be a temporary impact. An erosion control plan would be submitted to DEQ and the Lewis and Clark County Soil Conservation Service during the design of each phase of the subdivision. Lewis and Clark County and DEQ will review suitability of septic system design.

There are no known geologic hazards within the proposed subdivision. The site lies within seismic zone III, which indicates the probability of seismic activity, such as earthquakes, is high.

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

Determination: **No significant adverse impact.** **The existing vegetative cover consists of grass and alfalfa fields and Russian Olive windbreaks along the irrigation canals. No trees or other vegetation exist on the property. The Montana noxious weed survey and mapping program identified Leafy Spurge, Spotted Knapweed, and Dalmatian Toadflax within the project area. During the construction phase, the ground disturbance may establish or spread noxious weeds. This should be controlled after the homes are in and lawn and**

garden areas established. Owners will be responsible for weed control on their own lot. All disturbed areas would be revegetated to provide erosion control. The existing windbreaks would not be disturbed.

AIR QUALITY - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

Determination: No significant adverse impact. There may be a deterioration of air quality due to the increased traffic within the subdivision. In addition, if any of the homes have wood burning stoves/fireplaces that are burned improperly, there may be noticeable or objectionable odors that could affect air quality and/or be offensive to other property owners. This impact would be temporary during the winter months when there is an air inversion.

HISTORICAL AND ARCHEOLOGICAL SITES - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project.*

Determination: No significant adverse impacts. According to the Montana State Historic Preservation Office (SHPO), there are no previously recorded historic or archaeological sites in the project area. However, they feel the Helena Valley Irrigation District may qualify as a historic site due to its importance in the agricultural development of Helena. One cultural resource inventory report, Helena City Gate/East Helena Gas Line, was done in July 1994. Based upon the lack of unrecorded sites, SHPO recommended a reconnaissance survey be conducted in order to determine if any cultural sites exist and if any impact would occur from this project. Because the project is located on private property, it is at the landowner's discretion to conduct this survey. Since this area has been farmed for many years, it is unlikely that any historic or archaeological sites still exist.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

Determination: No additional impacts on environmental resources of land, water, and energy not already addressed were identified.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

Determination: No significant adverse impact. Lewis and Clark County has a growth policy, and in that policy, the area where the Fieldstone Estates subdivision is proposed has been identified as a rural area. However, these rural areas are not excluded from subdivision development under the county growth policy.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

Determination: No significant adverse impact. The proposed project would not impact access to or the quality of recreational and wilderness activities. There are no recreational or wilderness areas adjacent to the proposed project. Recreational opportunities would be provided to the subdivision residents by the inclusion of developed park areas.

HUMAN HEALTH - Assess whether the proposed project impacts on human health.

Determination: No significant adverse impact. The subdivision would use on-site water and sewage disposal. Each phase of the subdivision would have its own collection and treatment system. The systems would be similar in size and utilize PVC sewer mains feeding a recirculating sand filter with a bypass system and pressure-dosed drainfield system. A state certified water systems operator would handle the operation and maintenance of the water and wastewater systems.

PRIVATE PROPERTY - Assess whether there are any government regulatory impacts on private property rights.

Yes___ No_X_. If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.

OTHER HUMAN ENVIRONMENTAL ISSUES - For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.

More details on these issues can be found in the environmental assessment submitted by Fieldstone Estates to Lewis and Clark County.

Impacts on:

- (a) *Cultural uniqueness and diversity?* **No significant adverse impact.**
- (b) *Local and state tax base and tax revenues?* **No significant adverse impact. This subdivision project should increase the local and state tax base and revenues. Although this is expected to be a positive impact, the magnitude of the potential increase in tax revenues has not been quantified.**
- (c) *Existing land uses?* **No significant adverse impact. The existing land use is agricultural.**
- (d) *Quantity and distribution of employment?* **No significant adverse impact. This project has the potential to increase the demand for services in the Helena area and create employment opportunities.**
- (e) *Distribution and density of population and housing?* **No significant adverse impact. The development of this subdivision would increase the population growth outside the city limits of Helena. There will be an additional 322 households.**
- (f) *Demands for government services?* **No significant adverse impact. There would be a demand for a number of government and local services. The subdivision residents would need fire and police protection, bus service to schools, medical/health care services, solid waste disposal, postal services, road maintenance, etc.**

- (g) Industrial and commercial activity? **No significant adverse impact. The proposal for this development includes four commercial lots. All potentially would benefit the immediate local area residents.**
- (h) Utilities? **No significant adverse impact. This project would create a need for new facilities for electrical power, natural gas and/or propane, telephone communication and television connections. All utility lines would be located underground. According to Northwestern Energy there are adequate electric and natural gas facilities in the area for this development.**
- (i) Transportation? **No significant adverse impact. There would be increased resident and service traffic on the access road to the subdivision, Glass Drive, and on Lincoln Road that connects the access road to Interstate 15. All internal roads of the subdivision as well as Glass Drive would be paved. This eliminates a large health hazard created by dust and reduces county maintenance cost on Glass Drive.**
- (j) Safety? **No significant adverse impact. There may be safety impacts created by the increased traffic and the close proximity of the Interstate. There is a possible safety hazard due to the location of the Helena Valley Irrigation Canal on the north boundary and an irrigation ditch on the west and south boundary of the property exists. The developer plans to install fence similar to the interstate fence along the canals to separate the residential area from the ditches. The subdivision would increase the need for emergency services such as fire, police, and medical and the response time for these services may be increase due to the growth of the Helena Valley area and limited resources and personnel.**
- (k) Other appropriate social and economic circumstances? **No significant adverse impact.**

2. Secondary and cumulative impacts on the physical environment and human population:

Secondary impacts on the physical environment and human population: **No significant adverse impact. A discussion of past development is included in the Final Environmental Assessment (EA) for the NHCWA (available from the DNRC Helena Regional Office). In summary, the population in the Northeast and Northwest Helena Valley increased by 50% between 1990 and 2000 indicating that demand for ground-water development will continue. DNRC currently has 2 pending groundwater permit applications for water for new subdivisions within the NHCWA. Bridge Creek Estates is a 130-lot subdivision to the west of Fieldstone Estates. The water permit application is requesting 432 gpm up to 130 acre-feet per year for multiple domestic. Currently Bridge Creek Estates has been sent to the hearings unit for scheduling. Mountain View Estates is a 26-lot subdivision to the west of Fieldstone Estates. The application is proposing to divert water at a maximum rate of 100 gpm up to 37.94 acre-feet per year. The wells have not yet been drilled. They will be drilled to an estimated depth of 140 feet by a licensed well driller.**

The NHCGWA was designated because of concerns by area residents that projects such as described above could affect water levels and production from existing wells, and that elevated concentrations of nitrate could limit uses of ground water. Reports of problems with approximately 100 wells related to reduced water levels, and reports of elevated levels of nitrate near existing subdivisions were the main causes cited for these concerns. DNRC concluded in its evaluation of the CGWA petition that declining ground-water levels resulting from limited recharge during the recent drought probably is the primary cause of well problems and that there is not sufficient water quality data to evaluate the extent that septic systems are limiting use of ground water. The NHCGWA established a permitting system for small wells otherwise exempt from permit requirements in order to provide information for use in evaluating the need for additional controls on ground-water development.

Cumulative impacts on the physical environment and human population:

When the Helena Valley started to be developed the subdivisions were spread out and not situated in close proximity to each other. A few were developed with community water systems, however most had individual wells and septic systems. The valley is growing at an unprecedented rate at this point in time. Within the NHCGWA several new large subdivisions with community water systems are in the planning stages. There are also many subdivisions relying on individual wells. A partial list of those subdivisions was compiled using the DNRC standards for domestic and lawn and garden volumes. The partial list showed 1,450 lots with a volume of 2,134 acre-feet per year. If the growth continues at the present rate the cumulative impacts could have significant adverse affects. The NGCGWA should help to answer some of these questions. The productivity of existing wells could be affected by this project, but ground water should be available by deepening or re-drilling wells. At this time the cumulative impacts are unknown.

3. *Describe any mitigation/stipulation measures:* The water right permit, if issued, would be subject to all prior existing water rights in the source of supply. The applicant would be required to submit a yearly report of monthly flow rate and volume measurements to the DNRC.

This application will be subject to the conditions that have been established for the North Hills Controlled Ground Water Area. This application will go through the DNRC public notice procedure, and water users concerned with potential impacts will be given the opportunity to object to the application. The decision by the DNRC to grant or deny the application would not be made until these review processes are completed.

4. *Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:* The no action alternative would prevent the applicant from obtaining water to develop a community water system for the subdivision. If the application were not granted, it is possible that individual lot owners in the subdivision may construct their own wells. The result could be a greater potential for an adverse impacts to

water quality and quantity because of the large number of wells that would be drilled to service the 322 home sites.

PART III. Conclusion

*Based on the significance criteria evaluated in this EA, is an EIS required? **No.***

If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:

Based on a consideration of the criteria found in DNRC Admin. Rule 36.2.524, "Determining the Significance of Impacts," there is not a significant adverse impact. An EA is sufficient for this level of action. The possible impacts from the community water system and wells for the subdivision are not significant adverse impacts and thus do not warrant an EIS.

Name of person(s) responsible for preparation of EA:

Name: Eric Chase

Title: Water Resources Specialist

Date: April 14, 2006