

CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Foothills Well Land Use License
Proposed Implementation Date:	April 2011
Proponent:	Department of Natural Resource and Conservation, Northwest Land Office, Kalispell Unit
Location:	Section 14 and 23 Township 27N Range 19W
County:	Flathead

I. TYPE AND PURPOSE OF ACTION

The Kalispell Unit, Department of Natural Resources and Conservation, has been approached by the Montana Bureau of Mines and Geology (MBMG) to obtain authorization to drill wells for the purpose of subsurface water sampling. The proposed wells will be located in Section 14 and 23 Township 27N Range 19W. The sections are located approximately 18 miles SE of Kalispell. The drilling is proposed to begin in April 2011. There are three proposed well locations in each section and one will be chosen in each section for the well locations. There will be three to four wells drilled at the two chosen locations. The slurry from the drilling process will be hauled off of state trust land. The initial test will have two wells, one from each site, pumped 24 hours a day for seven days. The water will be piped to the nearest drainage area and discharge is estimated to be 100 gpm. After the initial test, the wells will be sampled periodically. The wells will be used only for scientific testing and potential emergency water sources for fire activities.

One of the goals of the project is to look at the deep aquifer and see how water moves through it. There will be a maximum of four wells drilled in each section. One will be a production well drilled into the deep confined aquifer; one will be a monitoring well in the deep confined aquifer, and then two shallower monitoring wells in shallow aquifers. They will look at the transmissivity and vertical movement of the water through these three different aquifers to determine any changes in aquifer storage. Aquifer vulnerability will be evaluated through targeting water chemistry sampling, groundwater-age dating, barometric efficiency analysis, and isotope and noble gas data. They are also looking for any movement of water to or from the Swan River and Flathead Lake and how that affects the different aquifers.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Legal advertisements (public notices) were placed in the *Bigfork Eagle* during the week of 03/07/11 and 03/16/11 and *Daily Inter Lake* on 03/06/11 and 03/13/11. There were also 58 letters sent out to all adjacent land owners, lessees affected by state land, and interested parties. Eight comments were received concerning the proposed project. Responses were completed and sent to concerned parties after all of the comments were received. Hydrological, soils, wildlife, and vegetative concerns were identified by DNRC specialists and field foresters for the effects of the Action and No Action Alternatives. Issues and concerns have been resolved or mitigated through project design or would be included as specific contractual requirements of the project. Recommendations to minimize the direct, indirect, and cumulative impacts have been incorporated in the project design.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

Examples: cost-share agreement with U.S. Forest Service, 124 Permit, 3A Authorization, Air Quality Major Open Burning Permit.

A State Land Use License is required from the Montana DNRC for the project.

The MBMG does not need a discharge permit to discharge uncontaminated ground water due to MCA 75.5.401:

3. ALTERNATIVE DEVELOPMENT:

No Action Alternative: Under this alternative, no activities would be implemented. There would be no wells drilled. The No Action Alternative would not generate revenue for the Capital Buildings (PB) Trust.

Action Alternative: Under the action alternative, there would be three to four wells drilled in two different sections of state trust land. The wells will be used to test the flow of water into the Flathead Valley aquifer. There will be one pit at each location to fill with material removed during the drilling process to allow the material to drain. The pits will be reclaimed after the completion of the project. The material removed from the ground in the drilling process will be hauled away to a specified location. The first test that will be administered will pump water out of two of the wells, one from each section, for 24 hours a day for seven days. The water that is pumped out of the wells will be piped to specified drainage areas. After that initial test, the wells will be monitored for the duration of the land use license.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT
<ul style="list-style-type: none">• <i>RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.</i>• <i>Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.</i>• <i>Enter "NONE" if no impacts are identified or the resource is not present.</i>

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

See Attachment II

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

See Attachment II

6. AIR QUALITY:

No direct, indirect, or cumulative impacts would be expected under either alternative.

7. VEGETATION COVER, QUANTITY AND QUALITY:

The proposed well locations were located in areas that will require the minimal amount of trees to be removed. There will only be three to five small lodgepole (3" to 4" DBH) that will be removed from one location for the drilling rig to drill the wells. There will be minimal direct, indirect, or cumulative effects to the vegetation.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

The proposed project areas have undergone recent timber harvest activities and are currently providing habitat for species preferring open canopy and/or early successional coniferous forest. Although use by a variety of bird, small mammal, and big game species is possible, extended wildlife use in the vicinity of the proposed project sites is unlikely due to close proximity (<300 ft.) of open roads, surrounding occupied dwellings, and current vegetation cover. Additionally, proposed sites for well drilling/monitoring are small (5/10 acre) and generally free of trees and thick undergrowth. Valuable wildlife resources, such as snag and course woody debris, are not expected to be affected with the proposed project.

Year-round use by deer, elk, and moose is possible. Portions of the proposed project area are identified as elk winter range and white-tailed deer winter range. Thermal cover and snow intercept could be affected by the proposed project, however the area would be quite small compared to the larger winter range. The proposed well monitoring sites are in areas generally lacking overstory or dense understory cover. Additionally, Montana Highway 83 (<0.3 miles away), a highly traveled thoroughfare, likely discourages year-round use by big game. Connectivity with the larger winter range area would be maintained. Well-drilling activities could temporarily displace big game species due to noise and human presence. Overall, effects to winter range quality within the proposed project boundaries would have little or no effect on big game populations using the larger winter range. No changes in human access or elk security would be expected. Thus minor direct, indirect, or cumulative effect to big game species would be anticipated.

Overall, given the size of the project area, project duration, and the expected changes to habitats, negligible direct, indirect, or cumulative effects to avian or terrestrial wildlife would be anticipated.

Recommended mitigations:

1. Cease all operations if a threatened or endangered species is encountered. Consult a DNRC biologist and develop additional mitigations that are consistent with the administrative rules for managing Threatened and Endangered Species (ARM 36.11.428 through 36.11.435).
2. To the extent practicable, retain sub merchantable vegetation along open roads for grizzly bear visual screening.
3. Remind contractors of the clause that prohibits them from carrying firearms while on duty. Require contractors to store food and other attractants in a bear resistant manner.
4. Close road and skid trails opened with proposed activities to reduce the potential for unauthorized motor vehicle use.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

The following table shows how each Threatened species, Endangered species, or sensitive species was either reviewed with anticipated effects of the proposal or dismissed because suitable habitat does not occur within the project area or proposed activities would not affect their required habitat components.

STATUS	SPECIES	DETERMINATION – BASIS
Threatened & Endangered Species	Canada lynx Habitat: SF hab. types, dense sapling, old forest, deep snow zone	The proposed project area does not contain potential lynx habitat. Additionally, the project area is generally outside of the elevations where lynx are located in Montana. Thus, no direct, indirect, or cumulative effects to Canada lynx would be expected.
	Grizzly bear Habitat: recovery areas, security from human activity	The project area is located within a grizzly bear recovery zone (Noisy Red Owl subunit). Given the small size of the project, nearby high-traffic roads and occupied home sites, and high degree of human influences, little or no grizzly bear use would be expected. Current levels of visual screening would be maintained along open roads. No new roads would be built with the proposed project. Thus, no direct, indirect or cumulative effects to grizzly bears would be expected with the proposed project.
	Gray wolf Habitat: ample big game pops., security from human activity	No known wolf packs currently occur in the vicinity of the proposed project area. Additionally, activities would occur during a short time period and would have negligible effects to gray wolves or big game species. No wolf den or rendezvous sites are known to occur in the vicinity; standard contract stipulations would address the potential of these habitat attributes occurring in the vicinity. Due to the negligible changes in big game use, lack of known habitat attributes, close proximity to a major highway, and inclusion of mitigation clauses in

		the contract, no direct, indirect, or cumulative effects to wolves would be anticipated.
Sensitive species	Bald eagle Habitat: late-successional forest <1 mile from open water	A portion of the proposed project area falls inside the home range associated with the Ferndale bald eagle territory. The status of the 2010 nesting season is unknown, however the nest area had been active in the last 10 consecutive years. Use of the project area by bald eagles is unlikely as it does not contain open water or meadows and is situated >1.5 miles from the nest site(s). Also, well drilling activities would occur during a short time period. Given the distance from the nest, habitats present, timing of the proposed activities, and proximity to existing human developments, no direct, indirect, or cumulative effects to bald eagles would be anticipated.
	Black-backed woodpecker Habitat: mature to old burned or beetle-infested forest	No recently (less than 5 years) burned areas are in the project area. Thus, no direct, indirect or cumulative effects to black-backed woodpeckers would be expected.
	Coeur d'Alene salamander Habitat: waterfall spray zones, talus near cascading streams	No moist talus or streamside talus habitat occurs in the project area. Thus, no direct, indirect, or cumulative effects to Coeur d'Alene salamanders would be expected.
	Columbian sharp-tailed grouse Habitat: grassland, shrubland, riparian, agriculture	No suitable grassland communities occur in the project area. Thus, no direct, indirect, or cumulative effects to Columbian sharp-tailed grouse would be expected.
	Common loon Habitat: cold mountain lakes, nest in emergent vegetation	No suitable lakes occur in the project area. Thus no direct, indirect, or cumulative effects to common loons would be expected.
	Fisher Habitat: dense mature to old forest <6,000 ft. elev. and riparian	A small amount (1/10 acre) of upland fisher habitat or fisher preferred cover type exists within the proposed project site(s) on section 14. Currently, these stands are too open to provide forest structure preferred by fishers. Trapper access would remain unchanged with the proposed project. Given the small size of the affected area, short duration of the proposed action, and low probability of any fisher use in the current habitat, no direct, indirect, or cumulative effects would be expected.
	Flammulated owl Habitat: late-successional ponderosa pine and Doug.-fir forest	No suitable acres of mature dry ponderosa pine and Douglas-fir habitats occur within the project area. Thus, no adverse direct, indirect, or cumulative effects would be expected.
	Harlequin duck Habitat: white-water streams, boulder and cobble substrates	No suitable high gradient streams occur in the project area. Thus, no direct, indirect, or cumulative effects to harlequin ducks would be expected.
Northern bog lemming	No suitable sphagnum bogs or fens occur in the project area. Thus, no direct, indirect, or cumulative effects to northern bog lemmings would be expected.	

Habitat: sphagnum meadows, bogs, fens with thick moss mats	
Peregrine Falcon Habitat: cliff features near open foraging areas and/or wetlands	No potential habitat occurs in the project area. Thus, no direct, indirect, or cumulative effects to peregrine falcons would be expected.
Pileated woodpecker Habitat: late-successional ponderosa pine and larch-fir forest	No suitable forest stands occur in the proposed well sites. Thus, no direct, indirect, or cumulative effects to pileated woodpeckers would be expected.
Townsend's big-eared bat Habitat: caves, caverns, old mines	DNRC is unaware of any mines or caves in the project area or close vicinity that would be suitable for use by Townsend's big-eared bats. Thus, no direct, indirect, or cumulative effects to Townsend's big-eared bats would be anticipated.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

The DNRC Archeologist found no cultural resources in the project area.

11. AESTHETICS:

Due to the scope and nature of this project, long lasting negative visual effects are not expected. The wells will be drilled in an area less than a half of an acre. The wells will be visible from the Brosten Lane Rd. and Bear Creek Rd. and the well casings will only be out of the ground about two feet.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

Under the action alternative, the first test that will be administered is that two of the wells will be pumped for 24hrs a day for seven days which is a standard "draw down test" to determine how fast the aquifer will recharge. After that initial test, the wells will be periodically monitored (about once a month to every other month). Minimal direct, indirect, or cumulative impacts will be expected under either alternative

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

Foothills Timber Sale EIS 2006
Sleuthaug Lane Timber Permit 2010

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES* potentially impacted are listed on the form, followed by common issues that would be considered.
- Explain *POTENTIAL IMPACTS AND MITIGATIONS* following each resource heading.
- Enter "NONE" if no impacts are identified or the resource is not present.

14. HUMAN HEALTH AND SAFETY:

No direct, indirect, or cumulative impacts would be expected under either alternative

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

No direct, indirect, or cumulative impacts would be expected under either alternative

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

No direct, indirect, or cumulative impacts would be expected under either alternative

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

No direct, indirect, or cumulative impacts would be expected under either alternative

18. DEMAND FOR GOVERNMENT SERVICES:

No direct, indirect, or cumulative impacts would be expected under either alternative

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

The proposed action is in compliance with State and County laws. No other management plans are in effect for the area.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

The proposed well locations are located adjacent to Brosten Lane and Bear Creek Rd. The wells will be drilled far enough off of the roads to minimize the effect, if any on the general traffic flow of on the roads. There will be minimal direct, indirect, or cumulative impacts will be expected under either alternative.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

No direct, indirect, or cumulative impacts would be expected under either alternative

22. SOCIAL STRUCTURES AND MORES:

No direct, indirect, or cumulative impacts would be expected under either alternative

23. CULTURAL UNIQUENESS AND DIVERSITY:

No direct, indirect, or cumulative impacts would be expected under either alternative

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

No direct, indirect, or cumulative impacts would be expected under either alternative

EA Checklist Prepared By:	Name: Tyrell Colombo Title: Management Forester	Date: April 5, 2011
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V. FINDING

25. ALTERNATIVE SELECTED:

The Montana Department of Natural Resources and Conservation has completed the environmental assessment (EA) for the proposed issuance of a Land Use License on state school trust land as described on page one of this document. After a thorough review of the EA, public comments, the project file, Department policies, standards, and guidelines, I have made the following decisions concerning this project.

The two alternatives proposed for consideration in this EA were the No-Action and Action Alternatives. The Action Alternative was modified to clarify the appropriate response to observation of conditions including erosion and sediment delivery, pooling to the extent that it could harm native vegetation, effects to threatened and endangered and other sensitive species, and effects to other wells in the area. The action alternative would allow discharge of water from well drilling, development, testing, and subsequent sampling operations of the Bureau of Mines and Geology's test wells to be discharged in a controlled manner onto State trust lands. The no-action alternative would not meet the objectives of the proposed project.

I have selected the Action Alternative as described in this document for implementation with the understanding that mitigations identified in the Environmental Assessment will be implemented as conditions to the Land Use License.

The Action Alternative has been selected for the following reasons:

- The Action Alternative meets the Purpose of Action and the specific project objectives listed on page 1 of the EA.
- The proposed use is consistent with state and local policies, laws, and regulations.
- The trust beneficiary will be fairly compensated.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

Upon review of the project and the analysis herein, I find that none of the project impacts are regarded as severe, enduring, geographically widespread, or frequent. Further, I find that the quantity and quality of the natural resources, including any that may be considered unique or fragile, will not be adversely affected to a significant degree. I find no precedent for future actions that would cause significant impacts, and I find no conflict with local, State, or Federal laws, requirements, or formal plans. In summary, I find that adverse impacts will be avoided, controlled, or mitigated by the design of the project to an extent that they are not significant.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

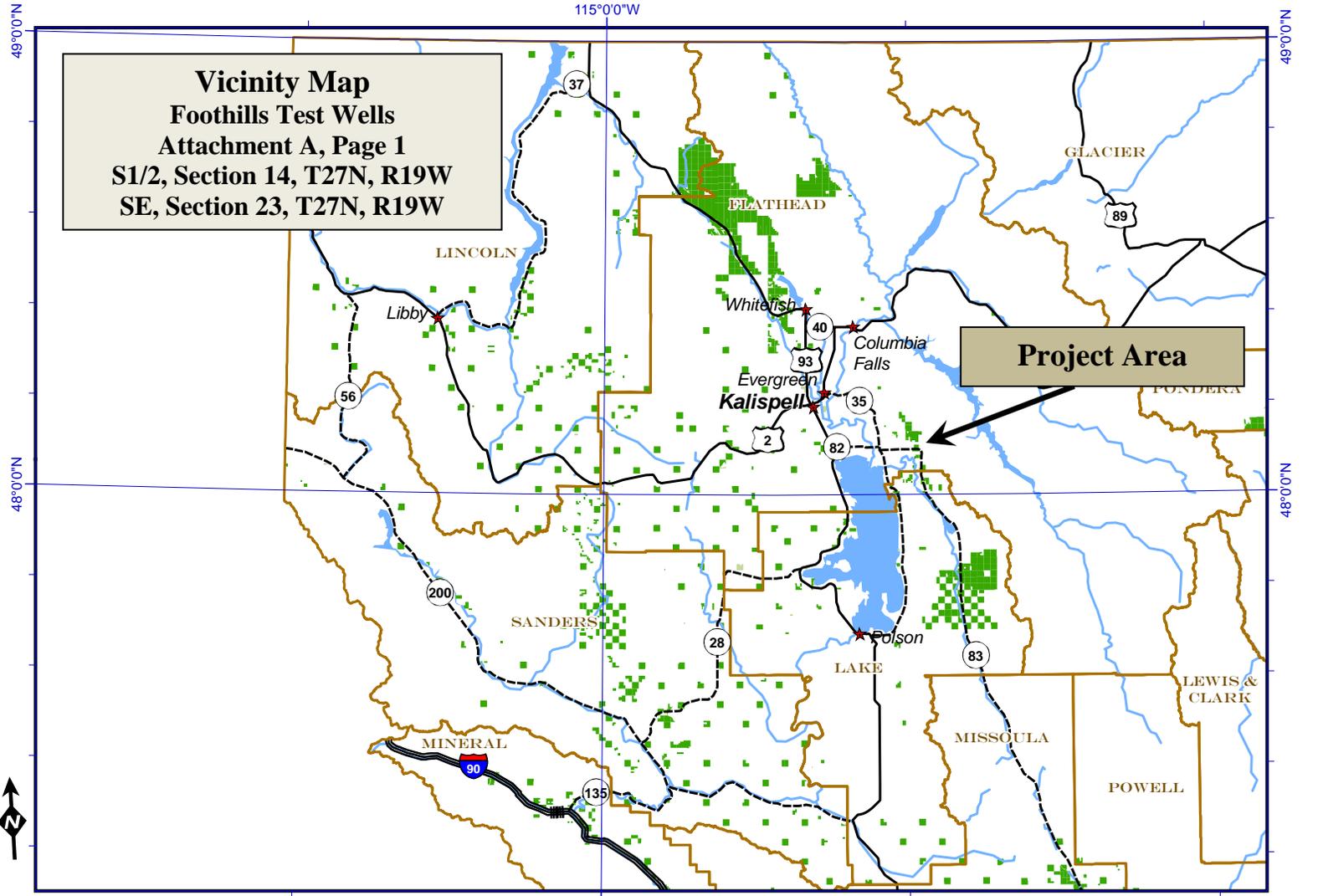
EIS

More Detailed EA

No Further Analysis

EA Checklist Approved By:	Name: Greg Poncin
	Title: Kalispell Unit Manager
Signature:	Date: April 8, 2011

Attachment I:
Project Maps



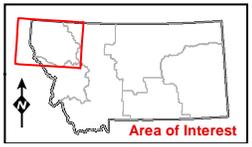
Vicinity Map
Foothills Test Wells
Attachment A, Page 1
S1/2, Section 14, T27N, R19W
SE, Section 23, T27N, R19W

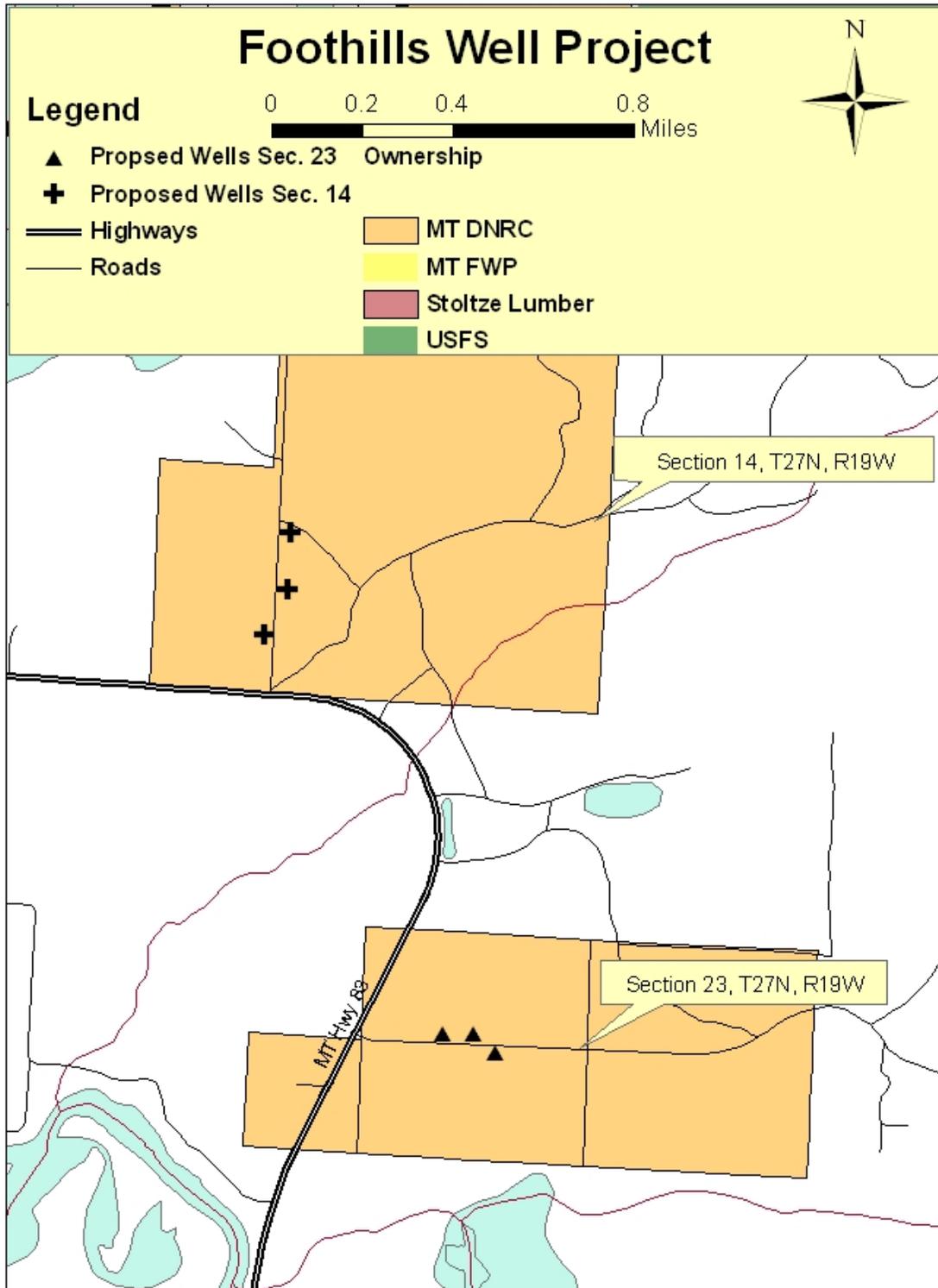
Project Area

	Interstate Highway		Rivers		Lakes
	U.S. Route		City		DNRC managed for timber
	State Highway		County		DNRC other



21 February 2007
 Montana DNRC
 Technical Services Section/dr





Attachment II:
Hydrology and Soils Analysis

Hydrology and Soils Analysis For the Foothills Well Project Proposal

Analysis Area

The analysis area for the hydrology and soils analyses is Sections 14 and 23, T27N R19W in the Wolf Creek and Bear Creek area. The Section 14 area is located in an unnamed watershed with no perennial surface water features. The Section 23 area is located within a portion of the Wolf Creek watershed.

Issues

Sediment Delivery

Material extracted during the drilling of wells may generate several cubic yards of bare soil. If not properly treated, this material could be eroded and delivered to draws or streams near the project area.

Surface erosion and sediment delivery may occur due to the discharge of water pumped from the production well during the drawdown test.

Groundwater Quality and Availability

Wells near the proposed test sites could be affected during the drawdown test. This may result in decreased water availability until the aquifer recharges. Nearby wells may also be affected if subsequent tests are conducted, or if the test wells are used for emergency fire suppression.

Groundwater quality is not expected to be an issue since no chemicals or dyes are proposed for use in this study. Only drawdown and recharge are being tested.

Existing Conditions

Hydrology – no perennial surface water features were identified near either proposal site. Through reconnaissance in 2004 and 2010, no stream channels were identified in the proposed project area. Areas near the proposed test well sites were found to have high water table conditions, and broad swales that may be old relic channels were also found near the proposed sites. Both areas proposed for test well drilling are located near existing roads. These roads are in good condition with adequate erosion control and Best Management Practices (BMPs). No evidence of sediment delivery to a draw or stream was observed in these areas.

Soils – identified soil type near both proposed drilling sites is Waits cobbly silt loam on 0 to 7 percent slopes according to the Upper Flathead Valley Area Montana soil survey (USDA 2004). This soil type is derived from glacial till, and is typically uneven and hummocky to hilly with a volcanic ash-influenced loess surface layer. This soil type is generally found in each of the project areas, but there may be small inclusions of other soils at micro-sites. This soil type has a low surface erodibility rating. Due to the limited nature of the drilling project and

the proximity to existing roads, measurable impacts to soils are not expected and will not be analyzed further in this document.

Direct and Indirect Effects

No Action

No impacts to runoff patterns or surface hydrology would occur. No changes to sediment delivery or sediment delivery risk would occur, and no groundwater drawdown would occur beyond that caused by existing use.

Action Alternative

The proposed project would involve drilling a production well and two or three monitoring wells at each of two potential sites. At each site, a production well would be drilled to the deep-water aquifer and would be pumped at an average rate of approximately 100 gallons per minute (gpm). The pumping rate could reach a rate of up to 500 gpm, depending on conditions of the aquifer. A deep-water monitoring well would be drilled near the production well to a similar depth, and would be monitored to determine the rate of drawdown and recharge in the deep-water aquifer. In addition, one or two monitoring wells may be drilled, one in the shallow aquifer to detect potential interaction between the shallow and deep aquifers, and another in the impervious layer separating the shallow and deep aquifers.

Sediment Delivery

There is a very low risk of sediment delivery as a result of the proposed project. All soil removed during drilling would be hauled from the sites in trucks and disposed of in a safe location. In addition, energy dissipation and erosion control measures would be installed where production well pumping is discharged. Potential discharge sites would be well-vegetated, and the volume of water released (approximately 0.2 cubic feet per second) would be unlikely to develop scour or erosion during the duration of the test

Groundwater Availability

Impacts of the drawdown test on nearby wells are not known. Factors that can affect this include: distance of domestic wells from the production well, depth of nearby wells, and recharge rates of the aquifer. Part of the reason for this study is to determine the recharge rates and volume and rate of groundwater flow. In general, the farther a well is from the production well, the lower the risk of it being affected.

The risk of domestic wells being affected by potential drafting for fire suppression would be substantially lower than the risk of effects from the drawdown test. The drawdown test would pump the production well for seven days, where the use for fire suppression would be very intermittent, short duration, and the use of these wells for fire suppression purposes would be very occasional, and possibly would never occur.

Cumulative Effects

No Action

No cumulative impacts to runoff patterns or surface hydrology would occur. No changes to sediment loading to downstream water would occur at or near the proposed project locations beyond those occurring under natural or pre-existing conditions.

Action Alternative

Risk of cumulative effects to water yield or sediment loading to downstream waterbodies is low. Increases in runoff or sediment loading to downstream water are not expected to be measurable as a result of this project. Pumping of water from the deep-water aquifer for a 7-day period is not expected to change runoff patterns or flow of downstream waters. Water pumped from the aquifer will return to the aquifer either through infiltration or surface delivery, so downstream flows and runoff patterns are not expected to change.

Reference:

USDA Natural Resources Conservation Service. 2004. *Soil Survey Geographic (SSURGO) database for Upper Flathead Valley Area, Montana*. USDA Natural Resources Conservation Service.