



Department of Health and Environmental Sciences  
STATE OF MONTANA HELENA, MONTANA 59601

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John S. Anderson M.D.  
DIRECTOR

Re: Homestead Third Filing  
Yellowstone County

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September 9, 1975

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ENVIRONMENTAL QUALITY  
COUNCIL

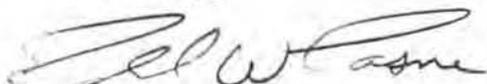
Honorable Thomas Judge, Governor, State of Montana, Helena  
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Billings City-County Planning Board, Yellowstone County Courthouse, Billings  
Billings City-County Health Department, Room 310-311 Courthouse, Billings  
Environmental Information Center, Box 12, Helena  
C. W. Gonder, 823 East Call Street, Livingston  
Mrs. Vel Jansen, 430 South Sixth, Livingston  
Mrs. Winifred Lucky, 420 South Sixth, Livingston  
Mary Lee Reese, League of Women Voters, 29 So. Alta, Helena  
Doris Milner, Montana Wilderness Association, Route #1, Box 1410, Hamilton  
Northern Rockies Action Group, #9 Placer Street, Helena  
Paul T. Richards, 902 North Park, Helena  
John Schillinger, Microbiology Department, Montana State University, Bozeman  
Concerned Citizens for a Quality Environment, c/o Ron Erickson, Chairman,  
University of Montana, Missoula  
Larry Uman, Environmental Studies Department, University of Montana, Missoula  
Student Environmental Research Center, University of Montana, Room 212,  
Venture Center, Missoula  
Rick Graetz, P. O. Box 894, Helena  
Bureau of Land Management, Federal Building, 316 No. 26th Street, Billings  
Bureau of Reclamation, P. O. Box 2553, Billings  
Bureau of Sport Fisheries & Wildlife, 711 Central Avenue, Billings  
Oscar Harmon, 1804 Lake Elmo Road, Billings  
Kenneth Mitchell, First Congregational Church, 310 No. 27th St.,  
Billings  
Mrs. Rita Sheehy, 1041 Poly Drive, Billings  
Trout Unlimited, P. O. Box 1534, Billings  
Yellowstone Development Council, Room 202 Courthouse, Billings  
Northern Plains Resource Council, Stapleton Building, Billings  
Monty Kimble, P. O. Box 516, Billings  
HKM Consultants, 937 Grand, Billings

Enclosed is an agency impact determination that has been prepared for Homestead Third Filing, a proposed subdivision in Yellowstone County.

Subdivision plans and specifications have been submitted to the Department of Health and Environmental Sciences for approval of water supply, sewage disposal, and solid waste disposal systems.

This determination defines the project and specifies those conditions under which the subdivision will receive approval without the development of an environmental impact statement. This determination is intended to assure all interested governmental agencies and public groups that this approval is being sought within the intent of both the Montana Environmental Policy Act and the Montana subdivision laws.

Sincerely,



Edward W. Casne, Chief  
Subdivision Bureau  
Environmental Sciences Division

EWC:APK:ds

Enclosure

cc: Ben Wake  
Terry Carmody

MONTANA DEPARTMENT OF HEALTH  
AND  
ENVIRONMENTAL SCIENCES

An Agency Impact Determination For  
HOMESTEAD THIRD FILING  
A Proposed Subdivision in Yellowstone County, Montana

Pursuant to the Montana Environmental Policy Act, Section 69-6504 (b) (3); the act controlling both public and private water supply and sewage disposal for subdivisions, Section 69-5001 through 69-5009; and the act to control water pollution, Section 69-4801 through 69-4827, the following agency impact determination is prepared by the Department of Health and Environmental Sciences, Environmental Sciences Division, concerning a proposed subdivision in Yellowstone County, Montana, for which a submittal has been received requesting removal of sanitary restrictions.

The purpose of this agency impact determination is to inform all interested governmental agencies and the concerned public of the Subdivision Bureau's intent not to prepare a full environmental impact statement. This document will be circulated for ten days.

## INTRODUCTION

This A.I.D. covers 21 single-family residential lots (15.51 acres) in the Third Filing of Homestead Subdivision. The subdivision is located approximately 4 miles north of Billings, Montana in the SE $\frac{1}{4}$ , Sec. 2 and NE $\frac{1}{4}$ , Sec. 11, T2N, R26E.

Water supply will be provided by individual wells. Wastewater treatment and disposal will be accomplished through individual septic tank drainfield systems. The maximum and minimum size of the 12 lots concerned in this report are 32,989 and 20,430 square feet, respectively.

## GEOLOGY

The geological formation of main interest in the study area is the Judith River Formation of Cretaceous Age. This unit has a reported maximum thickness of 600 feet in the area. The Judith River Formation is reported by the U. S. Geological Survey to consist of alternating beds of yellow to brown sandstone and dark gray shale. The Judith River Formation outcrops in the northwest corner of lot 22 of Block 5 of the Third Filing. The Judith River Formation as exposed in the above lot consists of buff to brown weakly cemented, layered, medium grained, soft, friable sandstone. Strike and dip of the Judith River Outcrop is N77°W and 50NE. Test holes made for this report indicate sandstone of the Judith River Formation to be mantled by very fine sandy clay soils 3 feet and greater in thickness throughout the 21 lot area. The shallower soils (2 to 3 feet thick) are present only in the west half of Lot 22 of Block 5. Soil Test Hole #1, located in the southeast corner of the same lot, indicates soils in this area to be a minimum of 5 feet thick. Auger holes made for soil and percolation testing purposes throughout the remainder of the Third Filing, indicated that depth to bedrock was everywhere greater than 6 feet below the land surface 1/ 2/.

## GROUNDWATER

Groundwater was not encountered in any of the test holes previously described. Examination of available well logs in the vicinity of the Second Filing indicated that the average year-round depth to groundwater at the site would be approximately 100 to 150 feet.

## SOILS

Soils within the Third Filing were reported by the Soil Conservation Service as being a deep, well-drained, nearly level to strongly sloping, calcareous loam. Permeability in place of the soils at the site was reported to range between 0.63 and 2.0 inches per hour 3/.

Descriptions of the soils encountered within the 21 lot area are given concur with the Soil Conservation Service Soil Survey. Percolation tests were run on each of the lots covered in this report. Percolation rates in the Third Filing ranged from 4 to 22 min/inch. Slopes on building lots within the report area range from 2% to 12% depending on direction of measurement.

## WATER SUPPLY

Water will be supplied by individual wells tapping sandstone units of the Judith River Formation. Available well logs on file with the Montana Bureau of Mines and Geology as of June, 1975, indicate drilling depths for adequate supply in the Third Filing would be between 100 and 150 feet below the land surface depending on location. Exhibit 8 which is a log of a well drilled in November, 1973, in the Third Filing outside the area concerned in this report, indicates that the sandstone aquifer in the report area would be approximately 57 feet thick and have a specific capacity on the order of 0.38 gpm/ft. of drawdown. The above unit was bailed by the driller for approximately 1 hour at an estimated rate of 15 gallons per minute and resulted in a total drawdown of 40 feet (100 feet below land surface). Static water level before bailing was 60 feet below the land surface. Local well drillers have indicated that their experience has shown that drilling depths in the general area of the Third Filing have been as great as 300 feet with yields ranging between 10 and 15 gpm. Results of chemical analyses of a well located in Block 7 Lot 9 of the Third Filing indicates the water can meet U. S. Public Health Service drinking water standards.

## WASTEWATER DISPOSAL

Wastewater disposal will be by septic tank-drainfield systems. Sewers from the houses to the septic tanks will be a minimum of 4 inches in diameter and have a minimum slope of 3 percent. Minimum capacity of the septic tanks will be 1,000 gallons. Disposal of septic tank effluent will be by drainfield. The developer or property owner could use the percolation test results of this investigation to size a drainfield for a particular lot. The property owner or developer would be encouraged to conduct a minimum of six percolation tests at the site of each proposed drainfield to accurately determine percolation rates at that particular location.

## SOLID WASTE COLLECTION AND DISPOSAL

Each property owner will be responsible for the collection and disposal of their own solid waste in a state approved sanitary landfill.

At least three private refuse hauling contractors are available for solid waste collection in Yellowstone County. Disposal of refuse by these haulers is in the Billings sanitary landfill. The fee paid by the property owner to the hauler includes sanitary landfill disposal costs. The haulers are responsible for landfill disposal of the refuse. The local haulers indicate there is no problem as far as disposal is concerned as they pay the landfill on a load basis.

Each property owner will be responsible for contracting their own septic tank pumping. Disposal of sludge will be in a State and County approved site within Yellowstone County.

## PROBABLE ENVIRONMENTAL IMPACT

The 21 lot area of the Third Filing is surrounded by residential development. The investigation to complete this report indicates that the 21 lot area will have no adverse effects on surface or groundwater in the area and that the soils have sufficient permeability for adequate subsurface disposal of wastewater. The primary effect of this development is the permanent commitment of the land to residential development. The secondary effect is suburban congestion resulting from development.

### UNAVOIDABLE ADVERSE EFFECTS

Noise and air pollution from blowing dust will be unavoidable during the construction and development of the 21 lot area.

### ALTERNATIVES

The only alternative would be no development as the 21 lot area is surrounded by other residential developments. The current housing demand, the favorable results of this investigation in regards to soil and water protection, plus the fact that this area has been zoned R 9600 for single family residences.

### RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG TERM PRODUCTIVITY

As previously stated, investigations for this report have shown that the development will have no adverse effects on surface or groundwater resources. These investigations have also shown that the soils of the site are capable of adequate disposal of septic tank effluent. The long-term physical effects on the environment from this subdivision will be less as continued development in the area will require a community sewer system.

### IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

This land would be permanently committed to residential use.

### REFERENCES

1. Hall, G. M., and Howard, C.S., 1929, Groundwater in Yellowstone and Treasure Counties, U. S. Geological Survey Water Supply Paper, 599.
2. Gosling, Arthur W. and Emil F. Pashley, Jr., 1973, Water Resources of the Yellowstone River Valley, Billings to Park City, Montana, U. S. Geological Survey Hydrologic Investigations Atlas, HA-454
3. Soil Survey of Yellowstone County, Montana, 1972, United States Department of Agriculture, Soil Conservation Service.
4. Manual of Septic Tank Practice, 1967, Public Health Service Publication No. 526, U. S. Department of Health, Education and Welfare, Public Health Service, Cincinnati, Ohio.

This agency impact determination has been prepared by Alfred P. Keppner, B.S.F., M.S., Soils Scientist, Environmental Sciences Division, utilizing information supplied by Hulbert, Kersich and McCullough and the developer.