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

John S. Anderson M.D.
DIRECTOR

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SEP 24 1975
QUALITY

RE: Homestead Subdivision, First Filing
Yellowstone County, Montana

September 16, 1975

Honorable Thomas Judge, Governor, State of Montana, Helena
Citizens Advocate, Helena
Environmental Quality Council, Helena
Montana Fish and Game Department, Helena
Department of Highways, Helena
Department of Intergovernmental Relations, Division of Planning, Helena
Department of Natural Resources and Conservation, Helena
Department of State Lands, Helena
Montana State Library, Helena
Board of County Commissioners, Yellowstone County Courthouse, Billings
City-County Planning Board, Yellowstone County Courthouse, Billings
City-County Health Department, Room 205 Courthouse, Billings
Environmental Information Center, Box 12, Helena
C. W. Gonder, 823 East Call Street, Livingston
Mrs. Vel Jansen, 430 South 6th, Livingston
Mrs. Winifred Lucky, 420 So. 6th, Livingston
Mary Lee Reese, League of Women Voters, 29 S. Alta, Helena
Doris Milner, Montana Wilderness Assn., 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
Bureau of Land Management, Federal Building, 316 No. 26th St., Billings
Bureau of Reclamation, P. O. Box 2553, Billings
Bureau of Sport Fisheries & Wildlife, 711 Central Ave., 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, Box 1534, Billings
Yellowstone Development Council, Room 202, Courthouse, Billings
Northern Plains Resource Council, Stapleton Building, Billings
General - Kimble Properties, Petroleum Building, Box 516, Billings
HKM Consultants, 937 Grand, Billings

Enclosed is an agency impact determination that has been prepared for Homestead First 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
Subdivision Bureau
Environmental Sciences Division

EWC: APK:ds
Enclosure
cc: Ben Wake
Terry Carmody
Tom Ellerhoff

MONTANA DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

An Agency Impact Determination For HOMESTEAD FIRST 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.

This A.I.D. covers 14 single-family residential lots (10.15 acres in the first filing) of Homestead Subdivision. The subdivision is located approximately 4 miles north of Billings, Montana, in the SE¼ Section 2 and NE¼ Section 11, T. 1 N., R. 26 E.

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 58,348 and 20,371 square feet, respectively which met minimum lot size requirements at the time the plat was filed.

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 1/ 2/. The Judith River Formation outcrops in Lot 4 of Block 6 and Lots 4,5,6,7,8 and 9 of massive to locally layered, fine to medium grained, buff to gray colored sandstone. Strike of the outcrop in the above lots trends N 77° W with the dip ranging between 10° and 13° N.E. Test holes made for this report indicated sandstone and claystone of the Judith River Formation to be mantled by very fine sandy clay and clayey sand 3.6 feet deep and greater throughout potential building sites in the 14 lot area. Three soil test holes were drilled by hand auger within the First Filing. One hole was drilled in Lot 4 of Block 6, and one each in Lots 3 and 7 of Block 7. Depths to bedrock at these sites varied from 3.6 feet in Lot 4 of Block 6 to 7.6 feet in Lot 7 of Block 7. Auger holes made for soil and percolation testing purposes throughout the remainder of the First Filing indicated that shallower soils (2.0 to 3.0 feet thick) are present only in parts of Lots 3 and 4 of Block 6. Depth to bedrock was found to be greater than 4.0 feet at potential drainfield sites in the remainder of the First Filing.

GROUNDWATER

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

SOILS

Soils within the First Filing were reported by the Soil Conservation Service as being deep, well-drained, nearly level to strongly sloping calcareous loam. The above soils occur adjacent to the sandstone outcrops previously described 3/. Descriptions of the soils encountered within the 14 lots 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 First Filing range from 7 to 50 minutes/inch. Slopes of lots in the report area range from 0 to 15 percent depending on the 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 First Filing would be between 150 and 200 feet below the land surface depending on

the location in the subdivision. Exhibit 8 which is a log of a well drilled in the Third Filing of Homestead Subdivision, indicated that one of the sandstone aquifers in the report area could be approximately 57 feet thick and have a specific capacity on the order of 0.38 gpm/ft. of drawdown. The sandstone unit tapped by the well described above was bailed by the driller for approximately one hour at an estimated rate of 15 gallons per minute and resulted in a total drawdown of 40 feet (100 feet below land surface) at the end of this period. Static water level before bailing was reported to be 60 feet below the land surface. Local well drillers have reported that their experience has shown that drilling depths and yields in the vicinity of the First Filing have been as great as 300 feet with the yields ranging between 10 and 15 gpm. The chemical results of an analysis of water taken from a well located in Block 7, Lot 9 of Homestead Third Filing indicated water meets U. S. Public 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. Lots 3 and 4 of Block 6 would utilize an evapotranspiration system because of the shallow depths to the Judith River Formation.

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.

Homestead First Filing is surrounded by residential developments. Results of this investigation indicate that the proposed development will have no adverse effects on surface or groundwater in the area and that soils have sufficient permeability for disposal of wastewater. The primary effect of this development is the permanent commitment of the land to residential development. A secondary effect would be suburban congestion resulting from development.

UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Noise and air pollution from blowing dust will be unavoidable during the construction and development of Homestead First Filing.

ALTERNATIVES

The main alternative would be no development as most of the area in the vicinity of the First Filing has already been developed or subdivided. The above, plus the fact the area encompassed by the First Filing has been zoned R-9600 for single family residences, leave development of the 14 lot area as the most realistic alternative.

RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

In the long-term, the effects on the environment will be minimized by the investigations involved in the development of this project. Long-term effects on the environment will even be less as the development of the Billings Heights area will eventually require a community sewer and centrally located wastewater treatment system for all of the area including the First Filing of Homestead Subdivision.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

This land would be permanently committed to residential use and divide the land into a multiplicity of ownerships.

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

REFERENCES

1. Hall, G.M., and C. S. Howard, 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, March 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.