

September 2, 1975

REF: HA-3/25/75-653

Dr. John Jefferies
Institute for Astronomy
University of Hawaii
2680 Woodlawn Drive
Honolulu, Hawaii 96822

Dear Dr. Jefferies:

Conservation District Use Application for
Observatory Uses at
Mauna Kea, Oahu

At its meeting of August 29, 1975, the Board of Land and Natural Resources approved the subject application, subject to the following conditions:

1. The University of Hawaii shall comply with Sections 2C and 2F of Regulation No. 4, and all requirements, as set forth in General Lease S-4191.
2. The University of Hawaii shall seriously consider the placement of underground conduit for distributing electric power not only above the 12,700 foot elevation but also below said elevation in order to preserve the natural setting and aesthetics of Mauna Kea slope.
3. The University shall notify the Chairman of the Board of Land and Natural Resources upon the commencement and the completion of the UKIRT and NASA observatory facilities construction work.
4. The University shall blend the exterior of the observatory and related facilities to the surrounding area by all means possible.

5. The University shall locate and design the NASA observatory and related facilities so as not to be visible from Hilo region.
6. The University shall submit a copy of the construction drawings UKIRT and NASA observatories and related facilities to the Chairman for review and approval prior to commencement of the construction work.
7. The University shall be fully responsible for the adequate and "litter-free" upkeep and maintenance of all land within the science reserve including the roadway access and abutting lands.
8. The University shall post the conditions as set forth herein for information of all affected personnel at not only the mid-level facilities but also the observatory facilities.
9. The approval by the Board of the UKIRT and NASA observatory facilities shall be deemed to have no implication on the University's mid-level facilities.
10. The University officials using the proposed facilities shall heed the reasonable concerns and complaints of the community in terms of sharing and caring for the use of Mauna Kea for mutually beneficial ends.
11. The applicant, its successors and assigns shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury and death arising out of any act or omission, and not occasioned through the fault of the State, of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit and also any loss, liability, claim or demand for property damage, personal injury and death arising out of or relating to or connected with the granting of this permit, and not occasioned through the fault of the State.
12. Other terms and conditions as may be prescribed from time to time by the Chairman with the approval of the Board.

Dr. John Jefferies
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Should you have questions on any of these conditions, please contact our Planning Office at 548-7837.

Very truly yours,

Edgawa A. Hamase

CHRISTOPHER COBB
~~Chairman of the Board~~

cc: Hawaii Planning Dept.
Hawaii Board of Water Supply
Hawaii Board Member
Hawaii Land Agent
Dept. of Health
OEQC
LUC

bcc: Divisions

EU:jm

George R. Ariyoshi
~~HONOLULU, HAWAII~~
GOVERNOR OF HAWAII



DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

~~HONOLULU, HAWAII 96809~~

P. O. BOX 621

HONOLULU, HAWAII 96809

REF: HA-3/25/75-653
180-Day Expires: 9/20/75

August 29, 1975

Board of Land and
Natural Resources
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Conservation District Use Application for
Government Use (construction of telescope
facilities) at Mauna Kea, Kahohe, Hawaii

APPLICANT:

DLNR/Division of Land Management
at the request of
University of Hawaii
Institute of Astronomy
2680 Woodlawn Drive
Honolulu, Hawaii 96822

USE REQUESTED:

Government Use (construction of NASA Infrared Telescope
facility, and access road and United Kingdom Infrared
Telescope)

LOCATION:

Mauna Kea, Hawaii, TMK: 4-4-15:9

AREA OF PARCEL:

13,321.054 acres

AREA OF USE:

71,000 square feet (NASA observatory)
25,000 square feet (Access road)
30,000 square feet (UKIRT observatory)

SUBZONE:

General Use

DESCRIPTION OF AREA:

The proposed observatory sites are located within the Mauna
Kea Science Reserve, above the 13,000 foot elevation. The

Board approved
both observatory sites -
condition
ITEM H-5 amended

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entire science reserve area is State-owned lands under General Lease S-4191 to the University of Hawaii. (Exhibit I)

Existing facilities in the area include an 88" UH telescope, a 24" Air Force telescope, a 24" Planetary Patrol telescope, and a 3 140" Canada/France/Hawaii telescope, presently under construction. (Exhibit I)

Access to the summit area consists of a newly completed 20 foot wide paved road from Saddle Road to Hale Pohaku. From Hale Pohaku to the observatory area, access consists of an existing 6.5 mile, one lane dirt road, traversable only by 4-wheel drive vehicle. The road is owned by the State and is presently being realigned by the Department of Transportation.

Utility availability is as follows:

Water - there is no water source in the area. Water for existing facilities is transported by truck and stored in underground tanks.

Waste Disposal - waste water is disposed of via underground septic tanks adjacent to the observatory buildings. Solid waste material is collected and hauled to a Hilo waste dump site.

Electricity - electricity is provided by generators. Diesel oil for the generators is trucked to the summit. (The University points out that they propose to construct a power line to provide electricity in the future. An underground conduit has already been constructed from the 12,700 foot elevation to the University telescope area. Further distribution to other users will be via underground cables.)

Telephone - telephone communication is by microwave link.

DESCRIPTION OF PROPOSED USE:

The Use Requested consists of the construction of two new telescopes, the NASA Infrared Telescope Facilities and the United Kingdom Infrared Telescope Facilities, and the operations of these facilities.

NASA Infrared Telescope Facilities - The NASA facilities will be located approximately 1100 feet away from the University Observatory and will consist of a two-story structure about 116 feet by 84 feet. Accessory facilities for the observatory will include a 30 feet x 5 feet water tank, an 15 feet x 5 feet oil storage tank, and a 15 feet x 5 feet underground septic tank. A 2,000 foot long, 12 foot wide access road will be constructed to the site from the end of the existing observatory road. Grading at the observatory site will require cutting of about 4,500 cubic yards of material, all or most of which will be used for fill at the building site. Residue will be placed in the swale along the road alignment. Grading for the access road will require cutting approximately 3,000 cubic yards of material.

The proposed 120 inch infrared telescope will be used for the observation of the planets, their satellites, and other objects in the solar system and the universe, and provide supporting and complementary data for future planned planetary flight programs. The telescope is expected to play a major role in optimizing scientific return from the Mariner Jupiter/Saturn mission scheduled to be launched in August 1977. The facility will be used to study basic data on the temperatures and surface characteristics of the planets and their satellites, and provide data prior to the launch of the Mariner Jupiter/Saturn mission.

Estimated capital and annual operating costs for the project are \$6,000,000 and \$800,000 respectively. All costs would be borne by NASA.

It is anticipated that construction for the telescope would begin in the summer of 1975, with completion scheduled for the spring of 1977.

A concrete batch plant will be established at approximately the 12,500 foot elevation. A construction base yard will be used for storage of materials and equipment. Upon completion of construction, these sites will be restored to their previous condition.

United Kingdom Infrared Telescope Facilities - The UKIRT facilities will be located approximately 450 feet away from the University of Hawaii observatory facilities and will consist of a ~~single~~ two-story structure. Access to the UKIRT site will be by the existing observatory road.

The United Kingdom 155 inch infrared telescope will be used to observe heavenly bodies in the infrared spectrum and for general research purposes.

Capital and annual operating costs for the project are estimated to be \$3,000,000 and \$500,000 respectively. All funding will be borne by the United Kingdom.

It is anticipated that construction for the facility will begin in the summer of 1975 and be completed in the fall of 1977.

Grading will be limited to site development. It is estimated that approximately 4,000 cubic yards of material will be removed.

A concrete batch plant will be established at approximately the 12,500 foot elevation. A construction base yard will be established at about the 9,200 level for storage of materials and equipment. Both sites will be restored to their original condition upon completion of construction.

Parking for both sites will be available immediately around the observatory buildings. Drainage at both sites is not expected to be a problem, since the cinder cones are extremely porous and the availability and use of water is very limited.

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Any water used in waste disposal will be piped to septic tanks. No outdoor lighting will be provided beyond a low power pilot light at most. Power, water, and sewage will be handled in the same manner as for existing facilities.

During the construction phase, outdoor sanitary facilities will be used; power and water will be available from the generator and water tank which serve the University's telescope building.

The University has filed an EIS for the project in accordance with State EIS Rules and Regulations. A copy of the EIS was filed with the CDUA.

The University states that the use of the area for the construction and operation of the telescope projects is compatible with the Mauna Kea site, since the summit area was dedicated by the Governor as a Science Reserve area to be used specifically for the purpose of carrying out astronomical observations. They point out that the extensive national and international tests have shown Mauna Kea to be a most superior site of those considered for astronomy as a whole and, particularly, infrared observatories.

If the use is approved, the University proposes to sublease the subject sites. Right of access to both sites and over and across the common entrances and right-of-way will be granted to the subleases. The existing power and telephone lines at the UKIRT site will be relocated along the roadway. Easements will be provided for electric and power telephone lines to the NASA site.

SUMMARY OF COMMENTS RECEIVED:

By letter dated April 15, 1975, the County of Hawaii Planning Department expressed their concern about the overall development of the Mauna Kea area and transmitted a copy of their letter dated April 14, 1975 to the Office of Environmental Quality Control on the draft EIS for the project which reflected this position. The Planning Department also stated that in their opinion, it would be premature for them to comment upon a proposal which could conceivably be disallowed by a master plan.

(Exhibits III & IV)

The County of Hawaii Department of Water Supply has stated they have no objections to the application.

By letter dated July 21, 1975, the Office of Environmental Quality Control points out their belief that no new projects should be implemented on Mauna Kea prior to their incorporation into a Master plan. However, insofar as planning efforts to date have shown the place of the proposed NASA telescope in the overall Mauna Kea picture, they do not feel that an actual finished master plan is necessary before the NASA project can be allowed, if it is approved by the Governor.

They point out that their primary concern has been that the EIS for the NASA project be evaluated in the greater scheme of Mauna Kea, which they feel has been done. They point out that their comments do not constitute agreement over all actions proposed in the master plan or that EIS's for other projects will be

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be approved prior to the Board's acceptance of the master plan. However, they have singled out the NASA project because of the University's feelings of urgency on the project, the concern expressed by the general public, and their own feelings that the intent and purpose of the EIS legislation has been met. (Exhibit IV)

Accordingly, by letter dated July 31, 1975 the Office of Environmental Quality Control has recommended that the Governor accept the EIS for the proposed NASA and UKIRT facilities at Mauna Kea. (Exhibit III)

The National Aeronautics and Space Administration has submitted a letter dated July 14, 1975, to record the consultation requirement of the National Historic Preservation Act regarding NASA's action. They state that as a result of their assessments they have determined that an EIS is not warranted and has notified the Federal Council on Environmental Quality of this negative determination. They state that a notice of the determination is also being published in the Federal Register. (Exhibit V)

DLNR DIVISION'S COMMENTS ARE AS FOLLOWS:

The Division of Forestry recommends that the project be held in abeyance until the advisory group, their mandate and master plan are completed as per Governor Ariyoshi's memorandum to the Department dated November 1, 1974, and Chairman Cobb's of January 15, 1975. (Exhibits II & IX)

The Division of Land Management has no objections to the proposed use.

DOWALD points out that during construction of the project, measures should be taken to protect the waters of Lake Waiiau and the spring sources for the Pohakuloa water system from contamination due to erosion and sedimentation.

The Division of Fish and Game points out that the project will not have adverse effects on fish and wildlife values.

The Division of State Parks points out that there are no known park concerns within the project scope. They are concerned with the broader indirect aspects of the project. They feel that both the planning and EIS efforts have been too piecemeal to date and therefore both are inadequate.

ADDITIONAL INFORMATION:

By letter dated August 4, 1975 to the University of Hawaii, the Governor has accepted the Environmental Impact Statement for the project. In his letter, the Governor points out that his acceptance of the statement is an affirmation of the adequacy of the statement under the applicable laws, and does not constitute endorsement of the proposed action. The Governor asks that in the decision regarding the proposed action, careful consideration be given as to whether the societal benefits justify the environmental impacts which will likely occur. (Exhibit VI)

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STAFF ANALYSIS:

Under Section 2-B(1)(e) of Regulation No. 4, "Government uses, to include community, public, and public service uses and/or buildings" are permitted uses within the "GU" Conservation Subzone subject to the prior approval of the Board, and the conditions set forth in said Regulation. The proposed observatories are governmental uses. Accordingly, these uses are permitted within the "GU" Conservation Subzone subject to Board approval and conditions as deemed necessary by the Board.

The Mauna Kea Science Reserve was created under General Lease S-4191 (attached) at the summit of Mauna Kea containing 13,321.054 acres. General Lease S-4191 was awarded to the University of Hawaii by the Board of Land and Natural Resources on June 18, 1968. The proposed telescope facilities comply with the requirements of General Lease S-4191. Under the General Lease, major requirements are as follows:

1. Lake Waiau shall not be disturbed or polluted; and water arising from springs furnishing Pohakuloa shall not be taken or diverted.
2. Hunting and recreation rights over the General Lease area shall be coordinated with the University, and hunting and recreation activities be limited to day-light hours only.
3. Land shall be used as a scientific complex, including without limitation to observatory, and as a scientific reserve more specifically a buffer zone to prevent the intrusion of activities detrimental to the scientific complex.
4. The plans for construction and plot plans of buildings, structures and other improvements shall be submitted to the Chairman of the Board of Land and Natural Resources for review and approval prior to commencement of construction.
5. Regulation No. 4 of the DLNR and other laws, ordinances, rules and regulations of the federal, state and county governments shall be complied with.
6. Object of antiquity, prehistoric ruin or monument of historical value shall not be appropriated, damaged, removed, excavated, disfigured defaced or destroyed.
7. In order to prevent the introduction of undesirable plant species in the area, the Lessee shall not plant any trees, shrubs, flowers, or other plants except those approved by the Chairman.

Staff points out that based on the statements by the University of Hawaii there is an urgency for a decision on the NASA telescope facility at this time. The University points out that construction of the facility must begin as soon as possible in order for the facility to be completed and ready to participate in the Mariner flights scheduled for 1977.

Concern has been expressed that no new developments should be permitted on the summit area at this time, until the master plan work has been completed. It appears however, that the master plan will not be finished till at the best, late this year. Based on work to date on the master plan however, it is the Department staff's opinion that if approved at this time, the NASA facility will not jeopardize the master planning effort or create any major adverse effects to the environment of the area.

The NASA observatory structure will occupy an area less than 10,000 square feet. The Mauna Kea Science Reserve, under General Lease S-4191, covers 13,321.054 acres. Accordingly, NASA's facility utilizes only a very small fraction of the total science reserve area. Furthermore, the NASA telescope site is sufficiently separated roughly 1,200 feet from the nearest facility which is the Canada, France, Hawaii observatory facility. Because of the space between facilities and the immensity of the total science reserve, the environmental effect, if any, can be mitigated with adequate conditions.

STAFF RECOMMENDATION:

The staff recommends that:

1. The CDUA for NASA observatory and related facilities be approved for the following reasons:
 - a. Planning study of Mauna Kea is in the final stage. Sufficient review of the environmental effect has been made of the NASA facility and intensive input and participation from many groups in the State have been received and recognized.
 - b. Virtually no hunting is carried out within the summit area where the NASA facilities are proposed.
 - c. There are no vegetation nor habitat for birds and other animal species within the proposed NASA telescope site.
 - d. The NASA Observatory will be located and designed so as not to be visible from the Hilo region. Also, ways and means are being studied to tone down the color of the exterior to blend in with the surrounding area.
 - e. Major requirements are imposed on the General Lease S-4191 to safeguard a) Lake Waiau from pollution and disturbance, and b) adz quarry sites and objects of antiquity, from damage, removal, disfigurement or defacing.

- f. The University of Hawaii propose to construct underground conduit for distributing electric power within the General Lease area. Conduit is already being constructed from the 12,700 foot elevation to the UH telescope site.
 - g. The estimated construction cost of \$6,000,000 and the annual operating cost of \$800,000 to be borne by NASA will add substantially to the economy of Hawaii.
 - h. The importance of NASA and other facilities for the training and education of Hawaii's young people is inestimable.
 - i. With appropriate conditions to mitigate reasonable environmental concerns, the overall benefit to Hawaii by the development of the NASA facilities will be very significant.
2. The CDUA for United Kingdom observatory should not be approved at this time for the following reasons:
 - a. There is a need for sufficient citizen participation and input on the United Kingdom facilities; and
 - b. The staff will need to assess the full environmental effect of the facilities.
3. The approval of the NASA observatory shall be subject to the following conditions:
 - a. The University of Hawaii shall comply with Sections 2C and 2F of Regulation No. 4, and all requirements, as set forth in General Lease S-4191.
 - b. The University of Hawaii shall seriously consider the placement of underground conduit for distributing electric power not only above the 12,700 foot elevation but also below said elevation in order to preserve the natural setting and aesthetics of Mauna Kea slope.
 - c. The University shall notify the Chairman of the Board of Land and Natural Resources upon the commencement and the completion of the NASA observatory facilities construction work.
 - d. The University shall blend the exterior of the observatory and related facilities to the surrounding area by all means possible.
 - e. The University shall locate and design the NASA observatory and related facilities so as not to be visible from Hilo region.
 - f. The University shall submit a copy of the construction drawings for NASA observatory and related facilities to the Chairman for review and approval prior to commencement of the construction work.

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- g. The University shall be fully responsible for the adequate and "litter-free" upkeep and maintenance of all land within the science reserve including the roadway access and abutting lands.
- h. The University shall post the conditions as set forth herein for information of all affected personnel at not only the mid-level facilities but also the observatory facilities.
- i. The approval by the Board of the NASA observatory facilities shall be deemed to have little or no consequence to the University's mid-level facilities.
- j. The University officials using the proposed facilities shall heed the reasonable concerns and complaints of the community in terms of sharing and caring for the use of Mauna Kea for mutually beneficial ends.
- k. The applicant, its successors and assigns shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury and death arising out of any act or omission, and not occasioned through the fault of the State, of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit and also any loss, liability, claim or demand for property damage, personal injury and death arising out of or relating to or connected with the granting of this permit, and not occasioned through the fault of the State.

Respectfully submitted

Esther Ueda

ESTHER UEDAMASU
Deputy

RECOMMENDED FOR APPROVAL:

Christopher Cobb

CHRISTOPHER COBB, Chairman
of the Board

Edgar A. Hamasu
EDGAR A. HAMASU