

**STATE OF HAWAI`I**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**  
**OFFICE OF CONSERVATION AND COASTAL LANDS**  
**Honolulu, Hawai`i**

**March 11, 2022**

**Board of Land and  
Natural Resources  
State of Hawaii  
Honolulu, Hawai`i**

**REGARDING:** Extension Request MA-22-05, Second time extension request for Conservation District Use Permit (CDUP) MA-3779 regarding the PLANETS Telescope Facility at Haleakalā Observatories

**PERMITTEE:** University of Hawai`i, Institute of Astronomy

**LOCATION:** Haleakalā High Altitude Observatories Site (HO) at Pu`u Kolekole, Papa`anui,  
Honua`ula, Makawao, Maui

**TMK:** (2) 2-2-007:008

**AREA OF USE:** 18.166 acres (HO)/ 0.86 acres (area of use)

**SUBZONE:** General

**BACKGROUND**

On February 24, 2017, the Board of Land and Natural Resources approved Conservation District Use Permit (CDUP) MA-3779 for the Polarized Light from Atmosphere of Nearby Extra-Terrestrial Systems (PLANETS) facility at the Haleakalā High Altitude Observatory Site (HO) to the University of Hawai`i, Institute of Astronomy. This permit is to construct a new astronomy facility, PLANETS, by renovating an existing 1,620 square-foot building at the Haleakalā High Observatory Site. Parcel location is shown on **Exhibit 1**.

Proposed alterations include removal of a section of the existing flat roof and replacing it with a roll-off enclosure 6.46 feet tall to house the telescope. Other exterior work includes the installation of the roll-off steel frame (requiring excavation of column footings on an existing concrete slab) and installation of a roll-top door on the south side of the structure. Interior modifications include the removal of interior walls and the construction of the telescope pedestal and foundation. This results in an increase of 3,966 cubic feet to the existing building volume.

As a condition of the permit, work was to be initiated within one year (February 24, 2018) and completed within three years (February 24, 2020). A first-time extension for a two-year start date of CDUP MA-3779, Extension Request MA 18-10, was granted. This time extension amended the

CDUP to read that the work must be initiated before February 24, 2020 and be completed by February 24, 2022 (see **Exhibit 2**).

#### **FIRST TIME EXTENSION REQUEST**

In January 2018 the permittee notified the Department that they were experiencing a delay in obtaining a county building permit. Therefore, the permittee requested a two-year time extension to start construction of the PLANETS project. The Department had no objections to the request, and the Chair of the Board of Land and Natural Resources approved a two-year extension to the construction deadlines pursuant to Hawai'i Administrative Rules (HAR) § 13-5-43 Time Extensions (a) *Permittees may request time extensions for the purpose of extending the period of time to comply with the conditions of a permit*, and (b) *Time extensions may be granted as determined by the chairperson on all departmental permits and on the first request for extension of a board permit of up to two years to initiate or complete a project, based on supportive documentation from the applicant.*

The permit was amended to read that the work must be initiated before February 24, 2020 and be completed by February 24, 2022. The permittee was notified that further extensions would require approval by the full Board of Land and Natural Resources.

#### **SECOND TIME EXTENSION REQUEST**

In December 2021 the permittee contacted the OCCL and reported difficulties in completing the PLANETS project. The permittee reported that the original project phasing turned out to be unfeasible based on unanticipated challenges and complexities with both the telescope structure and the building modifications, and subsequently the impacts of the pandemic.

The permittee requests a four-year time extension to complete the PLANETS project. This request takes into account mounting supply chain delays and possible difficulty in finding suitable labor for construction work.

The permittee's request for an extension is attached as **Exhibit 3**.

#### **BASIS AND AUTHORITY FOR GRANTING TIME EXTENSIONS**

A time extension may be sought when a permittee is unable to initiate or complete a project within the stipulated time frame. The Board grants time extensions when a permittee demonstrates some sort of hardship or delay in initiating work on a particular project. The permittee should be able to demonstrate that the hardship or delay was not self-imposed and that a good faith effort had been made to undertake the project.

The authority for the granting of time extensions is provided in §13-5-43, Hawaii Administrative Rules (HAR), which allows for a permittee to request time extensions for the purpose of extending the period of time to comply with the conditions of a permit.

The relevant sections are §13-5-43:

*(a) Permittees may request time extensions for the purpose of extending the period of time to comply with the conditions of a permit; and*

*(c) Time extensions may be granted by the board upon the second or subsequent request for a time extension on a board permit, based on supportive documentation from the applicant.*

**DISCUSSION**

As the Board has the authority to grant or deny time extension requests, the OCCL is forwarding the permittee's request for review. The extension request was submitted in a timely manner pursuant to HAR §13-5-43.


In general, OCCL discourages multiple extensions on permits. However, in this case we note that the delays have been caused by unforeseen events: COVID-19 pandemic; new telescope design; and asbestos found during early building renovations.

Given this, OCCL recommends that the Board grant the permittee a second time extension.

**RECOMMENDATION**

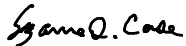
Based on the above, OCCL recommends that the Board of Land and Natural Resources approve the request for a completion extension deadline of CDUP MA-3779 for the PLANETS Telescope Facility at Haleakalā Observatories at the Haleakalā High Altitude Observatories Site (HO) at Pu'u Kolekole, Papa'anui, Honua'ula, Makawao, Maui, TMK (2) 2-2-007:008. The new deadline for completing the project will be February 24, 2026.

Respectfully submitted,



Rachel Beasley  
Office of Conservation and Coastal Lands

Approved for submittal:



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Suzanne D. Case, Chairperson  
Board of Land and Natural Resources

Administrator review:



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Michael Cain, Acting Administrator  
Office of Conservation and Coastal Lands

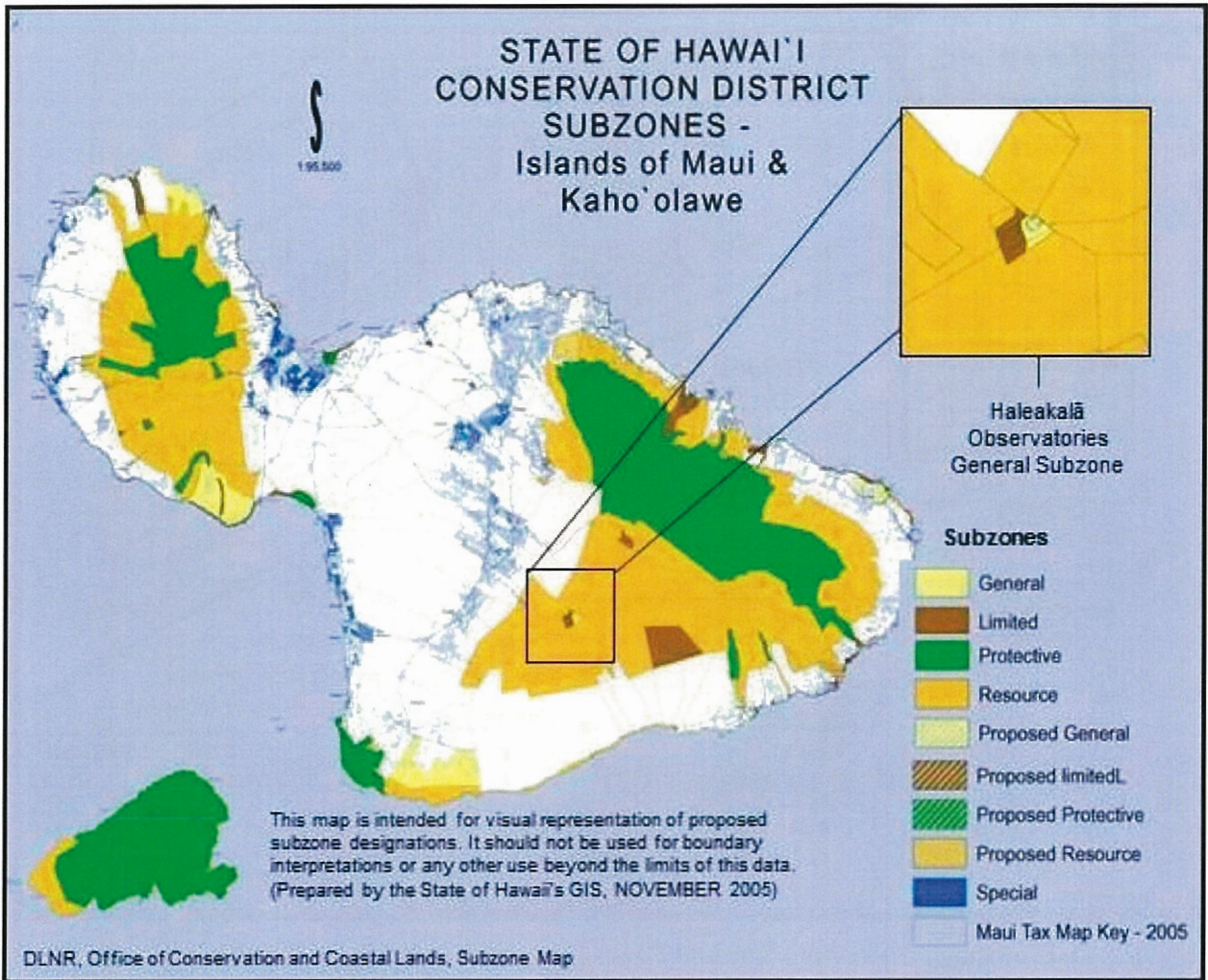
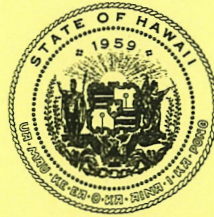


Figure 1. Haleakala Observatories General Subzone

# Exhibit 1

DAVID Y. IGE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA  
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
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HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

ref:OCCL:MC

Extension Request MA-18-10

Michael Maberry  
University of Hawai'i Institute for Astronomy  
2680 Woodlawn Drive  
Honolulu, HI 96822

FEB - 8 2018

Dear Mr. Maberry,

SUBJECT: EXTENSION OF PROCESSING DEADLINES: Conservation District Use Permit (CDUP) MA-3779  
Polarized Light from Atmospheres of Nearby Extra-Terrestrial Systems (PLANETS)  
Haleakalā High Altitude Observatories Site, Makawao District, Maui  
TMK (2) 2-2-007:008

The Office of Conservation and Coastal Lands (OCCL), part of the Department of Land and Natural Resources (DLNR), has reviewed your request for a two-year extension on the start date of CDUP MA-3779 regarding the Polarized Light from Atmospheres of Nearby Extra-Terrestrial Systems (PLANETS) project at the Haleakalā High Altitude Observatories Site on Maui.

The permit was approved by the Board of Land and Natural Resources on February 24, 2017. As a condition of the permit, work was to be initiated within one year and completed within three years.

According to the information you presented, the project is awaiting the issuance of a grading permit from Maui County in accordance with Condition 15 of CDUP MA-3779: *The permittee shall obtain a county building or grading permit or both for the use prior to final construction plan approval by the department.* This is a standard condition of Conservation District Use Permits pursuant to Hawai'i Administrative Rules (HAR) §13-5-42.

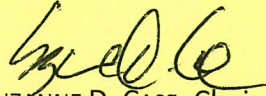
The authority to grant time extensions on this permit lies with the Chair of the Board of Land and Natural Resources, pursuant to HAR § 13-5-43 Time Extensions (a) *Permittees may request time extensions for the purpose of extending the period of time to comply with the conditions of the permit, and (b) Time extensions may be granted as determined by the chairperson on all departmental permits and on the first request for an extension of a board permit.*

Exhibit 2

We have no objections to this proposal, and will amend the permit to read that the work must be initiated before February 24, 2020 and be completed by February 24, 2022. And further extensions will require approval by the full Board of Land and Natural Resources.

Please call Michael Cain at 587-0048 should you have any further questions.

Sincerely,



SUZANNE D. CASE, Chair

Board of Land and Natural Resources

# Exhibit 2



UNIVERSITY  
of HAWAII®  
MĀNOA

Institute for Astronomy  
Office of the Director

RECEIVED  
OFFICE OF CONSERVATION  
AND COASTAL LANDS

2021 DEC 30 P 10: 4 December 28, 2021

DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

Via email and US Mail:

Mr. Michael Cain  
Office of Conservation and Coastal Lands  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, HI 96809

**SUBJECT: Conservation District Use Permit Extension Request to Complete Construction of the PLANETS Telescope Facility at Haleakalā Observatories, Maui, Hawai'i**

Dear Mr. Cain:

On February 24, 2017, the Board of Land and Natural Resources approved Conservation District Use Permit (CDUP) MA-3779 for the Polarized Light from Atmospheres of Nearby Extra-Terrestrial Systems (PLANETS) facility at the Haleakalā High Altitude Observatory Site (HO), Pu'u Kolekole, ahupua'a Papa'anui, moku of Honua'ula, Makawao District, Maui, TMK: (2) 2-2-007:008. A two-year extension of the CDUP was granted in February 2018. On January 24, 2020, DLNR/OCCL approved construction plans and specifications for CDUP MA-3779, and construction was initiated shortly thereafter.

**Extension Request**

Due to the circumstances described below and shown on the attached timeline table, PLANETS construction will require four more years to complete, and therefore in accordance with HAR 13-5-43, the University of Hawai'i Institute for Astronomy (IfA) requests an extension of the deadline for completion under the CDUP for this project for four years, from February 24, 2022, until February 24, 2026.

**Background**

The PLANETS Foundation (herein Foundation) is a non-profit 501(c)(3) organization founded in 2005 and chartered for astronomy education and research. Its members are representatives from academic institutions in Japan, Germany, Brazil, and the United States. The Foundation has been engaged in the development of the PLANETS telescope, a novel astronomical instrument. This telescope has a high-contrast imaging capability that will allow us to observe the tenuous atmospheres of solar system planets, active moons, and exoplanets. The atmospheric stabilized, high-altitude conditions of Haleakalā are essential to accomplish high-contrast imaging observations with this instrument.

**Exhibit 3**

To house the telescope, the PLANETS project is renovating the former, unused “Chicago” building at HO, in accordance with the requirements of the HO Management Plan and during times that will not impact endangered species in the summit area. Figure 1 shows Chicago building work in progress.



Figure 1. Work in progress at the former Chicago building

### **PLANETS Delays**

Since PLANETS obtained its CDUP in 2017, technical and logistical delays have prevented progress at the rate anticipated earlier. The two most significant of these delays are as follows:

- 1) The telescope structure was originally planned as an equatorial mount. However, shortly after the CDUP was granted, we found that an alt-azimuth mount with a truss structure would be a lighter weight, lower-cost alternative. More time was required to design the new telescope structure.
- 2) During early renovations on the Chicago building, interior walls were being removed when broken floor tiles containing asbestos were identified. Detection of asbestos tiles initiated the requirement to perform testing and then prepare an approved hazardous material removal plan. Shortly thereafter, University COVID-19 protocols limited summit access, especially to non-UH personnel. The first contractor for asbestos mitigation (Castaway) ultimately declined to undertake either hazardous material mitigation or the renovation work. With the relaxation of some COVID restrictions an alternate contractor (Malama Environmental) has agreed to provide both testing and a plan for tile removal.

### **PLANETS Progress**

In parallel with the issues described above during the Chicago building renovation, the development of the telescope structure and the primary mirror has proceeded as shown in the timeline in Table 1. The primary mirror was first sent from Los Angeles to Maui, where the polishing method and tower needed for metrology of the primary mirror were examined. Mirror polishing is an extended temporal process and based on the results, the Foundation members decided to authorize final polishing of the primary mirror by the Japanese company LogistLab. The mirror was shipped to Japan in December 2020. The polishing and metrology work is

# **Exhibit 3**

proceeding satisfactorily, and LogistLab will complete the final mirror polishing early in 2022. Figure 2 shows the primary mirror during the polishing process.

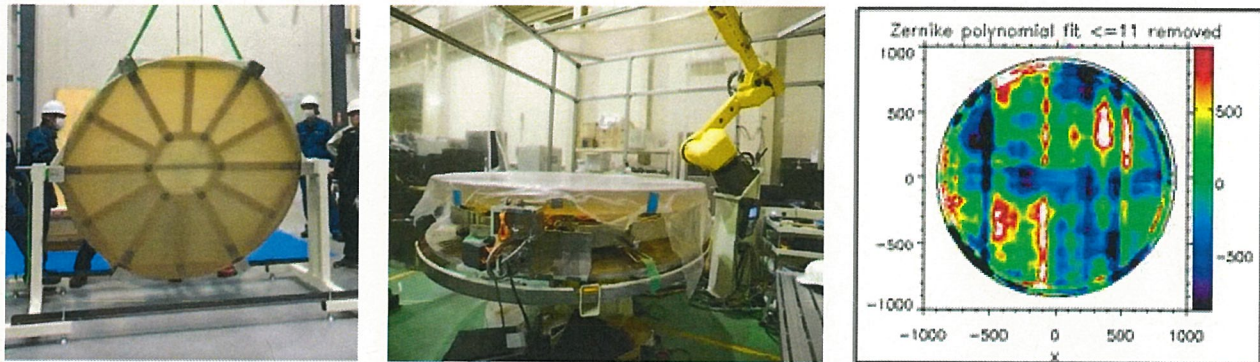


Figure 2. The 2m primary mirror has been shipped to LogistLab in Japan for final polishing. The final metrology is complete and the mirror is undergoing final polishing.



Figure 3. The mirror support structure was completed at Tohoku University.



Figure 4. The mechanical truss structure that supports the telescope and the rotation table are being completed in Japan.

# Exhibit 3

Mr. Michael Cain  
December 28, 2021  
Page 4

Telescope construction is well underway. Figure 3 shows the mirror support developed at Tohoku University in Japan. This is the whiffle-tree with warping harness system similar to the structure that would be employed by the TMT telescope.

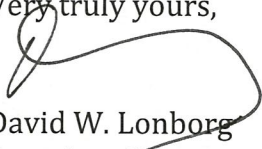
Figure 4 shows the truss structure that supports the telescope and the rotational table. All mechanisms of the telescope structure, driving motors, and encoders were completed at Tohoku University. Operational software is being developed, and test observation of stars with the whole telescope system is planned in the latter part of 2022 in Japan after the primary mirror polishing is completed.

### **PLANETS Completion**

The PLANETS telescope will be the largest nighttime off-axis telescope in the world when it is deployed at the renovated Chicago building on the summit of Haleakalā. It has been delayed by several factors described above related to necessary environmental mitigations in the building that will house the telescope, and by world events related to COVID-19, e.g., the project timeline was delayed by the difficulty in finding workmen that can complete the summit building renovations. Based on experience at HO to date we are confident that the telescope can be completed with a four-year DLNR extension. As a total of each member's investment, Foundation members have agreed to provide approximately \$140,000 per year for the Chicago building renovation and have also agreed to provide subsequent operational costs. Thus, funding from Foundation members will satisfy the total cost of future project activities, including the completion of the renovation, telescope installation, and electricity and internet equipment, as well as for subsequent regular operation. Our 4-year request also accounts for mounting supply chain delays and possible difficulty in finding suitable labor for construction work. We note that the technical work on the optics, opto-mechanics, electronics systems, and software control are well underway and expected to be completed well in advance of the Chicago building renovation. The attached timeline shows our overall subsystem expectations for completion.

Thank you for your consideration of this request. Please do not hesitate to contact us if you have any questions or require any further information.

Very truly yours,



David W. Lonborg  
Associate Director

Enclosure

# Exhibit 3

