HA-18-19 !

DAVID Y. IGE
GOVERNOR OF HAWAII

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

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DEPT. OF LAND &
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STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 7, 2017

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
_X_ Engineering Division
_X_ Div. of Forestry & Wildlife
_X_ Div. of State Parks
_X_ Commission on Water Resource Management
_X_ Office of Conservation & Coastal Lands
_X_ Land Division – Hawaii District
_X_ Historic Preservation

FROM: for Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Assessment Consultation and Scoping on Draft Environmental Assessment for Decommissioning of the **Caltech Submillimeter Observatory on Maunakea**
LOCATION: Astronomy Precinct of the Maunakea Science Reserve, Island of Hawaii; TMK: (3) 4-4-015:009
APPLICANT: Ho'okuleana LLC

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **January 11, 2018.**

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections. Refer to Corr. HA-16-118 MC
( ) We have no comments.
( ) Comments are attached.

Signed: Michael Cain

Print Name: Michael Cain

Date: 1.10.18

cc: Central Files

Ho'okuleana LLC
... to take responsibility ...

Peter T. Young
1539 Kanapu'u Drive
Kailua, Hawai'i 96734
(808) 226-3567 (Cell Phone)
PeterYoung@Hookuleana.com
www.Hookuleana.com

To: Interested Agencies, Organizations and Individuals

December 4, 2017

Re: Pre-Assessment Consultation and Scoping on Draft Environmental Assessment (DEA) for Decommissioning of the Caltech Submillimeter Observatory (CSO) on Maunakea, Island of Hawai'i, Hawai'i

The California Institute of Technology (Caltech) is moving forward with the decommissioning of the Caltech Submillimeter Observatory (CSO) on Maunakea. Decommissioning involves both the removal of the CSO from Maunakea and restoration of the site in accordance with its sublease and the Board of Land and Natural Resources approved 2010 Decommissioning Plan (Plan). Pursuant to the Plan, once CSO is removed and the site restored, that site will not be used for future observatory development.

The Maunakea summit is in the Conservation Land Use District, Resource subzone. Pursuant to Hawai'i Administrative Rules (§13-5-2 (4) (HAR,)) 'demolition' of existing structures is an 'identified land use'. A Conservation District Use Permit (CDUP) is required for certain land uses in the State Land Use Conservation District. State law (§343-5 (a) (2) (HRS)) requires that an Environmental Assessment (EA) is prepared "for any use within the land classified as a conservation district", unless otherwise exempt.

We are in the initial stages of the decommissioning process, including the preparation of the DEA. The Plan calls for a Site Restoration Plan that will include a description of minimal, moderate and full levels of restoration. Likewise, the Plan identifies the inclusion of a Site Deconstruction and Removal Plan with two alternatives:

1) complete removal of all infrastructure and
2) infrastructure capping including removal of above ground facilities and partial removal of below ground infrastructure.

As required, the DEA will include an impact analysis of the above, as well as the University of Hawai'i's request to leave an existing support building in place, to address public safety concerns and to allow ongoing ozone monitoring, unrelated to CSO. The DEA will also include an impact analysis of minimal, moderate, and full levels of restoration.

The DEA will address topics including but not limited to: native plants and animals, such as the wēkiu bug; invasive species; cultural resources; traffic; solid waste disposal and other possible impacts. It is anticipated that the following technical reports would be part of the EA.

- Archaeological Setting
- Cultural Setting and Consultation
- Biological Setting
- Geological Setting
- Traffic Analysis
- Solid Waste Disposal
- Benefits and Cost Analysis (including social, cultural, economic, etc.)
- Engineering Reports
  - Deconstruction/Removal Plan
  - Restoration Plan; and
  - Environmental Site Assessment (Environmental Due Diligence Review)

The purpose of this letter is to share some brief information about the project, request your assistance in identifying any matters associated with this project, and invite you to share any issues that you wish to be addressed in the DEA. (A brief summary is attached.) We invite your comments on any of these or other related topics. **Please send comments on the project by January 15, 2018** to Peter T Young – PeterYoung@Hookuleana.com. Thank you in advance for sharing your thoughts.

Thanks,

Peter T Young

Do well by doing good.

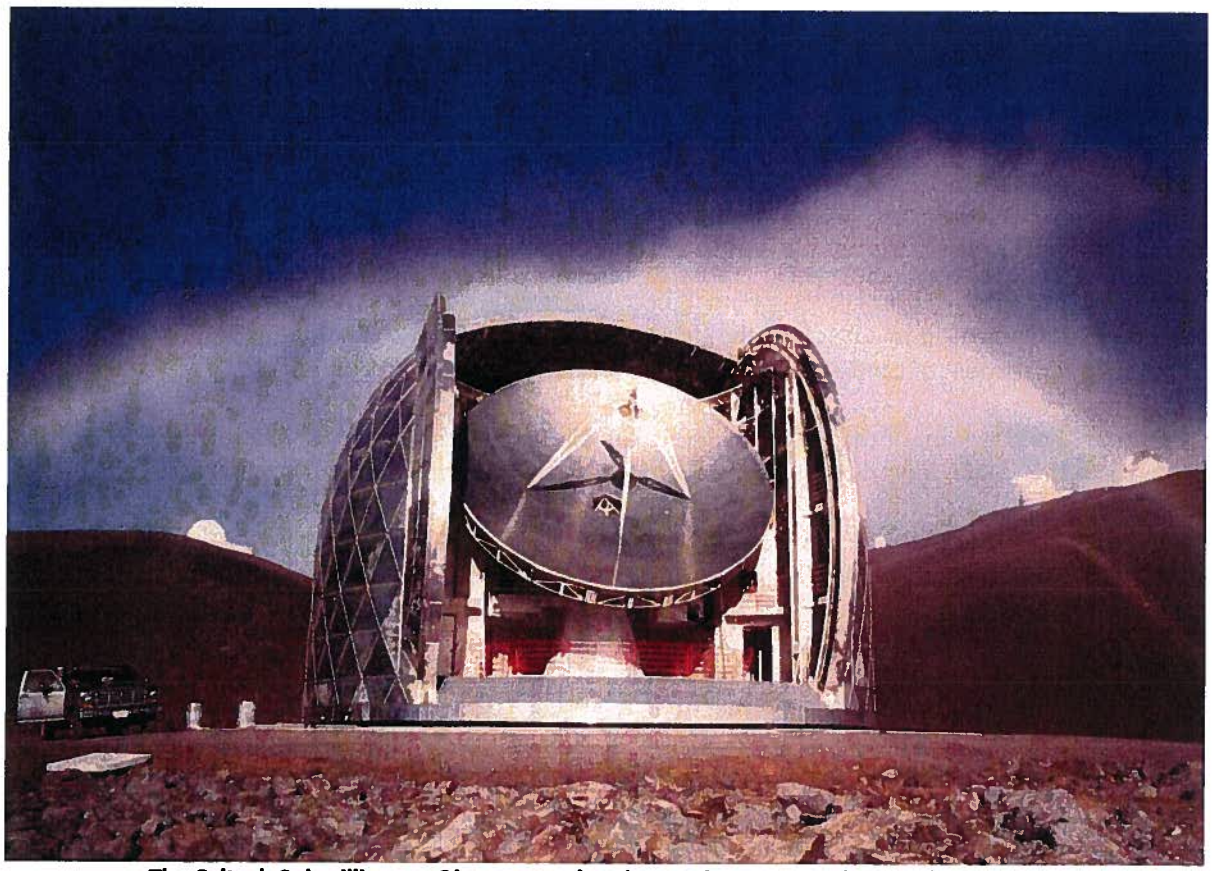
Decommissioning
Caltech Submillimeter Observatory (CSO) on Maunakea

Background Summary

The California Institute of Technology (Caltech) is moving forward with the decommissioning the Caltech Submillimeter Observatory (CSO) from Maunakea. Decommissioning involves the removal of the physical structures and restoration of the site in accordance with its sublease and the 2010 Board of Land and Natural Resources approved Maunakea Decommissioning Plan. Pursuant to the Decommissioning Plan, once CSO is removed and the site restored, that site will not be used for future observatory development. Caltech submitted its 'Notice of Intent to Decommission' CSO to the Office of Maunakea Management on November 18, 2015.

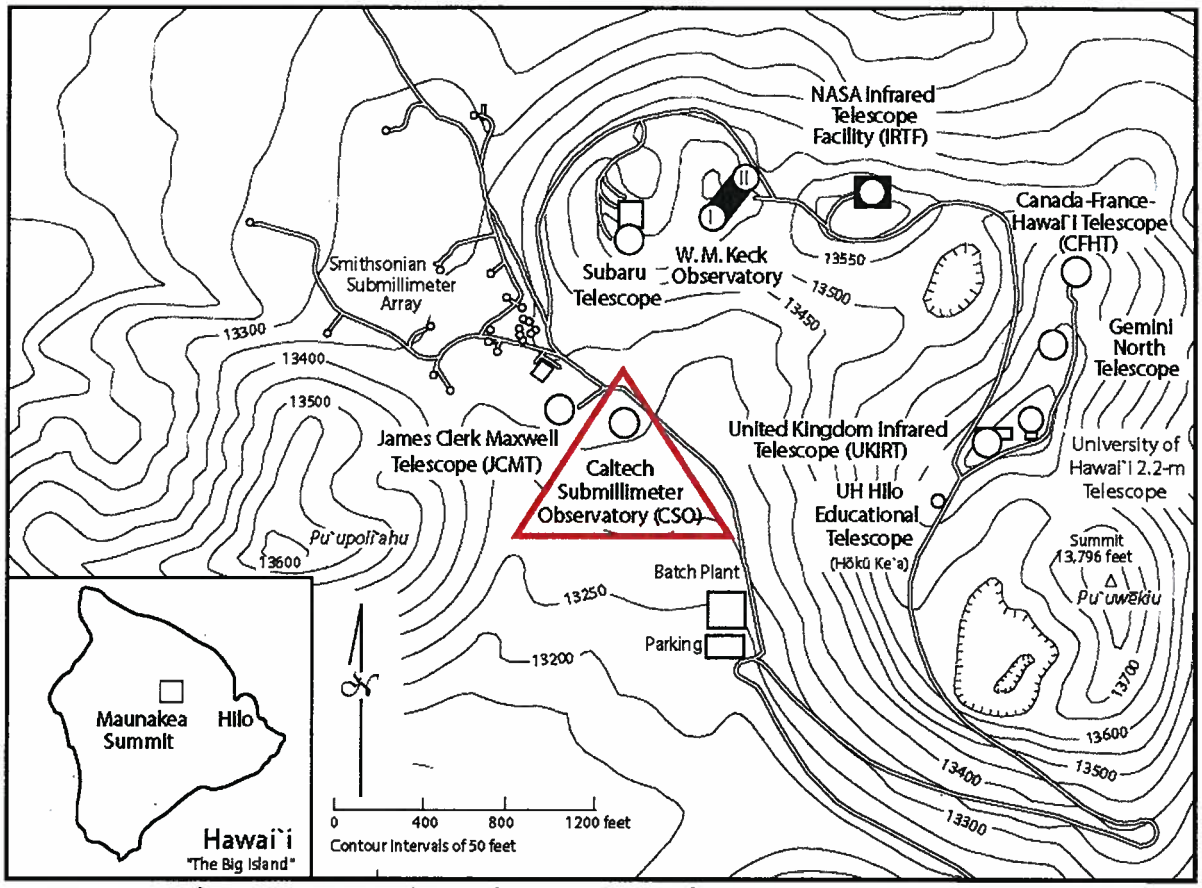
Since 1983, the subject site has been used exclusively for the construction and scientific operation of the CSO. CSO was constructed in 1983-1986; since that time, Caltech has operated the CSO on Maunakea.

With the CSO, astronomers from all over the world were able to observe light naturally emitted by celestial objects at submillimeter wavelengths. This spectral range, between infrared and radio, is particularly suited to studying the molecular gases and small solid dust particles that fill the densest regions of the interstellar medium, where stars form as gas clouds contract and collapse under the pull of gravity.



The Caltech Submillimeter Observatory (CSO) Near the Summit of Maunakea, Hawai'i

The CSO is located on a 0.75-acre site at 13,350 ft altitude near the summit of Maunakea. The site is located within the Astronomy Precinct of the Maunakea Science Reserve (TMK: (3) 4-4-015:009) managed by the University of Hawai'i.



Maunakea Astronomy Precinct - Telescope Locations (General location of CSO highlighted)

The CSO site is subleased to Caltech by the University of Hawai'i (UH) which holds a lease from the State of Hawai'i, Department of Land and Natural Resources (DLNR.)

Other than the extension of the outbuilding in 1990, all the structures and improvements have been in place since the initial construction. Upon completion of the decommissioning process, Caltech will surrender its sublease.

Construction of CSO was completed in 1986; it consists of the following structures and improvements:

1. The telescope itself, enclosed in a corotating dome.
   1.1. The 10.4 m (34 ft) diameter radio telescope has a reflector constructed of aluminum panels supported by a tubular steel truss. The weight of the reflector is about 10,500 lb. The reflector is attached to a two-axis steel mount structure that allows pointing to any location on the sky. The approximate total weight of the telescope is 86,000 lb.
   1.2. The corotating dome is a steel structure clad with aluminum sheets. It is approximately hemispherical, about 60 ft in diameter and 52 ft high. It has a two-part shutter door that opens to allow the telescope to observe the sky. To follow the telescope motion, the entire

dome structure rotates on a rail. Inside the dome, there are several labs and other rooms on three levels with various furnishings and equipment. The approximate weight of the dome is 300,000 lb.

1.3. The telescope and dome rest on concrete foundations surrounded by a sidewalk with an overall diameter of about 80 feet.

2. A utility outbuilding. This is a single-story building with metal framing on a concrete slab with an adjoining concrete sidewalk.
   2.1. The original outbuilding houses the main electrical switchgear for the CSO. It was also used as an occasional workshop, for storage and for NASA's chlorine monoxide environmental monitoring (related to the ozone hole) (not associated with CSO).
   2.2. The outbuilding was extended in 1990. At present, the OMKM rangers store emergency equipment in the extension.

3. An electrical transformer on a concrete pad.

4. A backup electrical generator on a concrete pad, installed in 1990. This is fueled with propane from portable tanks stored in the outbuilding. Fuel lines are underground.

5. An underground water tank. Atop the tank, a pump is housed in a shed on a concrete pad.

6. An underground cesspool. There is a manhole for access.

7. A small concrete pad adjacent to the dome has plumbing fixtures for the water tank and cesspool.
   7.1. An underground ¾ in copper line connects to the water tank.
   7.2. An underground 4 in sewer line connects to the cesspool.

8. Underground electrical lines between the HELCO service point, the transformer, the outbuilding, the generator, and the dome.

9. Underground conduits for communications cables between connection boxes near the access road, the outbuilding, and the dome.

10. Underground copper grid for electrical grounding.

11. The parking area between the dome and outbuilding is paved with asphalt. The parking area connects to a branch of the Maunakea access road.

12. Four ½ in diameter survey markers at the four corners of the CSO site and a fifth Bench Mark near the center of the site.

CSO served for nearly three decades as a cutting-edge facility for astronomical research and instrumentation development and played a foundational role in creating the thriving discipline of submillimeter astronomy - the study of light emitted by atoms, molecules, and dust grains in the interstellar space where stars and planets form.

During operations, well over 100 students, from Caltech and other institutions, used the CSO for their PhD research. Science operations at the CSO ended in September 2015. "We are grateful for the use of Maunakea and it is our desire to undertake the decommissioning respectfully," says Sunil Golwala, director of the CSO and a professor of physics at Caltech.

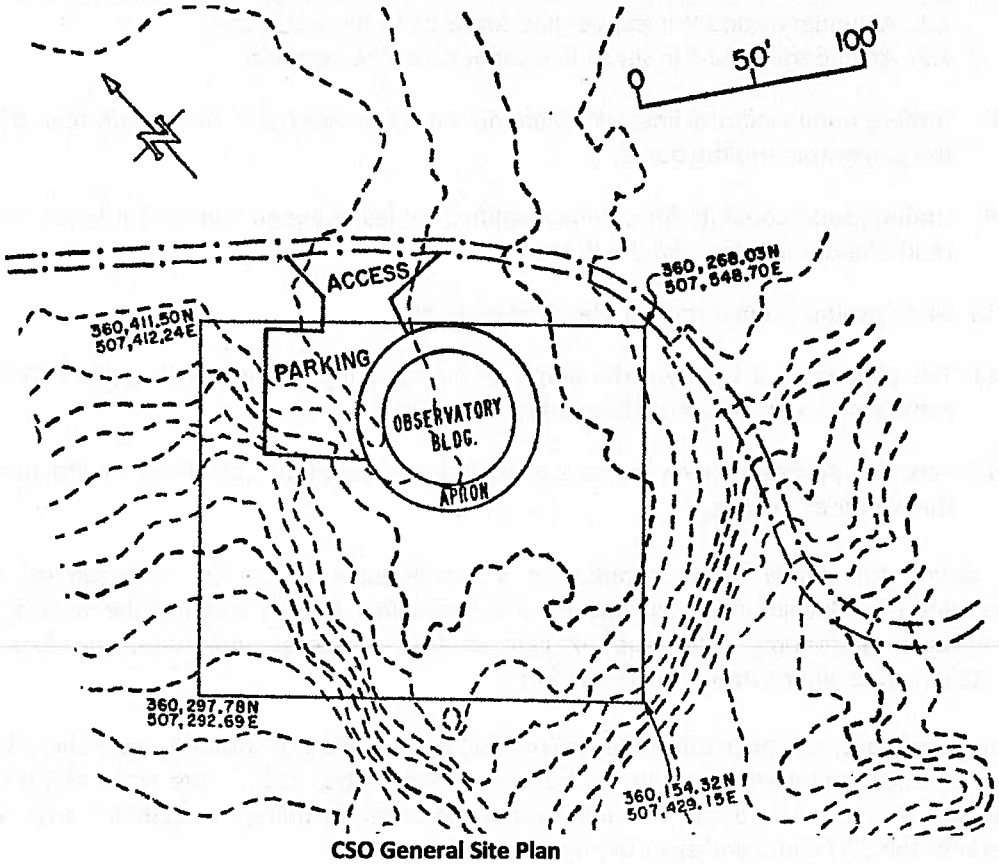
Caltech Will Follow Sub-Lease Terms, CMP and Decommissioning Plan for the Maunakea Observatories

"Demolition would be the responsibility of the terminating observatory. Observatories will be required to develop plans in coordination with IfA (Institute for Astronomy,) to be approved by OMKM, for site recycling, demolition and restoration. The plans will require compliance with terms and conditions identified by OMKM and the CMP, including all maintenance and construction management actions." (Mauna Kea CMP (2009), 7-54)

"The plans will need to consider the range of issues related to decommissioning including the impacts of demolition, waste management, substrate contamination, removal of underground storage tanks, habitat restoration, and cost." (Mauna Kea CMP (2009), 7-54)

"In the event one or more observatory facilities consider decommissioning of their facility before the end of the State lease, the University in consultation with DLNR and OMKM shall initiate discussion on a decommissioning and site restoration plan to allow adequate time for decision-making, community input, and review process." (Mauna Kea CMP (2009), 7-54)

The Decommissioning Plan for the Maunakea Observatories (2010) (Decommissioning Plan,) a sub-plan of the Maunakea Comprehensive Management Plan, provides a framework that can be used by both existing and future observatories on Maunakea to ensure that the Department of Land and Natural Resources (DLNR) as the land owner and lessor, UH as the lessee, and the observatories as sublessees have clear expectations of the observatory decommissioning process.



CSO General Site Plan

The CSO facility includes the telescope, dome foundation, other underground structures, and support structures. As stipulated in the Decommissioning Plan, Caltech will prepare an impact analysis. The Site Deconstruction and Removal Plan (SDRP) will include the cultural, environmental, and financial impacts and benefits, a schedule for implementation, and impacts of two options:

1. Complete removal of the above and underground structures
2. Removal of the top of the underground structures and burial of the reminder (infrastructure capping)

The SDRP will assess, for example, the impact of any additional excavation necessary to completely remove the underground structures and the impact of relocating or importing material to backfill any cavities. The Kahu Kū Mauna Council has identified that the starting point for the SDRP shall be complete removal. The University of Hawai'i has indicated that retaining the existing support building, under UH jurisdiction, should also be analyzed as an alternative -- for the purposes of addressing visitor and observatory safety needs, as well as continuing long-term environmental monitoring of chlorine monoxide (related to the ozone hole).

The Decommissioning Plan also stipulates "the level of restoration attempted and the potential benefits and impacts of the restoration activities on natural and cultural resources during and post-activity must be carefully evaluated." The Maunakea Comprehensive Management Plan (2009) (CMP) notes that three levels of restoration have been identified: minimal, moderate, and full. As stated in the Decommissioning Plan "[t]he starting point for determining the level a sublessee needs to restore a site to shall be full restoration."

- Minimal restoration would be the removal of all man-made materials and grading of the site.
- Moderate restoration would include the above and enhancing the structure of the physical habitat to benefit the arthropod community.
- Full restoration would return the site to its original topography, as well as restoring arthropod habitat.

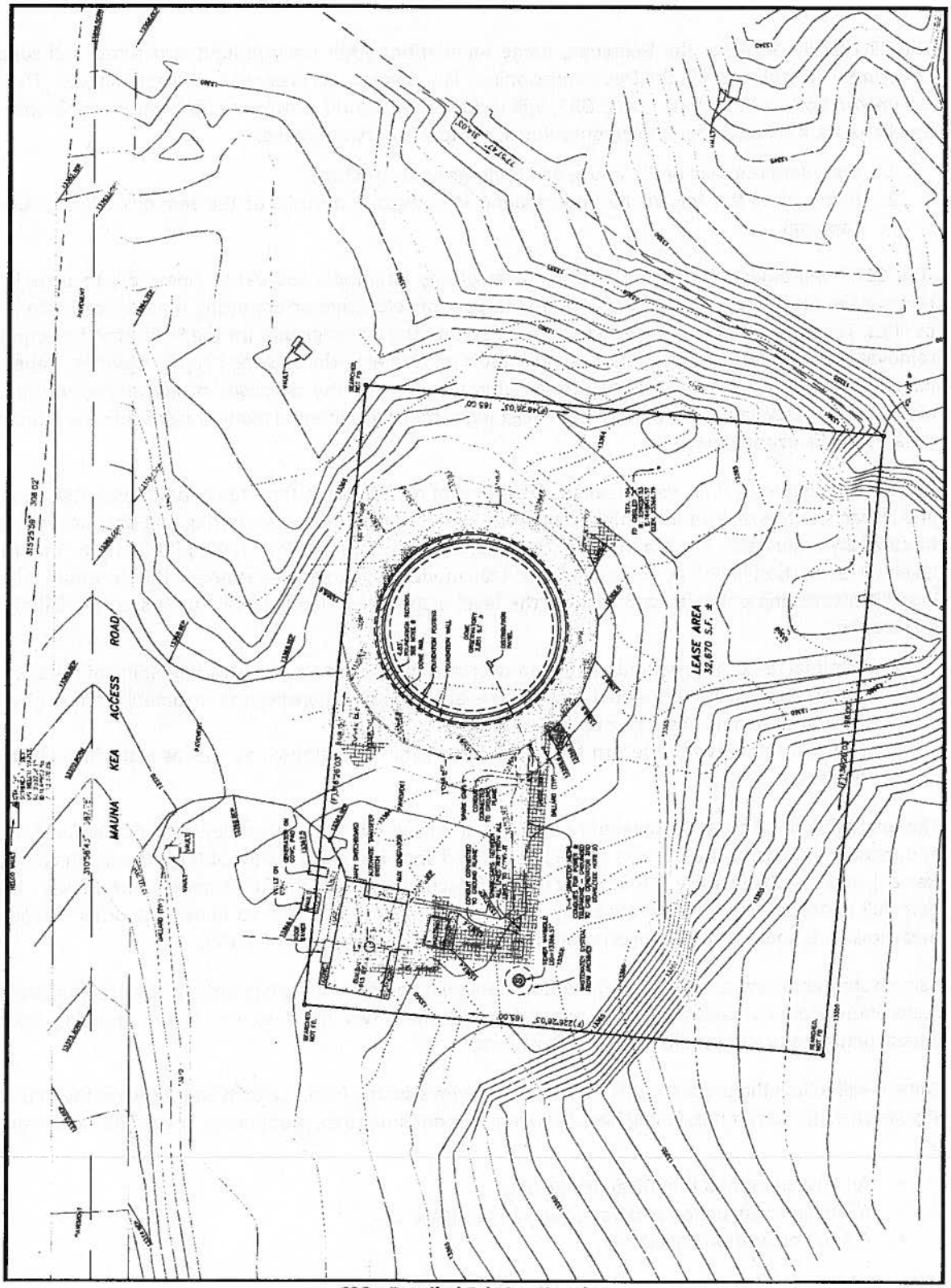
The final decision as to which level of restoration is executed will be determined after community input and careful analysis of the impacts of each level, and shall be approved by OMKM, DLNR, University of Hawai'i, and the observatory. The starting point of discussion will be the full restoration of the site. If less than full restoration is implemented, the observatory may be required to undertake other mitigation measures. This analysis will be incorporated into the Site Restoration Plan (SRP).

Caltech shall complete all phases of the decommissioning process, including both deconstruction and site restoration. Caltech recognizes, however, that decisions will need to be made regarding specific infrastructure removal and site restoration actions.

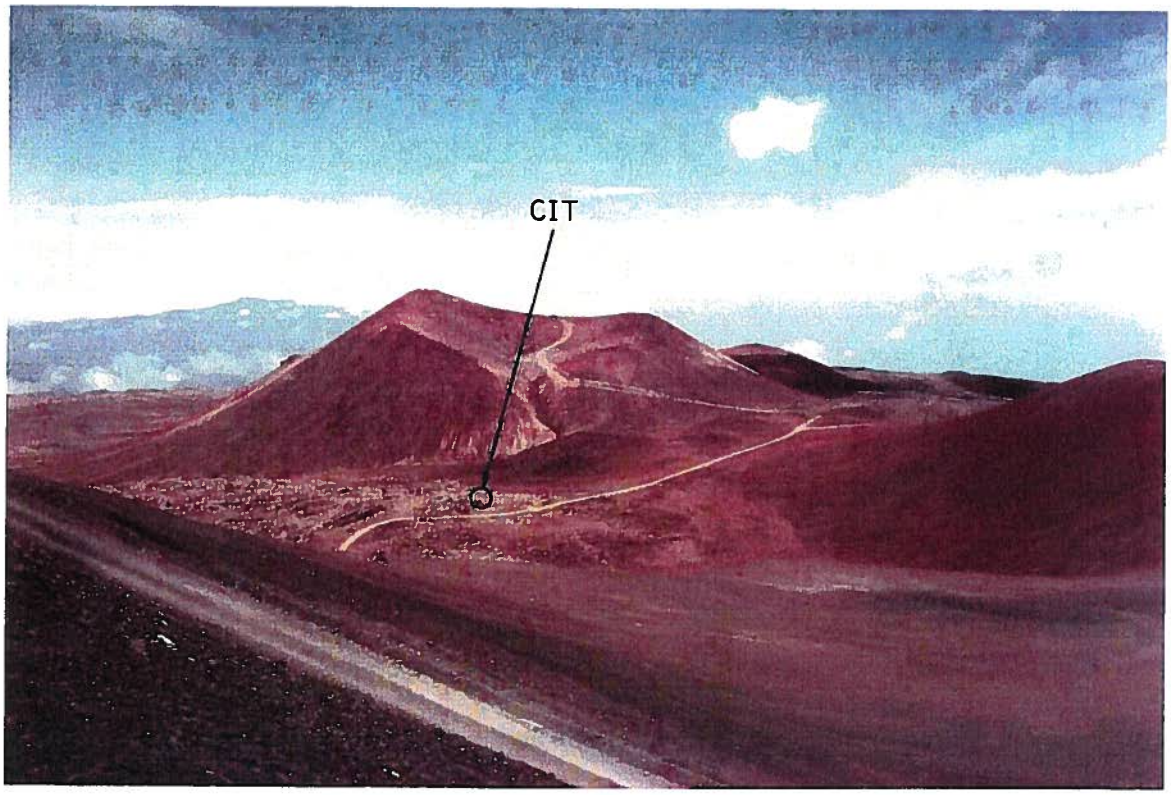
Caltech will follow the process outlined in the Decommissioning Plan. Caltech will carry out the activities stipulated in the Decommissioning Plan, including, but not limited to, preparation and submittal for review of:

- An Environmental Due Diligence Review,
- A Site Deconstruction and Removal Plan (SDRP), and
- A Site Restoration Plan (SRP)

These documents will be part of an Environmental Assessment with the typical alternatives and analysis and solicitation of public comments.



CSO - Detailed Existing Site Plan



Preconstruction Photograph of the CSO Site

Permits - Environmental Assessment

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A Conservation District Use Permit (CDUP) is required for certain land uses in the State Land Use Conservation District.

State law (§343-5 (a) (2) (HRS)) requires that an Environmental Assessment (EA) be prepared "for any use within the land classified as a conservation district", unless otherwise exempt.

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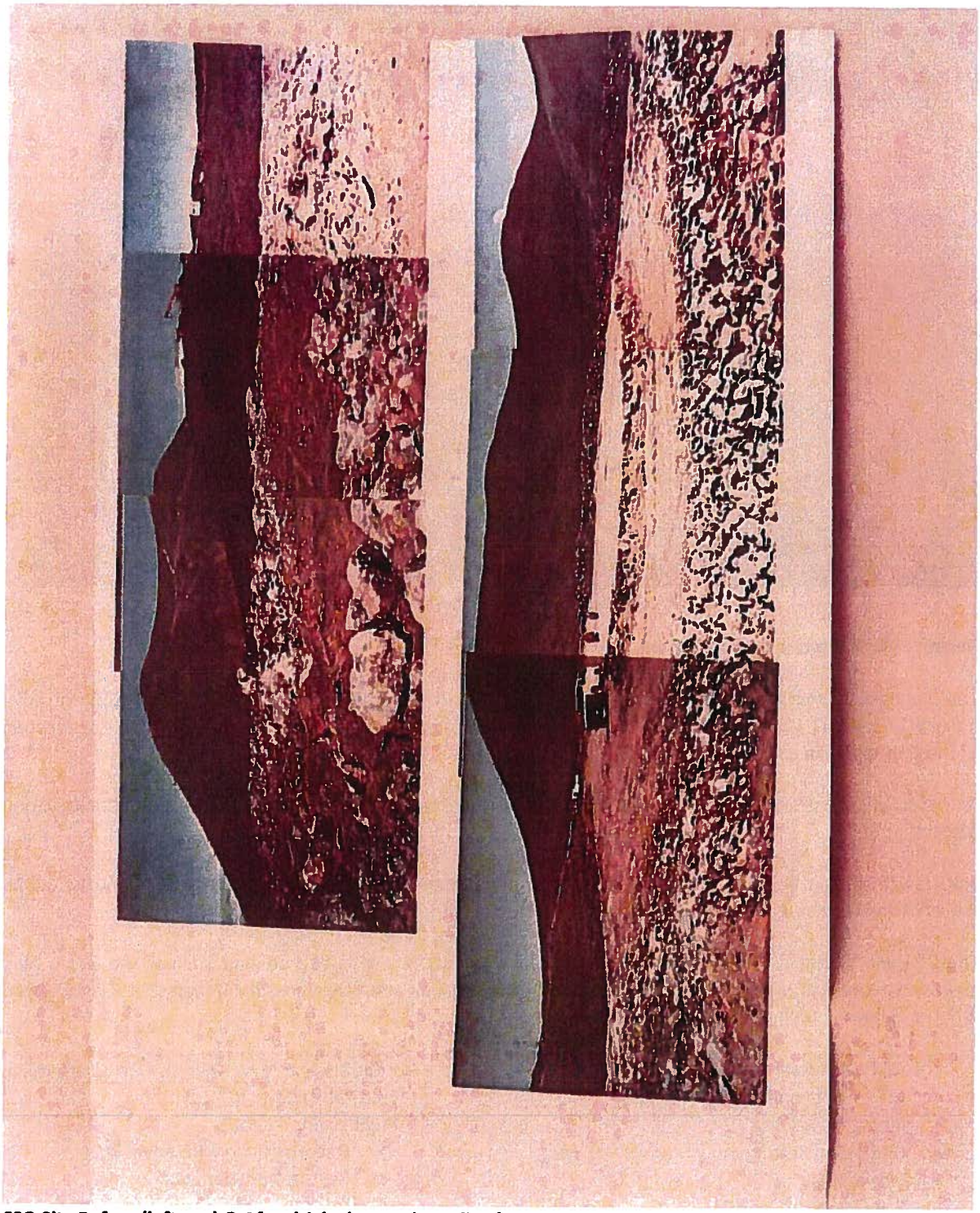
- Biological Setting
- Geological Setting
- Traffic Analysis
- Solid Waste Disposal
- Benefits and Cost Analysis (including social, cultural, economic, etc.)
- Engineering Reports
  - Deconstruction/Removal Plan
  - Restoration Plan; and
  - Environmental Site Assessment (Environmental Due Diligence Review)

In addition, other County, State and Federal agency reviews and/or permits will be required.



CSO Site Before (left-top) & After (right-bottom) Grading/Construction of Foundations for the Dome & Telescope

Periodic updates on the status of decommissioning are at www.cso.caltech.edu.