

UH Managed lands – Project Proposal

for projects anticipated to be classified as having “Minimal Impact”

Observatory Name

Gemini North Observatory

Brief Descriptive Title of Project

Install Safety Infrastructure – Lifelines on Enclosure Exterior Ladders and Support Facility Roof, and 24-foot Section of Safety Handrail on Support Facility Roof.

Project Description

Install self-retracting lifeline attachment points at each of the four exterior enclosure ladders that are longer than 24 feet to provide safe access to the shutters. Install lifelines across the Support Facility Roof to gain safe access to the existing solar array and to three existing weather sensor/camera locations, existing lightning rod, and existing GPS antenna. A 24 foot section of handrail will be installed along the southern edge of the Support Facility roof to provide enhanced safety in this area. Eight local tie-off points will also be installed on the Support Facility roof.

Identified Land Use (see HAR § 13-5-22 through 13-5-25)

HAR §13-5-22, P-8 STRUCTURES AND LAND USES, EXISTING

(A-1) Minor repair, maintenance, and operation to an existing structure, facility, use, land, and equipment, whether it is nonconforming or permitted, that involves mostly cosmetic work or like-to-like replacement of component parts, and that results in negligible change to or impact to land, or a natural and cultural resource. Any repair, strengthening, reinforcement, and maintenance of a fishpond shall be in accordance with section 183-44 and 183B-2, HRS.

Identify the existing CDUP this proposal alters or affects, if any

Under existing CDUP HA-2691 for Gemini North Observatory.

Identify [University of Hawai'i exemption](#) per HAR § 11-200-8(a), if any

Exemption Class #1. Operation, repair or maintenance of existing structures, facilities, equipment or topographical features, involving negligible or no expansion or change of use beyond that previously existing.

Tax Map Key(s)

4-4-015:009 – Mauna Kea Science Reserve (por.)

Proposed Commencement Date

14 October, 2019

Proposed Completion Date

31 August, 2020

Estimated Project Cost
\$53,000

Total size / area of proposed use

The proposed work is entirely within the existing exterior footprint of the facility.

FOR BOARD ACTION

Project Purpose and Need

This project addresses an important functional requirement to safely access external areas of the facility that require ongoing maintenance.

Has professional peer-review occurred

The fall protection system is being designed by a vendor experienced in this kind of work.

Are there any related ongoing, pending, or planned projects associated with this submission?

No.

Existing Conditions at Project Site(s)

Geology, Climate, & Hazards

Maunakea is considered an active, post-shield phase volcano (USGS) rising to nearly 13,800 ft. Climate conditions at altitudes of 12,500ft and above are often below freezing and when combined with humidity above 100% or precipitation, on the surfaces resulting in natural cinder movement from geophysical processes.

Flora, Fauna, Ecology, Water Resources

None. The site has no recorded natural resources and is routinely monitored for invasive species by the Office of Mauna Kea Management (OMKM).

Cultural Resources

The nearest historic cultural site is located near the geographic (USGS) summit survey marker located approximately 1300ft away and will not be disturbed in any way by this proposal.

Recreation

None at the proposed site.

Built Infrastructure

As part of the previous solar array installation project, a few local tie off locations exist on the Support Facility roof. This project will provide important improvements to safely access the Enclosure and Support Facility roof.

Landscaping & Visual Conditions

None. Only cinder soil present.

Description of the Project

Location

The project location is on the existing Gemini North Observatory located on the Summit Ridge of Maunakea. Please see Figure 1 through Figure 4 for installation locations of the safety equipment.

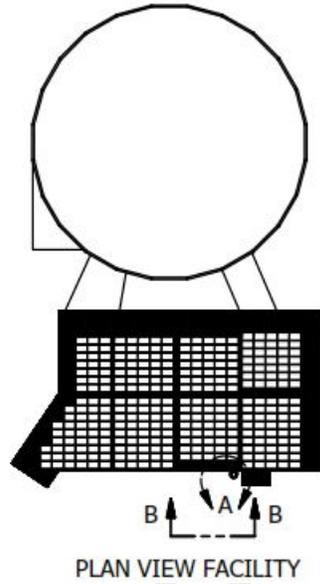


Figure 1. Gemini North facility showing the Enclosure in the upper portion and the Support Facility in the lower portion of this figure.



Figure 2. Photo of one of the four Enclosure ladders longer than 24 feet that require lifelines.

Tie-off: points position estimated
 Life line/tie offs on roof
 Dimensions in inch, tolerance ± 2

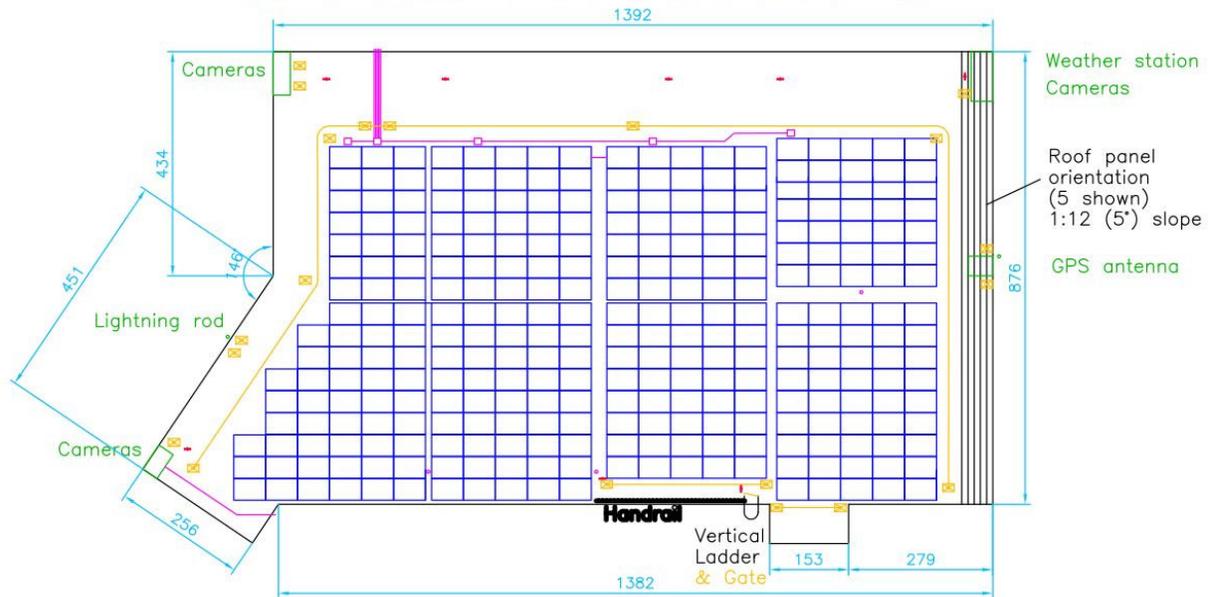


Figure 3. Plan view of the Support Facility roof showing the lifelines, tie off points, and handrail locations.

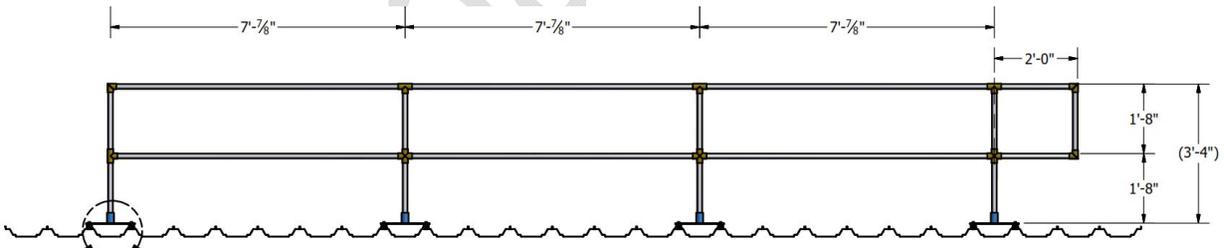


Figure 4. Elevation view of Support Facility handrail at edge of roof.

Description of the process of completing the project

The enclosure ladder lifelines will require small attachments to be welded to the existing structure so that self-retracting lanyards can be installed. These attachments will be painted to match the color of the enclosure.

For the Support Facility, all attachments will be made using bolted clamps installed on the roof standing seams. The lifelines consist of steel cables in one continuous run of approximately 220 feet, and a short section of approximately 10 feet. The handrail is approximately 24 feet long and 40" high. The handrail will be painted white to match the existing Support Facility color.

Who will do the work?

The installation will be performed by Gemini staff and certified by an outside Vendor. The installation work will be accommodated by the regular staff size already working on Maunakea. The certification will require one or two Vendor staff toward the end of the project.

Equipment & Transportation

All the necessary components for this safety project are small, and can be brought up using the vehicles already in use to transport staff.

Measures to protect the environment and/or mitigate impacts

Protective Measures

- Notify OMKM in writing at least 5 days prior, and no more than 14 days prior, to beginning field work on UH managed lands (Halepōhaku, Road Corridor, Maunakea Science Reserve, or Astronomy Precinct).
- Gemini will ensure that loose tools or equipment are not left unattended and are properly stored at the end of each day.
- All improvements shall be designed and installed to withstand the severe weather conditions on the mountain.
- All waste material will be removed and properly disposed of.
- Work will take place during regular daytime working hours.
- Gemini will comply with the invasive species prevention best practices.
- No motorized equipment, other than regular SUV's and flatbed truck, will be used in support of this work.
- No large, heavy, non-4-wheel drive, or oversized loads will be required for this project.
- No disturbance to the existing cinder is required for this project.
- Notify OMKM in writing when field activity associated with the project is completed. This notification must list all steps identified in the "notice to proceed" and explicitly communicate the status of completion.
- Additional conditions found at <http://www.malamamaunakea.org/science/science-projects> are applicable when appropriate.

Compliance with Lease, Sublease, or Comprehensive Management Plan (CMP)

This safety project is a sublease compliance action.

Identify other required or associated permits

None

Five Year Outlook

This safety project was included in the Five-year Outlook in Section 2: Facility Maintenance and Safety Improvements. No further consultation was requested by Kahu Kū Mauna.

Community Benefits

Benefits to other Maunakea entities and/or global astronomy community

The safety benefits are specific to workers doing maintenance of the Gemini North Observatory Enclosure and Support Facility roof.

Benefits to the Hawaii Island community

The safety benefits are specific to workers doing maintenance of the Gemini North Observatory Enclosure and Support Facility roof.

Will data, publications, or other products be free and available to the public?

No data, publications, or other products will result from this safety project.

FOR BOARD ACTION

DLNR Evaluation Criteria

After approval by the Maunakea Management Board, the Department of Land & Natural Resources or Board of Land & Natural Resources will evaluate the merits and approve the project based on the following eight criteria (§13-5-30). See <http://dlnr.hawaii.gov/occl/files/2013/08/13-5-2013.pdf>

1. The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. (ref §13-5-1) How is the proposed land use consistent with the purpose of the conservation district?

This proposed project provides improved safety for workers performing maintenance on the Gemini North Observatory Enclosure and Support Facility roof. This provides sub-lease compliance and CDUP compliance to maintain the facility in good working order.

2. How is the proposed use consistent with the objectives of the Resource subzone of the land on which the land use will occur? (§13-5-13 The objective of this subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas. This subzone shall encompass: lands necessary for providing future parkland and lands presently used for national, state, county, or private parks. Land suitable for outdoor recreational uses such as hunting, fishing, hiking, camping, and picnicking. [And other lands not applicable to Maunakea.]

The proposed use of this safety project is for facility maintenance of the Gemini North Observatory, and therefore is consistent with the objectives of the Resource subzone of the land on which the land use will occur.

3. Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled "Coastal Zone Management".

Not applicable.

4. Describe how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.

The safety equipment installed will be attached to existing structures and will not affect the existing natural resources.

5. Describe how the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

The safety equipment to be installed will be attached to existing structures and will not affect surrounding areas.

6. Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.

The visual impact of this safety project will be minimal, given the small size of the installed safety components, and paint color will match surrounding construction.

7. If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.

Not applicable.

8. Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.

There will not be any impact on land use by this proposed safety project.

FOR BOARD ACTION