BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAII

In re Petitions Requesting a Contested Case Hearing Re Conservation District Use Permit (CDUP) HA-3568 for the Thirty Meter Telescope at the Mauna Kea Science Reserve, Ka'ohe Mauka, Hamakua District, Island of Hawai'i, TMK (3) 4-4-015:009	DLNR Docket No. HA-14-05 FINDINGS OF FACT, CONCLUSIONS OF LAW AND DECISION AND ORDER; CERTIFICATE OF SERVICE

FINDINGS OF FACT, CONCLUSIONS OF LAW AND DECISION AND ORDER

This contested case hearing involves Conservation District Use Application ("CDUA") HA-3568 for the Thirty Meter Telescope at the Mauna Kea Science Reserve. The following Findings of Fact, ("FOF"), Conclusions of Law ("COL"), and Decision and Order are based on the records maintained by the Department of Land and Natural Resources on CDUA HA-3568 and the witness testimonies and exhibits presented and accepted into evidence.

If any statement denominated a COL is more properly considered a FOF, then it should be treated as a FOF; and conversely, if any statement denominated as a FOF is more properly considered a COL, then it should be treated as a COL.

Any proposed finding of fact submitted by the parties which is not specifically incorporated above is rejected for one or more of the following reasons:

1. They are repetitious or similar to the Board of Land and Natural Resources' own findings of fact or conclusions of law or decision and order, and/or

2. They are not supported by the reliable and/or probative evidence, and/or

3. They are in whole or in part not supported by and/or are contrary to the facts or law, and/or

4. They are immaterial, superfluous, and/or irrelevant to the material facts, issues, and/or law of this case.

TABLE OF CONTENTS

FINDINGS OF FACT

I. INTRODUCTION

A. The Parties

1. The University of Hawai'i ("University" or "UH") was established as the state university of the State of Hawai'i and constitutes a body corporate. (Haw. Rev. Stat. § 304-2.) The University has ten campuses statewide, one of which is the University of Hawai'i at Hilo ("UHH"). UHH is the applicant for the Conservation District Use Permit for the Thirty Meter Telescope project ("TMT Project") that is proposed to be built within the Mauna Kea Science Reserve ("MKSR") in the summit region of Mauna Kea on Hawai'i Island.

2. Petitioner KAHEA: The Hawaiian Environmental Alliance ("KAHEA") is a nonprofit Hawai'i environmental organization. In the contested case proceedings in this matter, KAHEA was represented by Marti Townsend, who is identified on KAHEA's web site as the organization's "Program Director/Staff Attorney." See http://kahea.org/about/staff.

3. Petitioner Mauna Kea Anaina Hou ("MKAH") is an unincorporated association. In the contested case proceedings in this matter, MKAH was represented by Kealoha Pisciotta, who is the current president of MKAH and is a native Hawaiian cultural practitioner. During the contested case hearing, Ms. Pisciotta also advised that she is the new president of KAHEA. Tr. 9/26/11 at 45.

4. Petitioner Clarence Kukauakahi Ching ("Ching") is a Hawaiian cultural practitioner.

5. Petitioner Flores-Case 'Ohana ("Flores-Case 'Ohana") is an unincorporated association consisting of E. Kalani Flores ("Flores") and B. Pualani Case ("Case"), who are native Hawaiian cultural practitioners.

6. Petitioner Deborah Ward ("Ward") is a recreational user of Mauna Kea lands.

7. Petitioner Paul K. Neves ("Neves") is a native Hawaiian cultural practitioner. As described below, Mr. Neves originally filed his petition in this matter on behalf of both himself as an individual and the Royal Order of Kamehameha I, Moku o Mamalahoa, Mauna Kea Committee ("ROOK I"), but subsequently withdrew his petition on behalf of ROOK I. Mr. Neves sought and was granted standing solely in his individual capacity. At the contested case hearing, Mr. Neves stated that he was representing himself and his two hula halau. However, Mr. Neves's participation in this contested case proceeding is solely as an individual and is not in any representative capacity.

8. KAHEA, MKAH, Mr. Ching, Ms. Ward, Mr. Neves, and the Flores-Case ʻOhana are referred to collectively herein as "Petitioners."

B. Procedural History

9. UHH submitted its Conservation District Use Application ("CDUA") for the TMT Project to the Department of Land and Natural Resources ("DLNR") on September 2, 2010. Exhibit A-311.

10. In November 2010, written comments on the CDUA were submitted on behalf of KAHEA (represented by its then-executive director, Miwa Tamanaha, and Ms. Townsend), MKAH (represented by Ms. Pisciotta), Mr. Neves (claiming to represent ROOK I), Sierra Club Hawaii (represented by Ms. Ward), Mr. Ching, and the Flores-Case ʻOhana. Exhibit A-313 at 187-204, 207-08, 219-21, 239-43.

11. The DLNR held extensive public informational hearings on UHH's CDUA in Hilo and Kona. MKAH, Mr. Neves, Ms. Ward, and Mr. Ching offered live testimony at the Hilo hearing on December 2, 2010. MKAH, Ms. Ward, Mr. Ching, and Mr. Flores and his family testified at the Kona hearing on December 3, 2010. Exhibit A-313 at 37-43.

12. Public hearings on CDUA HA-3568 for the proposed Thirty Meter Telescope (TMT) in the Mauna Kea Conservation District, Mauna Kea Science Reserve, Kaʻohe Mauka, Hamakua, Hawaiʻi, TMK (3) 4-4-015:009 were held:

13. on December 2, 2010 at the Hawaii County Council Room, 25 Aupuni Street in Hilo,

14. on December 3, 2010, at the Natural Energy Laboratory in Kona. (Ex. Jt-16/A-316)

15. The UHH's CDUA came before the Board of Land and Natural Resources ("BLNR" or "Board") at its regular Sunshine meeting on February 25, 2011. At that meeting, there was extensive public testimony, including from Petitioners KAHEA, Ching, and MKAH. Members of the Board and its Chairperson directed numerous questions to the representatives of UHH. At the conclusion of the comments and questions, the Board voted unanimously to grant Conservation District Use Permit ("CDUP") HA-3568 for the TMT Project to UHH, while simultaneously directing, on the Board's own motion, that a contested case be held; providing a date for interested parties to petition to participate in a contested case; and conditioning implementation of the CDUP upon UHH prevailing in any resulting contested case. Exhibit A-316 at 16-17, 20-23; Exhibit A-317. The BLNR's preliminary ruling on February 25, 2011 was not a final agency action, as reflected, *inter alia*, by the language of Condition 21 imposed by the BLNR. No appeal from the Board's ruling was requested or taken by any of the Petitioners.

16. On February 25, 2011, the Board of Land and Natural Resources (BLNR) at its regular meeting in Honolulu voted to approve CDUA HA-3568 for the

Thirty-Meter Telescope in the Mauna Kea Conservation District, Mauna Kea Science Reserve, Kaʻohe Mauka, Hāmakua, Hawaiʻi. (Ex. Jt-16/A-316)

17. As described in more detail below, written requests for a contested case hearing were made by Petitioners KAHEA, MKAH, Ching, Ward, Neves, and the Flores-Case ʻOhana. Exhibit A-318; Exhibit A-320. A written request stating that it was on behalf of Mo`oinanea was also made by Mr. Flores.

1. <u>The Petitions for Contested Case Hearing</u>

18. On March 7, 2011, Kealoha Pisciotta filed a petition for contested case hearing on behalf of MKAH. Ms. Pisciotta is the current president of MKAH. Exhibit A-320.

19. In its petition, MKAH asserted: MKAH is an unincorporated association of individuals who reside on the island of Hawaiʻi and who have advocated for the protection of Mauna Kea's cultural and natural resources since the late 1980s; members of MKAH have genealogical ties to the MKSR and have engaged in traditional cultural and religious practices there; and MKAH has an interest in the management of cultural and natural resources within the MKSR that is separate from that of the general public. Exhibit A-320.

20. On March 7, 2011, Marti Townsend filed a petition for contested case hearing on behalf of KAHEA: The Hawaiian-Environmental Alliance. Ms. Townsend is the Program Director and Staff Attorney for KAHEA. Exhibit A-320; see http://kahea.org/about/staff.

21. In its petition, KAHEA asserted: KAHEA is an organization that has advocated for the protection of Mauna Kea's cultural and natural resources since 2001; KAHEA's Board and constituents include native Hawaiian cultural practitioners, conservationists, scientists, educators, recreational users, subsistence hunters, and outdoor enthusiasts who use areas within the MKSR; and KAHEA has an interest in the management of cultural and natural resources within the MKSR that is separate from that of the general public. Exhibit A-320.

22. On March 7, 2011, Clarence Kukauakahi Ching filed a petition for contested case hearing as an individual. According to the representations in his petition: Mr. Ching is a native Hawaiian cultural practitioner and environmentalist who carries out certain cultural practices within the MKSR and elsewhere; and Mr. Ching, as an individual, has an interest in the management of cultural and natural resources within the MKSR that is separate from that of the general public. Exhibit A-320.

23. On March 7, 2011, Paul K. Neves filed a petition for contested case hearing on behalf of himself and purportedly on behalf of ROOK I. As described below, the petition on behalf of ROOK I was subsequently withdrawn by Mr. Neves. Exhibit A-320.

24. In his petition, Mr. Neves asserted: Mr. Neves is a native Hawaiian cultural practitioner who carries out certain practices within the MKSR; Mr. Neves has familial and genealogical ties to Mauna Kea; and Mr. Neves has an interest in the management of cultural and natural resources within the MKSR that is separate from that of the general public. Exhibit A-320.

25. On March 7, 2001, Deborah J. Ward filed a petition for contested case hearing as an individual. In her petition, Ms. Ward asserted: Ms. Ward is an environmental scientist who has advocated for the environmental protection of Mauna Kea for many years; since 2000, Ms. Ward has been an active member of the Mauna Kea Management Board's Environmental Committee of the University's Office of Mauna Kea Management; Ms. Ward is a long-time recreational user of the MKSR and has participated in many hikes and service projects there as a naturalist and conservationist; and Ms. Ward has an interest in the management of cultural and natural resources within the MKSR that is separate from that of the general public. Exhibit A-320.

26. On February 23, 2011, E. Kalani Flores filed a petition on behalf of himself, Ms. Case, and their two daughters, Hawane Rios and Kapulei Flores. Exhibit A-318.

27. In this petition, Mr. Flores asserted: members of the Flores-Case ʻOhana are native Hawaiian cultural practitioners who carry out certain practices on Mauna Kea, including its summit; members of the Flores-Case ʻOhana have genealogical ties to ancestral entities on Mauna Kea; and members of the Flores-Case ʻOhana have an interest in the management of cultural and natural resources within the MKSR that is separate from that of the general public. Exhibit A-318.

28. The petition for the Flores-Case ʻOhana was accompanied by the payment of a single filing fee. Exhibit A-318.

29. On February 23, 2011, Mr. Flores also filed a petition for contested case on behalf of "Moʻoinanea et al." That petition identified Moʻoinanea as a "nature spirit and guardian of Lake Waiau [who] presently resides on the summit of Mauna a Wakea." The petition stated that Moʻoinanea "has never been previously consulted regarding this and other projects on this sacred mountain," and "wishes her expressed concerns to be disclosed." It stated that Moʻoinanea's "insight" is needed "to avoid obstructing the piko/portal on the summit of Mauna a Wakea that connects with Ke Akua (The Creator) and ʻAumakua (Ancestors)," which "is a major portal for the life forces that flow into this island." The petition recites that Moʻoinanea "has a substantial interest in this matter, resides on the summit of Mauna a Wakea, and can demonstrate that she and others will be directly and immediately affected by the requested action"; it further asserts that "her interest in the proceeding is clearly distinguishable from that of the general public." Exhibit A-318.

30. The petition filed on behalf of Moʻoinanea requested a waiver of the $100 filing fee required by Haw. Admin. R. § 13-1-30. Exhibit A-318.

2. Selection of the Hearing Officer

31. On April 7, 2011, the DLNR's Office of Conservation and Coastal Lands ("OCCL") notified Petitioners and UHH that Mr. Paul Aoki had been selected to serve as the Hearing Officer in this contested case proceeding.

32. On April 18, 2011, Petitioners Pisciotta, Ching, Ward, KAHEA, and Neves filed objections to the designation of the Hearing Officer.

33. On April 21, 2011 UHH responded to Petitioners' objections to the designation of the Hearing Officer.

34. On May 2, 2011, the Chairperson of the BLNR issued Minute Order 2 denying Petitioners' Motion to Disqualify Hearing Officer.

35. On May 10, 2011, Petitioners filed a motion for appointment of a new Hearing Officer.

36. On May 16, 2011, the Chairperson of the BLNR issued Minute Order 5 denying the motion for reconsideration regarding the Hearing Officer.

3. The Scheduling of the Pre-Hearing Conference

37. On April 18, 2011, all of the Petitioners except the Flores-Case 'Ohana asked to reschedule the pre-hearing conference scheduled for May 13, 2011 to June 1, 2011.

38. On April 29, 2011, in Minute Order No. 3, the Hearing Officer denied Petitioners' request to reschedule the pre-hearing conference.

39. On May 9, 2011, all Petitioners except KAHEA made a motion to the BLNR seeking reconsideration of the Hearing Officer's denial of the request to reschedule the pre-hearing conference. On May 10, 2011, Petitioner KAHEA made its own separate motion to reconsider the denial of the request for rescheduling.

40. On May 10, 2011, in Minute Order No. 4, the Hearing Officer denied the Petitioners' requests to continue the May 13, 2011 pre-hearing conference to June 1, 2011.

41. On May 11, 2011, UHH responded to Petitioners' motions for reconsideration.

4. Standing

42. On April 15, 2011, all Petitioners and UHH were served with Minute Order No. 1, entitled "Notice of Standing and Prehearing Conference." On the issue of standing, Minute Order No. 1 gave notice that a Standing Hearing would be held on Friday, May 13, 2011, for the purpose of determining the standing of any person or

entity that petitioned to participate in the contested case. Each person petitioning to be a party was directed to file a pre-hearing brief on the issue of standing by the close of business on Monday, May 2, 2011, to which any party could file a reply brief not later than the close of business on Monday, May 9, 2011.

43. On May 2, 2011, all of the Petitioners collectively filed their Pre-Hearing Brief on the Issue of Standing in the Contested Case Hearing on the Thirty Meter Telescope Conservation District Use Permit.

44. On May 2, 2011, Mr. Neves withdrew his petition for contested case hearing on behalf of ROOK I. As a result of the withdrawal, Mr. Neves's petition was asserted solely in his individual or personal capacity.

45. Also on May 2, 2011, the Chairperson of the BLNR denied the request on behalf of Mo'oinanea for waiver of the filing fee because no demonstration of financial hardship had been made. The Chairperson advised that failure to submit the filing fee might result in dismissal of the petition.

46. On May 9, 2011, UHH filed its Reply Brief on the Issue of Standing in the Contested Case Hearing for CDUP HA-3568.

47. In its May 9, 2011 Reply Brief on the Issue of Standing, UHH:

a. stated that it did not contest that MKAH has standing, and agreed that MKAH could be admitted as a party-organization in these proceedings;

b. stated that it did not contest that KAHEA has standing, and agreed that KAHEA could be admitted as a party-organization in these proceedings;

c. stated that it did not contest that Mr. Ching has standing in his individual or personal capacity, and agreed that he could be admitted as a party in these proceedings;

d. stated that it did not contest that Mr. Neves has standing in his individual or personal capacity, agreed that he could be admitted as a party in these proceedings, and did not object to Mr. Neves's withdrawal of the petition on behalf of ROOK I;

e. stated that it did not contest that Ms. Ward has standing in her individual or personal capacity, and agreed that she could be admitted as a party in these proceedings, although UHH did object to Ms. Ward's standing in this proceeding to the extent that she claimed it was based upon her prior representation of the Sierra Club in other contested case proceedings;

f. stated that it did not contest that Mr. Flores has standing in his individual or personal capacity, and agreed that he could be admitted as a

party in these proceedings and could adequately represent the interests of his family members in the proceedings;

g. objected to the inclusion of the remaining members of the Flores-Case family as individual parties under Haw. Admin. R. § 13-1-31(c) on the grounds that their inclusion would be duplicative, would not add substantially new relevant information, and would make the proceedings inefficient and unmanageable; and

h. objected to the inclusion of Moʻoinanea as a party to the contested case proceedings on the grounds that, because the petition asserts Moʻoinanea is not a human being, Moʻoinanea does not qualify as a "person" and so does not have standing in these proceedings under Haw. Admin. R. § 13-1-32.

48. Although UHH did not contest the standing of MKAH, KAHEA, Mr. Ching, Mr. Neves, Ms. Ward, and Mr. Flores, it did not admit or stipulate to any of the factual assertions made by Petitioners in their petitions.

49. On May 11, 2011, Mr. Flores made a second request for a waiver of the filing fee for the Moʻoinanea petition, asserting that Moʻoinanea "is not employed" and does not receive any revenues generated by activities on Mauna Kea.

50. Pursuant to Minute Order No. 1, a Standing Hearing was held on May 13, 2011. Petitioners were represented by Ms. Pisciotta for MKAH, Ms. Townsend for KAHEA, Mr. Ching, Ms. Ward, and Mr. Flores on behalf of his family and Moʻoinanea. UHH was represented by Mr. Timothy Lui-Kwan and Mr. Ian Sandison.

51. At the hearing, extensive argument was heard regarding the petitions on behalf of the Flores-Case ʻOhana and Moʻoinanea, and the objections thereto. During the hearing, Mr. Flores represented that for the purposes of the Flores-Case ʻOhana's petition, Hawane Rios and Kapulei Flores were withdrawn as potential parties to the contested case proceeding. Mr. Flores also offered two documents as exhibits in support of his petition on behalf of Moʻoinanea, including his own affidavit stating that he had power of attorney to act and speak on Moʻoinanea's behalf. Hearing on Standing and Prehearing, Tr. 5/13/11 at 38-39.

52. On May 27, 2011, the Hearing Officer issued Minute Order No. 6, entitled "Order Regarding Standing." It held that Mr. Ching, KAHEA, MKAH, Ms. Ward, and Mr. Neves were admitted as parties; and that the Flores-Case ʻOhana, consisting of Mr. Flores and Ms. Case, was admitted as a party, with either of them entitled to act as the representative of the Flores-Case ʻOhana, provided that only one of them could serve as a representative at any given hearing.

53. Minute Order No. 6 further recommended that the BLNR deny the request for Moʻoinanea to appear as a party in the contested case, because the information provided indicated that Moʻoinanea is a spirit, not a person, and as such

does not meet the requirements of Haw. Admin. R. §§ 13-1-31 and 13-1-2 to be admitted as a party.

54. Petitioners and UHH received timely notice that the question of whether to accept or reject the Hearing Officer's recommendation regarding Mo'oinanea's standing was placed on the agenda for the June 23, 2011 regular meeting of the BLNR.

55. On June 23, 2011, the staff of the DLNR's OCCL presented to the BLNR the Hearing Officer's recommendation to deny standing to Mo'oinanea, providing a detailed summary of Petitioners' and UHH's arguments on the question of whether Mo'oinanea had standing. OCCL staff recommended that the petition on behalf of Mo'oinanea be denied for lack of standing and for failure to pay the filing fee.

56. At the June 23, 2011 meeting of the BLNR, Ms. Townsend appeared and submitted written testimony dated June 22, 2011 from the Flores-Case 'Ohana in further support of the position that Mo'oinanea has standing to participate in this contested case proceeding and should be granted a waiver of the filing fee requirement.

57. After considering the issue, including the submission of the new written testimony from the Flores-Case 'Ohana, the BLNR voted unanimously to adopt the Hearing Officer's recommendation to deny the petition submitted on behalf of Mo'oinanea.

5. Pre-Hearing Conference Statements and the Pre-Hearing Conference

58. On May 9, 2011, pursuant to Minute Order No. 1, UHH filed its Pre-Hearing Conference Statement.

59. On May 9, 2011, pursuant to Minute Order No. 1, Petitioners KAHEA, MKAH, Ward, Ching, Neves, and Flores-Case 'Ohana filed their joint Pre-Hearing Conference Statement.

60. On May 13, 2011, at the State Office Building in Hilo, a pre-hearing conference was held. The Petitioners were represented by Ms. Pisciotta, Ms. Townsend, Ms. Ward, Mr. Ching, and Mr. Flores. UHH was represented by Mr. Lui-Kwan and Mr. Sandison. Extensive discussion and argument were held regarding the issues, timing, and procedures for the contested case hearing.

61. On May 27, 2011, the Hearing Officer issued Minute Order No. 7. The minute order provided, among other things, that:

a. the issue to be decided in the contested case hearing was whether UHH's proposed land use is consistent with the criteria set forth in Haw. Admin. R. § 3-5-30(c);

b. the additional issues proposed by the Petitioners in their Pre-Hearing Conference Statement dated May 9, 2011 would also be considered to the extent relevant and within the jurisdiction of the BLNR; and

c. the Applicant [UHH] would have the burden of proof and the quantum of proof would be a preponderance of the evidence.

6. Motions

62. By letter dated April 18, 2011, all of the Petitioners except the Flores-Case ʻOhana objected to the appointment of Paul Aoki as hearing officer in the contested case relating to CDUP HA-3568 and requested that the pre-hearing conference scheduled for May 13, 2011 be rescheduled. On May 2, 2011, Minute Order No. 2, issued by the Chairperson of the BLNR, denied the Petitioners' motion, stating that the Petitioners failed to state a sufficient basis for disqualification. On April 29, 2011, Minute Order No. 3 was issued, denying Petitioners' motion to continue the Prehearing Conference scheduled for May 13, 2011.

63. By motion dated May 9, 2011, all of the Petitioners except KAHEA sought reconsideration of the Chairperson's denial of the motion to disqualify Mr. Aoki as Hearing Officer. On May 16, 2011, the Chairperson issued Minute Order No. 5, denying the motion to replace the Hearing Officer.

64. By motion dated May 9, 2011, Petitioners MKAH, Ching, Ward, Neves, and Flores-Case ʻOhana requested a time extension, to June 1, 2011, for the Pre-Hearing Conference scheduled for May 13, 2011. On May 10, 2011, KAHEA submitted a Motion to Reconsider Request for Time Extension. On May 11, 2011, Minute Order No. 4 was served upon the parties, denying Petitioners' motions requesting that the pre-hearing conference be rescheduled.

65. By motion dated July 19, 2011, Petitioner Flores-Case ʻOhana moved for permission to allow Moʻoinanea to testify orally, in lieu of providing the written direct testimony required of all other witnesses. Specifically, the Flores-Case ʻOhana sought to have Moʻoinanea testify live at the contested case hearing through a "cultural/language interpreter." UHH responded to the motion on July 26, 2011. On July 28, 2011, Minute Order No. 9 was served upon the parties, granting the motion to the extent that Moʻoinanea was excused from the requirement to provide advance written direct testimony, but preserving UHH's right to make any and all objections to Moʻoinanea's testimony at the contested case hearing.

66. During the contested case hearing, Petitioner Flores-Case ʻOhana explained that although it had originally intended to present the testimony of Moʻoinanea through Kapulei Flores, Ms. Case and Mr. Flores had thereafter determined that their daughter would not testify. Accordingly, Moʻoinanea did not offer any direct testimony, and the issues raised in the Flores-Case ʻOhana's July 19, 2011 motion and UHH's July 26, 2011 response thereto became moot.

67. By motion dated July 19, 2011, all of the Petitioners made a "Motion to Strike," which sought to exclude certain legal arguments and factual evidence offered by UHH, including the entire testimonies of three witnesses.

68. On July 26, 2011, UHH filed its Opposition to Petitioners' Motion to Strike. On July 28, 2011, Minute Order No. 10 was served upon the parties, denying Petitioners' Motion to Strike in all respects.

69. On October 31, 2011, Applicant submitted a written request to take judicial notice of the October 26, 2011 action of the United States Fish and Wildlife Service formally removing the wekiu bug as a candidate for listing as an endangered species and to add a copy of the Federal Register as an exhibit.

70. On November 7, 2011, Petitioners submitted a written response to the request to take judicial notice. Petitioners did not object to the request to supplement the record, however, Petitioners requested to supplement the record with the Declaration of Deborah Ward and if the declaration was not admitted, Petitioners objected to the admission of the proposed exhibit without the opportunity for a hearing.

71. On November 14, 2011, UHH withdrew its request to add the Federal Register as an exhibit.

72. Minute Order No. 16 dated November 16, 2011 granted UHH's written request to take official notice of the October 26, 2011 action of the United States Fish and Wildlife Service formally removing the wekiu bug as a candidate for listing as an endangered species under the Endangered Species Act which is documented in the Federal Register at 76 Fed. Reg. 66, 376 (Oct. 26, 2011). Official Notice was taken of the following fact: On October 26, 2011, the United States Fish and Wildlife Service removed the wekiu bug as a candidate for listing as an endangered species under the Endangered Species Act. Petitioners' request to supplement the record with the Declaration of Deborah Ward and for a hearing were denied.

73. Minute Order No. 17 dated November 23, 2011 extended the deadline to submit comments regarding the proposed decision and order to December 5, 2011.

74. Minute Order No. 18 dated December 2, 2011 granted Petitioners' request to take judicial notice of the fact that oral argument was held in Petitioners' appeal in Mauna Kea Aina Hou, et al. v. Board of Land and Natural Resources, et al., Civil No. 01-9-336, and that a recording of the argument is available to the public and denied the request to take judicial notice that during the argument counsel for the University of Hawaii "described the CMP as a BLNR approval that 'does not take action.'"

C. The Site Visit

75. On May 10, 2011, all of the Petitioners jointly filed their site visit recommendations.

76. On June 8, 2011, UHH filed its site visit recommendations.

77. On July 7, 2011, Minute Order No. 8 was issued, setting forth the schedule and locations to be visited for the August 11, 2011 site visit.

78. On August 11, 2011, all parties participated in a site visit to the conservation district of Mauna Kea. Sites visited include: Hale Pohaku electrical substation, various electrical boxes in the Natural Area Reserve, the batchplant, the northern ridge of Kukahau`ula near the Gemini Telescope, the area immediately north of the Subaru and Keck Telescopes, the base and peak of Pu`u Poliahu, and the proposed site of the project.

79. The site visit included a demonstration of the height of the proposed project using a red helium balloon attached to a rope measuring 187 feet long.

80. The red balloon was visible from the northern ridge of Kukahau`ula, the area immediately north of the Subaru and Keck Telescopes, and the base and peak of Pu`u Poliahu.

D. <u>Conduct of the Contested Case Hearing</u>

81. The contested case hearing commenced on Monday, August 15, 2011. Testimony was taken and evidence submitted during the following seven hearing days: August 15, 16, 17, 18, and 25, 2011, and September 26 and 30, 2011.

82. At the opening of the hearing, Petitioners MKAH, Ward, Neves, Ching, and the Flores-Case ‘Ohana all stated that they authorized Marti Townsend of KAHEA to facilitate the filing of all documents on behalf of Petitioners in this matter, including previously filed briefs, written direct testimonies, witness lists, exhibit lists, exhibits, motions, and general correspondence. Tr. 8/15/11 at 4-6.

83. Pursuant to Minute Order No. 7 issued on May 27, 2011, at the contested case hearing, each witness was allowed to present a summary of his or her written direct testimony at the beginning of his or her testimony. The summaries were not to exceed ten minutes, followed by any cross-examination and re-direct examination of each witness. At the outset of the hearing, the parties agreed that witnesses’ ten-minute summaries would be limited to the contents of their submitted written testimonies. Tr. 8/15/11 at 7.

84. At the outset of the hearing on August 15, 2011, all of UHH’s and all of the Petitioners’ written direct testimonies and exhibits that had been submitted up to that point were admitted into evidence, including the exhibits that had been submitted by the pre-hearing deadlines set forth in Minute Order No. 7. Thereafter, the following additional exhibits were admitted into evidence during the course of the contested case hearing: (1) Exhibits B-40, B-41, B-42, B-100, and B-101; (2) Exhibits C-14, C-15, and C-16; (3) Exhibits G-19, G-20, G-21, G-22, G-23, and G-24; (4) Exhibits A-201, A-202, A-203, A-204, A-205, A-206, A-207, A-208, A-209, and A-210; (5) and Exhibits A-301

through A-320. Tr. 8/15/11 at 7; Tr. 8/16/11 at 60, 62; Tr. 8/25/11 at 14-17, 134, 137, 148; Tr. 9/26/11 at 54-66, 75, 80, 82, 107-08; Tr. 9/30/11 at 4-9.

85. At the opening of the hearing, all of the parties agreed that depending on the circumstances, UHH's witnesses who had submitted both written direct testimony and written rebuttal testimony might be permitted to give the summaries of their direct and rebuttal testimonies at the same time. Tr. 8/15/11 at 7-8.

86. At the opening of the hearing, prior to going on the record, a colloquy was held to discuss certain procedural issues. At the end of the colloquy, over UHH's objection, the Hearing Officer did not set time limits on the cross-examination of witnesses, and allowed each of the six Petitioners to conduct cross-examination rather than requiring that Petitioners designate a single person to question any particular witness.

87. During the hearing, Dr. Clifford Smith was qualified as an expert in botany. Smith Tr. 8/16/11 at 215.

88. During the hearing, Dr. Sara Collins was qualified as an expert in archaeology, physical anthropology, historic preservation, and the historic preservation process under Haw. Rev. Stat. Chapter 6E. Tr. 8/17/11 at 18.

89. During the hearing, Tom Nance was qualified as an expert in hydrology, including groundwater, surface water, water resources, water system design, flood control, and drainage. Tr. 8/18/11 at 17-18.

90. During the hearing, Jesse Eiben was qualified as an expert entomologist, with particular expertise on the wēkiu bug and its habitat. Tr. 8/18/11 at 120-21.

91. During the hearing, Petitioners requested that Mr. Neves, Mr. Ching, Ms. Pisciotta, Mr. Flores, and Ms. Case be qualified as experts regarding their cultural practices relating to Mauna Kea, and UHH agreed to that request. Given UHH's agreement, the Hearing Officer accepted those witnesses as experts on their cultural practices relating to Mauna Kea. Tr. 8/25/11 at 28-31.

92. Subsequently, Mr. Flores requested that he be further qualified as an expert on two additional grounds: Hawaiian cultural traditions, and "the review and assessment process of Hawaiian cultural and historic resources." Tr. 9/26/11 at 5-7. On the first ground, UHH agreed to Mr. Flores's qualification as an expert in Hawaiian cultural traditions, but limited to the subject matter that Mr. Flores teaches as a faculty member of West Hawai'i Community College. The Hearing Officer accepted Mr. Flores as an expert on native Hawaiian culture, limited to the subject areas in which he teaches. Tr. 9/26/11 at 6. On the second ground, UHH objected because Mr. Flores had not indicated that he was seeking qualification as an expert in a recognized field and had not shown experience of a type that would establish expert qualification under the governing legal standard. After argument by Petitioners and UHH, the Hearing

Officer denied Mr. Flores's request to be qualified as an expert in the review and assessment process of Hawaiian cultural and historic resources. Tr. 9/26/11 at 7-13.

93. During the hearing, Dr. Kawika Liu was qualified as an expert in public health related to native Hawaiian issues. Tr. 8/25/11 at 212.

94. During the hearing, Dr. Kehaulani Kauanui was qualified as an expert in native Hawaiian studies and the colonization of Hawaii. Tr. 8/25/11 at 81-82.

95. Over UHH's objection, the Hearing Officer allowed all six Petitioners to conduct unlimited re-direct examination of each of Petitioners' witnesses who were cross-examined by UHH. Tr. 8/25/11 at 25-28.

96. Petitioners' proposed witness Kapulei Flores, who had submitted written direct testimony, did not appear at the contested case hearing. Accordingly, under the terms of Minute Order No. 7, which provides that written direct testimony shall be admitted into evidence subject to the witnesses being available for cross-examination, her written direct testimony was stricken from the record. Tr. 8/25/11 at 34.

E. <u>Evidentiary Dispute</u>

97. During the hearing, Petitioners opposed the admission into evidence of Exhibit A-204, a report entitled "Aloha Mauna Kea: Akaaka Wale 'O Mauna A Wakea" (the "Aloha Mauna Kea Report").

98. Graphics contained in Petitioners' Exhibit C-2 (both as originally produced by Petitioners, Exhibit A-206, and as subsequently revised by Petitioners during the contested case hearing) and Exhibit E-2 are contained in Exhibit A-204. Those graphics differ from the corresponding graphics in Exhibit B-101, which Petitioners claim was the original draft hard-copy version of the document that, with subsequent revisions, is embodied in Exhibit A-204:

a. In the second page of Exhibit A-206, the placement of the legend has been altered from the version on page 20 of Exhibit B-101;

b. Unlike the graphic on page 21 of Exhibit B-101, in the third page of Exhibit A-206, (i) a caption – "Important alignments beyond the island of Hawaii" – has been added; (ii) the legend and scale have been deleted; and (iii) details showing trails have been removed from the map; and

c. In the fifth page of Exhibit A-206, text appears in the bottom right graphic that is not present in the corresponding image on page 38 of Exhibit B-101.

99. These changes prove that the hard copy document received by Petitioners in 2006, Exhibit B-101, was not, in fact, the source of all the maps they

submitted as exhibits. Rather, it appears that to generate their exhibits, Petitioners possess and modified a digital file or files, which they did not produce.

100. It is undisputed that UHH's counsel: found the Aloha Mauna Kea Report, Exhibit A-204, on the KAHEA web site on May 31, 2011; viewed that document from the KAHEA web site several times over the intervening months; had it downloaded on August 10, 2011 to print the document marked as Exhibit A-204; confirmed that the Aloha Mauna Kea Report was still on the KAHEA web site in late August 2011; and discovered that in early September 2011, just days after it was the subject of cross-examination at the August 25, 2011 hearing, the links to this document were removed from the KAHEA web site. Exhibit A-210.

101. It is undisputed that KAHEA paid for the Aloha Mauna Kea Report with grant money it received. Exhibit C-1 at 7.

102. While in KAHEA's custody, KAHEA's then-executive director, Miwa Tamanaha, revised the document in several respects, Exhibit B-100, including:

a. Unlike the draft, which Ms. Ward represented was created in 2006, Exhibit A-204 was modified to address recent developments like the 2009 adoption of the Comprehensive Management Plan and to reflect Petitioners' position that they are currently challenging the CMP in court, Exhibit A-204 at 34; *see id.* at 7 (discussing events in 2009 and 2010);

b. Unlike the draft, Exhibit A-204 was modified to assert the position, which is consistent with Petitioners' position in this contested case proceeding, that the designations of the Mauna Kea Science Reserve and the Astronomy Precinct are fictitious and that the University has no jurisdiction over those areas, Exhibit A-204 at 26, 35;

c. Exhibit A-204 states that the number of telescopes on Mauna Kea is larger than the number identified in the draft, in a manner consistent with Petitioners' arguments in this contested case, compare Exhibit B-101 at 26 ("currently 13 telescopes") with Exhibit A-204 at 26 ("currently 19 individual telescopes").

103. It is undisputed that after Ms. Tamanaha made these revisions, the Aloha Mauna Kea Report was posted on the KAHEA web site. Exhibit A-210; Exhibit B-100; Tr. 9/30/11 at 6.

104. Exhibit A-204 was admitted into evidence.

105. Petitioners assert that Exhibit A-204 is a "draft." Exhibit B-100. However, unlike the 2006 document, which is conspicuously marked "DRAFT," Exhibit B-101, there is no such notation on Exhibit A-204, which was posted on the KAHEA web site for the period from at least May 2011 to September 2011.

106. Having revised and updated the Aloha Mauna Kea Report, Ms. Tamanaha, who was KAHEA's senior executive officer, had the opportunity to change or correct any portions of that document which she believed were inaccurate.

II. THE DEVELOPMENT OF MODERN ASTRONOMY ON MAUNA KEA

A. The General Lease and the MKSR

107. In 1968, the State of Hawai'i, through the BLNR, entered into a lease with the University of Hawai'i for the MKSR, General Lease No. S-4191 (the "General Lease"). By its terms, the General Lease terminates on December 31, 2033. Written Direct Testimony ("WDT") Nagata at 1; Exhibit B-2.

108. Essentially, the MKSR covers all land on Mauna Kea above the 12,000 foot elevation, except for certain portions that lie within the Mauna Kea Ice Age Natural Area Reserve ("NAR"). WDT Nagata at 1.

109. The General Lease allows the University of Hawai'i to use the leased land as follows:

> 4. Specified Use. The land hereby leased shall be used by the Lessee as a scientific complex, *including without limitation thereof an observatory,* and be a scientific reserve being more specifically a buffer zone to prevent the intrusion of activities inimical to said scientific complex.
>
> Activities inimical to said scientific complex shall include light and dust interference to observatory operation and certain types of electric or electronic installation on the demised lands, but shall not necessarily be limited to the foregoing.

Exhibit B-2 at 3-4 (emphasis added).

110. The entire MKSR is designated as part of the State of Hawaii Conservation District Resource subzone and, as such, uses on the land are subject to the DLNR's Conservation District rules (Haw. Admin. R. § 13-5) and permit conditions. WDT Sanders at 3.

111. As State land, the MKSR is administered by the DLNR as directed by the BLNR. The MKSR is comprised of 11,288 acres, which the University's Master Plan describes as a 10,763-acre cultural and natural preserve and a 525-acre Astronomy Precinct. The lands that are managed by the University ("UH Management Areas") include the MKSR, the Hale Pōhaku mid-level facilities, and the Summit Access Road between Hale Pōhaku and the MKSR (including 400 yards on either side of the road excluding the NAR). WDT Nagata at 1, 5.

112. The current UH lease expires in 2033 and the TMT Observatory will be required to be decommissioned and restore the site at that time, unless a new lease is obtained from the BLNR. Ex A- 308 FEIS section 3.10 Land Use Plans, Policies and Controls p 3-160

113. The TMT will require a sublease for use of the land on Mauna Kea leased to the University. (Sanders, Tr. August 15, 2011, 100:11-13, Nagata, Tr. August 16, 2011, 208:15-17)

114. The terms of the sublease to the TMT Observatory Corporation are not known, but are expected to be similar to the terms of current subleases for telescopes on Mauna Kea. (Sanders, Tr. August 15, 2011, 82:12-24, 99:24-101:4, Nagata, Tr. August 16, 2011, 211:21-25)

B. The Previous Development of Modern Astronomy Facilities on Mauna Kea

115. The first road to the summit of Mauna Kea was built in 1964. Site testing performed beginning in that year demonstrated that the conditions in the summit area made Mauna Kea a premier location for astronomical observation. Exhibit A-309 at 3-208.

116. UHH began operating an observatory on Mauna Kea in 1968. Thereafter, a series of world class astronomical observatories were built in the summit region of Mauna Kea. The following observatories were built in the summit region and remain in operation:

a. The UH 2.2-meter observatory, which became operational in 1970;

b. The United Kingdom Infrared Telescope ("UKIRT"), which became operational in 1979;

c. The NASA Infrared Telescope Facility ("IRTF"), which became operational in 1979;

d. The Canada-France-Hawai'i Telescope ("CFHT"), which became operational in 1979;

e. The Caltech Submillimeter Observatory ("CSO"), which became operational in 1986;

f. The James Clark Maxwell Telescope ("JCMT"), which became operational in 1986;

g. The Very Long Baseline Array ("VLBA"), which became operational in 1992;

h. The W. M. Keck Observatory, the first phase of which ("Keck I") became operational in 1992, and the second phase of which ("Keck II") became operational in 1996;

i. The Subaru Observatory ("Subaru"), which became operational in 1999;

j. The Gemini North Observatory ("Gemini"), which became operational in 1999; and

k. The Submillimeter Array ("SMA"), which became operational in 2002.

Exhibit A-309 at 3-207 – 210.

117. In the past, in constructing observatories near and on the slopes of the cinder cones that comprise the Historic Property of Kukahauʻula, spiritually the most important area of Mauna Kea, little consideration was given to the potential impact on traditional cultural resources because the significance was not understood at the time. The past construction of these observatories has had cumulative impacts on cultural, archaeological, and historic resources that are substantial, significant, and adverse. Exhibit A-309 at 3-214.

118. The existing astronomical observatories are also prominent visual elements on the summit of Mauna Kea. At least one of the existing observatories is visible from roughly 43 percent of Hawaiʻi Island, including Hilo and Waimea; according to 2000 U.S. Census data, 72 percent of the Island's population reside within that viewshed area. At the summit, the existing observatories obscure portions of the 360-degree panoramic view from the summit area. Overall, the existing level of the cumulative visual impact from past projects at the summit is considered to be substantial, significant, and adverse. Exhibit A-309 at 3-217 – 218.

119. The development of the existing observatories also significantly modified the preexisting terrain. The tops of certain puʻu, or cinder cones, were flattened to accommodate the foundations for observatory facilities. In addition, some materials removed from the puʻu were pushed over the sides of the cinder cones, creating steeper slopes that are more susceptible to disturbance. Consequently, the existing level of cumulative impact on geology, soils, and slope stability is considered to be substantial, significant, and adverse. Exhibit A-309 at 3-218 – 219.

120. In 1998, an audit performed by the State of Hawaiʻi was highly critical of the University's past management of the cultural and environmental resources in the MKSR.

121. In 1998, a series of highly contentious public hearings relating to the University's management of the summit area of Mauna Kea occurred on Hawaiʻi Island. WDT Heen at 1.

C. The Development of the 2000 Master Plan and the Office of Mauna Kea Management

122. In response to these concerns, following nearly two years of meetings and public hearings, on June 16, 2000, the University Board of Regents ("BOR") adopted the Mauna Kea Science Reserve Master Plan (the "Master Plan"), which established management guidelines for the UH Management Areas. The Master Plan marked a turning point in the management of the UH Management Areas on Mauna Kea. Its purpose was to serve as a policy and planning guide for the University, and its goal was balanced stewardship of the UH Management Areas and local oversight of observatory development within the MKSR. The process reflected the Hawai'i Island community's deeply rooted concerns over the use of Mauna Kea, including respect for Hawaiian cultural beliefs and practices, protection of environmentally sensitive habitat, recreational use of the mountain, as well as astronomy research. WDT Nagata at 2; WDT Heen at 1.

123. The Master Plan's goals include: (1) preserving and protecting the cultural, natural, educational, and recreational resources in the managed areas, as well as the cultural and natural landscape; (2) preserving and managing the cultural resources for future generations, protecting opportunities to engage in cultural practices; (3) defining areas for the use of cultural, natural and recreational resources; (4) allowing for sustainable, integrated planning and management; and (5) protecting and enhancing astronomy research. WDT Nagata at 2.

124. The Master Plan as a whole was never submitted to the BLNR for approval; rather, it is an internal planning document of the University's. Tr. 8/17/11 at 124. As noted below, however, certain aspects of the Master Plan have been approved by the BLNR – for example, provisions of the Master Plan that were subsequently incorporated by reference into the Comprehensive Management Plan and its sub-plans (described below), which the BLNR approved in full. WDT Nagata at 4; Exhibit A-23; Tr. 8/17/11 at 189.

125. The Master Plan sought to include community involvement in the management of the MKSR and recommended a management board composed of members representing the major stakeholders of Mauna Kea. Thus, in response to public demands for local oversight of astronomy development and for native Hawaiians to have unrestricted access to Mauna Kea, the Master Plan established a new on-island (Hawai'i Island) community-based management entity that advises the UHH Chancellor, who is responsible for overseeing the management of the UH Management Areas on Mauna Kea. This management entity is composed of the Office of Mauna Kea Management ("OMKM"), the Mauna Kea Management Board ("MKMB"), and the native Hawaiian advisory council, Kahu Kū Mauna ("Guardians of the Mountain"). WDT Nagata at 2-3; Tr. 8/17/11 at 109-13; WDT Heen at 1-3.

126. The members of MKMB and Kahu Kū Mauna are volunteers who serve in these capacities out of their desire to see that the lands for which the University is responsible are properly managed. The MKMB is comprised of seven members

appointed by the BOR. The Kahu Kū Mauna council is an assembly of Native Hawaiians that provides OMKM with their mana‘o on cultural matters and pertinent advice regarding the preservation of the sacredness of Mauna Kea. When a vacancy occurs on the Kahu Kū Mauna council, it is advertised and individuals can apply; its members are appointed by MKMB. Kahu Kū Mauna serves as essential advisors to OMKM and MKMB on all matters affecting the cultural integrity of Mauna Kea, including land uses on Mauna Kea. WDT Nagata at 2-3; Tr. 8/17/11 at 95, 113; Tr. 8/18/11 at 39-40; WDT Heen at 2.

127. MKMB also established an environmental advisory group which assists in addressing activities that might affect the natural ecology of the mountain. This group provides the office with guidance on environmental management. In particular, the Environment committee was instrumental in assisting with the development of the Natural Resources Management Plan, which, as described in greater detail below, is a sub-plan of the University’s Mauna Kea Comprehensive Management Plan. WDT Heen at 2.

128. OMKM's primary mission is the protection, preservation, and enhancement of cultural and natural resources in the UH Management Areas on Mauna Kea. WDT Nagata at 2-3. Notwithstanding its situation as part of the University community, OMKM’s primary concerns and activities since its inception were, and continue to be, designed to protect Mauna Kea from uncontrolled and unwarranted intrusion and to preserve native Hawaiian traditional and customary rights and the mountain’s natural environment, all as guaranteed by the Hawai‘i State Constitution, state statutes, and court decisions. In carrying out its activities, OMKM has been particularly cognizant of the laws pertaining to the DLNR and its Administrative Rules. WDT Heen at 1.

129. Immediately after adoption of the Master Plan, OMKM, with guidance from MKMB, began developing a program to carry out the provisions of the Master Plan. OMKM and MKMB’s subsequent planning was consistent with the legal framework set out by the Hawai‘i Supreme Court for identifying cultural and natural resources, assessing potential impacts to those resources by existing and proposed uses, and considering feasible measures to mitigate such impacts to significant resources. To gather information on how best to manage Mauna Kea’s varied resources, OMKM established close contacts with the astronomy, native Hawaiian, and environmentally concerned communities. WDT Heen at 1.

130. UHH’s role and responsibilities in managing the UH Management Areas on Mauna Kea include: (1) implementing the Master Plan and the Comprehensive Management Plan and its sub-plans (described below); (2) developing and implementing management policies; (3) reviewing project proposals; and (4) overseeing day-to-day management of public activities, commercial tours, filming, research, and outside-the-dome observatory activities within the UH Management Areas. In addition, MKMB (which follows the State’s Sunshine regulations), with input from Kahu Kū Mauna, makes recommendations to the UHH Chancellor to approve or disapprove actions presented to MKMB by OMKM. These actions include reviewing

and making recommendations regarding projects such as the TMT Project. WDT Nagata at 2; Exhibit A-25.

D. The Keck Outrigger Project

131. In 2001, the University of Hawai'i Institute for Astronomy ("IfA") applied to the BLNR for a CDUP for the construction of six 1.8-meter "outrigger" telescopes to supplement the existing Keck I and Keck II observatory. The so-called "Keck Outrigger" project faced substantial opposition, including from several of the Petitioners in the current proceeding. Exhibit B-15.

132. In October 2004, after a contested case proceeding that was resolved in favor of the IfA, the BLNR granted a CDUP for the construction of the Keck Outrigger project. The petitioners in that proceeding appealed the BLNR's decision to the Third Circuit Court of the State of Hawai'i. Exhibit B-15.

133. In January 2007, the Third Circuit ruled that the BLNR had erred in approving the CDUP for the Keck Outrigger project. The Court held that Haw. Admin. R. § 13-5-24(c) permitted astronomy facilities in the resource subzone of a conservation district only under an approved management plan; that Haw. Admin R. § 13-5-2 required such a management plan to be "comprehensive"; and that there was no comprehensive management plan in place. Exhibit B-15 at 10-14. After the Third Circuit rendered its decision, the Keck Outrigger project was abandoned. Exhibit C-1 at 3.

E. The Development of the Comprehensive Management Plan and Its Sub-Plans

134. In the Summer of 2005, a year and a half before the Third Circuit issued its decision regarding the Keck Outrigger project, UHH began developing a Mauna Kea Comprehensive Management Plan ("CMP") to govern its internal management of the MKSR. The CMP contains: (1) a summary of the description of the resources within the UH Management Areas; (2) identification of uses and activities; (3) identification of threats to Mauna Kea's resources; and (4) a total of 103 management actions and associated reporting requirements to mitigate threats and to protect various resources in the UH Management Areas on Mauna Kea. The CMP is an integrated planning guide for resource management that is designed to ensure the protection of Mauna Kea's unique cultural, natural, recreational, educational, and scientific resources. The CMP is an adaptive management document that is not intended to provide full details on all projects contemplated. WDT Nagata at 3; Tr. 8/17/11 at 122, 128.

135. The CMP was submitted to the BLNR for approval. On April 8 and 9, 2009, the BLNR held its regular meeting in Hilo on the CMP, and, on April 9, 2009, approved the CMP. The BLNR conditioned its approval of the CMP by requiring the University to submit for approval four additional sub-plans and Project Development Framework as well as an annual status report on the development of each sub-plan and

a status report on the development of the management actions. WDT Nagata at 4-5; Exhibit A-301; Exhibit A-23.

136. Certain of the Petitioners in this proceeding requested that a contested case hearing be held on the BLNR's decision to approve the CMP. That request was denied, and the Petitioners appealed the denial to the Third Circuit Court. Civ. No. 09-1-336. The Court held that the Petitioners had failed to show that their rights, duties, and privileges had been adversely affected by the acceptance and adoption of the CMP, and that therefore, the Court had no jurisdiction under Haw. Rev. Stat. § 91-14 to hear the appeal. For that reason, the Court dismissed the appeal. Exhibit B-16. The Petitioners appealed that ruling to the Intermediate Court of Appeals; their appeal was limited solely to the question of whether the BLNR and Judge Hara correctly ruled that Petitioners were not entitled to a contested case hearing. Exhibit A-141. The Intermediate Court of Appeals affirmed the Third Circuit Court's decision. *Mauna Kea Anaina Hou v. University of Hawai`i, 126 Haw. 265 (2012).*

137. Meanwhile, to satisfy the conditions imposed by the BLNR, the University developed and submitted its Project Development Implementation Framework and the four sub-plans to the BLNR. The four sub-plans – the Cultural Resources Management Plan ("CRMP"), the Natural Resources Management Plan ("NRMP"), the Decommissioning Plan for the Mauna Kea Observatories ("Decommissioning Plan"), and the Public Access Plan for the UH Management Areas on Mauna Kea ("PAP") – were approved by the BLNR on March 25, 2010. WDT Nagata at 4; Exhibit A-25; Exhibit A-33; Exhibits A-302 – A-305.

138. The CRMP was developed as part of OMKM's efforts to create a comprehensive management plan for the UH Management Areas on Mauna Kea. The CRMP provides OMKM and UHH the tools needed to meet their cultural resource management responsibilities in several ways. The major objectives of the CRMP are: (1) promoting a greater understanding of the rich cultural heritage of Mauna Kea; (2) preserving and managing cultural resources in a sustainable manner so that future generations will be able to share in and contribute to a better understanding of the historic properties that exist in the summit region, which is of major cultural significance to Hawaiians; (3) maintaining opportunities for native Hawaiians to engage in cultural and religious practices; and (4) preserving the cultural landscape for the benefit of cultural practitioners, researchers, recreationalists, and other users. WDT Nagata at 4; Exhibit A-303 at i-ii.

139. The CRMP examines specific activities in terms of the potential threats or impacts that each may have on historic sites and properties, and presents appropriate mitigation measures to avoid or minimize impacts. Community consultation was also part of the process, with consultation meetings held in Hilo, Waimea, Kona, and Ka‘u. WDT Nagata at 4; Exhibit A-303 at i-ii.

140. The NRMP focuses on the protection and preservation of natural resources in the UH Management Areas on Mauna Kea. The NRMP provides detailed information on the status of and threats to natural resources and development of a

management program to conserve these resources. The NRMP is based on a scientific framework that includes comprehensive review of existing scientific studies, biological inventories, and historical documentation that identifies the current state of knowledge of resources and management activities and the effectiveness of current management actions. Community consultation was also part of the process, with surveys, email and phone interviews, and meetings held in Hilo and Honolulu to gather input from scientific experts, natural resource managers, and concerned members of the public. WDT Nagata at 4; Exhibit A-302 at i.

141. The NRMP examines human uses of Mauna Kea, with particular emphasis on their current and potential impacts on natural resources. The NRMP offers specific management actions to reduce the identified threats to natural resources and to guide adaptive responses to future threats. It also details a process for establishing and implementing a natural resources management program. The overarching goal of the NRMP is to help OMKM achieve its mission by providing natural resource management goals, objectives, and activities that protect, preserve, and enhance the natural resources of Mauna Kea. WDT Nagata at 4; Exhibit A-302 at i.

142. The Decommissioning Plan provides a framework that can be used by both existing and future observatories on Mauna Kea to ensure that the DLNR as the landowner, the University as the lessee, and the observatories as sublessees have clear expectations of the observatory decommissioning process. The Decommissioning Plan establishes a process for the eventual removal of observatories and site restoration. WDT Nagata at 4; Exhibit A-305 at i.

143. The Decommissioning Plan describes the requirements that an observatory must meet to be released from its sublease agreement with the University. It also describes the steps involved in the decommissioning process, and establishes requirements to ensure that funding will be available to carry out decommissioning activities. In addition, the Decommissioning Plan discusses the future of astronomy on Mauna Kea, including the University's expectation that by the end of the current lease there will be fewer telescopes than exist today. The Decommissioning Plan also provides criteria on the siting of observatory facilities, including (1) minimum impact on wēkiu bug habitat; (2) minimum visual impact from significant cultural resources; (3) avoidance of archaeological sites, and (4) proximity to roads so as to minimize disturbance to the natural terrain. WDT Nagata at 4; Exhibit A-305 at i, 28-33, and D-2.

144. The Decommissioning Plan states that provisions for funding the required decommissioning activities should be developed when negotiating the sublease or upon an agreement between an observatory and its funding entity and should become part of the subleases.

145. The PAP provides a set of principles and policies to guide OMKM in the development of administrative rules relating to public and commercial activities in the UH Management Areas. The PAP also discusses current and future public and commercial activities in the UH Management Areas, terms of the master lease with regard to public hunting, recreational activities and existing trails, and public access-

related issues, and makes recommendations regarding these issues. The recommended policies are based, in large part, on data collected by the OMKM Rangers, information from interviews with community members, and guidance obtained during round table discussions with members of the various constituencies interested in and involved with Mauna Kea. WDT Nagata at 4; Exhibit A-304 at i.

146. The University is committed to comprehensive management of the UH Management Areas on Mauna Kea, including providing funding appropriate to effectively manage and implement management actions called for in the CMP and sub-plans. Tr. 8/17/11 at 138, 145. The University has committed to provide the funding OMKM needs for management of the mountain, Tr. 8/17/11 at 183-84, and that funding is not dependent upon the TMT Project, *id.* at 184.

147. OMKM has already begun implementing the BLNR's CMP by initiating and completing comprehensive surveys of Mauna Kea's natural resources and historical sites. Mauna Kea's historical sites have been extensively surveyed and identified. The natural resources found in the summit region have been substantially surveyed and identified. OMKM is in the process of developing baseline inventories as to Mauna Kea's natural resources outside of the summit area. Tr. 8/17/11 at 133-36, 140; Tr. 8/16/11 at 199; Exhibit A-26; Exhibits A-28 – A-30; Exhibit A-37; Exhibit A-313 at 133-68.

148. OMKM is in the process of developing an Invasive Species Prevention and Control Program that is intended to prevent the spread of invasive species on Mauna Kea. OMKM is working with the Big Island Invasive Species Committee in developing its Invasive Species Prevention and Control Program. Tr. 8/17/11 at 131, 137.

149. OMKM, through the Rangers, has already begun addressing the spread of invasive species on Mauna Kea, including through the hand removal and bagging of fireweed that has been found in various areas on Mauna Kea. OMKM already conducts intensive annual surveys of Hale Pōhaku, which is considered the gateway to Mauna Kea, for invasive species. OMKM also does annual surveys of the summit area for invasive species. Tr. 8/17/11 at 135-36.

150. OMKM anticipates hiring additional staff trained in natural resources management, including a natural resources manager, to assist OMKM in managing Mauna Kea's natural resources. Tr. 8/17/11 at 145.

F. Astronomy Development Under the Master Plan

151. The Master Plan delineates the Astronomy Precinct on Mauna Kea, an area where astronomy-related development will be consolidated in order to minimize the potential impacts to natural and cultural resources of the summit region. Exhibit A-21 at IX-20.

152. The Master Plan identifies the types of astronomy development that are allowed within the Astronomy Precinct. These include the redevelopment or

expansion of existing observatory facilities or sites, and the development of a next generation large telescope such as the TMT. Under the Master Plan, new facilities proposed within the Astronomy Precinct should be designed to: (1) avoid disturbing existing habitat areas and archaeological sites; (2) limit the extent of additional visual impacts; (3) implement design measures to blend with the landscape; and (4) minimize development of new infrastructure by locating astronomy facilities near existing roads and utilities. Exhibit A-21 at IX-20; WDT Nagata at 5.

153. The Master Plan also provides a multi-phased project design and approval process that includes opportunities to review proposed design concepts and provide input to these concepts. Community participation is a key feature of this process. All proposed observatory facility development must undergo a major project review process. The University's major project review and approval process involves the integration of four processes: (1) Master Plan design review; (2) State (and, if applicable, federal) Environmental Impact Statement ("EIS"); (3) University project review and approval; and (4) DLNR permitting. To help in the review process, MKMB developed a flowchart that illustrates the integration of the four processes. This flowchart was later approved by the BOR on February 18, 2010, and then by the BLNR on March 25, 2010. WDT Nagata at 6; Exhibit A-21 at XI-1 – XI-24; Exhibits A-25; Exhibit A-31; Exhibit A-33. Thus, the Master Plan's major project design and review process has been submitted to, and approved by, the BLNR.

154. The purpose of the Master Plan design and review process is to ensure that a project: (1) conforms to the Master Plan's goals and objectives; (2) is consistent with the Master Plan's design guidelines; (3) relates harmoniously with the summit environment; promotes resource conservation; and (4) does not contribute significantly to cumulative impact. Participants in this process include representatives from the MKMB, Kahu Kū Mauna, the IfA, the project developer, and volunteer community experts. WDT Nagata at 6-7; Exhibit A-21.

155. These processes are intended to ensure that future projects in the MKSR conform to and implement the concepts, themes, and development standards and guidelines set forth in the Master Plan. The BOR retains project approval and design review authority over major developments in the MKSR. To assist the University in its evaluation, all major project applications are reviewed by OMKM, MKMB, and Kahu Kū Mauna. OMKM and MKMB review the plans for overall conformance to the Master Plan. Projects are also reviewed at the Chancellor level. Thus, after OMKM and MKMB review a project, the UHH Chancellor will also review it. Exhibit A-21 at XI-1 – XI-21; WDT Nagata at 5-8.

156. The Master Plan provides for the University's establishment of a Design Review Committee comprised of, but not limited to, professionals in the fields of architecture, landscape architecture, and engineering. The goals of the design guidelines are contained in Chapter XI of the Master Plan. Exhibit A-21 at XI-1 – XI-24.

157. As described in the Master Plan, a site within the Astronomy Precinct identified as "Area E" was recommended as the location for a next generation

large telescope such as the TMT Observatory. This site was recommended for a variety of reasons. Locating the TMT Observatory in Area E would: (1) situate the Observatory at a substantial distance from significant historic and traditional cultural properties and cultural resources including Kūkahauʻula, Lake Waiau, Puʻu Līlīnoe, and Puʻu Poliʻahu; (2) minimize the visibility of the Observatory; (3) reduce wind shear forces; and (4) minimize the potential to obscure the views of existing observatories. The proposed location will take advantage of the northerly extension of the summit ridge and ensure that the TMT Project will not be visible from Hilo. Furthermore, locating the TMT Observatory in Area E pursuant to the Master Plan would avoid disturbance of new terrain for access by utilizing an existing roadway. WDT Nagata at 8-9; Exhibit A-21 at IX-37 – IX-39; Exhibit A-42.

158. The Master Plan design and review process involves four phases of project review. In Phase I, the developer is given an orientation of the Master Plan's goals and objectives, overview of the design review process, and design guidelines. The schematics or conceptual drawings of the proposed project's design are reviewed in Phase II (Schematic Design). MKMB as a whole reviews the outcome of Phase II, and, if it has no objections, the process is allowed to move to Phase III (Design Development). Phase III involves the review of detailed drawings including, for example, site plans, floor plans, and elevation plans. Again, MKMB as a whole reviews the design outcome of Phase III. If there are no objections, the developer can move to Phase IV (Construction Documents Review) and begin preparing its construction drawings. WDT Nagata at 7; Exhibit A-21 at XI-10 – XI-39; Exhibit A-25.

159. In the second stage of the major project review process, an EIS under Chapter 343, Hawaiʻi Revised Statutes (and, if applicable, under the National Environmental Policy Act) is prepared, reviewed, and approved. This stage begins with the public scoping process followed by OMKM's review of the Draft EIS, a public comment period, responses to comments received, and preparation of a Final EIS. The MKMB reviews the Final EIS for the project and makes a recommendation to the appropriate University office or to the Governor on whether to accept the Final EIS. WDT Nagata at 8; Exhibit A-25.

160. The third stage of the major project review process follows the submittal of the Final EIS to the appropriate agency. In this stage, MKMB, with input from Kahu Kū Mauna, reviews and recommends approval or disapproval of the project to the UHH Chancellor, who in turn makes a recommendation to the University President and the BOR. The BOR makes the decision whether or not to proceed with the project. WDT Nagata at 8; Exhibit A-25.

161. The fourth and final stage of the major project review process involves the designation of the appropriate University agency to submit a CDUA to the DLNR. A CDUA is prepared and the MKMB recommends which agency within UH should submit the CDUA. A CDUA is then submitted to the DLNR. WDT Nagata at 8; Exhibit A-25.

G. BLNR Ongoing Supervision and Management

162. The Board has jurisdiction over Conservation District lands, regulates and administers land uses in those lands, and retains management control over them – including the UH Management Areas on Mauna Kea. The Board's jurisdiction also includes control over decisions affecting native Hawaiian traditional and customary practices. With respect to the UH Management Areas, the BLNR has repeatedly exercised its authority and control by approving the CMP, sub-plans, and the University's project review and approval process. WDT Nagata at 11; Exhibit A-23; Exhibit A-33.

163. As a condition of the Board's approval of the CMP, it designated the BOR, the highest authority within the University, with the responsibility of implementing the CMP and sub-plans. The Board oversees the University's management of the UH Management Areas. It requires the University to provide annual reports in writing and in person on the status of implementation of the CMP management actions. WDT Nagata at 11; Exhibit A-33.

164. The Board also retains management authority over Conservation District lands on Mauna Kea through Section 13-5 of the Hawai'i Administrative Rules. Proposed astronomy development on Conservation District lands on Mauna Kea requires a Board-issued permit. Under this regime, the BLNR retains ultimate management authority over Conservation District lands on Mauna Kea, including the enforcement of CDUP conditions. WDT Nagata at 11-12.

165. With respect to the TMT Project, the BLNR's management authority is further reflected in its review of the TMT CDUA, imposing conditions on the grant of CDUP HA-3568, directing that this contested case proceeding be held, requiring that no construction work on the TMT Project proceed pending the outcome of this proceeding and the BLNR's further consideration thereof, and retaining responsibility to review and accept, reject, or modify the Hearing Officer's findings and conclusions herein. WDT Nagata at 11-12.

III. THE PROPOSED PROJECT

A. The Procedural History of the TMT Project

166. In 2008, in consultation with UHH, the TMT Observatory Corporation ("TMT Corporation") started exploring the possibility of developing the TMT Project. The TMT Corporation is a California non-profit public benefit corporation formed by the University of California and the California Institute of Technology ("Caltech") for the purpose of fostering astronomy. It will not make money from the TMT Project. The TMT Corporation, together with collaborating institutions from China, Japan, India and Canada, is in the process of negotiating an agreement to fund the construction and operation of the TMT Observatory. WDT Sanders at 1; Tr. 8/15/11 at 112.

167. In 2008, the TMT Corporation in consultation with UHH began assessing the development of the TMT Project in a location identified as "Area E" on the northern plateau of the summit of Mauna Kea. Pursuant to Chapter 343 of the Hawai'i Revised Statutes, UHH commenced environmental scoping activities for the TMT Project. WDT Hayes at 1-2; Tr. 8/16/11 at 30.

168. Advertisements were placed in the local papers notifying interested persons and organizations that an Environmental Impact Statement Preparation Notice/Environmental Assessment ("EISPN/EA") for the TMT Project was forthcoming. These interested persons and organizations – specifically including Petitioners KAHEA, MKAH, and Neves – were sent advance copies of the EISPN/EA. WDT Hayes at 1-2.

169. On September 23, 2008, an EISPN/EA for the TMT Project was officially published. The publication was announced that day by the State of Hawai'i Department of Health's Office of Environmental Quality Control ("OEQC") in the Environmental Notice. Public scoping meetings were held throughout the State in October 2008. WDT Hayes at 1-2.

170. UHH published the Draft EIS for the TMT Project on May 23, 2009. Petitioners KAHEA, MKAH, and Neves submitted written comments on the Draft EIS. Petitioner Ward submitted written comments on the Draft EIS on behalf of the Sierra Club's Hawaii Chapter. WDT Hayes at 1-2; Written Rebuttal Testimony ("WRT") Hayes at 1-4; Exhibits A-112 – A-116; Exhibits A-118 – A-121; Exhibits A-124 – A-127.

171. On May 8, 2010, the OEQC published the notice of availability of the Final EIS ("FEIS") for the TMT Project. WDT Hayes at 1-2.

172. The Governor of the State of Hawai'i accepted the FEIS for the TMT Project on May 19, 2010. Exhibit A-35; WDT Hayes at 1-2.

173. The time for challenges to the acceptance of the FEIS ended on August 7, 2010. Haw. Rev. Stat. § 343-7(c) (2011).

174. Although most of the Petitioners participated actively in the EIS process for the TMT Project, none of the Petitioners challenged the FEIS. Indeed, no challenges to the TMT Project's FEIS were ever filed. Tr. 9/30/11 at 31.

175. The TMT Project has completed the first three phases of the BLNR-approved Master Plan major project design and review process described above. WDT Nagata at 7-10; Exhibit A-21 at XI-10 – XI-12.

176. The TMT Project has complied with the EIS process required under Chapter 343, Hawai'i Revised Statutes, and Chapter 200 of Title 11, Hawai'i Administrative Rules. On April 21, 2010, the MKMB reviewed the TMT FEIS and recommended that the UHH Chancellor approve and sign it; that occurred on April 26, 2010. The Governor of the State of Hawai'i accepted the TMT FEIS on May 19, 2010. WDT Nagata at 7-10; WDT Hayes at 1-2; Exhibit A-25; Exhibit A-35; Exhibit A-36.

177. On May 19, 2010, MKMB reviewed the project, including TMT's scientific potential, project design, impacts (both positive and negative), and mitigation measures described in the TMT FEIS. MKMB, with input from Kahu Kū Mauna, recommended to the UHH Chancellor that she submit a recommendation to the University President and the BOR to approve the TMT Project. That was done, and the BOR approved the TMT Project on June 28, 2010. WDT Nagata at 8-11; Exhibit A-25; Exhibit A-38.

178. With respect to the fourth and final stage of the BLNR-approved major project design and review process, following the approval of the project by the BOR, the University prepared a CDUA for submittal to the DLNR. MKMB reviewed the CDUA, recommended that the UHH Chancellor accept it, and requested the University President to designate UHH as the appropriate agency within the University to submit the CDUA to the DLNR. The University President accepted this recommendation, and the UHH Chancellor submitted the CDUA to the DLNR on September 2, 2010. WDT Nagata at 8-11; Exhibit A-25; Exhibit A-39.

179. The TMT Project will conclude the fourth stage of the major project design and review process if approved by the BLNR in this contested case proceeding. WDT Nagata at 9.

B. Project Description

180. The TMT Observatory will be located on Mauna Kea within the MKSR on Hawai'i Island in the State of Hawai'i. The entire 11,288-acre MKSR (TMK 4-4-15: 9) is designated as part of the State of Hawai'i Conservation District Resource subzone. Eight optical and/or infrared observatories are currently present in the MKSR's 525-acre Astronomy Precinct; the first Mauna Kea observatories were built in the 1960s. Optical/infrared telescopes use mirrors to collect and focus visible and infrared light. Each optical/infrared observatory consists of a single telescope, except the Keck Observatory, which currently houses the two most powerful optical/infrared telescopes on Mauna Kea, each with a 10-meter diameter primary mirror. The MKSR also hosts three submillimeter observatories and a radio antenna. WDT Sanders at 3.

181. The TMT Project consists of the following components:

a. "TMT Observatory" refers to the components of the TMT Project located at a site designated as "13N" within Area E on the upper elevations of Mauna Kea, but below the summit. The TMT Observatory generally consists of the 30-meter telescope, instruments, dome, attached building, and parking.

b. The "Access Way" refers to the road and other infrastructure improvements that will be provided to access and operate the TMT Observatory. Improvements in the Access Way will generally include a surface roadway and underground utilities.

c. "Hale Pōhaku work" refers to Hawai`i Electric and Light Company ("HELCO") upgrades to existing electrical transformers at the HELCO substation located near the University's Mid-Level Support Facility known as Hale Pōhaku. The new transformers will replace the existing ones on a 1:1 basis, and the fenced substation compound will not be expanded.

d. "Headquarters" refers to the facility located in Hilo to manage activities at and support operation of the TMT Observatory. This includes an office building with a parking area.

WDT Sanders at 3, 5.

182. The TMT Observatory design was developed based on extensive discussions and input during the Master Plan design review process. This process included recommendations to site the TMT Observatory in the northern plateau to minimize impacts to sensitive arthropod habitat, cultural practices, viewplanes, historic sites, and traditional cultural properties. Exhibit A-21 at IX-37; Exhibit A-25; WDT Sanders at 5; WDT Nagata at 7-10.

183. The TMT Observatory will be the first optical/infrared observatory of its size to integrate Adaptive Optics ("AO") into its original design. AO systems correct for the image distortion that is caused by the atmosphere. The TMT AO system will project up to eight laser beams into the atmosphere to create an asterism, or group, of "guide stars" that are used to determine the atmospheric distortion of the visible and infrared light from distant objects and thus allow the telescope system to correct for it. The TMT AO system will generate each of these eight beams using a 25-watt laser; the laser light will appear yellow (0.589 microns – the sodium D2 line). WDT Sanders at 6.

184. The TMT Observatory dome housing the telescope will be a Calotte-type enclosure with the following characteristics: (1) total height of roughly 180 feet above the current ground surface, with an exterior radius of 108 feet; (2) the dome shutter will be 102.5 feet in diameter and it will retract inside the dome when opened; (3) the dome will rotate on two planes, a horizontal plane and a second plane at 32.5 degrees to the horizontal plane. By rotating on both planes simultaneously, the dome will allow viewing of the sky from vertical to roughly 25 degrees above the horizon; and (4) the Calotte dome base, cap, and shutter structures will appear rounded and smooth and have a reflective aluminum-like exterior coating. This reflective aluminum-like coating was chosen to minimize the visual impacts of the dome; throughout the majority of the day, this coating will reflect the surroundings of the TMT Observatory. WDT Sanders at 6; Tr. 8/15/11 at 72.

185. A support building will be attached to the TMT Observatory dome. The building will have a roof area of approximately 21,000 square feet, a total interior floor area of roughly 18,000 square feet, a flat roof, and be lava-colored. The support building will include the following spaces: (1) mirror coating and staging area; (2) laboratory and shop spaces, including a computer room, engineering and electronics laboratories, and mechanical shop; (3) utility spaces including electrical services,

chillers, a generator, pumps for fire suppression and other non-potable water needs, restrooms, and fluid dynamic bearing pumps that control the movement of the telescope; (4) administration space, including offices and a kitchenette; and (5) visitor and public spaces, consisting of a lobby, restroom, and viewing platform. WDT Sanders at 7. Between the time the Draft EIS was promulgated and the current design, the size and footprint of the support building was reduced significantly. Tr. 8/15/11 at 72-73.

186. A roughly 6,000 square foot exterior equipment area on the north side of the support building will include: two electrical transformers and electrical service switchboards; three 5,000-gallon underground storage tanks (one for water storage, one for domestic waste storage, and one double-walled for chemical waste storage); a 25,000-gallon underground storage tank for water storage as part of the fire suppression system; and one double-walled 2,000-gallon above-ground storage tank for diesel fuel to power the emergency generator. WDT Sanders at 7.

187. The parking area for TMT Observatory staff and delivery vehicles will be unpaved and located outside of the support facility. A guard rail will be placed along the top of the slope on the north and west sides of the graded area where there will be a drop-off. WDT Sanders at 8.

188. The footprint of the TMT Observatory dome, support building, parking area, and area disturbed during construction will be roughly five acres. A half-acre portion of this has previously been disturbed by the existing 4-wheel drive road and site testing equipment; the original disturbance occurred during site testing in the 1960s, and site testing was also performed in this area for the TMT Project in the 2000s. WDT Sanders at 8.

189. The TMT Access Way will include a road and utility services to the TMT Observatory from existing services. Currently, utility services exist along the Mauna Kea Access Road to a point near the intersection of the Mauna Kea Loop Road and the SMA roadway. The proposed Access Way will start at that point and extend to the TMT Observatory following either the existing 4-wheel drive road or the wider roads that serve the SMA facility. The Access Way that the TMT Project has proposed is limited to a single lane (reduced from a previous design of two lanes) over the southernmost portion of the Access Way (i.e., the portion that crosses Puʻu Hauʻoki and through the SMA); the remainder is two lanes. The vast majority of the Access Way route follows and goes over an existing single-lane, 4-wheel drive road that was previously developed for access to and testing of the 13N site in the 1960s. A portion of the route was graded during construction of the SMA facility as well. WDT Sanders at 9; Tr. 8/15/11 at 76.

190. The switch boxes needed to extend electrical power and communication service to the TMT Observatory will be placed above ground next to the existing ones across the road from the SMA building. To the extent possible, utilities from that point northward to the TMT Observatory site will be placed beneath the road to reduce the footprint of disturbance, with pull boxes located to the side of the road in already disturbed locations where possible. WDT Sanders at 9.

191. Various elements have been incorporated into the Access Way design to minimize the visual impacts of the Access Way, including: (1) coloring the pavement of the Access Way so that it blends with the surrounding environment; (2) limiting the Access Way to a single lane in certain areas; and (3) minimizing the visual impacts of the Access Way guardrail so that it blends with the surrounding environment. WDT Sanders at 9; Tr. 8/15/11 at 19.

192. Two transformers within the HELCO substation will be upgraded by the local electrical utility company. The HELCO substation is located across Mauna Kea Access Road from Hale Pōhaku. The new transformers will be placed in the same location as the existing transformers and the existing fenced substation compound will not be expanded. WDT Sanders at 9.

193. The replacement of the two transformers will be done by HELCO under a separate CDUA and the impacts of the upgrade will not extend beyond the confines of the existing fenced substation compound. WDT McLaren at 1; Tr. 8/18/11 at 178-79; Tr. 8/15/11 at 60-61.

194. In addition, electrical service from the transformer compound near Hale Pōhaku to the existing utility boxes across the road from the SMA building will be upgraded by HELCO to support the TMT Observatory's power requirements. This will be done by removing the existing conducting wire and placing a new electric conducting wire in existing underground conduits. WDT Sanders at 9; Tr. 8/18/11 at 178-79.

195. The replacement of the electrical conductors between Hale Pōhaku and the utility boxes across from the SMA building will be done by HELCO. This work falls under an existing CDUP (CDUP HA-1573). Existing roadways and disturbed areas will be used to access the electrical conduit pull boxes. Exhibit A-108; WDT McLaren at 1; Tr. 8/18/11 at 178-79.

196. During construction, additional areas will temporarily be utilized and/or disturbed. Base yards required for the construction of the telescope and observatory will include the following:

a. Port Staging Area: An existing warehouse and/or yard near the port where the TMT Project components are received.

b. Batch Plant Staging Area: A roughly 4-acre area northwest of where the Mauna Kea Access Road forks near the summit that will primarily be used for storing bulk materials and a concrete batch plant, as this area has been used in the past during construction of other observatories.

c. TMT Observatory and Headquarters sites: The areas within the TMT Observatory and Headquarters sites not occupied by structures will also be utilized as staging areas during construction of those facilities.

WDT Sanders at 11.

197. The CDUA for the TMT Project does not request subdivision approval and UHH does not intend to request or utilize subdivision of land as part of the Project. Exhibit A-311.

C. The Unique Conditions that Make Mauna Kea a Premier Location for Astronomical Observatories

198. The TMT Corporation identified Mauna Kea as the preferred site for the TMT Observatory after an extensive worldwide study to evaluate potential locations. Mauna Kea was the TMT Corporation's preferred site for several reasons. WDT Sanders at 11.

199. Mauna Kea possesses a rare combination of many natural resources that, taken together, make it an outstanding location for astronomical research, including the TMT Project. Mauna Kea has:

a. a large fraction of clear nights with little to no cloud cover;

b. a very stable atmosphere above the site;

c. low mean temperature and temperature variability;

d. low perceptible water vapor;

e. a location far from major sources of light pollution; and

f. a location at a favorable latitude.

WDT Sanders at 11; *see* Tr. 8/18/11 at 85-86.

200. In addition to its advantageous combination of natural resources, the presence of other astronomical facilities in close proximity creates the opportunity for many scientific synergies between the TMT Observatory and those facilities. Smaller optical/infrared observatories can provide observation targets for the TMT and carry out supporting science programs that do not require the large light-gathering power and fine diffraction limit of the TMT. Facilities that observe at radio wavelengths would also be able to provide targets for TMT observations and collect supporting complementary scientific information. These synergies increase productivity in conducting science when compared to a single observatory operating independently. Observatories that share common partners are more likely to collaborate and go to greater lengths to work together, including designing and installing complementary suites of instruments on individual telescopes. WDT Sanders at 13-14.

201. There will be a staff of up to 140 employees working for the TMT Project in Hawai‘i during operations. Many of the positions require specialized skills in computing, optical-mechanical engineering, and other technical areas. The availability of a local workforce with the requisite skills is a very strong plus for a site. The unique technical systems that comprise the Observatory make it desirable to have long-term

employees. Thus, locating the TMT Observatory on Mauna Kea is preferable in that the availability of housing, quality schools and medical care, and opportunities for spousal employment are important factors in attracting and retaining long-term employees. WDT Sanders at 13-14.

D. The Scientific Value of the TMT Observatory

202. Astronomy is one of the oldest of the sciences and its contributions to humankind are immeasurable. Among its many contributions, astronomical research has been the basis of timekeeping, navigation, and the elucidation of fundamental laws of physics. Various tools developed for astronomical research have also been the basis of many "spin-off" technologies. WDT Bolte at 1-2; Tr. 8/18/11 at 74-79, 81-82.

203. To continue the scientific advancement of the last few decades, the critical need for an optical/infrared telescope with a 30-meter primary mirror was identified by the United States's scientific community and was assigned a high priority by the Canadian scientific community. In response to this need, the TMT Corporation was formed to manage the planning, design, development, and operation of the TMT Observatory, which will house a 30-meter primary mirror telescope. WDT Sanders at 1.

204. The TMT Corporation intends to provide an advanced and powerful ground-based observatory that will be capable of carrying out cutting-edge astronomical research for many years. That research will enable discoveries about the nature and origins of the physical world, from the first formation of galaxies in the distant past and distant regions of the Universe to the formation of planets and planetary systems today in our Milky Way Galaxy. WDT Sanders at 1.

205. The United States has been the leader in astronomy research for the last 150 years, and locating the TMT Observatory in Hawai‘i will maintain the nation's leadership in astronomy research, discovery, and innovation. Moreover, for the past forty years, the State of Hawai‘i, the University, and Mauna Kea have been at the forefront of terrestrial astronomy. The TMT Observatory will help to maintain this leadership by leveraging the capacity of the existing observatories on Mauna Kea, including the Keck Observatory and the CFHT. While these observatories are world-leading observatories today, their future scientific productivity will be enhanced by co-location with a next generation observatory, such as the TMT Observatory. WDT Sanders at 2.

E. TMT Project Construction Activities

206. The TMT Observatory construction crew will average 50 to 60 crew members through the life of construction; during certain phases, a crew of more than 100 will be working at the site. Construction is expected to take place six days a week, 10 hours a day; however, some special operations or construction phases will require longer work hours. It is also expected that winter weather conditions at the TMT Observatory site will interrupt construction at times. WDT Sanders at 15.

207. During construction of the TMT Project, as it has been used in the past for the construction of other observatories, the Batch Plant Staging Area will be used primarily for storing bulk materials and as a concrete batch plant. Roughly four acres of the Batch Plant Staging Area will be used by TMT construction activities. TMT construction activities at the Batch Plant will be done in compliance with all existing laws and regulations. Upon completion of construction of the TMT Observatory, the Batch Plant Staging Area will be partially restored. WDT Sanders at 11; Tr. 8/16/11 at 36, 104-05; Tr. 8/17/11 at 170; Exhibit A-311 at 1-13.

208. First light, or the time when the TMT Observatory is first used to take an astronomical image, is expected no earlier than 2019. Tests will then be conducted and adjustments to the telescope and instruments made for a period of time to gain optimum efficiency and seeing. WDT Sanders at 15.

F. TMT Observatory Operation

209. The first scientific results using the TMT Observatory are expected, at the earliest, in 2019. During the life of the TMT Observatory, astronomical observations will be made by scientists from around the world. A staff of up to 140 people will be necessary to operate and maintain the Observatory. It is expected that an average of 24 employees will work at the TMT Observatory during daytime operations, with a minimum of 15 and a maximum of 43 possible depending on activities. Fewer persons will be present at night. During darkness typically 2 to 3 operators (but occasionally as many as 6) will be present at the TMT Observatory. Observers and support astronomers will view remotely from the Headquarters. All other members of the staff will work at the Headquarters. WDT Sanders at 15.

G. Educational and Employment Activities

1. Community Benefits Package

210. The TMT Project has committed to a Community Benefits Package ("CBP"). The CBP will be funded by the TMT Corporation and will be administered via The Hawaii Island New Knowledge ("THINK") Fund Board of Advisors. The THINK Fund Board of Advisors will consist of local Hawai‘i Island community representatives. Selection of the THINK Fund Board of Advisors will be done in consultation with the Hawai‘i Island community. Funding for the THINK Fund will commence upon the start of the TMT Project construction and will continue throughout the TMT Observatory's presence, so long as the CDUP for the TMT Project is not invalidated or construction is not stayed by court order. WDT Sanders at 17-18; Tr. 8/16/11 at 74, 110-12.

211. As part of the CBP, the TMT Corporation will provide $1 million annually during such period to the THINK Fund; the dollar amount will be adjusted annually using an appropriate inflation index (the baseline from when the inflation index will be applied will be the date of start of construction). WDT Sanders at 18.

212. It is envisioned that THINK Fund purposes could include: (1) scholarships and mini-grants; (2) educational programs; (3) college awards; (4)

educational programs specific to Hawaiian culture; (5) educational programs specific to astronomy; (6) educational programs specific to math and science; and (7) community outreach. WDT Sanders at 18.

213. Allocation of funds from the THINK Fund would not be influenced by applicants' views about telescopes on Mauna Kea. Tr. 8/16/11 at 24.

2. Workforce Pipeline Program

214. The TMT Project is committed to partnering with the UHH, Hawai'i Community College ("HawCC"), and the Department of Education ("DOE") to help develop, implement, and sustain a comprehensive, proactive, results-oriented Workforce Pipeline Program ("WPP") that will lead to a highly qualified pool of local workers who could be considered for hiring into most job classes and salary levels. Special emphasis will be given to those programs aimed at preparing local residents for science, engineering, and technical positions commanding higher wages. Therefore, there will be a significant component in the WPP for higher education on the Island of Hawai'i. WDT Sanders at 18-19.

215. In addition, the TMT Project is participating in a County of Hawai'i Workforce Investment Board initiative with the Mauna Kea Observatories. The purpose of this initiative is to explore opportunities for marshaling existing community resources to introduce focused programs within the Hawai'i Island community to provide the observatories with a broader and stronger qualified local labor pool, as candidates for careers in the local astronomy enterprise. WDT Sanders at 19.

216. Key elements of the WPP include: (1) initiation of a TMT Project workforce committee including members from UHH, HawCC, DOE, and Hawai'i Island workforce development groups; (2) identification of specific TMT Project job requirements that UHH, HawCC, and DOE can use to create education and training programs, and ongoing support for the identified programs; (3) earmarking of funds in the TMT Project's annual operations budget which can be used to support workforce development programs at suitable educational institutions; (4) TMT Project support for development and implementation of education and training programs, including at least 4 internships per semester, apprenticeships, and at least 10 summer jobs for students; (5) creation of a partnership between UHH and the TMT Project's partner organizations, such as Caltech, the University of California system, and Canadian universities to attract and develop top talent; (6) support of, and active participation in, ongoing efforts to strengthen Science, Technology, Engineering and Mathematics ("STEM") education in Hawai'i Island K-12 schools and informal learning organizations; and (7) focusing the WPP program on long-term investments to strengthen the current STEM skills infrastructure, programs, and curricula at UHH, HawCC, and Big Island K-12 education organizations, especially those serving lower income and first-generation college attending populations. WDT Sanders at 18-20.

H. TMT Project Mitigation Measures

217. Mitigation of impacts has been a fundamental component of the TMT Project from its inception and at all times thereafter. Thus, the TMT Project has already implemented and is committed to implementing a number of measures that are intended to mitigate the impacts of the Project. A comprehensive recitation of these measures can be found in the TMT Final EIS, TMT CDUA and TMT Management Plan appended to the CDUA. WDT Sanders at 20; Exhibit A-309, Exhibit A-311.

218. The TMT Observatory has been sited at the 13N site, within Area E, north of and below the summit. One of the principal reasons this location was chosen is to mitigate impacts on cultural and historic resources, viewplanes, and biological resources. As a direct result of locating the TMT Observatory at its chosen site, it: (1) will not be visible from culturally sensitive locations, such as the summit of Kūkahauʻula, Lake Waiau, and Puʻu Līlīnoe; (2) is more than 200 feet from known historic properties; (3) will not be visible from Hilo and the southern portion of Hawaiʻi Island; and (4) is outside of the wēkiu bug's preferred habitat. WDT Sanders at 20; WDT Eiben at 2-5; WDT Nagata at 8-9; Exhibit A-21 at IX-37 – IX-39; Tr. 8/15/11 at 76.

219. Petitioners contend that the location of the TMT Project on the north plateau, out of sight of the Puʻu Wekiu summit, Lake Waiau, and Puʻu Līlīnoe, and off of Kukahauʻula, should not be considered a mitigation measure. Exhibit A-202 at 17-18. The reliable, probative, substantial, and credible evidence shows that the Project location on the north plateau was chosen in large part to avoid the most culturally sensitive areas of the summit region, and supports the finding that the location of the Project was intended to be, and is, a significant mitigation measure. WDT Sanders at 20; WDT Nagata at 8-9; Exhibit A-21 at IX-37 – IX-39.

220. The TMT Access Way's physical and visual impacts have been directly mitigated by: (1) designing the Access Way to reduce the potential for both physical and visual impacts to the historic properties and potential impacts to natural resources known to be in the vicinity; (2) limiting the southern 750-foot long portion of the Access Way to a single lane even though such a configuration is not desirable from an operational standpoint; (3) aligning most of the Access Way to follow an existing single-lane, 4-wheel drive road that was built in the 1960s for access and testing of the 13N site; (4) paving the portion of the Access Way within the boundaries of Kūkahauʻula on the flank of Puʻu Hauʻoki to reduce dust; (5) coloring the pavement and guardrail a reddish color that blends with the surrounding area; and (6) placing the utilities to the TMT Observatory within the Access Way and beneath the paved roadway instead of on a different or parallel alignment that would cause more ground disturbance. WDT Sanders at 20-21; Tr. 8/15/11 at 76.

221. The option selected for the placement of the TMT Access Way was the one recommended by the State Historic Preservation Division ("SHPD") of the DLNR, because SHPD felt the other proposed options would have had greater impacts on cultural resources. Tr. 8/17/11 at 133-34.

222. The TMT Observatory has been designed to mitigate its visual impact by: (1) reducing the size of the dome through the use of a Calotte-type dome; (2) designing the telescope to be much shorter than usual given its focal length; (3) designing the dome to fit very tightly around the telescope; (4) finishing the dome with a reflective aluminum-like surface, which during the day reflects the sky and reduces the visibility of the structure; and (5) finishing the support building and fixed structure exterior with a lava color. WDT Sanders at 22.

223. The TMT Project will camouflage certain HELCO electrical pull-boxes and other utility boxes that are visually distracting or intrusive at the summit of Mauna Kea and other key locations visible from other portions of Kūkahauʻula. The method of camouflage will be determined through consultation with Kahu Kū Mauna and may include one of the following options: (1) painting the lids to match the surrounding natural colors; and (2) affixing stones and cinders from nearby to the exposed utility box. WDT Sanders at 21-22; Exhibit A-311, Ex. B, App. A, A-9.

224. A zero-discharge wastewater system will be installed at the TMT Observatory. All wastewater generated at the TMT Observatory will be transported to an approved treatment facility for treatment and disposal. The discharge of wastewater within the summit region has been identified as an impact on cultural resources and is one of the reasons for this measure. WDT Sanders at 22.

225. The TMT Project will install water efficient fixtures and implement water saving practices to reduce the demand for freshwater resources. WDT Sanders at 22.

226. The TMT Project will implement a Waste Minimization Plan ("WMP") and institute an annual WMP audit, which will include an examination of: (1) waste produced by the TMT Project and how that waste could be reduced, reused, or recycled; (2) water use by the TMT Project and how that use could be reduced; and (3) energy use by the TMT Project and how that could be reduced. WDT Sanders at 22.

227. The TMT Project will recycle solid and non-hazardous waste materials and reuse them to the extent possible. WDT Sanders at 22.

228. The TMT Project will implement a Materials Storage/Waste Management Plan, including a Spill Prevention and Response Plan. This plan will require: (1) daily inspections of equipment handling hazardous materials; (2) mandatory training of all personnel handling hazardous materials and wastes; (3) regular inspections by a Safety and Health Officer; (4) that all solid waste be collected in secured and covered storage containers; and (5) that all waste be transported down the mountain for proper disposal at an off-site facility. WDT Sanders at 23.

229. The TMT Project will implement a mandatory Ride-Sharing Program for TMT Observatory employees to travel beyond Hale Pōhaku. This program will reduce the number of vehicle trips to the summit and, in turn, will also reduce the amount of noise and dust generated by vehicles. WDT Sanders at 23.

230. At the conclusion of construction of the TMT Observatory, a portion of the Batch Plant Staging Area will be restored. WDT Sanders at 17; Exhibit A-311, Ex. B, App. A, A-9; Tr. 8/16/11 at 105.

231. The TMT Project will fund the restoration of the closed access road on Puʻu Poliʻahu in accordance with plans already submitted by the IfA and approved by the DLNR (SPA HA-10-04). WDT Sanders at 21; Exhibit A-311, Ex. B, App. A, A-9.

232. The TMT Project will institute a Cultural and Natural Resources Training Program that all TMT Project staff and all construction workers will be required to attend annually. The content of the training program will be determined by OMKM. The program is intended to educate attendees on the sensitive natural, cultural, and archaeological/historic resources of Mauna Kea, the cultural practices exercised on Mauna Kea, and the measures to prevent potential impact to such resources. WDT Sanders at 21.

233. The TMT Project will support, through financial contributions and utilization of its outreach office, the development of educational exhibits related to Mauna Kea. The exhibits will: (1) be developed in coordination with OMKM and UHH's ʻImiloa Astronomy Center ("ʻImiloa"); (2) address the cultural, natural, and historic resources of Mauna Kea; (3) be developed for use at the Mauna Kea Visitor Information Station ("VIS"), ʻImiloa, TMT Project facilities, and other appropriate locations; and (4) include informational materials that explore the connection between Hawaiian culture and astronomy. WDT Sanders at 21.

234. Additional mitigation measures that have been and will be implemented in the TMT Project are identified in the Project's CDUA. Exhibit A-311 at Table 2.1.

235. Petitioners contend that the significant economic benefits of the Project described above should not be considered as mitigation measures. Petitioners ignore the fact that the THINK Fund and the Workforce Pipeline Program were developed and shaped in large part to respond to community input and suggestions. In the extensive scoping process for the TMT Project, one of the most frequently raised issues was the local community's desire to have the Project positively affect the socioeconomic landscape of Hawaiʻi Island and increase the potential for residents to work for the Project during its construction and operation. Exhibit A-309, Section 1.6.3, at 1-4 – 1-5. Given that the public specifically requested these socioeconomic benefits, and that the Project has been tailored to give the public what it requested, these are appropriately considered mitigation measures.

I. TMT Project Decommissioning

236. At the end of the TMT Observatory's useful life, the TMT Observatory and the portion of the Access Way exclusively used to access the TMT Observatory will be dismantled and the site restored in compliance with the Decommissioning Plan. Deconstruction and site restoration efforts will be managed by

TMT Project staff with oversight by OMKM. The TMT Project is committed to adequately funding decommissioning and will set aside funds on an annual basis to fund decommissioning of the TMT Observatory and a portion of the Access Way. WDT Sanders at 15-16; Tr. 8/15/11 at 84.

237. In compliance with the Decommissioning Plan, TMT Project staff will develop a Site Restoration Plan ("SRP") that will present specific targets for site restoration and describe the methodology for restoring disturbed areas after the demolition/construction activities described in the Site Deconstruction and Removal Plan ("SDRP") for the TMT Project are completed. Under the Decommissioning Plan, the two primary objectives of site restoration are: (1) restoring the look and feel of the summit prior to construction of the observatories; and (2) providing habitat for the aeolian arthropod fauna. WDT Sanders at 16; Exhibit A-305 at 22-26.

238. The level of restoration to be performed and the potential impact of the restoration activities on natural and cultural resources during and post-activity will be carefully evaluated in the SRP. Specific factors that are required to be considered during the development of the SRP include cultural sensitivity. WDT Sanders at 16.

239. Site restoration activities may involve using cinder or materials similar to the surroundings either to fill holes or to reconstruct topography. Consideration will be given to where fill material will come from, how excavation and removal of materials will impact the collection area and any wēkiu bug habitat surrounding the restoration area, and the cultural considerations related to bringing materials from a different area on Hawai‘i Island to Mauna Kea. Upon the completion of site restoration, monitoring of the restoration activities will begin and continue for at least three years. Results of monitoring activities will be submitted to OMKM. WDT Sanders at 16-17.

J. Funding

240. During the contested case hearing, Petitioners expressed the view that because the TMT Corporation does not yet have all the funds necessary to build the TMT Project, the CDUP for the Project should not be granted. Tr. 8/25/11 at 156-59. Dr. Sanders, the Project Manager for the TMT Project, testified without contradiction that the TMT Corporation already has substantial funding and is on track to secure the rest of the funding needed for the Project; and that it is common with major scientific projects – and indeed with a broad range of public and private projects that require funding – that not all funding is in hand prior to obtaining permits for the project to proceed. Tr. 8/15/11 at 110-12; Tr. 8/16/11 at 26.

241. Petitioners have also posited that if the U.S. and global financial situation worsens, the TMT Corporation might default on its obligations and the TMT Project might become a "white elephant." Exhibit E-1 at 8. Petitioners' stated concerns are speculative, have not been substantiated with any facts, and do not provide any basis for withholding the CDUP for the TMT Project. Moreover, Petitioners have

conceded that these questions do not relate to any actual legal requirements for the TMT Project. Tr. 8/25/11 at 156, 158-59.

IV. SECTION 13-5-30, HAWAII ADMINISTRATIVE RULES

242. Section 13-5-30(c) of the Hawai‘i Administrative Rules sets forth eight criteria that the BLNR applies in evaluating the merits of a proposed land use in a Conservation District. Individually and collectively, the TMT Project satisfies all eight criteria for a BLNR-approved CDUP under Haw. Admin. R. § 13-5-30(c). WDT White at 1.

A. The Proposed Activity Is Consistent with the Purpose of the Conservation District

243. Section 183C-1 of the Hawai‘i Revised Statutes provides that the purpose of the Conservation District is “to conserve, protect and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety and welfare.” Haw. Rev. Stat. § 183C-1. The TMT Project is consistent with this purpose. WDT White at 1.

244. Similarly, Haw. Admin. R. § 13-5-1 states that the purpose of the Conservation District rules is “to regulate land-use in the conservation district for the purpose of conserving, protecting, and preserving 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.” Because it provides for “appropriate management” and for use that promotes the long-term sustainability of resources and the public health, safety, and welfare, the TMT Project is consistent with this purpose. WDT White at 1-4.

245. Astronomy is an environmentally responsible and economically sustainable use that does not extract a large amount of resources, and does not consume significant natural resources once constructed. WDT White at 3.

246. The design of the TMT Project complies with the goals and objectives of the Master Plan, the purpose of which is to protect and preserve the resources of the University’s managed lands on Mauna Kea, and with the CMP and sub-plans for Mauna Kea. Exhibit A-21; WDT White at 2; WDT Nagata at 7-10.

247. The CMP and sub-plans provide management strategies designed to preserve and protect the resources located in the UH Management Areas. These plans are the BLNR-approved management documents for the UH Management Areas on Mauna Kea, and they provide the management framework and strategies that protect, preserve, and enhance the resources within the UH Management Areas. The TMT Project is consistent with the CMP and sub-plans. WDT Nagata at 7-10; WDT White at 2-3.

248. In compliance with Exhibit 3 (entitled “Management Plan Requirements”) of Section 13-5, Hawai‘i Administrative Rules, the TMT Corporation has

developed a TMT Management Plan (attached as Exhibit B to the TMT CDUA) that adopts the approach, goals, objectives, findings, recommendations, and management strategies and actions of the CMP and sub-plans in their entirety. The TMT Management Plan is intended to guide various activities within the TMT Project area. WDT White at 3; Exhibit A-311, Ex. B. The TMT Management Plan, like the CMP and its sub-plans, has been approved by the BLNR. Exhibit A-316; Exhibit A-319.

249. The TMT Management Plan is the approved management plan required under HAR Section 13-5-24.

250. The TMT Management Plan provides a general description of the proposed TMT Project, the existing conditions on the parcel, proposed land uses on the parcel, and reporting schedule. It also provides for implementation of all relevant action items and plans of the CMP and sub-plans on a site-specific basis, ensuring that the management actions called for in the CMP and sub-plans are effectively and responsibly implemented in the areas that are used for the TMT Project. WDT White at 3; Exhibit A-311, Ex. B.

251. The TMT Management Plan sets forth mitigation measures in the form of best management practices and conservation methods intended to mitigate the impacts of the TMT Project on Mauna Kea's varied resources (*see*, for example, Table 4-1 in Exhibit B of the TMT CDUA). The TMT Management Plan provides site-specific information and complements the CMP and sub-plans. By following the applicable provisions of all of the plans (the Master Plan, CMP, sub-plans, and TMT Management Plan), the University and the TMT Corporation will fulfill the purpose of the Conservation District concerning the TMT Project. WDT White at 3; WDT Nagata at 7-10; Exhibit A-311, Ex. B, Table 4-1.

252. The TMT Project is the first astronomy development since the inception of the Master Plan to commit to contributing funds towards the management of Mauna Kea. WDT White at 2.

253. The TMT Project will not threaten the health, safety and welfare of the public, as the Project will be developed and operated in a responsible manner in compliance with the Conservation District rules and applicable laws and regulations. WDT White at 3-4; WDT Hayes at 19-23; WDT Nance at 1-3; WRT Nance at 1.

254. The TMT Project will make optimum use of the natural resources that make Mauna Kea one of the best places on Earth to conduct astronomical research. These resources include Mauna Kea's altitude, atmospheric clarity and stability, and distance from light pollution. The TMT Project will make use of these natural resources in a sustainable manner. WDT Sanders at 11-15; *see* Tr. 8/18/11 at 85-86.

255. The TMT Corporation has committed to developing, in compliance with the CMP and the Decommissioning Plan approved by the BLNR, a project-specific decommissioning plan pursuant to which it intends to restore the Project site at the end

of the useful life of the TMT Observatory or at the end of the Master Lease if an extension or new Master Lease is not forthcoming. WDT White at 3-4; Exhibit A-311, Ex. B, 4-39 – 4-44; Tr. 8/15/11 at 74.

256. As detailed in the TMT FEIS, CDUA, and Management Plan, the TMT Corporation has committed to implementing a number of measures and management actions intended to address and effectively mitigate the impacts of the Project. Exhibit A-309; Exhibit A-311.

257. In sum, the TMT Project will be much better and more thoroughly managed than any observatory in Mauna Kea's history. The management of the Project appropriately addresses cultural and natural resources, public access, and the ultimate decommissioning of the Project and restoration of its site.

258. Implemented in accordance with its plans, the TMT Project will not consume significant natural resources; will not pollute; will not harm species of concern, or the environment generally; will not interfere with customary and traditional cultural practices; will not impede recreational uses; and will not threaten the public health, safety, or welfare.

259. Implemented in accordance with its plans, the TMT Project will make optimum and sustainable use of the natural resources that make Mauna Kea an ideal location for astronomy; will facilitate the management of Mauna Kea; will be an enormous benefit to the public welfare by contributing significant funds to Hawai'i Island and providing jobs, injecting large amounts of money into the local economy, contributing new programs and funds to Hawai'i Island schools, enabling UHH to remain at the forefront of astronomy in research and education, and contributing to the overall knowledge base of mankind.

260. For all these reasons, the TMT Project is consistent with the purpose of the Conservation District.

B. The Proposed Activity Is Consistent with the Objective of the Resource Subzone

261. The TMT Project will be located in the Resource subzone. Amendments to the Conservation District Rules were adopted by the BLNR on August 12, 2011. These amendments were signed into law by the Governor of the State of Hawaii on November 23, 2011, and became effective ten days thereafter. *See* Haw. Admin. R. chapter 13-5 (2011) (see signature page immediately following chapter 13-5). Under the version of Haw. Admin. R. § 13-5-13 that was in effect when the CDUA was submitted to the BLNR, the stated objective of the Resource subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of areas with that subzone. Under the recently amended version of Section 13-5-13, the stated objective of the Resource subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas. Under Haw. Admin. R. § 13-5-24(c), astronomy facilities under an approved management plan are an expressly

permitted land use in the Resource subzone. This means that within the Resource subzone, astronomy facilities (along with such other specifically permissible uses as commercial forestry, mining and extraction, and aquaculture) can be allowed with proper management. Haw. Admin. R. § 13-5-24(c); WDT White at 4.

262. The proposed TMT Project meets the objectives of the Resource subzone by using the excellent natural astronomical resources that Mauna Kea possesses in a sustainable way to maintain Hawai‘i at the forefront of astronomical research, while also implementing and supporting overall Mauna Kea management activities in a way that promotes the sustainable use of the resources in the subzone. WDT White at 5; *see* Tr. 8/18/11 at 85-86.

263. The University and the TMT Corporation are committed to managing the natural resources in the UH Management Areas in a way that fulfills the objective of the Resource subzone and the purpose of the Conservation District. WDT White at 4.

264. The CMP and sub-plans are the BLNR-approved management documents for the UH Management Areas on Mauna Kea. The University has taken significant steps to implement the CMP and sub-plans and to manage the resources found in the UH Management Areas on Mauna Kea in a way that ensures those resources' sustainable use. Exhibit A-26; Exhibit A-28; Exhibit A-30; Exhibit A-33; Exhibit A-37 at B-41 – B-42; Exhibits A-301 – A-306; Nagata Tr. 8/17/11 at 114-17, 134-43, 145.

265. A TMT Project Management Plan has been developed that adopts the approach, goals, objectives, findings, recommendations, and management strategies and actions of the CMP and sub-plans in their entirety. The TMT Management Plan is intended to guide various activities and uses within the TMT Project area. The TMT Management Plan is consistent with Section 13-5-24(c) of the Hawaii Administrative Rules. WDT White at 5; Exhibit A-311, Ex. B. The TMT Management Plan, like the CMP and its sub-plans, has been approved by the BLNR. Exhibit A-316; Exhibit A-319.

266. The TMT Management Plan includes a draft historic preservation mitigation plan, a construction plan, a historical and archaeological site plan, a maintenance plan, and an arthropod monitoring plan. These plans contain numerous internal linkages to the much broader CMP and sub-plans. Exhibit A-311; Exhibit A-313 at 46-47.

267. The TMT Management Plan will be in force throughout the period that the TMT Project is built, operated and decommissioned. The TMT Management Plan will be updated every five years based on: (1) updates to the Mauna Kea CMP and sub-plans; (2) relevant new or modified laws, regulations, and policies; (3) results from the regular monitoring and reporting done by the TMT Project and OMKM; and (4) modifications to the operation of the TMT Observatory. Exhibit A-311 at 5-2.

268. The University and the TMT Corporation have committed themselves to develop and operate the TMT Project in compliance with the Conservation District rules, CMP, sub-plans, TMT Management Plan, and with all conditions attached to the TMT CDUP. Compliance with the Conservation District Rules, CMP, CRMP, NRMP, Decommissioning Plan, PAP, and the TMT Management Plan will ensure the sustained use of the natural and cultural resources found on Mauna Kea. WDT White at 5.

269. Where an applicant is seeking a permit for astronomy facilities within the Resource subzone, the "natural resources" for which Section 13-5-13(a) seeks to "ensure, with proper management, the sustainable use" are the resources that are proposed to be used. Here, the "natural resources" whose "sustainable use" is to be "ensure[d]" through "proper management" are Mauna Kea's high altitude, large fraction of clear nights, atmospheric stability, low mean temperature, low perceptible water vapor, distance from light pollution, and optimal latitude. Tr. 8/18/11 at 85.

270. The reliable, probative, substantial, and credible evidence demonstrates that, through the comprehensive management schemes and the thoughtful design elements and mitigation measures described above, the sustainable use of those natural resources will be protected and ensured.

271. To the extent that Section 13-5-13(a) might be read to call for the protection of other natural resources within the Resource subzone beyond those proposed to be used, the reliable, probative, substantial, and credible evidence demonstrates that, through the comprehensive management schemes and the thoughtful design elements and mitigation measures described above, the sustainable use of those natural resources will also be protected and ensured.

272. For all these reasons, the TMT Project is consistent with the objectives of the Resource subzone.

C. <u>The Project Complies with Chapter 205A, Hawaii Revised Statutes</u>

273. Chapter 205A of the Hawai'i Revised Statutes defines Hawai'i's Coastal Zone Management Area as consisting of all lands of the State (excluding those lands designated as state forest reserves) and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the United States territorial sea. It establishes guidelines for the use of these lands. Many of the objectives of the Coastal Zone Management program parallel the purpose and objectives of the Conservation District under Section 13-5 of the Hawai'i Administrative Rules. Haw. Rev. Stat. § 205A; WDT White at 5.

274. The TMT Project complies with the purpose and objectives of the Conservation District and also complies with the objectives of Chapter 205A of the Hawai'i Revised Statutes, specifically including those objectives that do not overlap with the objectives of the Conservation District but are unique to Chapter 205A. Exhibit A-311 at 2-4 – 2-6; Exhibit A-313 at 48-49; WDT White at 5. The objectives of Chapter

205A that do not overlap with the Conservation District objectives relate specifically to the protection of water quality.

275. The TMT Project will be using a zero-discharge wastewater system. Thus, there will not be any releases of wastewater into the surrounding environment. All wastewater, including mirror washing wastewater (which is not a hazardous waste), will be collected and transported off of Mauna Kea for proper disposal. Due to the highly permeable nature of the surrounding area, although construction of the TMT Project will create some new impermeable surfaces at the five-acre TMT Project site, rainwater runoff will percolate into the ground – which is what it would do whether or not the TMT Project is built. That is not an adverse impact on water resources. In any event, rainwater runoff from the TMT Project area will not reach any coastal areas. WDT Hayes at 19; WDT Nance at 1-3; Exhibit A-309 at 3-127 – 3-130.

276. To minimize the potential for an accidental spill while wastes are in transit down the mountain to the proper disposal site, no tanks or containers being transported will be filled to the top. To further ensure the safe transport and disposal of hazardous waste, the Observatory will utilize only Environmental Protection Agency-permitted and licensed contractors to transport hazardous wastes. WDT Hayes at 19-20; Exhibit A-309 at 3-127 – 3-130.

277. No mercury will be used by at the TMT Observatory. The TMT Observatory will utilize a secondary containment area to store all hazardous materials or wastes, and that containment area will be inspected daily for leaks. Fuel storage and piping will also be double-walled and will be equipped with leak monitors. Therefore, the chance of a spill entering the surrounding environment is negligible. WDT Hayes at 19; Exhibit A-311 at 3-127 – 3-130.

278. The TMT Project will implement plans for storage and waste management including a Spill Prevention and Response Plan ("SPRP") and a Materials Storage/Waste Management Plan. The SPRP will mandate inspections to ensure that systems are working properly, no leaks are occurring, and any necessary maintenance measures are taken. The SPRP will also spell out protocols for proper handling, storage, use, and disposal of liquid and solid materials and wastes. WDT Hayes at 19; Exhibit A-311 at 3-127 – 3-130.

279. The TMT Project is located above only one aquifer and will be twelve miles from the nearest wells that extract groundwater. Moreover, the groundwater beneath the summit of Mauna Kea is impounded and compartmentalized by subsurface geologic structures; and, because the TMT Observatory will use a zero-discharge wastewater system, there will be no percolation of wastewater to the aquifer. Exhibit A-309 at 3-116; WDT Nance at 3.

280. For all the reasons set forth above, there is no reasonable prospect of adverse impact on either drinking or coastal waters as a result of the TMT Project. Accordingly, the TMT Project complies with the applicable provisions and guidelines contained in Haw. Rev. Stat. Chapter 205A. WDT Hayes at 21.

D. The Proposed Land Use Will Not Cause Substantial Adverse Impact to Existing Natural Resources Within the Surrounding Area, Community, or Region

281. The TMT Final EIS details the existing natural resources within the surrounding area, community, or region, as well as the potential impacts of the TMT Project. Taking into account the Project's compliance with all applicable rules, regulations, and requirements, with the Master Plan, CMP, sub-plans, and the TMT Management Plan, and considering the implementation of the mitigation measures committed to in the TMT FEIS, CDUA, and TMT Management Plan, the analyses that have been conducted for the Project show that it will not cause substantial adverse impact to the existing natural resources within the surrounding area, community, or region. WDT White at 6.

1. Biologic Resources

282. Dr. Clifford Smith was qualified as an expert in botany. Reliable, probative, substantial, and credible evidence supports Dr. Smith's opinions.

283. Jesse Eiben was qualified as an expert on the wēkiu bug and its habitat. Reliable, probative, substantial, and credible evidence supports Mr. Eiben's opinions.

284. There are two general ecosystems or habitats in the Mauna Kea summit region. They are: (1) alpine shrub lands and grasslands, which generally occur from the 9,500 foot elevation to the 12,800 foot elevation; and (2) alpine stone desert located above the 12,800 foot elevation. Exhibit A-309 at 3-59 – 3-60.

285. Vegetation generally decreases in diversity, density, and size towards the summit of the mountain, moving from alpine shrub lands and grasslands above the tree line, at roughly 9,500 feet, to a stone desert above 12,800 feet. The TMT Observatory site, the Access Way, and the Batch Plant Staging Area are located in the alpine stone desert. The plant community in the alpine stone desert consists of several species of mosses and lichens, and a limited number of vascular plants. Exhibit A-309 at 3-58 – 3-62.

286. The highest densities and diversity of the 21 known species of lichens tend to grow on north and west facing rocks in protected locations away from direct early morning sun exposure. Exhibit A-309 at 3-60 – 3-62.

287. A general botanical survey of the summit area above 12,992 feet was conducted in 1982 and recorded one species of algae, no hornworts or liverworts, possibly 12 species of moss, possibly 25 species of lichen, one fern, and five flowering plants. All species occurred in very low abundance though there were very small, highly protected pockets where the lichens and mosses were common. WDT Smith at 1-2.

288. A 2009 comprehensive survey of Area E detected 10 lichen species, 2 species of moss, and 7 vascular plants. This survey and subsequent report

determined that there is a very low diversity and cover of plants in Area E and that all of the species are found at lower elevations at least on the southern side of Mauna Kea. None of the lichen or moss species are unique to Hawai‘i. WDT Smith at 5-10; Exhibit A-309 at 3-60 – 3-63.

289. OMKM has considerable knowledge of the flora in the summit region above the 13,000 foot level. Although there is vegetation in the summit region, because of the incredibly harsh environment, the abundance of vascular plants, lichens, and mosses is less than 0.1% in the summit region. Most if not all types of the vegetation found in the summit region can be found at lower elevations on Mauna Kea, especially at the 10,000 foot level. There are no endangered or threatened species of flora in the TMT Project area. WDT Smith at 1-2; Tr. 8/16/11 at 174-78, 182-85, 201-05.

290. There are no species of flora unique to the TMT Project site. Based on this, the TMT Project will not have a significant impact on biological resources because species and habitat of these areas are not unique to the Project site and are found elsewhere on Mauna Kea and/or on other islands of Hawai‘i. In addition, any potential impacts will be appropriately mitigated by the measures described herein. Thus, the displacement of roughly 6 acres of alpine stone desert lava flow habitat is less than significant because this represents less than 0.5% of this habitat available within the summit region. Overall, the TMT Project will not have a substantial adverse impact on the biological resources of Mauna Kea. WRT Hayes at 4; Exhibit A-309 at 3-72; Tr. 8/16/11 at 174-78, 182-85, 201-05.

291. The TMT Project will not have a significant impact on the flora of Mauna Kea. Tr. 8/16/11 at 174-78, 182-85, 201-05.

292. The only resident faunal species in the alpine stone desert ecosystem above 12,800 feet on Mauna Kea are arthropods. At least 10 confirmed resident species of indigenous Hawaiian arthropod species have been collected near the summit, including: (1) wēkiu bugs (*Nysius wekiuicola*); (2) lycosid wolf spiders (*Lycosa* sp.); (3) two sheetweb spiders (genus *Erigone*); (4) two mites (Family *Aystidae* and Family *Eupodidae*: both species unknown); (5) two springtails (Family *Entomobryidae*: two species unknown); (6) a centipede (*Lithobius* sp.); and (7) a noctuid moth (*Agrotis* sp.). Several other indigenous Hawaiian species have also been collected near the summit but their resident status is unconfirmed. Additional arthropod species, non-indigenous to Hawai‘i, are thought to be resident to the summit area cinder cones. Exhibit A-309 at 3-62 – 3-63.

293. Wēkiu bugs are found in habitat composed of loose cinder found on cinder cones above 11,715 feet on Mauna Kea. The wēkiu bug is a unique component of the high elevation aeolian alpine ecosystem on Mauna Kea. The wēkiu bug differs from most other *Nysius* species in its predatory habits, unusual physical characteristics, and high elevation habitat. It is not known to exist anywhere other than within this alpine ecosystem on Mauna Kea. WDT Eiben at 1.

294. There are six arthropod habitat types in the alpine stone desert, including:

Type 1	Snow patches. Seasonal patches of snow that provide moisture and help retain food for the summit arthropods, but are not directly utilized by any of the species.
Type 2	Tephra ridges and slopes. Tephra cinder (≥ 1cm) are fragmental material produced by a volcanic eruption found on cinder cones. The interstitial spaces provide a micro, humid habitat for the smaller arthropods including wēkiu bugs, spiders, and caterpillars. Wēkiu bugs are found in greatest abundance in this habitat.
Type 3	Loose, steep tephra slopes. Contains smaller cinders that are subject to downward creep. Wēkiu bugs are found in low abundance in this habitat.
Type 4	Lava flows. A‘a and pāhoehoe flows with large outcrops of andesitic (iron-poor gray lava) rock are the primary habitat for the moth, the spider, and the centipede, but the wēkiu bug is rare in this habitat due to the lack of suitable microclimate.
Type 5	Talus slopes and fractured rock outcrops. Composed of rock rubble and highly fractured rock outcrops and depressions between lava flows with glacially deposited, rounded rocks. Small voids provide suitable microhabitat for the wēkiu bug, which can occur in moderate abundance during times of high population outbreaks.
Type 6	Compacted ash, silt, and mud. Found along roadsides and disturbed areas. The interstitial spaces are filled with fine-grained material and are not suitable for wēkiu bugs and spiders.

WDT Eiben at 2-3; Exhibit A-309 at 3-62 – 3-64.

295. Area E, where the TMT Project is proposed to be built, is largely comprised of Type 4 habitat with smaller areas comprised of Type 5 habitat. The bulk of the TMT Access Way is similar to the substrate of Area E, while the section that skirts the base of Pu‘u Hau‘oki is considered Type 3 habitat. WDT Eiben at 3.

296. The lava substrate in Area E is not considered ideal wēkiu bug habitat. Wēkiu bugs have only been found in Area E during one study, and occurred during a particularly abundant year for the bugs when traps were left in the substrate for

longer times than they are in current surveys. No wēkiu bugs have been detected in this locality since the 1982 study. The loose cinder adjacent to the existing access road is highly suitable as wēkiu bug habitat, consisting of different sized cinders larger than ½ inch in a depth of 2 – 10 inches above the ash layer. The bulk of the Access Way alignment is habitat similar to the lava flow terrain in Area E (Types 4 and 5), while the rest is Type 6 habitat. WDT Eiben at 3-4; Exhibit A-309 at 3-62 – 3-66; Tr. 8/18/11 at 122.

297. Wēkiu bugs have never been detected at the Batch Plant Staging Area and are not likely to use the area as habitat. The stockpiled cinder at the Batch Plant Staging Area is disturbed regularly for road maintenance activity and, thus, is not suitable wēkiu bug habitat. WDT Eiben at 4.

298. The disturbance of prime wēkiu bug habitat for the TMT Project would be limited to 0.2 acres. Tr. 8/16/11 at 151.

299. It is highly unlikely that the substrate modification by construction activities within Area E would have a significant impact on wēkiu bug population in the MKSR. The Batch Plant Staging Area, where the substrate has already been altered, is disturbed regularly and past activity there has not appeared to impact wēkiu bug populations elsewhere. It is unlikely that construction activities at the Batch Plant Staging Area would have any significant impact on the wēkiu bug population. WDT Eiben at 5.

300. Construction of the TMT Access Way will likely kill wēkiu bugs residing in the direct path of any rock movement. Because there are fewer bugs in the access road cinder habitat than in nearby cinder cones, and the area to be disturbed is quite small when compared to the nearby higher relative density wēkiu bug capture areas, the loss of wēkiu bugs immediately in the path of road construction will not have a permanent negative effect on the overall population of wēkiu bugs. The cinder adjacent to the access road was disturbed in the past, and still contains wēkiu bugs. WDT Eiben at 5; Exhibit A-309 at 3-68 – 3-78; Tr. 8/18/11 at 123-25.

301. The amount of wēkiu bug habitat that will be affected by the TMT Project is less than 1% of the total wēkiu bug habitat. *See* WRT Eiben at 2-3.

302. The limited number of wēkiu bugs that are likely to be killed by TMT Project activities is so small that they could be replaced by one hour of normal wēkiu bug propagation by the rest of the wēkiu bug population above 13,000 feet. WRT Eiben at 2-3; Tr. 8/18/11 at 156.

303. The impact to wēkiu bugs resulting from construction of the TMT Access Way will be less than significant. The total population of the species will not be significantly impacted by the disturbance of a small area of habitat along the TMT Access Way on Puʻu Hauʻoki. By all accounts, wēkiu bugs have natural population fluxes (as assessed by trapping, particularly in the Spring) in many regions of cinder cones on Mauna Kea. While this proposed disturbance is not natural, it is nearly

impossible that this limited disturbance could potentially affect the population-level process of the species's survival. WRT Eiben at 1-3; Tr. 8/18/11 at 126.

304. Any potential adverse impacts on the wēkiu bug and its habitat, such as dust generated from excavation and site preparation, wind-blown debris, and potential introduction of invasive species, will be mitigated by the TMT Project's planned implementation of various mitigation measures listed in the TMT FEIS and CDUA. WDT Eiben at 5; WRT Eiben at 4; Exhibit A-309 at 3-68 – 3-78.

305. The TMT Project will implement the following mitigation measures with regard to potential impacts on biologic resources, including wēkiu bugs: (1) implementation of a Cultural and Natural Resources Training Program that will give TMT personnel and construction workers an annual orientation regarding Mauna Kea's natural resources; (2) implementation of an Invasive Species Prevention and Control Program that will outline steps to be taken to avoid the potential impacts associated with invasive species; (3) pursuant to CMP Management Action FLU-6, the TMT Access Way has been designed to limit disturbance and displacement of sensitive wēkiu bug habitat, including reducing the Access Way configuration to a single lane in certain areas and paving the roadway where adjacent to such habitat to reduce dust-related impacts; (4) pursuant to CMP Management Action FLU-6, construction-phase measures will be implemented to reduce impacts to sensitive habitat and arthropods will be monitored in the area of the TMT Access Way prior to, during, and for two years after the occurrence of construction on the alpine-cinder cone habitat; (5) implementation of a Ride-Sharing Program that will reduce the number of vehicle trips per day to the summit; and (6) the planting of two new mamane trees for each mamane tree directly impacted by possible TMT Project activities. Exhibit A-309 at 3-74 – 3-77.

306. In compliance with OMKM requirements and the CMP, prior to the start of TMT Project construction activities, the TMT Project will develop an Invasive Species Prevention and Control Program. This Program will be adaptive in nature. Exhibit A-309 at 3-74 - 3-75; Tr. 8/16/11 at 138-41.

307. Dust generated from an unpaved road can degrade wēkiu bug habitat by filling the voids between cinder and, thus, making it more difficult for the bugs to move about. Therefore, the paving of the TMT Access Way in the vicinity of wēkiu bug habitat is an appropriate measure to reduce the generation of dust. WRT Eiben at 4.

308. The paving of the TMT Access Way will not be a serious deterrent to wēkiu bug movement. Wēkiu bugs can and will cross both paved and unpaved roads. The common high winds near the summit of Mauna Kea could easily blow wēkiu bugs across a paved road surface. WRT Eiben at 4; Tr. 8/18/11 at 145.

309. There is no scientific evidence that the wēkiu bug population on Mauna Kea has declined since 1982. WRT Eiben at 1; Eiben Tr. 8/18/11 at 125-26.

310. TMT Project impacts on biological resources will be less than significant with the implementation of the Cultural and Natural Resources Training Program and Invasive Species Prevention and Control Program. Implementation of the additional mitigation measures will further reduce the potential impact of the TMT Project. Exhibit A-309 at 3-76 – 3-78.

311. On October 26, 2011, the United States Fish & Wildlife Service ("FWS") formally removed the wēkiu bug as a candidate for listing as an endangered species under the Endangered Species Act. The FWS's action is documented in the official Federal Register at 76 Fed. Reg. 66,377 (Oct. 26, 2011).

312. There are no currently listed threatened or endangered species known to occur in the Astronomy Precinct. The arthropod and botanical surveys conducted in 2008 and 2009 of the TMT Project areas in the Mauna Kea summit region did not encounter any species listed as endangered or threatened under either Federal or State of Hawai'i endangered species statutes. The Mauna Kea silversword, an endangered species, is known to occur at lower elevations and not at the TMT Project site. One species currently considered a species of concern by the FWS, the Douglas' bladderfern, is known to occur in the Mauna Kea summit region. The Douglas' bladderfern was found in Area E. However, it is known to be widespread, occurring on all main Hawaiian Islands, and on Mauna Kea it is more common to the east, in the vicinity of Area F. Area E is not considered critical habitat for the Douglas' bladderfern. Exhibit A-309 at 3-64 – 3-66.

313. Petitioners generally dispute UHH's positions regarding the fauna and flora in the vicinity of the Project, primarily through the testimony of Ms. Ward. The majority of Ms. Ward's written testimony focused on the wēkiu bug. Unlike Mr. Eiben, however, who was qualified as an expert entomologist with particular expertise in the wēkiu bug, Ms. Ward is not an entomologist; her background is principally in horticulture. Exhibit D-2.

314. The documents relied upon by Ms. Ward to support her concerns regarding the wēkiu bug all date from 1996 or earlier. Exhibits D-5, D-6, D-7. Mr. Eiben's research is more current, occurring over the last six years, including 2011. Petitioners offered no witness of their own to provide expert testimony regarding the wēkiu bug.

315. Petitioners elicited no testimony that undermined Dr. Smith's opinions. Nor did they offer any witness of their own to provide expert testimony regarding the plant life in the summit region of Mauna Kea. Thus, Petitioners have not refuted the University's conclusions that the TMT Project will not have a significant impact on biological resources.

2. Archaeologic/Historical Resources

316. Dr. Sara Collins was qualified as an expert in archaeology, physical anthropology, historic preservation, and the historic preservation process under Haw.

Rev. Stat. Chapter 6E. Reliable, probative, substantial, and credible evidence supports Dr. Collins's opinions and recommendations.

317. Under Chapter 6E-2 of the Hawai'i Revised Statutes, a "Historic Property" means any building, structure, object, district, area, or site, including heiau and underwater sites, which is over fifty years old. "Historic Districts" are geographically definable areas possessing a significant concentration, linkage, or continuity of contributing properties – sites, buildings, structures, or objects united by past events or aesthetically by plan or physical development. A contributing property adds to the historic architectural qualities, historic associations, or archaeological values for which a district is significant because it was present during the period of significance, and possesses historic integrity reflecting its character at that time or is capable of yielding important information about the period. Exhibit A-309 at 3-39 – 3-41.

318. Several archaeological inventory surveys ("AIS") have been conducted on and adjacent to the MKSR documenting the historic properties and cultural resources of the MKSR. Final reports for the following areas have been completed and approved by SHPD: (1) Astronomy Precinct of the MKSR; (2) Mauna Kea Access Road Management Corridor; and (3) the MKSR. In addition to these reports, archaeological surveys were conducted for the TMT Project areas and the University prepared the CRMP to identify and manage the cultural resources in the entire UH Management Areas. The University also prepared a Mauna Kea Historic Preservation Plan that was prepared in conjunction with the Master Plan. WDT Collins at 2; Exhibit A-21; Exhibit A-26; Exhibit A-28; Exhibit A-30; Exhibit A-37; Exhibit A-303; Exhibit A-309 at 3-39 – 3-41.

319. The TMT Observatory site, the TMT Access Way, and the Batch Plant Staging Area are all within the Mauna Kea Summit Region Historic District – Statewide Inventory of Historic Places ("SIHP") No. 50-10-23-26869 – as previously defined in SHPD's Mauna Kea Historic Preservation Plan Management Components. WDT Collins at 2-3; Exhibit A-21.

320. The Mauna Kea Summit Region Historic District includes a concentration of significant historic properties that are linked through their setting, historic use, traditional associations, and ongoing cultural practices. The properties include shrines, adze quarry complexes and workshops, burials, stone markers/memorials, temporary shelters, historic campsites, traditional cultural properties, a historic trail, and sites of unknown function. All of these types of historic sites are contributing properties to the Historic District. However, "find spots," which are sites that resemble historic properties but are likely of more recent vintage, typically shrines of recent origin, are not contributing properties to the Historic District. The Mauna Kea Summit Region Historic District has been determined by SHPD to be significant under all five criteria (A, B, C, D, and E), as defined in Section 13-275-6 of the Hawai'i Administrative Rules. WDT Collins at 3; Exhibit A-309 at App. I; Exhibit A-311, Ex. B, App. C, C-4; Collins Tr. 8/17/11 at 20-23, 55-60.

321. SHPD is the government agency tasked with designating traditional cultural properties. The traditional cultural properties that are contributing properties to the Mauna Kea Summit Region Historic District include Puʻu Kūkahauʻula, Puʻu Waiau (which encloses Lake Waiau), and Puʻu Līlīnoe. SHPD determined not to designate Mauna Kea above the 6,000 foot level as a traditional cultural property. WDT Collins at 3; Tr. 8/17/11 at 75-76. Puʻu Poliʻahu is also not a contributing property to the Mauna Kea Summit Region Historic District. Tr. 8/17/11 at 22.

322. Puʻu Kūkahauʻula (SIHP No. -21438) encompasses the three puʻu that form the highest portion of Mauna Kea's summit, Puʻu Hauʻoki, Puʻu Kea, and Puʻu Wēkiu, all three of which are recent geographic names for these landmarks. Established by SHPD in 1999 as a traditional cultural property, Puʻu Kūkahauʻula bears the name of a legendary figure that appears in Hawaiian traditions and is particularly associated, by name, with legends about Mauna Kea. Kūkahauʻula variously appears as the husband of Līlīnoe, a suitor or husband of Poliʻahu, and as an *ʻaumakua* of fishermen. The Access Way leading to the TMT Observatory would intersect the northwestern edge of Puʻu Kūkahauʻula for approximately 800 feet. Exhibit A-28 at 5-15 – 5-20; WDT Collins at 3.

323. SHPD designated Puʻu Līlīnoe as SIHP No. -21439; at the same time, SHPD designated Lake Waiau and the adjacent Puʻu Waiau as the Waiau Site (SIHP No. -21440). The Waiau Site is located outside the MKSR to the south and actually lies within the Mauna Kea Ice Age NAR while Puʻu Līlīnoe is within the MKSR, southeast of Puʻu Kūkahauʻula. No portion of the TMT Project area is in or near Puʻu Līlīnoe or the Waiau Site. WDT Collins at 3.

324. Puʻu Poliʻahu is a summit cone to the immediate southwest of the Astronomy Precinct. Poliʻahu is identified as a goddess who plays a prominent role in many Hawaiian traditions pertaining to Mauna Kea. Poliʻahu was variously associated with a trail, spring, pond, and cave in the earliest available sources, but it was not until the 1890s when W.D. Alexander proposed giving her name to a puʻu in the summit region. No portion of the current project is located on Puʻu Poliʻahu. Exhibit A-309 at App. I; WDT Collins at 4.

325. Notwithstanding extensive surveying, no archaeological sites have been found on the TMT Observatory site, on the TMT Access Way, or in the Batch Plant Staging Area. As identified in the CDUA for the TMT Project, Exhibit A-311 at 4-1 – 4-5, recent surveys have recorded a few archaeological sites designated as historic properties that are in the general vicinity of the TMT project areas. The following sites are known to be in the vicinity of the TMT Access Way and Observatory site:

a. SIHP No. -16172 was recorded as a shrine and consisted of a single upright with several support stones. SIHP No. -16172 is located about 225 feet north of the proposed TMT Observatory site.

b. SIHP No. -16167 was recorded as a shrine in 1982 and subsequently documented during surveys conducted in 1995, 1999, and 2007.

The site consisted of two uprights placed in a bedrock crack. SIHP No. -16167 is located approximately 500 feet east of the proposed TMT Access Way, and about 1,300 feet southeast of the proposed TMT Observatory site.

c. SIHP No. -16166 was recorded as a multi-feature shrine with eight, possibly nine, uprights arranged in two groups. SIHP No. -16166 is approximately 350 feet east of the TMT Access Way and 1,600 feet southeast of the proposed TMT Observatory site.

d. SIHP No. -21449 consists of a single terrace constructed of stacked cobbles and small boulders with a surface composed of cobbles, small boulders, and thin flat slabs which were probably brought to the area by human agency. SIHP No. -21449 is located approximately 200 feet east of the TMT Access Way and 700 feet south of the proposed TMT Observatory site.

Exhibit A-309 at App. I; WDT Collins at 4-5.

326. The determination of what sites were historic versus modern "find spots" was made with reasonable scientific certainty. Tr. 8/17/11 at 86.

327. Two "find spots" were identified within Area E. One was initially interpreted to be a possible pre-contact shrine, consisting of two upright stones, located in the northwestern portion of Area E. The second was initially interpreted to be a possible pre-contact temporary habitation complex, consisting of a C-shaped enclosure and two small terraces, located within a lava channel in the northern portion of Area E. Upon completion of a site visit and survey by SHPD staff of the two find spots, neither was determined to warrant historic property designation. The shrine was determined to be a modern structure constructed within the last 10 years. The possible temporary habitation complex was determined to most likely be a natural geological feature that only appeared to have been man-made. Therefore, neither of the find spots in the TMT Project area is considered a Historic Property. Exhibit A-309 at 3-44 – 3-46.

328. In his closing argument, Petitioner Flores claimed that the CDUA was incomplete because "[t]here's find spots there that are left out of the map [in the CDUA]." Tr. 9/30/11 at 120-24. Mr. Flores's assertion was made in closing argument and does not constitute evidence; and Petitioners have no competent or credible evidence to support this position. As set forth above, "find spots" are modern, are not historic properties, and are not contributing properties to the Historic District. Moreover, all of the relevant surveys and documents, specifically including the CDUA, were provided to SHPD for its review and comments; and SHPD found no incompleteness.

329. The TMT Project site has been extensively and intensively surveyed and there are no known burials of human remains located in the Project area. Tr. 8/17/11 at 24, 44, 89-90.

330. The Batch Plant Staging Area is adjacent to the southwestern boundary of Puʻu Kūkahauʻula, across the Mauna Kea Access Road. No historic properties are known to be within this area. Two shrines are located in the general

region of the Batch Plant Staging Area, both of which are more than 500 feet to the west: (1) SIHP No. -16164 is a shrine composed of two upright features. Feature 1 consists of three (possibly five) upright stones that are positioned along the edges of a low rectangular platform; Feature 2 consists of a single upright placed in a bedrock crack, supported by several cobbles. (2) SIHP No. -16165 consists of two single uprights about 1.4 meters apart along a ridge; each upright is supported by cobbles. WDT Collins at 5; Exhibit A-309 at App. I.

331. Several features of the Puʻu Kalepeamoa Site Complex (SIHP No. 50-10-23-16244) are in the general vicinity of HELCO's Hale Pōhaku Substation. Two lithic scatters were designated as SIHP Nos. 50-10-23-10310 and -10311. These sites eventually underwent archaeological data recovery after increased erosion made preservation difficult. The data recovery fieldwork demonstrated the presence of both lithic workshops and manufacturing areas for octopus lure sinkers. In addition to the lithic scatters, two shrines are located across the four-wheel drive access road and to the south about 190 feet away from Hale Pōhaku. SIHP No. -10313 is a shrine with three to five upright stones, and SIHP No. -10315 is a single upright shrine. The shrines and lithic scatters are over 1,200 feet from the HELCO substation and from the nearest electrical pull box that will be accessed when the conductors in the existing conduits are replaced. None of the actions required to implement the TMT Project will affect these historic properties. WDT Collins at 5.

332. Only one known archaeological site is present near HELCO's Hale Pōhaku Substation, where transformer swaps will occur. SIHP No. -10320 (also part of the Puʻu Kalepeamoa Site Complex) is a lithic scatter that lies about 200 feet west of the existing substation. None of the potential TMT Project activities in this area will be carried out near this site. WDT Collins at 6.

333. The historic preservation work that Dr. Collins and her employer prepared with respect to the TMT Project to identify historic sites within the MKSR was done in compliance with Chapter 6E, the Historic Preservation Law; was reviewed by SHPD; and the results of the reports were accepted by SHPD. Tr. 8/17/11 at 24. All of the AISs done of the summit area of Mauna Kea have been reviewed by SHPD; SHPD determined that the TMT Project would have no significant impact on the historic properties; and Dr. Collins and her employer, PCSI, concur. Tr. 8/17/11 at 89.

334. TMT will develop an Archaeological Monitoring Plan and will submit it to SHPD for review and approval. WDT Collins at 8.

335. A portion of the Batch Plant Staging Area will be restored to a more natural condition upon completion of TMT Project construction. The TMT Corporation will also fund restoration of the closed access road on Puʻu Poliʻahu to its natural state to address visual impacts of astronomy-related development on the summit region of Mauna Kea. WDT Collins at 9; Exhibit A-311, Ex. B, App. A, at A-9.

336. The TMT Project will develop and implement construction best management practices to avoid potential disturbance of land beyond the planned limits of disturbance. WDT Collins at 9.

337. The TMT Project will camouflage the existing HELCO pull-boxes and other utility boxes that are visually distracting or intrusive at the summit and other key locations on Kūkahauʻula by treating them so that they blend into the natural environment. WDT Collins at 9; Exhibit A-311, Ex. B, App. A, at A-9.

338. In compliance with the CMP and to mitigate potential effects on historic properties, among other things, the TMT Project will develop and implement a Cultural and Natural Resources Training Program. As discussed in the CMP, the Cultural and Natural Resources Training Program will include educational instruction and materials designed to: (1) impart an understanding of Mauna Kea's cultural landscape, including cultural practices, historic properties and their sensitivity to damage, and the rules and regulations regarding the protection of historic properties; (2) make it clear that any disturbance of a historic property is a violation of Chapter 6E-11, Hawaii Revised Statutes, and punishable by fine; and (3) provide guidance and information about what constitutes respectful and sensitive behavior within the summit area. Exhibit A-309 at 3-51 – 3-53.

339. To mitigate the TMT Observatory's visual effect within the Historic District, the TMT Observatory selected the 13N site within Area E. Additional steps such as design efforts to reduce the Observatory's size, finish, and coloring have been taken to address the TMT Observatory's visual impact. The TMT Observatory will not be visible from Puʻu Wēkiu (which is the actual summit of Mauna Kea), Lake Waiau, and Puʻu Līlīnoe, the three traditional cultural properties in the summit region of Mauna Kea. Exhibit A-309 at 3-51 – 3-53.

340. To mitigate the TMT Access Way's effect on Puʻu Kūkahauʻula and the Historic District, the Access Way has been devised to reduce disturbance by designing it to have a single lane configuration in certain areas, coloring the pavement of the roadway to blend with the surroundings, and paving the roadway for a length of approximately 1,600 feet. Exhibit A-311 at 2-14.

341. To mitigate general development of the TMT Observatory, the Project will work with OMKM and ʻImiloa to develop exhibits for the VIS and ʻImiloa regarding cultural and archaeological resources as well as to develop a TMT outreach office that will work with ʻImiloa and native Hawaiian groups to support and fund programs specific to Hawaiian culture and archaeological resources. Exhibit A-309 at 3-52 – 3-54.

342. The TMT Project will not result in the loss or significant destruction of any historic properties within the MKSR. The physical impacts on the only historic property physically affected, Puʻu Kūkahauʻula, will be minimal and will not be significant. The TMT Project will not have a substantial adverse impact on any historic properties within the MKSR. Exhibit A-309 at 3-52 – 3-54.

3. Cultural Resources and Practices

343. Notwithstanding UHH's position that cultural practices do not appear to be encompassed by the definition of "Natural resource" contained in Haw. Admin. R. § 13-5-2, both UHH and the DLNR identified and assessed such practices as resources to be considered under the criterion of Haw. Admin. R. § 13-5-30(c)(4).

344. Numerous research studies, plans, and impact assessments have been prepared in recent times documenting the cultural practices and resources of Mauna Kea, including native Hawaiian traditional and customary practices. These include:

a. the CMP, which provides information and management actions to protect, preserve, and enhance the cultural resources and native Hawaiian traditional and customary practices of Mauna Kea within the UH Management Areas (Exhibit A-301);

b. the CRMP, which provides an overview of cultural resources and was formulated to ensure that the University fulfills its mandate to preserve and protect cultural resources and native Hawaiian traditional and customary practices within the UH Management Areas (Exhibit A-303);

c. Mauna Kea-Ka Piko Kaulana o ka ʻĀina (meaning "Mauna Kea-The Famous Summit of the Land"), which provides a review of historic records and information collected through oral history interviews with kūpuna and kamaʻāina pertaining to Mauna Kea (Exhibit A-309, App. F);

d. the Mauna Kea Master Plan, which includes an Oral History and Consultation Study and Archival Literature Research (Exhibit A-21, App. I) and a Cultural Impact Assessment ("CIA") (Exhibit A-21, App. E; Exhibit A-309, App. E);

e. the FEIS for the TMT Project (Exhibit A-309);

f. the CIA produced for the TMT FEIS (Exhibit A-309, App. D);

g. the AIS for the Maunakea Summit Region produced for the TMT FEIS (Exhibit A-309, App. G);

h. the TMT CDUA (Exhibit A-311);

i. the TMT Management Plan (Exhibit A-311, Ex. B);

j. the TMT Draft Historic Preservation Plan (Exhibit A-311, Ex. B, App. A);

k. the TMT Historical and Archeological Site Plan (Exhibit A-311, Ex. B, App. C);

l. the Mauna Kea Historic Preservation Plan Management Components (Exhibit A-21, App. F);

m. the Archeological Assessment Report for Hale Pōhaku (Exhibit A-309, App. F);

n. the Final Environmental Assessment for the CMP (Exhibit A-24);

o. the Final AIS for the Mauna Kea Access Road Corridor (Exhibit A-29);

p. the Final AIS for the MKSR (Exhibit A-133); and

q. the Final AIS for the Astronomy Precinct (Exhibit A-28).

Exhibit A-309 at 3-8 – 3-11.

345. The CRMP found that there are a number of different kinds of cultural practices occurring on Mauna Kea. There are two broad categories of cultural practices: (1) traditional and customary practices, and (2) contemporary cultural practices. Exhibit A-303 at 2-18 – 2-19.

346. Traditional and customary cultural practices have been defined as those customs and practices of a living community of people that have been passed down through generations, usually orally or through practice. Traditional and customary cultural practices are those practices that fall within the purview of Article XII, Section 7 of the Hawai‘i State Constitution. Exhibit A-41 at 1-2; Exhibit A-303 at 2-18 – 2-19.

347. Traditional and customary practices have been and are still carried out in a number of locations on Mauna Kea. Native Hawaiians have traditionally viewed the summit region, including Kūkahau‘ula, as the realm of the ancestral *akua* (gods, goddesses, deities) who are believed to take earthly form as the pu‘u, the waters of Lake Waiau, and other significant features of the mountain’s landscape. A number of traditional and customary practices are derived from these beliefs; they have also led to related contemporary cultural practices. Exhibit A-41; Exhibit A-303, Section 4.2.1.1; Exhibit A-309 at App. I.

348. Numerous research studies, plans, and impact assessments identify the potential impacts the TMT Project and astronomy-related development may have on cultural practices and resources, including native Hawaiian traditional and customary practices. These include but are not limited to the following:

a. the CMP (Exhibit A-301);

b. the CRMP (Exhibit A-303);

c. the FEIS for the TMT Project (Exhibit A-309);

d. the CIA produced for the TMT FEIS (Exhibit A-309, App. D);

e. the AIS for the Maunakea Summit Region produced for the TMT FEIS (Exhibit A-309, App. G);

f. the TMT CDUA (Exhibit A-311);

g. the TMT Management Plan (Exhibit A-311, Ex. B);

h. the TMT Draft Historic Preservation Plan (Exhibit A-311, Ex. B, App. A);

i. the TMT Historical and Archeological Site Plan (Exhibit A-311, Ex. B, App. C);

j. the Mauna Kea Historic Preservation Plan Management Components (Exhibit A-21, App. F);

k. the Archeological Assessment Report for Hale Pōhaku (Exhibit A-309, App. F);

l. the Final Environmental Assessment for the CMP (Exhibit A-24);

m. the Final AIS for the Mauna Kea Access Road Corridor (Exhibit A-29);

n. the Final AIS for the MKSR (Exhibit A-133); and

o. the Final AIS for the Astronomy Precinct (Exhibit A-28).

349. No cultural practices are known to be associated with a specific historic property that has been identified in or near the TMT Project site aside from those traditional histories and legendary accounts related to Kūkahauʻula and the Mauna Kea Summit Region Historic District. WDT Collins at 8. None of the ongoing cultural practices identified in the CMP and the TMT FEIS is known to be associated with any of the historic sites identified in the archaeological surveys done for OMKM. Tr. 8/17/11 at 24-25.

350. The summit region of Mauna Kea, which includes the Mauna Kea Summit Region Historic District and Puʻu Kūkahauʻula, is considered to be a sacred area and serves as a site for various cultural practices including traditional and modern shrine construction, pilgrimage, prayer, and offerings. The area to be occupied by the TMT Observatory would not be available for future cultural practices. In addition, because of their individual beliefs, for some individuals, the introduction of new elements associated with the TMT Project in the area of the northern plateau would adversely affect the setting in which such practices could take place. Although the TMT Project may decrease the desirability of the northern plateau for some, this is not

anticipated to result in a substantial effect on shrine construction, pilgrimage, prayer, and offerings in the MKSR. The majority of areas used for these practices would not be affected by the TMT Project. There is also no evidence suggesting that the presence of observatories has prevented or substantially impacted these practices. Exhibit A-309 at 3-26 – 3-28.

351. Petitioners offered evidence that building the Project on Mauna Kea offends, and is contrary to the beliefs of, some members of the community, including some native Hawaiians. However, Petitioners also acknowledge that native Hawaiian cultural and religious practices are not codified, but rather are individual and personal in nature. Hearing on Standing and Prehearing, Tr. 5/13/11 at 20. The evidence further showed, and Petitioners conceded, that there is no single native Hawaiian viewpoint or opinion on any subject, including the Project; and some native Hawaiians, including native Hawaiian cultural practitioners with lineal or other significant ties to Mauna Kea – such as Mr. Ishibashi, Ms. Hoover, and Mr. Baybayan – support the Project and testified that it would have no impact on their cultural practices. WDT Baybayan at 1-3; WDT Hoover at 1-2; WDT Ishibashi at 1-3; Tr. 8/17/11 at 100-06; Tr. 8/18/11 at 103-10, 163-76.

352. Water from Lake Waiau is collected by some cultural practitioners for use in healing and ritual practices. The TMT Project would not affect this practice, nor would it affect the quality of the water in Lake Waiau. There will be no adverse effect associated with the TMT Project on this cultural practice. Exhibit A-309 at 3-26 – 3-28.

353. Historically, piko deposition on Mauna Kea has been associated with the Lake Waiau area. The TMT Project would not affect cultural practices at or near Lake Waiau. Piko deposition may be occurring in other areas of the summit region. The area occupied by the TMT Observatory would not be available for future piko deposition. In addition, based upon individual beliefs, some individuals may be unwilling to deposit piko in the vicinity of the TMT Observatory. However, the vast majority of the MKSR as well as the Mauna Kea Ice Age NAR, including Lake Waiau, would remain unaffected by the TMT Project and available for piko deposition. Exhibit A-309 at 3-26 – 3-28. There is no evidence that the vicinity of the TMT Observatory has ever been used for piko deposition.

354. The scattering of cremation remains is considered an ongoing contemporary cultural practice. The area occupied by the TMT Observatory would not be available for any future scattering of cremation remains. In addition, based upon individual beliefs, some individuals may be unwilling to scatter cremation remains in the vicinity of the TMT Observatory. This would not result in a substantial impact on this cultural practice as significant undeveloped natural areas that could be used for scattering ashes will remain unaffected by the TMT Project throughout the MKSR. Exhibit A-309 at 3-27 – 3-29. There is no evidence that the vicinity of the TMT Observatory has ever been used for the scattering of cremation remains.

355. The TMT Project site has been extensively surveyed, and there are no known burials in any of the TMT Project areas. Tr. 8/17/11 at 89-90. The TMT Observatory site is located over one mile from the nearest known burial or possible burial. Burials are not likely to be found on the TMT Project site because of the physical nature of the location. Tr. 8/17/11 at 89-90. But if any unknown burial were discovered, work would stop in that vicinity and SHPD and the county coroner would be called in to determine if the remains were human and, if so, whether it fell under forensic or archaeological jurisdiction. Tr. 8/17/11 at 43-44. As a result, the TMT Project is not anticipated to have an adverse effect on any burials or burial blessing practices on Mauna Kea. Exhibit A-309 at 3-27 – 3-29.

356. Annual solstice and equinox observations generally occur on Puʻu Wēkiu, the summit of Mauna Kea. The TMT Observatory cannot be seen from Puʻu Wēkiu. The TMT Project will not have an adverse effect on solstice and equinox observations occurring on Puʻu Wēkiu. Exhibit A-309 at 3-8 – 3-38; WDT Hayes at 14-15.

357. The CMP requires that access for cultural practitioners to culturally significant sites on Mauna Kea be maintained. According to the CMP, native Hawaiian traditional and customary practices shall not be restricted except where safety, resource management, cultural appropriateness, and legal compliance considerations may require reasonable restrictions. The TMT Project will comply with this requirement and, as a matter of policy, will train TMT employees to respect, honor, and not interfere with cultural or religious practices. Exhibit A-309 at 3-23 – 3-26.

358. Other than limiting access to the actual construction site for safety reasons and to the interior of the Observatory facilities once it is completed, the TMT Project will not restrict anyone from any portion of the Mauna Kea summit area. WDT White at 6.

359. The University has proactively supported and facilitated access for native Hawaiian cultural practitioners to the UH Management Areas on Mauna Kea. University personnel have: (1) hosted cultural groups at the VIS and the Hale Pōhaku mid-level facilities; (2) escorted cultural practitioners to the Mauna Kea summit region; (3) assisted cultural practitioners on Mauna Kea during inclement weather; and (4) conducted regular cultural educational events at the VIS. WRT Byrne at 1-2; Tr. 8/18/11 at 182-87.

360. Numerous research studies, plans, and impact assessments identify the mitigation measures, including actions the BLNR can take, to reasonably protect cultural practices and resources on Mauna Kea, including native Hawaiian traditional and customary practices. These include but are not limited to the following:

a. the CMP (Exhibit A-301);

b. the CRMP (Exhibit A-303);

c. the FEIS for the TMT Project (Exhibit A-309);

d. the CIA produced for the TMT FEIS (Exhibit A-309, App. D);

e. the AIS for the Maunakea Summit Region produced for the TMT FEIS (Exhibit A-309, App. G);

f. the TMT CDUA (Exhibit A-311);

g. the TMT Management Plan (Exhibit A-311, Ex. B);

h. the TMT Draft Historic Preservation Plan (Exhibit A-311, Ex. B, App. A);

i. the TMT Historical and Archeological Site Plan (Exhibit A-311, Ex. B, App. C);

j. the Mauna Kea Historic Preservation Plan Management Components (Exhibit A-21, App. F);

k. the Archeological Assessment Report for Hale Pōhaku (Exhibit A-309, App. F);

l. the Final Environmental Assessment for the CMP (Exhibit A-24);

m. the Final AIS for the Mauna Kea Access Road Corridor (Exhibit A-29);

n. the Final AIS for the MKSR (Exhibit A-133); and

o. the Final AIS for the Astronomy Precinct (Exhibit A-28).

361. The mitigation measures proposed for the TMT Project, as outlined in Appendices A (Historic Preservation Mitigation Plan) and C (Historical & Archaeological Site Plan) of the TMT Management Plan (Exhibit A-311, Ex. B), will prevent substantial adverse impact to existing and identified historic and cultural resources within the surrounding area, community, or region. WDT Collins at 8-9; Exhibit A-45.

362. The University and the TMT Corporation have already taken and have committed to take numerous measures to avoid and minimize direct and indirect impacts on cultural practices, including but not limited to the following: (1) selecting a site off of the Kūkahauʻula summit and away from known historic and traditional cultural properties and cultural resources; (2) selecting a site that minimizes the impact of the TMT Project on viewplanes; (3) complying with all applicable provisions of the CMP and sub-plans; (4) engaging in direct and regular consultation with Kahu Kū Mauna, with the broader Hawaiʻi Island community, and with cultural practitioners on various issues; (5) establishing an outreach office to engage with the larger community; (6) developing and implementing a Cultural and Natural Resources Training Program for all TMT staff and

construction workers; and (7) minimizing TMT Observatory operations (up to 4 days per year) to accommodate cultural activities on culturally sensitive days of the year. Exhibit A-45; Exhibit A-311 at 2-6 – 2-27; Exhibit A-309 at 3-31 – 3-37, 3-51 – 3-54; WDT White at 6.

363. The TMT Corporation will implement a Cultural and Natural Resources Training Program that will require all construction managers, contractors, supervisors, construction workers, and TMT staff to be trained annually regarding the potential impacts to cultural and archaeological resources and the measures to prevent such impacts. Exhibit A-309 at 3-35; WDT Collins at 9.

364. In accordance with the CMP and with the commitments described in the TMT FEIS, the TMT Project will hire a cultural resource specialist to work in conjunction with the archaeological monitor at all times and in all places or situations where on-site archaeological monitoring is required. Cultural monitors will have the appropriate background to serve as a cultural monitor and cultural resource specialist for cultural matters. Cultural monitors will provide direct oversight of construction activities and will regularly provide Kahu Kū Mauna and OMKM with a report of activities and findings. WDT Collins at 8-9; Exhibit A-311, Ex. B, App. A, at A-7.

365. The TMT Corporation will develop an Archaeological Monitoring Plan in accordance with Section 13-279 of the Hawai‘i Administrative Rules, and cultural and archaeological monitors will be present at construction sites on Mauna Kea and will have authority to stop work if cultural finds are made, including historic properties. They will also inform workers of the possibility of inadvertent cultural finds, including human remains. Exhibit A-309 at 3-35.

366. Pursuant to Section 13-284 of the Hawai‘i Administrative Rules, the TMT Corporation will develop and implement an Archaeological Mitigation Plan in consultation with native Hawaiian organizations and the Office of Hawaiian Affairs, to seek their views on proposed mitigation. Exhibit A-309 at 3-35.

367. The TMT Corporation will implement a Ride-Sharing Program to reduce the number of vehicle trips between Hale Pōhaku and the TMT Observatory. This step could further reduce the Project’s impact on the spiritual and sacred quality of Mauna Kea by reducing dust, transient noise, and general movements in the summit region. Exhibit A-309 at 3-35; WDT Collins at 10.

368. The TMT Corporation commits to fund a CBP of $1 million per year, to be administered via the THINK Fund Board of Advisors. THINK Fund purposes could include scholarships and mini-grants; educational programs; college awards; educational programs specific to Hawaiian culture, astronomy, math, and science; and community outreach activities. Exhibit A-309 at 3-35 – 3-36; WDT Collins at 10.

369. The TMT Corporation has conducted and will continue to conduct community outreach including consulting with the Kahu Kū Mauna council regularly regarding cultural impact issues. The TMT outreach office will also have an open door

policy with the native Hawaiian community to discuss various issues that may arise. The TMT Corporation will support, financially and through use of its outreach office, the following measures related to cultural resources: (1) hosting an annual cultural event or training; (2) the translation of chants or mele and the use of their teachings; (3) the translation of modern astronomy lessons into the Hawaiian language; (4) development of exhibits regarding cultural, natural, and historic resources in coordination with OMKM and ʻImiloa that could be used at the VIS, ʻImiloa, TMT facilities, or other appropriate locations; and (5) developing a TMT outreach office consisting of two full time staff who will work with native Hawaiian groups and ʻImiloa to support/fund programs specific to Hawaiian culture and archaeological resources. Exhibit A-309 at 3-35 – 3-37.

370. The TMT Project will operate in accordance with the TMT Management Plan, the CMP and its sub-plans, as well as other relevant rules, regulations, and requirements. The mitigation measures and management actions proposed in the TMT Management Plan, together with the broader management and mitigation actions implemented in accordance with the CMP and sub-plans, will prevent substantial adverse impact to the various resources of Mauna Kea and the surrounding area, community, or region. Exhibit A-311 at Table 2.1; WDT White 6-7.

371. Although the Petitioners did not offer any direct testimony or specific evidence indicating that they are descendants of native Hawaiians who inhabited the Hawaiian islands prior to 1778, it is not disputed that several of the Petitioners are native Hawaiian.

372. Although the Petitioners offered evidence regarding their contemporary cultural practices, they did not offer testimony or evidence that would support a finding that these practices are connected to a firmly rooted traditional or customary native Hawaiian practice dating back to 1892.

373. Petitioners offered testimony regarding certain contemporary practices related to Mauna Kea, including the stacking of rocks, tracking the so-called "precession," and practices related to viewplanes.

374. With respect to the stacking of rocks, in her testimony, Ms. Pisciotta objected to policies and signage that discourage the contemporary practice of stacking rocks. Exhibit C-1 at 11-13. Neither Ms. Pisciotta nor any of the other Petitioners, however, testified that any of Petitioners engages in this practice, much less that such practice of theirs would be adversely affected by the TMT Project. The policies and signage Ms. Pisciotta finds objectionable already exist, without the TMT.

375. Ms. Pisciotta's testimony also referred to an abstract "need to track the precession," which she described as a "26,000 year cycle … [that] is the measure of the wobble of the earth's axis, and the time it takes for the wobble to make a complete cycle." According to Ms. Pisciotta, tracking this "wobble" is important because "relative to earth the pole stars appear to change over time"; "[i]f the pole stars change it drastically impacts navigation"; and if these changes are not noted, celestial navigators will get "lost at sea." Exhibit C-1 at 6.

376. Ms. Pisciotta's testimony did not provide any facts to demonstrate that ancient Hawaiians had a traditional and customary practice of tracking the precession from Mauna Kea. Perhaps even more significantly, she did not testify that she (or anyone else) has a modern practice of tracking the precession from Mauna Kea. And, she did not identify any way in which building the TMT Project would interfere with anyone trying to track the precession.

377. The testimony of Chad Baybayan disproves the claimed importance of tracking the precession to celestial navigation. Mr. Baybayan is a trained celestial navigator. He explained that most of traditional Polynesian naked eye navigation is done without seeing the pole star Polaris, Exhibit A-107, refuting the suggestion that celestial navigators will get lost at sea if they do not track changes in the location of the pole stars over time. He further testified that according to his training and practice, traditional celestial navigation is not dependent on going to the summit of Mauna Kea and making observations from there. Tr. 8/18/11 at 167-68.

378. Petitioners Pisciotta, Neves, Ching, and Flores testified to contemporary cultural practices relating to viewplanes from Mauna Kea. However, they either did not identify themselves as engaging in those practices, and/or their testimony did not identify how the TMT Project would actually interfere with anyone carrying out those practices.

379. "In Hawaiian culture there are universal practices of alignment, but not necessarily universal view planes - these differ by genealogy." Exhibit A-204 at 20; *see* Exhibit F-1 at 3 (significance of viewplanes is an individual matter, based on family genealogy).

380. According to Ms. Pisciotta's testimony, the map that is Petitioners' Exhibit C-2 "describes traditional cultural view planes." Exhibit C-1 at 7. The map was prepared incorporating testimony and interviews from Petitioners and other cultural practitioners. *Id.*; Tr. 9/26/11 at 52-53, 69. On Exhibit C-2, all of the identified viewplanes represented to be of significance to cultural practices on Mauna Kea were compiled from cultural practitioners, and all of those viewplanes emanate from a single point: the actual summit of Mauna Kea, located on Puʻu Wekiu. Exhibit C-2; Tr. 9/26/11 at 74, 83. It is undisputed that the TMT Observatory will not be visible from Puʻu Wekiu. WDT Hayes at 14-15; WRT Hayes at 2. Therefore, it will not obstruct any viewplanes from Puʻu Wekiu, and will not interfere with any practices involving viewplanes from Puʻu Wekiu.

381. "[V]iews key to traditional and customary practices from the summit to sacred sites off the island and in the heavens are presently blocked by telescopes." Exhibit A-204 at 49. Those views are already obstructed, without the presence of the TMT Observatory.

382. Moreover, Mr. Neves testified that "these are alignments not of the eye but of the heart." WDT Neves at 4. He emphasized that even if the TMT Observatory will not visually obstruct a viewplane, merely knowing that the Observatory

is there will offend his beliefs. Tr. 8/25/11 at 70. These types of emotional impacts described by Mr. Neves and other Petitioners are undoubtedly heartfelt, but they are not the subject of Haw. Admin. R. § 13-5-3(c)(4).

383. The reliable, substantial and credible evidence demonstrates that the TMT Project will not result in any substantial adverse impact on the cultural practices of the community or State or native Hawaiian traditional and customary practices on Mauna Kea. Exhibit A-309 at 3-37.

4. Visual and Aesthetic Resources

384. There are currently 11 observatories on Mauna Kea within the Astronomy Precinct. Some of these existing observatories are visible from locations around the island such as Hilo, Honoka'a, and Waimea. Considering all existing observatories together, at least one observatory is visible from roughly 43 percent of the island's land area. The existing development on Mauna Kea does not block or obstruct any of the identified views in the County of Hawai'i General Plan or the South Kohala Development Plan. The existing observatories are, however, visible within the viewplanes from Hilo, Waimea, and the summit. WDT Hayes at 3-4; Exhibit A-309 at 3-80 – 3-81.

385. The TMT Observatory will not substantially affect scenic vistas and viewplanes identified in the Hawai'i County General Plan or the South Kohala Development Plan. The TMT Observatory will not be visible in the view of Mauna Kea from Pāhoa-Kea'au, Volcano-Kea'au Roads, and various Puna subdivisions or from locations where Hilo Bay is visible with Mauna Kea in the background. Although the TMT Observatory may be visible in the view of Mauna Kea from portions of the South Kohala district and the area around Waimea, it will not block or substantially obstruct the views and viewplanes of the mountain. Therefore, the TMT Project's visual impact will be less than significant per Section 11-200-12 of the Hawai'i Administrative Rules. Exhibit A-309 at 3-84 – 3-85.

386. According to a viewshed analysis conducted pursuant to Chapter 343 of the Hawai'i Revised Statutes, the TMT Observatory will be visible from roughly 14 percent of the island area. From nearly all this area, existing observatories are currently visible. According to 2000 U.S. Census data, approximately 15.4 percent of Hawai'i Island's population, or 23,000 people, live within the viewshed of the TMT Observatory. Others, including visitors and island residents who reside outside the viewshed, will be able to see the TMT Observatory when they travel through and visit locations within the viewshed. WDT Hayes at 4-5. The determination of which viewsheds to use for this analysis took into account input from the community, including native Hawaiians. Tr. 8/16/11 at 153.

387. The TMT Observatory will not be visible from the summit of Mauna Kea (Pu'u Wēkiu) or Lake Waiau, where the majority of visitors to the summit region, including native Hawaiian cultural practitioners, frequent. The TMT Observatory will

also not be visible from Puʻu Līlīnoe, which is a traditional cultural property. WDT Hayes at 14-15; WRT Hayes at 2.

388. The TMT Observatory will be visible from other locations within the summit region, primarily the northern plateau and the northern ridge of Kūkahauʻula where the Subaru, Keck I and II, IRTF, and CFHT observatories are located. The TMT Observatory will add a substantial new visual element in the landscape that will be visible from viewpoints along the northern ridge of Kūkahauʻula and by people as they travel within the northern portion of the summit region. Currently, views from the northern ridge of Kūkahauʻula are already dominated by views of observatories, including the Subaru, Keck, IRTF, and CFHT observatories, which are located on this ridge. The majority of visitors to the summit region visit the Kūkahauʻula summit (Puʻu Wēkiu), not the northern ridge of Kūkahauʻula. In addition, taking into account the TMT Observatory's lower elevation and its size and height, it will not block the view of Maui or Haleakalā from the northern ridge. WDT Hayes at 14-15.

389. The northern plateau is not an open space with no telescope structures on it; SMA roads and facilities are already on the northern plateau. Tr. 8/15/11 at 29; Tr. 8/16/11 at 50.

390. The TMT Observatory will not block the views of Haleakalā, the setting sun, the shadow of Mauna Kea, or the Southern Cross constellation from the northern ridge of Kūkahauʻula. WRT Hayes at 4; Exhibit A-145.

391. Although many of the Petitioners provided substantial written and verbal input regarding the CMP, the CIA, the CRMP, and the TMT Project from 2008 through 2011, Exhibits A-110, A-121, A-127, A-136, B-33, at no time prior to this contested case hearing did Petitioners contend that the TMT Observatory would impede views from the summit of Puʻu Poliʻahu. Petitioners do, however, assert that position now. Specifically, Petitioners contend that the TMT Observatory will interfere with views from the summit of Puʻu Poliʻahu to the setting sun (which they say is significant for solstice ceremonies) and to Haleakalā on Maui. In fact, however, the TMT Observatory will be outside the viewplane of observers viewing the setting sun from the summit of Puʻu Poliʻahu. WRT Hayes at 3; Exhibit A-146. This was confirmed by observation during the site visit. The TMT Observatory will add a visual element to the view of Haleakalā from Puʻu Poliʻahu, but it will not greatly interfere with that view, in which other astronomy facilities are already conspicuously visible. WRT Hayes at 3; Exhibit A-146.

392. In particular, views to the west which Petitioners now contend are unobstructed are already obstructed by observatories including Subaru, SMA, JCMT, CSO, UKIRT, and the UH 0.6-Meter Telescope; and views to the north which Petitioners contend are unobstructed are already obstructed by observatories including both Keck I and Keck II, IRFT, CFHT, Gemini, and the UH 2.2-Meter Telescope. *See* Exhibit A-209.

393. The TMT Project has already implemented and is committed to implementing several mitigation measures intended to address the visibility of the TMT

Observatory, including: (1) locating the TMT Observatory in Area E, which is north of and below the summit of Mauna Kea, thus avoiding a more visible location such as the summit ridge or on a puʻu; (2) designing the telescope to be as short as possible given its focal length to allow for the smallest dome feasible; (3) covering the dome enclosure with an aluminum-like coating that will reflect the sky and reduces the visibility of the observatory during most of the day; (4) designing the support building to be small and low relative to the size of the dome and telescope; and (5) making the support building lava-colored to blend with its surroundings. WDT Hayes at 16-18.

394. While the TMT Observatory will be a new visual element among the existing observatories within the views of Mauna Kea (for approximately 14 percent of the island area, and visible to approximately 15.4 percent of the population, the great majority of whom already can see one or more observatories), it will not substantially obstruct or block existing views of Mauna Kea from around the island of Hawaiʻi. WDT Hayes at 18; Exhibit A-309 at 3-80 – 3-104.

395. In addition to residents within the TMT viewshed, the TMT Observatory will be visible to other island residents and visitors when they travel within the TMT viewshed, including travel along roads and stops at various viewpoints. The TMT Project's visual impact is perceived by some to be significant; however, in the context of the existing observatories and the fact that the TMT Observatory will not block or substantially obstruct the identified views and viewplanes of Mauna Kea, which is the applicable significance criterion in Section 11-200-12 of the Hawaiʻi Administrative Rules, the Project's visual impact will be less than significant. WDT Hayes at 18; Exhibit A-309 at 3-80 – 3-104.

396. The TMT Project will add a visual element to the summit of Mauna Kea, but it will be one such element among many. The incremental increase in cumulative visual impact due to the TMT Project will be less than significant. Therefore, the TMT Project will not have a substantial adverse impact on the visual resources of Mauna Kea. WDT Hayes at 18-19.

5. Hydrology and Water Resources

397. Tom Nance was qualified as an expert in hydrology and water resources. Reliable, probative, substantial, and credible evidence supports Mr. Nance's opinions.

398. Paved areas and buildings are impervious surfaces that prevent rainwater from percolating directly into the subsurface. The TMT Project will create approximately 1.3 acres of new impervious surfaces at the TMT Observatory site and portions of the Access Way, including the dome and support building. The parking areas will not be paved and will remain pervious, allowing water to percolate naturally. Construction of the TMT Access Way will create about 0.8-acres of new impervious surface area. WDT Nance at 1.

399. The impact due to new impervious surfaces will be limited by the high permeability of the surrounding ground surface and the area down slope of the TMT Observatory and Access Way. The existing landforms attest to the high permeability of the area: there are no developed water channels or evidence of overland water flow. As such, the impact associated with localized runoff from new impervious surfaces created by the Project will not be significant. Runoff will disappear via percolation into surrounding highly permeable areas. WDT Nance at 1.

400. Lake Waiau, which is located within Puʻu Waiau, is one of the highest alpine lakes in the United States. The lake is about 300 feet in diameter, reaches approximately 7.5 feet in depth at full capacity, and sits at an elevation of 13,020 feet on the southern flank of Mauna Kea. The lake's water is derived primarily from snow melt and precipitation within its watershed. Due to the topography of Puʻu Waiau, only surface runoff from within the crater rim, an area of about 32 acres, can enter the lake. WDT Nance at 1-2; WRT Nance at 1; Tr. 8/16/11 at 165-66.

401. Lake Waiau is surrounded by the ridges of Puʻu Waiau. This topographic enclosure makes it physically impossible for surface runoff from other areas, even areas at a higher elevation such as the Batch Plant Staging Area, to enter the lake. The only water that can enter the lake as surface flow is direct precipitation on the 2-acre lake itself and runoff from the surrounding and enclosing 30-acre area which comprises the interior of Puʻu Waiau. WRT Nance at 1.

402. The subsurface volcanic intrusives (dikes) which created Puʻu Waiau form an impermeable base that enables Lake Waiau to be the perennial water feature that it is. On a more permeable base, accumulated rainfall runoff on the 32-acre interior area of the puʻu would simply drain downward and no perennial water feature would exist. These near vertical and impermeable intrusives complete Lake Waiau's hydrologic isolation. Water runoff from other areas outside of Puʻu Waiau would be prevented from entering the lake. WRT Nance at 1; Tr. 8/16/11 at 154-74.

403. The high level of nutrients that results in the color of Lake Waiau has been there for thousands of years. Tr. 8/16/11 at 166-68.

404. The TMT Observatory will be on the opposite flank of Mauna Kea from Lake Waiau and will not be located in the lake's watershed. Lake Waiau is 1.5 miles south of the TMT Observatory site and will not be impacted by the TMT Project. WDT Nance at 1-3.

405. The Batch Plant Staging Area, roughly 3,000 feet upslope of Lake Waiau, is also not located in the lake's watershed. Furthermore, surface runoff from the Batch Plant Staging Area cannot reach Lake Waiau, as the topography of the area will direct runoff to flow in a different direction from Lake Waiau. Surface runoff from the Batch Plant Staging Area will be intercepted by topographic features at the upper end of Pohakuloa Gulch and the crater rim of Puʻu Waiau. This path of potential runoff is depicted in Exhibit A-144. It is not physically possible for surface runoff to cross over these features and then flow over the Puʻu Waiau crater rim to enter the lake. Given

this and the fact that Lake Waiau is hydrologically isolated, it is physically impossible for surface runoff from the Batch Plant Staging Area to reach Lake Waiau. TMT Project activities, either at the TMT Observatory site or at the Batch Plant Staging Area, will not adversely affect the quality of water at Lake Waiau. WDT Nance at 2; WRT Nance at 1; WRT Hayes at 5; Exhibit A-144; Nance Tr. 8/16/11 at 154-74.

406. In accordance with CMP Management Action FLU-7, a zero-discharge wastewater system will be installed at the TMT Observatory. A zero-discharge system means there will be no discharge of any wastewater from the TMT Observatory, including domestic wastewater and mirror washing wastewater, in the summit region. Instead, all wastewater will be collected and transported off the mountain for proper treatment and disposal. Given that no wastewater from the TMT Observatory will be released into the environment at the summit, there is no reasonable prospect of adverse impact on groundwater, and wastewater will not be an environmental issue for the TMT Project. WDT Nance at 2; Tr. 8/16/11 at 157.

407. The occurrence of groundwater beneath the summit area is what is referred to in Hawai‘i as “high-level,” which means that the groundwater is impounded by subsurface geologic structures, such as intrusive dikes, which compartmentalize the groundwater. Although groundwater is the primary source of drinking water in Hawai‘i, there are no wells extracting groundwater near the summit. The nearest wells are located approximately 12 miles away in Waiki‘i Ranch along Saddle Road. Ground elevation at these wells is 4,260 feet above mean sea level and the static water level is about 1,280 feet above mean sea level. WDT Nance at 2; Tr. 8/16/11 at 157, 163-65.

408. The watershed recharge areas for Mauna Kea occur at lower elevations where it rains, and not in alpine deserts, where precipitation is minimal. The impact from any theoretical waste spill at the Project location would be negative. However, it would be unlikely that any spill would be large enough that it would have any impact on the drinking water for Hawai‘i County. The main threats to Mauna Kea’s aquifer occur at lower elevations in areas of heavier population and use. Exhibit A-313 at 48.

409. Although Petitioners expressed generalized “concerns” about water issues, including runoff, Lake Waiau, and groundwater, they did not substantiate those concerns with credible evidence. By contrast, the University established through reliable, probative, substantial, and credible evidence, including but not limited to the testimonies of Mr. Nance and Mr. Hayes, that Petitioners’ concerns about water issues are unsupported.

410. The reliable, probative, substantial, and credible evidence demonstrates that the TMT Project will not have a substantial adverse impact on the water resources and hydrology of Mauna Kea, including Lake Waiau and the groundwater underlying Mauna Kea. WDT Nance at 2.

6. Hazardous Waste, Solid Waste, and Wastewater

411. Similar to other existing observatories, the TMT Observatory will utilize vehicle and generator fuel, alcohols used for optics and general cleaning, liquid adhesives for optics bonding, various metals used for coating deposition materials, lubricants, hydraulic fluid, glycol coolants, and small quantities of acids, paints, and solvents. No mercury will be used by at the Observatory. WDT Hayes at 19.

412. The TMT Observatory will store all hazardous materials or wastes in a secondary containment area that will be inspected daily for leaks. Fuel storage and piping will also be double-walled and will be equipped with leak monitors. Therefore, the chance of a spill entering the surrounding environment is negligible. WDT Hayes at 19.

413. Like many of the other observatories, mirror washing will be the primary maintenance activity associated with the Observatory. Mirror washing wastewater will not be a hazardous waste. However, the TMT Observatory has been designed to ensure that the possibility of mirror wash wastewater entering the surrounding environment will be negligible. WDT Hayes at 19.

414. The TMT Observatory design includes a separate mirror laboratory for mirror washing. The laboratory is designed to collect waste from the mirror washing and coating area floor drain and laboratory sinks into double contained piping. The piping will drain by gravity to a holding tank. The tank will either be double walled or will be placed in a concrete basin. The tank will be sized to accommodate at least one week's worth of normal use. Each point of exit from the mirror stripping area will have a trench drain that will drain to the storage tank. All exposed concrete in areas of chemical use will have a chemical resistant coating applied. WDT Hayes at 19-20.

415. A leak detection system will be installed and will monitor the double contained pipes and tank. A level control system will monitor the tank and will be equipped with an overfill alarm in the event that the level in the tank reaches 90 percent capacity. The waste collected from the mirror washing process will be collected, removed, and transported off site for treatment and disposal. It is estimated that such removal will occur approximately once a month (more often if needed), and the likelihood of an accident is slight. To minimize the potential for an accidental spill while wastes are in transit down the mountain to the proper disposal site, no tank or containers being transported will be filled to the top. To further ensure the safe transport and disposal of hazardous waste, the Observatory will utilize only Environmental Protection Agency-permitted and licensed contractors to transport hazardous wastes. WDT Hayes at 20; Tr. 8/16/11 at 36, 118-20.

416. In compliance with existing regulations and requirements, the TMT Corporation will develop and implement a Spill Prevention and Response Plan ("SPRP"). Both the SPRP and the engineering measures (such as double-walled pipes) will protect against the release of chemicals or fuel to the environment. The SPRP will require inspections to ensure that systems are working properly, no leaks are occurring,

and any necessary maintenance measures are taken. The SPRP will also spell out protocols for proper handling, storage, use, and disposal of liquid and solid materials and wastes. WDT Hayes at 20; Tr. 8/16/11 at 135-36.

417. As a result of the TMT Project's design plus implementation of the plans, programs, and built-in safeguards detailed in the TMT FEIS, all of which were designed to comply with applicable rules and requirements, the TMT Project's impact related to hazardous materials and hazardous waste will be negligible. The possibility of an accidental release to the environment of any hazardous materials or waste is extremely remote. WDT Hayes at 20-21.

418. The TMT Project will: (1) collect all solid waste in secured and covered storage containers and truck it down the mountain for proper disposal at an off-site disposal facility; (2) implement a Materials Storage/Waste Management Plan, a component of which will be the SPRP; and (3) implement a Waste Minimization Plan that will include an annual audit to identify waste produced by the Project and how that waste could be reduced, reused, or recycled, among other mitigation measures. These measures will be implemented during both construction and operational phases of the TMT Project. WDT Hayes at 21.

419. Several components of the Waste Management Plan will address the construction phase specifically, including the following requirements: (1) repacking large shipments of construction materials prior to transporting them to Mauna Kea so that only essential packing material is used for final transportation to the construction site, thus reducing the amount of waste generated at the construction site; (2) securing to the ground outdoor trash receptacles with attached lids, thus ensuring that the receptacles, their lids, and their contents will not be blown away; (3) storing hazardous materials, fuel, and waste in designated areas in containers suitable and appropriate for such storage; and (4) covering construction materials with heavy tarps and steel cables anchored to the ground to hold materials down. WDT Hayes at 21.

420. Mandatory compliance with existing regulations and requirements will ensure that the TMT Project will not result in a significant impact to the environment due to its solid and hazardous waste management. The implementation of the identified mitigation measures, such as the Waste Minimization Plan, will further reduce the Project's potential impacts. WDT Hayes at 21-22.

421. Based on the above, the TMT Project will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region.

E. The Project Is Compatible with the Locality and Surrounding Areas and Is Appropriate to the Physical Conditions and Capabilities of the Parcel

422. The Astronomy Precinct is the site of many existing astronomical observatories. Therefore, the TMT Project will be compatible with existing land uses. WDT White at 7.

423. Locating the TMT Observatory in Area E will result in less than significant impact on historic properties, identified cultural resources, and customary and traditional cultural practices, as well as on viewplanes, species habitat, and existing facilities. In addition, locating the TMT project in Area E avoids any substantial impact to any puʻu on Mauna Kea, including Kūkahauʻula. The TMT Observatory dome will also be coated with a reflective aluminum-like finish which reflects the colors of the sky and ground, helping the dome to blend in with the surrounding setting. Furthermore, because the TMT Observatory will be purposely located at a lower elevation than most of the other observatories on Mauna Kea, the Observatory will not be visible from the significant historic properties of Lake Waiau, Puʻu Līlīnoe, and the summit of Mauna Kea. Exhibit A-21, at IX-25, Figure IX-15/16; WDT White at 6-7.

424. Mauna Kea is particularly well suited for astronomy. Due to the stability of the atmosphere above Mauna Kea, low mean temperature, atmospheric clarity, distance from light pollution, and other factors identified above, the summit area of Mauna Kea is uniquely suitable for astronomical research and for a project like the TMT Observatory. WDT Sanders at 11-14.

425. The Access Way overwhelmingly follows and goes over an existing 4-wheel drive road that has existed since the 1960s; only 200 feet of the 3,400-foot-long Access Way does not follow the current road. Exhibit A-311 at 1-11. The Batch Plant Staging Area will be used in exactly the same manner as during past construction of other observatories and roads. Exhibit A-311 at 1-13. The utilities corridor has existed since at least 1984, and its location will not change. Exhibit A-108. None of these things will add any new elements that might be incompatible with the existing locality and surrounding areas.

426. In addition, under this criterion, the TMT Project should be assessed in the physical context within which it proposed to be built. The Astronomy Precinct encompasses 525 acres, and the MKSR covers 11,288 acres. Exhibit A-301 at 3-1. Combined, the TMT Observatory and Access Way will result in the disturbance of approximately 8.7 acres, including 2.5 acres that were previously disturbed. Exhibit A-309 at S-6. Thus, the Project proposes disturbance of only 6.2 acres of previously undisturbed land. *Id.* at 3-26. Consequently, the proposed area of new disturbance for the TMT Project represents less than 1.2% of the 525-acre Astronomy Precinct, and only about 1/20th of 1% of the entire MKSR.

427. The TMT Project should also be viewed in the context of the historical physical disturbance of the summit area by native Hawaiians. Directly

adjacent to the Astronomy Precinct is the NAR, which contains most of the Mauna Kea Adze Quarry Complex, "the largest ancient quarry of its type, anywhere." Exhibit A-301 at 3-15 n.9. As early as 1100 A.D., and continuing through the 1700s up until the time of Western contact, native Hawaiians

> utilized the mountain as a vital resource. They excavated the thin-aired slopes of Maunakea for high quality durable stone to produce the best Neolithic tools in the Pacific. The Maunakea adze quarry, the largest in the world, offers conclusive evidence that the ancients recognized the importance of Maunakea's rich resources and its ability to serve its community by producing the tools to sustain daily life. They ventured to Maunakea, reshaped the environment by quarrying rock, left behind evidence of their work, and took materials off the mountain to serve their communities, with the full consent and in the presence of their gods.

WDT Baybayan at 1-2; Exhibit A-301 at 3-15.

428. The Mauna Kea Adze Quarry Complex "occupies an area of at least 4,800 acres." Exhibit A-309, App. D at 33 (citing Pat Kirch, Feathered Gods & Fishhooks (1985) at 179-80). Adze quarrying was an industrial use in the Neolithic era. The nearby Adze Quarry Complex represents a physical disturbance of the summit area of Mauna Kea that is 774 times larger than the new disturbance proposed for the TMT Project.

429. Based on the above, the proposed TMT Project is compatible with the locality and surrounding areas and is appropriate to the physical conditions and capabilities of the area. WDT White at 6-7.

F. The Project Preserves the Natural Beauty and Open Space Characteristics of the Physical and Environmental Aspects of the Land

430. When evaluating the TMT Project from the perspective of the summit region as a whole, the physical and environmental aspects will at least be preserved, and, in some respects, will be improved upon. Tr. 8/15/11 at 15-20, 40-43, 49-51.

431. Under Haw. Admin. R. § 13-5-24(c), astronomy facilities under an approved management plan are an expressly permitted land use in the Resource subzone. In other words, with an approved management plan, the building of astronomy facilities is expressly permitted.

432. Under the version of Haw. Admin. R. § 13-5-13 that was in effect when the CDUA was submitted to the BLNR, the stated objective of the Resource subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of areas within that subzone. Under the recently amended version of

Section 13-5-13, the stated objective of the Resource subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas. Haw. Admin. R. §§ 13-5-13, 13-5-24(c); WDT White at 4; Tr. 8/15/11 at 15-20, 40-43, 49-51.

433. The TMT Project is not proposed to be built on a bare mountaintop. Rather, it is being added to an astronomy precinct, and to a visual landscape, that has already been substantially altered and is already populated by numerous observatories and other related facilities. Tr. 8/15/11 at 15-20, 29, 40-43, 49-51; Tr. 8/16/11 at 151-52.

434. The University envisions a future of sustainable and responsible astronomy on the summit of Mauna Kea. This includes the decommissioning and deconstruction of observatories, site recycling, and the siting of observatories in certain areas so as to minimize the effects of astronomy-related development. The University recognizes that future plans for Mauna Kea require balanced management to preserve, protect, and enhance the cultural and natural resources of Mauna Kea. WDT White at 8; Tr. 8/15/11 at 40-43, 49-51.

435. The University's long-term goal is to eventually have fewer observatories in the summit region, while maintaining Mauna Kea's status as a world class center for education and research. This reduction in the number of telescopes will improve upon the physical and environmental aspects of the region by reducing the presence of the structures, physically and visually, from the most culturally sensitive sites on Mauna Kea. WDT White at 8; Tr. 8/15/11 at 40-43, 49-51.

436. As set forth above, the decision to locate the TMT Project on Mauna Kea was the result of an extensive worldwide study to evaluate potential locations. A unique combination of environmental factors indicated the summit area of Mauna Kea as the best location for the Project. WDT Sanders at 11.

437. The decision of where specifically to locate the TMT Observatory – in Area E on the northern plateau of Mauna Kea – was made to place it away from more culturally and visually sensitive areas. The TMT Observatory will not be visible from the summit of Mauna Kea, from Lake Waiau, or from Puʻu Līlīnoe. WDT Nagata at 8-9; Exhibit A-21 at IX-37 – IX-39; Tr. 8/16/11 at 32.

438. It was not appropriate to place a next generation large telescope like the TMT on a redeveloped existing observatory site. Exhibit A-21 at IX-37; Exhibit A-309 at 3-32.

439. The portions of the summit region from which the TMT Observatory will be visible are within the northern plateau and from the northern ridge of Kūkahauʻula. Other observatories are already visible from those locations, and, because other astronomical facilities are already located on the northern ridge of Kūkahauʻula, views there are presently dominated by other astronomical facilities including Subaru, Keck, and the CFHT observatory. WDT White at 8-9; Tr. 8/16/11 at 32-34.

440. The current observatories are visible from 43 percent of Hawai‘i Island’s area. The TMT Project will increase that only slightly, to 44.2 percent. The TMT Observatory itself will be visible to approximately 15 percent of the Island’s population, including from Waimea and along portions of Highway 250; almost everyone who will be able to see the TMT Observatory can already see one or more observatories. WDT White at 9; WDT Hayes at 2-13; Exhibit A-309 at 3-80 – 3-103.

441. Although the TMT Project will add a visual impact to the northern plateau, numerous measures, involving both its location and its design, have been incorporated into the Project to reduce its visual impacts to the greatest extent feasible:

a. The TMT Observatory will be sited at a lower elevation than other observatories; therefore, it will not affect viewplanes vertically. WDT White at 9-10; WDT Hayes at 16-18.

b. Although the TMT Observatory will be the largest telescope on Mauna Kea, it has been designed to have the lowest focal ratio possible, resulting in the shortest telescope possible to accommodate a mirror of its size. And, the dome has been designed to fit very tightly around the telescope, reducing the dome size. Thus, although its 30-meter mirror is vastly larger than the mirrors of other observatories, the TMT Observatory’s dome height is barely taller than existing observatories like Gemini and Subaru, the mirrors of which are 10 and 8 meters in diameter, respectively. WDT White at 9-10; WDT Hayes at 16-18; Exhibit A-309 at 3-101; Exhibit A-311 at 7-13.

c. The TMT Observatory dome has been designed to minimize the Observatory’s visibility. Although operationally and from a cost perspective it would have been preferable to color the dome white, the dome will have a reflective aluminum-like coating, which view studies indicated will be the least visible alternative. WDT White at 9-10; WDT Hayes at 16-18; Exhibit A-309 at 3-103; Exhibit A-311 at 7-13; Tr. 8/15/11 at 104.

d. The TMT Observatory’s support facilities will be relatively small and low to the ground, and will use materials and natural colors designed to blend with the surrounding landscape. WDT White at 9-10; WDT Hayes at 16-18; Exhibit A-311 at 7-13.

442. Additional mitigation measures will be employed that will improve upon the existing physical and environmental aspects of the land. The TMT Access Way will be rendered less visible by shading the pavement in various areas to blend in with its surroundings. The existing utility pull boxes in certain locations will be camouflaged to reduce their visibility. The former jeep trail up Pu‘u Poli‘ahu, which was cut in 1964, will be restored to its natural state. And, following completion of construction of the TMT Observatory, the Batch Plant Staging Area, which has been used for several prior observatory construction projects, will be partially re-naturalized. WDT White at 9-10; WDT Hayes at 16-18.

443. The methodology for the visual impact analysis in the TMT EIS followed standard industry practices for such studies. Tr. 8/16/11 at 152.

444. The visual simulations that were done in the EIS and used in the CDUA depict what the TMT Observatory would look like during the bulk of the day. Tr. 8/16/11 at 108. The view studies indicate that the TMT Observatory will not block views of Haleakalā, the setting sun, the shadow of Mauna Kea, the Southern Cross constellation from the northern ridge of Kūkahauʻula, or views from the summit of Puʻu Poliʻahu. WRT Hayes at 4; Exhibit A-145.

445. The TMT Observatory will not be visible from Kūkahauʻula, Lake Waiau, and Puʻu Līlīnoe, which are the three traditional cultural properties designated by SHPD within the summit area. Tr. 8/16/11 at 92-93.

446. The only place the TMT Observatory would interfere with viewing the night sky would be from right next to it. Tr. 8/16/11 at 71.

447. In sum, in the context of the existing observatories and the fact that the TMT Project will not obstruct existing views, its visual impact will be less than significant. Therefore, when viewed from the perspective of the summit region, which already includes astronomy facilities, the physical and environmental aspects of Mauna Kea will be preserved by the TMT Project, and, in some respects, will be improved upon. WDT White at 9-10; Haw. Admin. R. § 13-5-30(c)(6); Tr. 8/15/11 at 15-20, 40-43, 49-51.

G. The TMT Project Does Not Result in a Subdivision of Land Increasing the Intensity of Land Uses in the Conservation District

448. No land will be subdivided to construct and operate the TMT Project. WDT White at 10.

449. Petitioners contend that the TMT Project does not satisfy Haw. Admin. R. § 13-5-30(c)(7) because, in their view, the proposed sublease of land to the TMT Corporation (and, indeed, each sublease for an existing observatory facility) constitutes an impermissible "subdivision of land … utilized to increase the intensity of land uses in the conservation district." Exhibit A-202 at 21-23.

450. Petitioners contend that a purported "subdivision" of land among the various existing observatories is evidenced by an "extensive fencing network." Exhibit A-202 at 22. As was plain during the site visit, there is no "fencing network," much less an "extensive" one, in the summit region of Mauna Kea.

451. Petitioners attempt to substantiate their claim that the University's subleases to various observatories constitute a "subdivision" of land by asserting that the sublease documents contain "metes and bounds descriptions." Exhibit A-202 at 24; Exhibit B-1 at 1 (asserting that the exhibits to Ms. Townsend's testimony "include maps denoting the metes and bounds of the land area to be demised"). The documents referenced by Petitioners do not, however, contain metes and bounds descriptions.

452. It is undisputed that: UHH did not ask for a subdivision of land in the CDUA; neither the DLNR staff nor the BLNR granted a subdivision; and no sublease for TMT has been negotiated or entered into.

453. For all these reasons, there has been no subdivision of land, and the TMT Project satisfies Haw. Admin. R. § 13-5-30(c)(7).

H. The Proposed Land Use Will Not Be Materially Detrimental to the Public Health, Safety, and Welfare

454. The TMT Observatory facilities will use a zero-discharge sanitary waste system. All sanitary wastewater will be collected, held in tanks designed for that purpose, and transported off the mountain for treatment and disposal at facilities approved by the State of Hawai'i Department of Health. WDT White at 10; WDT Hayes at 19-21; WDT Nance at 1.

455. All solid waste will be collected and stored indoors in closed trash containers and will be disposed of appropriately off of Mauna Kea. The TMT Corporation has committed to developing and implementing a Waste Minimization Plan and Materials Storage/Waste Management Plan and to implementing recycling measures to reduce and appropriately manage solid waste disposal. WDT White at 10; WDT Hayes at 19-21.

456. In handling all hazardous materials, the TMT Corporation will comply with existing federal and state laws. In addition, hazardous materials will be stored in areas with secondary containment that will capture any material that may accidentally escape the primary storage unit. The TMT Corporation will utilize Environmental Protection Agency-licensed contractors to transport any hazardous waste off of Mauna Kea to be disposed of appropriately. WDT White at 10; WDT Hayes at 19-21.

457. Although not a hazardous waste, mirror washing wastewater will be treated in a manner similar to hazardous waste, will be stored in units with secondary containment, and will be regularly transported off-site and off the mountain for appropriate treatment and disposal. WDT White at 11; WDT Hayes at 19-21.

458. The noise generated by the TMT Observatory will be below the daytime Class A allowable limits (55 dBA) at a distance of 270 feet from the heating, ventilation, and air conditioning ("HVAC") system. Anyone standing at least 270 feet from the TMT Observatory HVAC system during the day will not be exposed to noise levels exceeding the Class A daytime standard. WDT Hayes at 22.

459. The noise generated by the TMT Observatory will be below the nighttime Class A allowable limits (45 dBA) at a distance of 850 feet from the HVAC system. Anyone standing at least 850 feet from the TMT Observatory HVAC system during the night will not be exposed to noise levels exceeding the Class A nighttime standard. WDT Hayes at 22.

460. All identified noise-sensitive areas in the summit region, including the trailhead and summit of Puʻu Wēkiu/Kūkahauʻula, Lake Waiau, and Puʻu Līlīnoe, are more than 850 feet from the TMT Observatory HVAC system. WDT Hayes at 22.

461. Operation of the TMT Project will not contribute to a noticeable increase in noise levels at the identified recreational sites in the surrounding area recognized as sensitive to noise. WDT Hayes at 22.

462. The TMT Project will implement several mitigation measures with regard to noise, including: (1) placing HVAC equipment indoors; and (2) furnishing the openings between the interior of the TMT Observatory and the outdoors, such as air intake locations, with measures like acoustical louvers to reduce noise discharging outside of the Observatory. WDT Hayes at 22-23; WDT White at 11.

463. Overall, the TMT Project will not detrimentally affect the ambient noise levels or result in a substantial degradation of environmental quality in noise-sensitive areas, and therefore, any noise impact from the Project will be less than significant. WDT Hayes at 22.

464. Petitioners contend that the Project will be materially detrimental to the public health, safety, and welfare. In particular, Petitioners assert that the testimonies of Dr. D. Kawika Liu and Dr. J. Kehaulani Kauanui support their position that the Project will be harmful to the health, safety, and welfare of native Hawaiians.

465. Dr. Liu testified that his opinion is based upon a hypothesis and that neither he nor anyone else has done the research necessary to validate his hypothesis about the potential effects of "multi-generational trauma" on the health of native Hawaiians, or how such a hypothesis would relate, if at all, to telescopes on Mauna Kea. Tr. 8/18/11 at 213, 216, 223, 229, 232, 234, 237-39.

466. Dr. Kauanui based her opinions on the assumptions that the TMT Project will involve destruction of historical sites, archaeological sites, and burial grounds. Tr. 8/25/11 at 86-87, 92. Those assumptions are refuted by the facts adduced at the hearing. Dr. Kauanui also conceded that she is categorically opposed to all telescopes on Mauna Kea, that she formed her opinions long before the CDUA for the TMT Project was even filed, and that no matter where on Mauna Kea a telescope was located and what mitigation measures were employed, she would still view any telescope as unlawful desecration. Tr. 8/25/11 at 98-100. In other words, Dr. Kauanui's opinions disregard and are contrary to both the facts of the current Application and the applicable regulatory and legal framework.

467. Considering all of the evidence, including but not limited to the testimonies of Drs. Liu and Kauanui, and giving such evidence due weight, Petitioners have not offered reliable, probative, substantial, or credible evidence, scientific or otherwise, to suggest that the Project will be harmful to the health, safety, and welfare of native Hawaiians or anyone else.

468. For all these reasons, the TMT Project is not materially detrimental to the public health, safety, and welfare. Thus, the TMT Project satisfies Haw. Admin. R. § 13-5-30(c)(8).

469. The eighth criterion of Haw. Admin. R. § 13-5-30 only states that a proposed land use should not be materially detrimental to the public health, safety, and welfare. It does not require that a proposed land use be affirmatively beneficial to public health, safety, or welfare. However, there is reliable, probative, substantial, and credible evidence that several aspects of the TMT Project will be strongly beneficial to the public welfare. WDT Sanders at 17-20.

470. The TMT Project will provide long-term employment in Hawai‘i County for a wide range of positions including engineers, software and information technology engineers, scientific support, staff to maintain equipment, administrative personnel, and public outreach personnel. It is anticipated that TMT Observatory operations will need up to 140 full-time employees. The TMT Project will also result in the creation of additional employment opportunities by contracting for work and services with local companies, including for services such as web site design and construction of the TMT Project. The TMT Project is committed to hiring as many local staff as possible. WDT Sanders at 17-20; Exhibit A-309 at 3-136.

471. The TMT Project is committed to funding a CBP and implementing a WPP. The CBP will be funded by the TMT Corporation and will be administered via the THINK Fund Board of Advisors. It is envisioned that THINK Fund purposes could include: (1) scholarships and mini-grants; (2) educational programs; (3) college awards; (4) educational programs specific to Hawaiian culture; (5) educational programs specific to astronomy; (6) educational programs specific to math and science; and (7) community outreach. The TMT Project is committed to partnering with UHH, HawCC, and the DOE to help develop, implement, and sustain a comprehensive, proactive, results-oriented WPP that will lead to a highly qualified pool of local workers who could be considered for hiring into most job classes and salary levels. WDT Sanders at 17-20; Exhibit A-309 at 3-137 – 3-140.

472. In addition, the TMT Project is participating in a County of Hawai‘i Workforce Investment Board initiative with the Mauna Kea observatories. The purpose of this initiative is to explore opportunities for marshaling existing community resources to introduce focused programs within the Hawai‘i Island community to provide the observatories with a broader and stronger qualified local labor pool, as candidates for careers in the local astronomy enterprise. WDT Sanders at 19.

473. The TMT Project has the potential to substantially benefit the public welfare. There will be direct economic benefits through construction contracts, new jobs, incoming research grants, provision of the CBP and WPP, and substantial educational benefits. There is also the less tangible but no less important benefit of increasing humanity’s overall pool of knowledge about the Universe and our origins. WDT Sanders at 17-20; WRT Bolte at 1-5; Exhibit A-309 at 3-135 – 3-140; Exhibit A-313 at 60.

474. Overall, the TMT Project will result in a beneficial socioeconomic impact by directly and indirectly generating new revenues for local and state economies, contributing to the State's gross domestic product, generating new employment opportunities for local residents and the State, and sharing the benefits of astronomy with the larger Hawai'i County community. WDT Sanders at 17-20; Exhibit A-309 at 3-136.

CONCLUSIONS OF LAW

I. JURISDICTION AND STANDING

1. The BLNR has jurisdiction over UHH's Conservation District Use Permit Application.

2. UHH, KAHEA, MKAH, Clarence Kukauakahi Ching, Paul K. Neves, Deborah Ward, and the Flores-Case 'Ohana have standing to appear in this contested case hearing as parties and are properly before the BLNR.

3. Under Haw. Admin. R. § 13-1-2, "'Petitioner' means the person or agency on whose behalf a petition or application is made," and "'Person' means as appropriate individuals, partnerships, corporations, associations, or public or private organizations of any character other than agencies."

4. The Hawai'i Administrative Procedures Act contains a similar definition in Haw. Rev. Stat. § 91-1: "'Persons' includes individuals, partnerships, corporations, associations, or public or private organizations of any character other than agencies."

5. Haw. Admin. R. § 13-1-10 sets out the standard for who can appear in a representative capacity in proceedings before the BLNR. It states in relevant part:

> (a) A person may appear in the person's own behalf, a partner may represent the partnership, an officer, trustee, or authorized employee of a corporation may represent the corporation, trust or association, and an officer or employee of an agency may represent the agency in any proceeding before the board.
>
> (b) A person may be represented by counsel in any proceeding under these rules.
>
> (c) A person shall not be represented in any proceeding before the board or a hearing officer except as stated in subsections (a) or (b).
>
> Under Haw. Admin. R. § 13-1-31(c), the BLNR:
>
> . . . may deny any request to be a party when it appears that:

(1) The position of the requestor is substantially the same as the position of a party already admitted to the proceedings; and

(2) The admission of additional parties will not add substantially new relevant information or the addition will make the proceedings inefficient and unmanageable.

6. A plain English reading can be applied to the definition of "person" under the Hawai'i Administrative Procedures Act. *See County of Hawai'i v. Civil Serv. Comm'n*, 77 Haw. 396, 400, 885 P.2d 1137, 1141 (1994).

7. Webster's Dictionary defines a "person" as a "human being, individual." Webster's Dictionary 877 (9th ed. 1983).

8. Black's Law Dictionary defines a person as follows: "In general usage, a human being (*i.e.*, natural person)…". Black's Law Dictionary 1028 (5th ed. 1979).

9. A plain English reading shows that Mo'oinanea, identified in the petition submitted on its behalf as a "nature spirit and guardian of Lake Waiau who resides on the summit of Mauna a Wakea," does not qualify as a "person" under the Hawai'i Administrative Rules.

10. Under Haw. Admin. R. § 13-1-10, Petitioners Flores and Case do not have authority to appear on behalf of Mo'oinanea. Under Section 13-1-10, a person can only appear on his or her own behalf, or represented by counsel.

11. For these reasons, Mo'oinanea lacked standing to be a party to the contested case proceeding in this matter.

II. LEGAL FRAMEWORK

A. Burden of Proof

12. The Conservation District rules provide that "[t]he applicant shall have the burden of demonstrating that a proposed land use is consistent with" the criteria set forth in Haw. Admin. R. § 13-5-30(c). As the party proposing a land use in the Conservation District, UHH is clearly the "applicant" in this matter.

13. The Hawai'i Administrative Procedures Act states that, "[e]xcept as otherwise provided by law, the party initiating the proceeding shall have the burden of proof, including the burden of producing evidence as well as the burden of persuasion. The degree or quantum of proof shall be a preponderance of the evidence."

14. Section 13-1-35(k) of the Hawai'i Administrative Rules similarly provides:

> The party initiating the proceeding and, in the case of proceedings on alleged violations of law, the department, shall have the burden of proof, including the burden of producing evidence as well as the burden of persuasion. The quantum of proof shall be a preponderance of the evidence.

A "proceeding" is further defined as:

> the board's consideration of the relevant facts and applicable law and action thereon with respect to a particular subject within the board's jurisdiction, initiated by a filing or submittal or request or a board's notice or order, and shall include but not be limited to:
>
> * * *
>
> (3) Petitions or applications for the granting or declaring of any right, privilege, authority, or relief under or from any provision of law or any rule or requirement made pursuant to authority granted by law . . . .

Haw. Admin. R. § 13-1-2.

15. UHH has the burden of proof in showing that its CDUA has met the criteria listed in Haw. Admin. R. § 13-5-30(c).

16. Petitioners are required to carry the burden on issues asserted by them. In particular, to the extent that Petitioners are claiming to assert native Hawaiian rights based on customary and traditional practices, the burden is on them to establish that the claimed right is constitutionally protected as a customary and traditional native Hawaiian practice. The standards for establishing constitutional protection of practices that are claimed to be customary and traditional are set forth in *State v. Hanapi,* 89 Hawai'i 177, 183, 970 P.2d 485, 491 (1998), and are discussed in detail below.

17. The quantum of proof in this contested case proceeding is preponderance of the evidence. Haw. Rev. Stat. § 91-10(5); Haw. Admin. R. § 13-5-30(b).

B. Constitutional Authority

18. Article XI, section 1 of the Hawai'i State Constitution provides:

> For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawai'i's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources

in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.

19. Article XII, section 7 of the Hawai‘i State Constitution provides: “The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua‘a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the rights of the State to regulate such rights.”

20. Article XI, section 9 of the Hawai‘i State Constitution provides: “Each Person has the right to a clean and healthful environment, as defined by laws relating to environmental quality, including control of pollution and conservation, protection and enhancement of natural resources. . . .”

C. <u>Statute and Administrative Rules</u>

21. Under Hawai‘i’s Land Use Law, Hawai‘i Revised Statutes, Chapter 205, the Conservation District is defined to include:

> areas necessary for protecting watersheds and water sources; preserving scenic and historic areas; providing park lands, wilderness, and beach reserves; conserving indigenous or endemic plants, fish and wildlife, including those which are threatened or endangered; preventing floods and soil erosion; forestry; open space and areas whose existing openness, natural condition or present state of use, if retained, would enhance the present or potential value of abutting or surrounding communities, or would maintain or enhance the conservation of natural or scenic resources; areas of value for recreational purposes; other related activities; and other permitted uses not detrimental to a multiple use conservation concept.

HRS § 205-2(e).

22. The DLNR administers public lands within the Conservation District pursuant to Chapter 183C of the Hawai‘i Revised Statutes. Chapter 183C articulates this public policy:

> The legislature finds that lands within the state land use conservation district contain important natural resources essential to the preservation of the State’s fragile natural ecosystems and the sustainability of the State’s water supply. It is therefore, the intent of the legislature to conserve, protect, and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety and welfare.

Haw. Rev. Stat. § 183C-1.

23. In evaluating the merits of a proposed land use in the Conservation District, the Board shall apply the following eight criteria found in Section 13-5-30(c) of the Hawai‘i Administrative Rules:

a) The proposed land use is consistent with the purpose of the conservation district;

b) The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur;

c) The proposed land use complies with provisions and guidelines contained in chapter 205A, HRS, entitled “Coastal Zone Management”, where applicable;

d) The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region;

e) The proposed land use, including buildings, structures, and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels;

f) The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable;

g) Subdivision of land will not be utilized to increase the intensity of land uses in the conservation district; and

h) The proposed land use will not be materially detrimental to the public health, safety, and welfare.

24. Conservation District lands are categorized into subzones. The TMT Project is proposed to be located in the Resource subzone. The Resource subzone includes, *inter alia*, lands (1) necessary for providing future parkland and lands presently used for national, state, county, or private parks; (2) suitable for growing and harvesting of commercial timber or other forest products; and (3) suitable for outdoor recreational uses. Haw. Admin. R. § 13-5-13.

25. Under the version of Haw. Admin. R. § 13-5-13 that was in effect when the CDUA was submitted to the BLNR, the stated objective of the Resource subzone was to develop, with proper management, areas to ensure sustained use of

the natural resources of areas with that subzone. Under the recently amended version of that Section, the stated objective of the Resource subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas.

26. Identified permissible land uses in the Resource subzone include, among others, the following: (1) aquaculture; (2) artificial reefs; (3) sustainable commercial forestry; (4) marine construction, such as dredging and filling; (5) mining and extraction of natural resources; and (7) single family residences. Haw. Admin. R. § 13-5-24.

27. Astronomy facilities are also an identified land use in the Resource subzone. Haw. Admin. R. § 13-5-24.

28. Astronomy facilities in the Resource subzone require a Board permit and an approved management plan. Haw. Admin. R. § 13-5-24. Under the recently amended version of Section 13-5-24, a management plan "approved simultaneously with the permit" is required.

29. Because it has accepted the burden of proof in this proceeding with respect to the criteria set forth in Haw. Admin. R. § 13-5-30(c), the burden is on UHH to prove that it meets the requirements for the granting of CDUP HA-3568. UHH must prove that it satisfies those requirements by a preponderance of the evidence. Minute Order No. 7, filed May 27, 2011; Haw. Admin. R. § 13-5-30(b); Haw. Rev. Stat. § 91-10(5).

D. Case Law

1. PASH

30. In *Public Access Shoreline Hawai`i v. Hawai`i County Planning Comm'n*, 79 Haw. 425, 451, 903 P.2d 1246, 1272 (1995) ("PASH"), the Hawai'i Supreme Court stated that, "[d]epending on the circumstances of each case, once land has reached the point of 'full development' it may be inconsistent to allow or enforce the practice of traditional Hawaiian gathering rights on such property."

31. In PASH, the Hawai'i Supreme Court also stated:

> The State's power to regulate the exercise of customarily and traditionally exercised Hawaiian rights . . . necessarily allows the State to permit development that interferes with such rights in certain circumstances-for example, where the preservation and protection of such rights would result in "actual harm" to the "recognized interests of others" . . . . Nevertheless, the State is obligated to protect the reasonable exercise of customary and traditionally exercised rights of Hawaiians to the extent feasible.

79 Haw. at 450 n.43, 903 P.2d at 1271 n.43.

32. Under *PASH,* to fall within the protection of Hawai‘i law, Hawaiian usage must have been established in practice by November 25, 1892. 79 Haw. at 447, 903 P.2d at 1268. Moreover, the ancient Hawaiian usage must be based on an actual traditional practice that has been continued in practice on a particular area of undeveloped land, and cannot be based on assumptions or conjecture. *Id.* at 449, 903 P.2d at 1270.

2. Ka Pa‘akai

33. In *Ka Pa‘akai o Ka‘Aina v. Land Use Comm’n*, 94 Hawai‘i 31, 7 P.3d 1068 (2000) (“*Ka Pa‘akai*”), the Hawai‘i Supreme Court held that to fulfill its duty to preserve and protect customary and traditional native Hawaiian rights to the extent feasible, an agency must examine, and make specific findings and conclusions as to:

> (1) the identity and scope of “valued cultural, historical, or natural resources in the [application] area, including the extent to which traditional and customary native Hawaiian rights are exercised in the [application] area; (2) the extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action; and (3) the feasible action, if any, to be taken by the [agency] to reasonably protect native Hawaiian rights if they are found to exist.

Ka Pa‘akai, 94 Hawai‘i at 47, 7 P.3d at 1084 (footnotes omitted).

3. Hanapi

34. In *State v. Hanap*i, 89 Hawai‘i 177, 970 P.2d 485 (1998) (“*Hanapi*”), the Hawai‘i Supreme Court ruled that a person claiming constitutional protection for a right under *PASH* has the burden of proving the existence of such a right.

35. To prove the existence of a right that is entitled to constitutional protection under *PASH*, the burden is on the party claiming that right to show, at a minimum, the following three factors:

> First, he or she must qualify as a “native Hawaiian” within the guidelines set out in *PASH. . . . PASH* stated that those persons who are “descendants of native Hawaiians who inhabited the island prior to 1778,” and who assert otherwise valid customary and traditional Hawaiian rights are entitled to [constitutional] protection, regardless of their blood quantum.
>
> Second, once [a person claiming a *PASH* right] qualifies as a native Hawaiian, he or she must then establish that his or her claimed right is constitutionally protected as a customary or traditional native Hawaiian practice. . . .

> Finally, a [person] claiming his or her conduct is constitutionally protected must also prove that the exercise of the right occurred on undeveloped or "less than fully developed property."

Hanapi, 89 Hawai'i at 177, 970 P.2d at 495 (citations and emphasis omitted).

36. Under the Hawai'i Supreme Court's holding in *Hanapi,* "[t]o establish the existence of a traditional or customary native Hawaiian practice, . . . there must be an adequate foundation in the record connecting the claimed right to a firmly rooted traditional or customary native Hawaiian practice." *Id.* (footnote omitted).

4. Morimoto

37. In *Morimoto v. BLNR*, 107 Hawai'i 296, 113 P.3d 172 (2005) ("*Morimoto*"), the Hawai'i Supreme Court held:

> [W]hen an applicant submits its application for a CDUP, the public and interested parties know that BLNR will evaluate the application in accordance with the eight criteria in HAR § 13-5-30(c), that BLNR will look to any draft EIS or EA that must be submitted as part of the application, and that BLNR will incorporate any representations in the EIS or EA (relevant to mitigation) as a condition of the CDUP. These rules provide sufficient guidance to CDUP applicants and the public, offsetting the threat of "unbridled discretion."

Morimoto, 107 Hawai'i at 304, 113 P.3d at 180 (citation omitted).

38. *Morimoto* holds that mitigation measures are properly considered when reviewing an application for a CDUP to determine if it has satisfied the criteria set forth in Haw. Admin. R. § 13-5-30(c). *See Morimoto*, 107 Hawai'i at 302-04, 113 P.3d at 178-80.

E. BLNR Decisions

39. In its decisions, the BLNR recognizes that the visual or other impacts of any proposed project are site specific. The BLNR has observed its greater willingness to allow high visibility land uses (such as electric transmission lines) under Chapter 13-5 of the Hawai'i Administrative Rules in less urbanized areas and off ridgelines because the visual impacts were smaller or could be more easily mitigated than in locations atop ridgelines and in high-population areas. F*indings of Fact, Conclusions of Law, Decision and Order, In re Conservation District Use Application for Hawaiian Electric Company, Inc. to Construct a 138-kV Transmission Line at Wa'ahila Ridge, Honolulu, Hawai'i,* DLNR File No. OA-2801 (Jun. 28, 2002) ("*Wa'ahila Ridge*") at 65 n.17.

40. When considering visual impacts, the BLNR does not ignore any preexisting conditions in the area proposed for a use, regardless of whether those existing land uses predated the current regulatory scheme. *Wa'ahila Ridge* at 65-66 n.17.

41. The BLNR also takes into consideration whether, because certain resources are available only in particular places, the fact that there are limited alternatives for where to locate a proposed land use may outweigh visual or other impacts, even if such impacts are "obvious." *Wa'ahila Ridge* at 66 n.17 (location for wind generated energy facility was necessarily "dictated by the wind").

42. The BLNR has recognized that it may approve a proposed land use despite some environmental impacts to the Conservation District, provided that the project incorporates appropriate mitigation measures and conditions. *Wa'ahila Ridge* at 64 n.13; *see Morimoto*, 107 Hawai'i at 305-06, 113 P.3d at 181-82; Stop H-3 *Ass'n v. State Dep't of Transp*., 68 Haw. 154, 158, 706 P.2d 446, 449 (1985). In the BLNR's view, structures and land uses that impact a public viewplane of a significant natural feature like a pu'u or ridge should propose adequate mitigation or make some showing of the lack of reasonable and practicable alternatives. *Wa'ahila Ridge* at 64 n.13.

F. <u>Waiver of Challenges to Environmental Impact Statement</u>

43. The time limit for making challenges to an FEIS is set out in Haw. Rev. Stat § 343-7.

44. The time for challenges to the Governor's acceptance of the FEIS for the TMT Project ended on August 7, 2010. Neither Petitioners nor anyone else made a timely challenge – or, indeed, any challenge at all – to the TMT Project's FEIS.

45. Absent intervening changed environmental circumstances, no one is allowed a "second chance at administrative and judicial review when they failed to timely appeal the original" EIS. *See Oregon Natural Res. Council v. U.S. Forest Serv.,* 834 F.2d 842, 847 (9th Cir. 1987).

46. Petitioners do not claim any intervening changed environmental circumstances here, and there are no facts in the record suggesting any such changed circumstances exist. Having failed to timely challenge the FEIS for the TMT Project, Petitioners may not use this contested case proceeding to assert any such challenge.

47. Throughout the contested case hearing, the evidentiary standards set forth in Haw. Rev. Stat. § 91-10(1) were applied. The rules of evidence applied were much less formal than those governing judicial proceedings, for example, hearsay would be inadmissible in court proceedings was admitted. *Price v. Zoning Bd. of Appeals*, 77 Haw. 168, 176 n.8, 883 P.2d 629, 637 n.7 (1994). The standard applied for determining relevancy was that of Haw. R. Evid. 401. *Loui v. Bd. of Med. Examiners*, 78 Haw. 21, 31, 889 P.2d 705, 715 (1995). Doubts about admissibility were resolved in favor of admitting the evidence. *Dependents of Cazimero v. Kohala Sugar Co.*, 54 Haw. 479, 484, 510 P.2d 89, 93 (1973).

III. DISCUSSION AND CONCLUSIONS

A. The TMT Project Satisfies the Eight Criteria of Haw. Admin. R. § 13-5-30(c)

48. UHH has proven by a preponderance of the evidence that it meets the requirements for the granting of the CDUP for the TMT Project.

49. Haw. Admin. R. § 13-5-30(c) states that "[i]n evaluating the merits of a proposed land use, the department or board shall apply the following criteria," followed by the list of eight criteria quoted above.

50. Neither Section 13-5-30(c) nor anything else in the Conservation District rules addresses whether a proposed land use must satisfy every one of the eight criteria, or the relative weight to be given to different criteria.

51. Likewise, *Morimoto*, which is the only reported judicial decision to discuss Section 13-5-30(c), does not address whether a proposed land use must satisfy every one of the eight criteria, or the relative weight to be given to different criteria. *See* 107 Hawai'i at 303-04, 113 P.3d at 179-80.

52. In its CDUA and in the briefing in this matter, UHH assumed that all eight criteria must be satisfied. Petitioners took the same view. The Hearing Officer and the BLNR observe that nothing about the text of Section 13-5-30(c) compels the understanding that all eight criteria must be satisfied for a project to be approved, or that all of the criteria are entitled to equal weight. However, there is no need to decide the question, because, based upon the findings of fact and conclusions of law contained herein, the TMT Project does satisfy all of the eight criteria.

1. The TMT Project Satisfies the First Criterion

53. The first criterion, set forth in Haw. Admin. R. § 13-5-30(c)(1), states: "The proposed land use is consistent with the purpose of the conservation district[.]"

54. The TMT Project is consistent with the purpose of the conservation district, in satisfaction of Haw. Admin. R. § 13-5-30(c)(1).

55. The purpose of the Conservation District is "to conserve, protect and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety and welfare." Haw. Rev. Stat. § 183C-1.

56. The purpose of the Conservation District rules is "to regulate land-use in the conservation district for the purpose of conserving, protecting, and preserving 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." Haw. Admin. R. § 13-5-1.

57. The purpose of the Conservation District rules is not to prohibit land uses. Tr. 8/15/11 at 13.

58. The TMT Project provides for "appropriate management and use" that promotes the long-term sustainability of resources and the public health, safety, and welfare.

59. The TMT Project will be subject to management through the BLNR-approved CMP and sub-plans, the BLNR-approved TMT Management Plan, which complies with Exhibit 3 of Section 13-5 of the Hawai'i Administrative Rules, and the BLNR-imposed conditions to the CDUP, as well as the University's internal Master Plan. This comprehensive management framework appropriately addresses cultural and natural resources, public access, and the ultimate decommissioning of the Project and restoration of its site.

60. By following the applicable provisions of the various relevant plans, sub-plans, and permit conditions, UHH and the TMT Corporation will conserve, protect, and preserve the important natural and cultural resources of the State, will promote their long-term sustainability, and will promote the health, safety, and welfare of the public.

61. By following the applicable provisions of the various relevant plans, sub-plans, and permit conditions, the Project will comply with the Conservation District rules and applicable laws and regulations.

62. For all these reasons, and for the reasons set forth in the findings of fact above, the TMT Project is consistent with the purpose of the Conservation District.

2. <u>The TMT Project Satisfies the Second Criterion</u>

63. The second criterion, set forth in Haw. Admin. R. § 13-5-30(c)(2), states: "The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur[.]"

64. The TMT Project is consistent with the objectives of the subzone of the land on which the use will occur, in satisfaction of Haw. Admin. R. § 13-5-30(c)(2).

65. The TMT Project is located in the Resource subzone.

66. Under the version of Haw. Admin. R. § 13-5-13(a) that was in effect when the CDUA was submitted to the BLNR, "[t]he objective of this [Resource] subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas."

67. The TMT Project develops, with proper management, the areas involved in the Project to ensure sustained use of the natural resources of those areas.

68. Under the version of Haw. Admin. R. § 13-5-24(c) that was in effect when the CDUA was submitted to the BLNR, "Astronomy facilities under an approved management plan" are permitted in the Resource subzone.

69. Under the version of Haw. Admin. R. § 13-5-2 that was in effect when the CDUA was submitted to the BLNR, "'Management plan' means a comprehensive plan for carrying out multiple land uses."

70. The CMP, with its sub-plans, is a comprehensive plan for carrying out multiple land uses that had already been approved by the BLNR and was in place when the CDUA for the TMT Project came before the BLNR.

71. Under the recently amended version of Haw. Admin. R. § 13-5-13(a), "[t]he objective of this [Resource] subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas."

72. The TMT Project ensures, with proper management, the sustainable use of the natural resources of the areas involved in the Project.

73. Under the recently amended version of Haw. Admin. R. § 13-5-24(c), "Astronomy facilities under a management plan approved simultaneously with the permit" are permitted in the Resource subzone.

74. Under the recently amended version of Haw. Admin. R. § 13-5-2, "'Management plan' means a project or site based plan to protect and conserve natural and cultural resources."

75. The TMT Management Plan, which is a project or site based plan to protect and conserve natural and cultural resources, was appended to the CDUA and was approved simultaneously with the CDUP.

76. Thus, under both versions of Section 13-5-24(c), the requirement of a management plan has been satisfied.

77. Because the management plan requirement has been satisfied, Section 13-5-24(c) expressly permits "Astronomy facilities" in the Resource subzone, and the TMT Project unquestionably involves "Astronomy facilities."

78. For all these reasons, and for the reasons set forth in the findings of fact above, the proposed land use is consistent with the objectives of the subzone of the land on which the use will occur.

79. Under Petitioners' proposed interpretation of this criterion, the only permissible "use" of natural resources within the Resource subzone would be no use at all. In fact, Petitioners argue that the subzones can be ignored altogether if, in Petitioners' view, an expressly allowed subzone purpose is not consistent with their interpretation of the purpose of the Conservation District. Tr. 9/30/11 at 133. That interpretation is inconsistent with the Conservation District rules, which specifically

permit not only astronomy facilities, but also such uses as aquaculture, commercial forestry, and mining and excavation. *See* Haw. Admin. R. § 13-5-24(c)(4) R-3, R-1, R-4, R-6.

3. The TMT Project Satisfies the Third Criterion

80. The third criterion, set forth in Haw. Admin. R. § 13-5-30(c)(3), states: "The proposed land use complies with provisions and guidelines contained in chapter 205A, HRS, entitled 'Coastal Zone Management', where applicable[.]"

81. The TMT Project complies with provisions and guidelines contained in chapter 205A, HRS, entitled "Coastal Zone Management", where applicable, in satisfaction of Haw. Admin. R. § 13-5-30(c)(3).

82. Under Haw. Rev. Stat. § 205A-1, "'Coastal zone management area' means all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the United States territorial sea."

83. Under Haw. Rev. Stat. § 205A-22, "'Special management area' means the land extending inland from the shoreline as delineated on the maps filed with the authority as of June 8, 1977, or as amended pursuant to section 205A-23."

84. The TMT Project is not in the Special management area, and Part II of Chapter 205A, Haw. Rev. Stat. §§ 205A-21 – 205A-33, which applies only to Special management areas, does not apply to the TMT Project.

85. Many of Chapter 205A's objectives, such as protection of historic resources, scenic and open space resources, and recreational resources, parallel the objectives of the Conservation District.

86. For the same reasons that the TMT Project is consistent with the purpose of the Conservation District, it is also consistent with the objectives of Chapter 205A.

87. The TMT Project satisfies all of the applicable objectives of Chapter 205A that do not overlap with the Conservation District but are unique to Chapter 205A.

88. For all these reasons, and for the reasons set forth in the findings of fact above, the proposed land use complies with provisions and guidelines contained in Chapter 205A, Haw. Rev. Stat., entitled "Coastal Zone Management", where applicable.

4. The TMT Project Satisfies the Fourth Criterion

89. The fourth criterion, set forth in Haw. Admin. R. § 13-5-30(c)(4), states: "The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region[.]"

90. The TMT Project does not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region, in satisfaction of Haw. Admin. R. § 13-5-30(c)(4).

91. By instructing the BLNR to consider impacts to the resources that are "existing," this criterion requires that a proposed project be assessed in the context of what is already there.

92. It is undisputed that without the TMT Project, the cumulative effects of astronomical development and other uses in the summit area of Mauna Kea have previously resulted in impacts that are significant and adverse.

93. The TMT Observatory will not tip the balance of any existing impact from a level that is currently less than significant to a significant level. Tr. 8/16/11 at 35.

94. Petitioners have argued repeatedly that because UHH acknowledges that the summit area of Mauna Kea has already suffered significant and adverse impacts, it "admits" the TMT Project will itself have substantial adverse impacts. Petitioners misconstrue UHH's position. UHH has made no such admission, and, as set forth in these findings of fact and conclusions of law, the TMT Project will not cause substantial adverse impacts.

95. Petitioners also argue that because the summit area of Mauna Kea has suffered significant and adverse impacts in the past, no project can be undertaken in that area without first reducing the existing cumulative impacts to a level that is less than significant and adverse. Petitioners offer no legal basis for that position.

96. On the contrary, the Hawai'i Supreme Court recognizes the difference between developed and undeveloped land, and acknowledges that how resources (specifically including cultural resources) are treated varies depending upon whether land is developed or undeveloped. *See, e.g.*, *Kalipi v. Hawaiian Trust Co.*, 66 Haw. 1, 8-9, 656 P.2d 745, 749-50 (1982) ("Kalipi").

97. In other jurisdictions, where projects have been proposed for locations that were already substantially impacted by previous development, courts have assessed the proposed new projects on their own merits, found impacts not to be significant, and approved the projects without first requiring the existing impacts in the surrounding area to be reduced to a less-than-substantial level. *See, e.g.*, *Geer v. Fed. Highway Admin.*, 975 F. Supp. 47, 73-74 (D. Mass. 1997) ("although there were noise and visual impacts those impacts were not substantial given the urban context of the project and the existing impacts under a no-build option").

98. In their brief, Petitioners argued that any "cumulative" impact is unlawful. Exhibit A-202 at 11, 13. In support of that position, they cited Haw. Admin. R. § 11-200-2, which is the "Definitions and Terminology" section of the Department of Health's Environmental Impact Statement Rules. In other words, Petitioners are now attempting to challenge impacts which were disclosed in the Project's FEIS, and which Petitioners contend were, under the EIS Rules, improper. This they cannot do. As set

forth above, having failed to timely challenge the FEIS, Petitioners cannot be allowed a second chance to do so now. *See Oregon Natural Res. Council*, 834 F.2d at 847.

99. In any event, the relief Petitioners seek is beyond the scope of this contested case proceeding and what the law will allow. Petitioners assert: "Thus, not only is the proposed TMT improper, *but existing development must also be mitigated to bring Mauna Kea conservation district management into compliance with the law.*" Exhibit A-202 at 13 (emphasis added). Petitioners are asking that the BLNR use this proceeding to reach back into the past and force the removal of existing facilities (owned and operated by others) from the summit region of Mauna Kea. In other words, Petitioners want to use this contested case to eliminate the existing telescopes. Neither the Conservation District rules nor any statute or case law authorizes such extraordinary relief.

100. Under the version of Haw. Admin. R. § 13-5-2 that was in effect when the CDUA was submitted to the BLNR, "Natural resource" is defined as meaning "resources such as plants, aquatic life and wildlife, cultural, historic and archeological sites, and minerals." The recent amendment added to this definition "recreational" and "geologic" sites, "scenic areas, sociologically significant areas," and "watersheds."

101. The reliable, probative, substantial, and credible evidence, specifically including but not limited to the testimonies of Dr. Smith, Mr. Eiben, Dr. Collins, Mr. Nance, Mr. White, Dr. Sanders, Mr. Hayes, and Mr. Byrne, demonstrates that the TMT Project will not cause substantial adverse impact to plants, aquatic life and wildlife, cultural, historic, and archaeological sites, minerals, recreational sites, geologic sites, scenic areas, ecologically significant areas, and watersheds.

102. Petitioners did not offer reliable, probative, substantial, and credible evidence, whether from expert or lay witnesses, that would support the conclusion that the TMT Project would cause substantial adverse impact to plants, aquatic life and wildlife, cultural, historic, and archaeological sites, minerals, recreational sites, geologic sites, scenic areas, ecologically significant areas, or watersheds.

103. Under the definition of "Natural resource" in Haw. Admin. R. § 13-5-2, cultural, historical, and archaeological "sites" are "natural resources"; but cultural *practices* are not.

104. The reliable, probative, substantial, and credible evidence demonstrates that the TMT Project will not cause substantial adverse impacts to cultural, historical, and archaeological sites.

105. It is the Hearing Officer's and the BLNR's view that, in accordance with the express language of the Conservation District Rules, cultural practices are not "natural resources" and so are not required to be considered in an analysis of Haw. Admin. R. § 13-5-30(c)(4).

106. Even though cultural practices are not encompassed within the definition of "Natural resource" contained in Section 13-5-2, nonetheless, in an

abundance of caution, and as reflected in the Findings of Fact above, the Hearing Officer and the BLNR have construed cultural practices as if they fell within the definition of "natural resources," and therefore have interpreted Section 13-5-30(c)(4) as calling for an assessment of whether a proposed land use causes substantial adverse impact to cultural practices.

107. In discussing Section 13-5-30(c)(4) in its opening brief, UHH specifically addressed cultural practices and historic resources, and set forth its views about why they will not suffer substantial adverse impacts as a result of the TMT Project. In their combined opening brief, Petitioners responded at length to UHH's arguments on Section 13-5-30(c)(4), but in doing so, they did not address cultural and historic resources at all. *See* Exhibit A-202 at 11-18. By not responding to UHH's positions on these subjects, Petitioners can be deemed to have conceded the points. *Cf. Querubin v. Thronas,* 107 Hawai'i 48, 62 n.5, 109 P.3d 689, 703 n.5 (2005) (citing cases) (where an argument is not opposed, any future attempt to oppose or appeal the issue is waived). Nonetheless, and again in an abundance of caution, the Hearing Officer and the BLNR will consider the issue as if Petitioners have not waived their opposition on this issue and were able, in the contested case hearing, to argue that the TMT Project will have a substantial adverse impact on cultural practices.

108. Even if cultural practices are considered natural resources under the Conservation District rules, and even if Petitioners did not waive the issue, the reliable, probative, substantial, and credible evidence demonstrates that the TMT Project will not cause substantial adverse impact to cultural practices.

109. At the contested case hearing, Petitioners suggested that because the word "mitigation" does not appear in the criteria of Haw. Admin. R. § 13-5-30(c), mitigation measures cannot be considered in determining whether those criteria are satisfied. Tr. 8/18/11 at 28, 65; Tr. 9/30/11 at 44. The Hawai'i Supreme Court has squarely considered, and expressly rejected, that argument. *See Morimoto*, 107 Hawai'i at 302-04, 113 P.3d at 178-80.

110. In particular, the Hawai'i Supreme Court has instructed that in assessing Haw. Admin. R. § 13-5-30(c)(4), mitigation measures for a project must be considered. *See Morimoto*, 107 Hawai'i at 302-04, 113 P.3d at 178-80.

111. Elsewhere, Petitioners took the position that under *Morimoto*, the requirements of Section 13-5-30(c)(4) can only be satisfied by mitigation actions which "directly ameliorate[]" harmful impacts from a project. Exhibit A-202 at 16 (emphasis in original). The *Morimoto* decision, however, does not say that. In Morimoto, the Hawai'i Supreme Court held that all mitigation measures set forth in an EIS (regardless of whether direct or indirect) must be made part of the conditions of the CDUP. *See* 107 Hawai'i at 303-04, 113 P.3d at 179-80.

112. If anything, *Morimoto* suggests that where mitigation measures have been accepted as part of a final EIS, those mitigation measures – which are required to be made conditions of the CDUP – will also satisfy Section 13-5-30(c)(4).

But *Morimoto* clearly holds that all mitigation measures must be considered. Here, the unchallenged FEIS for the TMT Project identifies an abundance of mitigation measures, both direct and indirect, that are aimed at ameliorating potential impacts on cultural practices. Taking into account the many measures proposed to mitigate the Project's potential impacts on cultural practices confirms that the TMT Project will not cause substantial adverse impact to cultural practices.

113. Petitioners object specifically to policies and signage that discourage the contemporary practice of stacking rocks, and contend that under *PASH* and *Ka Pa'akai*, it is the BLNR rather than the University that should be making the rules about such practices. Exhibit C-1 at 11-13. Under the BLNR's Conservation District rules, any "land use" within the conservation district requires a permit, and unpermitted land uses are prohibited. Haw. Admin. R. § 13-5-30(b).

114. Under the version of the Conservation District rules in effect when the CDUA was submitted to the BLNR, Haw. Admin. R. § 13-5-2 defines "Land use" as follows:

> "Land use" means: (1) The placement or erection of any solid material on land if that material remains on the land more than fourteen days, or which causes a permanent change in the land area on which it occurs[.]

Under the amended version of Section 13-5-2, the period of time for which temporary uses can take place in the conservation district without a permit is extended from fourteen days to thirty days.

115. The modern stacking of rocks constitutes "[t]he placement or erection of any solid material on land." If the rocks are stacked within a Conservation District, and if they remain on the land for more than 30 days (previously fourteen days), then under the express terms of the Conservation District rules, there is a "land use" that requires a permit. Thus, contrary to Petitioners' assertion, it is the BLNR, not the University, that is regulating the conduct in question, so there is no violation of *PASH* or *Ka Pa'akai.*

116. For all these reasons, and for the reasons set forth in the findings of fact above, the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region.

5. <u>The TMT Project Satisfies the Fifth Criterion</u>

117. The fifth criterion, set forth in Haw. Admin. R. § 13-5-30(c)(5), states: "The proposed land use, including buildings, structures, and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels[.]"

118. The TMT Project, 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, in satisfaction of Haw. Admin. R. § 13-5-30(c)(5).

119. The appropriate locality to be considered is the summit area of Mauna Kea. Exhibit B-15 at 13, ¶ 23.

120. Astronomy facilities in the locality of the TMT Project are expressly permitted by Haw. Admin. R. § 13-5-24.

121. The proposed location of the TMT Observatory is in relatively close proximity to other previously developed facilities for astronomy within the Astronomy Precinct. Overwhelmingly, from vantage points within the Astronomy Precinct where the TMT Observatory will be visible, other astronomy facilities are already visible.

122. The TMT Project will not be visible from the culturally sensitive areas of the summit of Kūkahauʻula, Lake Waiau, and Puʻu Līlīnoe.

123. Petitioners contend that the TMT Project does not satisfy this criterion because, in their view, under Haw. Admin. R. § 13-5-30(b), land uses are "generally" prohibited in the conservation district. Exhibit A-202 at 18-19. But in fact, Section 13-5-30(b) does not say that. Section 13-5-30(b) says land uses are not to be undertaken in the conservation district "[u]nless provided in this chapter." "Astronomy facilities" are expressly permitted by Haw. Admin. R. § 13-5-24, so the land use proposed here is not prohibited and is, in fact, the type of land use specifically contemplated by the DLNR's rules.

124. For all these reasons, and for the reasons set forth in the findings of fact above, the proposed land use, including buildings, structures, and facilities, is compatible with the locality and surrounding areas, and appropriate to the physical conditions and capabilities of the specific parcel or parcels.

6. <u>The TMT Project Satisfies the Sixth Criterion</u>

125. The sixth criterion, set forth in Haw. Admin. R. § 13-5-30(c)(6), states: "The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable[.]"

126. The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon by the TMT Project, in satisfaction of Haw. Admin. R. § 13-5-30(c)(6).

127. The visual or other impacts of any proposed project are site specific; and, accordingly, when considering visual impacts, the BLNR does not ignore any preexisting conditions in the area proposed for a use. *Wa'ahila Ridge* at 65-66 n.17. The BLNR's approach to this issue is consistent with other jurisdictions, which, like the BLNR, recognize that the significance of a project's visual impacts must be assessed in light of the context where it occurs. *See, e.g., Bowman v. City of Berkeley*,

122 Cal. App. 4th 572, 589, 18 Cal. Rptr. 3d 814, 828 (2004) ("To conclude that replacement of a virgin hillside with a housing project constitutes a significant visual impact says little about the environmental significance of the appearance of a building in an area that is already highly developed."); *Geer*, 975 F. Supp. at 73-74 (project would have some visual impacts in river basin, but impacts were not significant given existing context, where "substantial" visual impacts were already present).

128. As Petitioners have repeatedly emphasized, the visual landscape in the summit area of Mauna Kea has already been substantially altered and impacted, and it will remain so with or without the TMT Project. The TMT Project, and its visual impacts, must be assessed in that context. Adding the TMT to the existing physical context will not result in a substantial adverse impact.

129. The BLNR takes into consideration whether, because certain resources are available only in particular places, limited alternatives for locating properties requiring those resources may outweigh visual or other impacts, even if such impacts are "obvious." *Wa'ahila Ridge* at 66 n.17 (location for wind generated energy facility was necessarily "dictated by the wind"). Here, the location for the TMT Project is dictated by the combination of natural resources described in detail above that makes the Project's site uniquely ideal for astronomical observation.

130. The BLNR has expressed greater willingness to allow high visibility land uses under Haw. Admin. R. Chapter 13-5 in less urbanized areas and off ridgelines because the visual impacts were smaller or could be more easily mitigated than in locations atop ridgelines and in high-population areas. *Wa'ahila Ridge* at 65 n.17. Those factors favor the location of the TMT Project.

131. The BLNR may approve a proposed land use despite some environmental impacts to the Conservation District, provided that the project incorporates appropriate measures and conditions to mitigate the project's adverse impacts to a level less than substantial. *See Morimoto*, 107 Hawai'i at 305-06, 113 P.3d at 181-82; *Stop H-3 Ass'n*, 68 Haw. at 157-63, 706 P.2d at 449-51; *Wa'ahila Ridge* at 64 n.13.

132. Hawai'i law requires the "mitigation" of impacts from a project to a level less than "substantial"; it does not require that impacts be eliminated altogether. *See Morimoto*, 107 Hawai'i at 305-06, 113 P.3d at 181-82 (BLNR appropriately considered effect of mitigation measures designed to "diminish" – not eliminate altogether – "the impact of the project upon the Palila").

133. Specifically regarding visual impacts, "mitigation" is understood to require reducing adverse impacts, not eliminating them. *See, e.g., Las Virgenes Homeowners Fed'n, Inc. v. County of Los Angeles,* 177 Cal. App. 3d 300, 308-09, 223 Cal. Rptr. 18, 25 (1986) (where Environmental Impact Report for mixed-use development project discussed numerous mitigation measures and project was conditioned on reducing project's size and using design, landscaping, and contouring to

reduce adverse visual impact, mitigation measures were found to "exceed those required by law").

134. Courts have construed regulatory language similar to that contained in Haw. Admin. R. § 13-5-30(c)(6) to require "minimization of visibility and impacts," not elimination of visual impacts altogether. *See McCallister v. Calif. Coastal Comm'n*, 169 Cal. App. 4th 912, 955, 887 Cal. Rptr. 3d 365, 398 (2009) (where county land use plan required that siting of structures "shall not detract from natural beauty of the undeveloped skylines, ridgelines, and the shoreline," court found that regulations "require that visibility and visual impacts be minimized" to the extent reasonably feasible, but did not require reduction of visibility to the point of elimination). The BLNR could have imposed an "invisibility-if-feasible standard" if it had desired; the fact that it did not do so suggests that it intended to require reasonable minimization, not elimination, of visual impacts. *See id.*

135. Through significant mitigation measures, visual impacts for the TMT Project have been reduced to the greatest extent feasible.

136. Given the many mitigation measures incorporated into the TMT Project specifically designed to minimize its visual impacts to the extent feasible, this criterion is satisfied.

137. Petitioners, however, propose to read this criterion to require that any "development in the conservation district must *preserve* or *improve upon* the natural characteristics of the district." Exhibit A-202 at 22 (emphasis in original). If Section 13-5-30(c)(6) is read the way Petitioners suggest, no telescope could ever have been built on Mauna Kea. Indeed, following Petitioners' proposed interpretation, nothing could ever be, or have been, permissibly built on any Conservation District land anywhere in the State of Hawai‘i.

138. In particular, Petitioners have suggested that they believe the criterion of Haw. Admin. R. § 13-5-30(c)(6) can only be satisfied if the TMT Observatory dome will be "invisible." Tr. 8/17/11 at 167; Tr. 8/25/11 at 56; Tr. 9/30/11 at 59. If Section 13-5-30(c)(6) requires invisibility, then "one could never grant a permit" for a land use in a conservation district. Tr. 8/15/11 at 65.

139. Section 13-5-30(c)(6) cannot be read that way. If it were, Section 13-5-24(c)(4), which expressly allows "Astronomy facilities" in the Resource subzone, would be rendered meaningless.

140. Under rules of statutory interpretation, courts are required to avoid rendering any provision redundant or superfluous. *Aluminum Shake Roofing, Inc. v. Hirayasu*, 110 Hawai‘i 248, 253, 131 P.3d 1230, 1235 (2006); *see Okada Trucking Co. v. Bd. of Water Supply*, 101 Hawai‘i 68, 77, 62 P.3d 631, 640 (App. 2002) ("We will not construe a statute so that it is rendered meaningless."). Moreover, courts "may depart from a plain reading of a statute where a literal interpretation would lead to absurd and/or unjust results." *See, e.g., Morgan v. Planning Dep't, County of Kauai,* 104

Hawai‘i 173, 185, 86 P.3d 982, 994 (2004) (citing *Iddings v. Mee-Lee,* 82 Hawai‘i 1, 15, 919 P.2d 263, 277 (1996)) (Legislature could not have intended that Planning Commission would need to file lawsuit each time a SMA Use permit needs modification, so, despite plain language of Haw. Rev. Stat. § 205A-29, statute had to be interpreted to avoid that "absurd result").

141. The only way to make sense of Section 13-5-30(c)(6) is to interpret it as requiring that the TMT Project, and specifically its visual impacts, be assessed in the manner set forth above, in the context of its surrounding environment – including the development that has already occurred.

142. For all these reasons, and for the reasons set forth in the findings of fact above, the proposed land use preserves or improves upon the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics.

7. <u>The TMT Project Satisfies the Seventh Criterion</u>

143. The seventh criterion, set forth in Haw. Admin. R. § 13-5-30(c)(7), states: "Subdivision of land will not be utilized to increase the intensity of land uses in the conservation district[.]"

144. In the TMT Project, subdivision of land will not be utilized to increase the intensity of land uses in the conservation district, in satisfaction of Haw. Admin. R. § 13-5-30(c)(7).

145. Petitioners contend that the TMT Project does not satisfy Haw. Admin. R. § 13-5-30(c)(7) because, in their view, the proposed sublease of land to the TMT Corporation (and, indeed, each sublease for an existing observatory facility) constitutes an impermissible "subdivision of land . . . utilized to increase the intensity of land uses in the conservation district." However, Petitioners offer no authority to support their position that a lease or sublease constitutes a "subdivision of land."

146. Petitioners contend that under the definitions of "Subdivision" and "Disposition" contained in Hawai‘i's Uniform Land Sales Practices Act ("ULSPA"), and specifically in Haw. Rev. Stat. § 484-1, the University's contemplated sublease of the Project site to the TMT Corporation will constitute a "disposition," and, in turn, a "subdivision." Exhibit A-202 at 22.

147. The ULSPA does not support Petitioners' position. By its express terms, that statute does "not apply to offers or dispositions of an interest in land . . . [b]y any government or government agency." Haw. Rev. Stat. § 484-3(a)(7) (emphasis added). Petitioners' cited authority does not apply to the University or to its potential sublease of the TMT site to the TMT Corporation.

148. Petitioners also attempt to substantiate their claim that the University's subleases to various observatories constitute a "subdivision" of land by asserting that the sublease documents contain "metes and bounds descriptions."

Exhibit A-202 at 24; Exhibit B-1 at 1 (asserting that the exhibits to Ms. Townsend's testimony "include maps denoting the metes and bounds of the land area to be demised").

149. Under Hawai'i law, "A *metes and bounds* description starts at a well-marked point of beginning and follows the boundaries of the land by courses and *metes* (measures, distances and compass direction) and bounds (landmarks, monuments) and returns to the true point of beginning." John W. Reilly, THE LANGUAGE OF REAL ESTATE IN HAWAII 214 (1975) (emphasis in original); *see* Haw. Rev. Stat. § 502-18. The documents that accompany Ms. Townsend's testimony do not satisfy those requirements.

150. UHH has not requested, and has not been granted, any subdivision of land.

151. Petitioners' proposed interpretation would mean nothing could ever be built in a Conservation District, because adding anything would always increase, in some measure, the intensity of land use. That interpretation would lead to an absurd result, and is rejected. *See, e.g., Morgan*, 104 Hawai'i at 185, 86 P.3d at 994.

152. For all these reasons, and for the reasons set forth in the findings of fact above, the proposed land use will not utilize subdivision of land to increase the intensity of land uses in the conservation district.

8. <u>The TMT Project Satisfies the Eighth Criterion</u>

153. The eighth criterion, set forth in Haw. Admin. R. § 13-5-30(c)(8), states: "The proposed land use will not be materially detrimental to the public health, safety, and welfare."

154. The TMT Project will not be materially detrimental to the public health, safety, and welfare, in satisfaction of Haw. Admin. R. § 13-5-30(c)(8).

155. As set forth above, Petitioners contend that building the TMT Project on Mauna Kea will be harmful to the health of native Hawaiians. As stated above, Petitioners' position that the TMT Project will be materially detrimental to the public health, safety, and welfare has not been supported by reliable, probative, substantial, or credible evidence, and is far too speculative to be given any significant weight. In short, Petitioners have not shown that the Project will be at all detrimental to the public health, safety, and welfare, much less that it will be materially detrimental.

156. Petitioners also contend that "'public welfare' does not mean job-creation or money generation," but instead refers to "aesthetics -- preserving Hawaii's unique natural beauty." Exhibit A-202 at 23. That position is legally unsound.

157. Under rules of statutory interpretation, where language is plain and ambiguous, it must be given its "plain and obvious meaning." *Awakuni v. Awana*, 115 Hawai'i 126, 133, 165 P.3d 1027, 1034 (2007) (citation omitted). Courts will attempt to

construe the meaning of words in a statute according to their "general or popular use or meaning." Haw. Rev. Stat. § 1-14. If the words at issue are not defined, "[l]egal and lay dictionaries are extrinsic aids which may be helpful in discerning the meaning of statutory terms." '*Olelo: The Corp. for Cmty. Television v. Office of Info. Practices*, 116 Hawai'i 337, 349, 173 P.3d 484, 496 (2007) (citations omitted).

158. No one would reasonably understand "public welfare" to refer specifically to "aesthetics." According to Merriam-Webster's online dictionary, "welfare" means "the state of doing well especially in respect to good fortune, happiness, well-being, or prosperity." www.merriam-webster.com/dictionary/welfare. And the "plain and obvious" meaning of a benefit to "public welfare" is something that is good for the public. Job growth, educational prestige, and advancement of knowledge are plainly benefits to the "public welfare."

159. Section 13-5-30(c)(8) does not require that a proposed land use be affirmatively beneficial to the public health, safety, and welfare – only that a project not be materially detrimental. Therefore, this criterion is satisfied with or without a finding of affirmative benefit to public welfare.

160. However, the reliable, probative, substantial, and credible evidence demonstrates that the TMT Project will inject money into the local economy, and will bring with it job growth, educational prestige, and advancement of knowledge. In short, the Project will benefit the "public welfare."

161. For all these reasons, and for the reasons set forth in the findings of fact above, the proposed land use will not be materially detrimental to the public health, safety, and welfare.

162. In sum, UHH has borne its burden of proving that the TMT Project satisfies all of the criteria set forth in Haw. Admin. R. § 13-5-30(c).

B. The TMT Project Satisfies the Public Trust Doctrine, and Customary and Traditional Native Hawaiian Rights Are Appropriately Protected

163. In assessing the Project and determining whether the criteria of Section 13-5-30(c) have been satisfied, the State must protect the public trust and the customary and traditional rights and practices of native Hawaiians.

1. The Public Trust Doctrine

164. The public trust doctrine has been adopted in Hawai'i as a "fundamental principle of constitutional law." *In the Matter of the Water Use Permit Applications,* 94 Hawai'i 97, 132, 9 P.3d 409, 444 (2000) ("*Waiahole*").

165. The public trust doctrine is derived from Article XI, section 1 of the Hawai'i Constitution, which provides:

> For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.
>
> All public natural resources are held in trust by the State for the benefit of the people.

166. As explained in *Waiahole*, under the public trust doctrine, the State acting through its agencies has a duty to "'protect' natural resources and to promote their 'use and development.'" 94 Hawai'i at 138-39, 9 P.3d at 450-51. This duty prevents public trust land and resources from being irrevocably transferred to private parties. *Id.* at 139, 9 P.3d at 451. The public trust doctrine also requires the "reasonable and beneficial use" of public trust resources "to maximize their social and economic benefit." *Id.*

167. Thus, the public trust doctrine requires a balancing between "1) protection and 2) maximum reasonable and beneficial use." *Id.* The State must apply a rule of reasonableness in which environmental costs and benefits are balanced against economic, social, and other factors. *See Id.* at 140-43, 9 P.3d at 453-55; *see also Stop H-3 Ass'n*, 68 Haw. at 157-163, 706 P.2d at 449-453.

168. The use of the summit area of Mauna Kea for the TMT Observatory is consistent with the public trust doctrine.

169. The use of the summit area of Mauna Kea for the TMT Observatory promotes the "maximum reasonable and beneficial use" of the combination of natural resources that is unique to that location.

170. The use of the combination of natural resources that is unique to the summit area of Mauna Kea for the scientific study and investigation and the advancement of knowledge that will result from the TMT Observatory is consistent with the public trust doctrine.

171. The University remains the lessor of the land on which the Project will be built, and at the end of the TMT Observatory's useful life or of a lease permitting its continued occupancy of its site (whichever comes first), the Observatory is required to be decommissioned. The TMT Project does not involve the irrevocable transfer of public trust land and resources to private parties, and the "protection" element of the public trust doctrine is satisfied.

172. UHH is not a private commercial user, and its proposed use of the land in question is not a private commercial use. On the contrary, the TMT Observatory will advance knowledge, foster educational opportunities in Hawai'i's public institutions

of higher learning, and maintain Hawai‘i’s place as a leader in scientific research. These are valid public trust uses.

173. That the purposes of the TMT Project are valid public trust uses is confirmed by reference to Section 5(f) of the Admission Act of 1959, which specifies public educational institutions as beneficiaries of public trust lands and their proceeds, and Article X, section 5 of the Hawai‘i Constitution, which creates the University and gives it title to all real property conveyed to it, “which shall be held in public trust for its purposes, to be administered and disposed of as provided by law.”

174. UHH’s public trust uses are “superior to” the private interests discussed in *Waiahole*. 94 Hawai‘i at 138, 9 P.3d at 450; *see In re Contested Case Hearing on Water Use*, 103 Hawai‘i 401, 429, 83 P.3d 664, 692 (2004) (“*Waiola*”).

175. Different valid public trust uses for the same land must be balanced. Native Hawaiian uses have been recognized as valid public trust uses. *Waiahole*, 94 Hawai‘i at 137, 9 P.3d at 449. The evidence in this proceeding demonstrated a dearth of native Hawaiian uses of the specific location of the TMT Project, and further demonstrated that, as to the summit region of Mauna Kea in general, astronomy and native Hawaiian uses are able to, and do, co-exist, and that building the TMT Project will not curtail or restrict native Hawaiian uses.

176. “[T]he public trust assigns no priorities or presumptions in the balancing of public trust purposes.” *Waiahole*, 94 Hawai‘i at 142 n.43, 9 P.3d at 454 n.43. The BLNR “must ensure that all public trust purposes are protected to the extent feasible,” requiring a balancing of competing public trust uses on a case-by-case basis. *Id.*

177. The evidence supports the conclusion that in proposing the TMT Project, UHH has balanced the public trust obligations and protected native Hawaiian interests to the extent feasible.

178. The public trust doctrine must be viewed in the context of the relevant statute or rules at issue in a proceeding. Public trust principles, and an agency’s public trust obligations, may already be incorporated into the statute or rules at issue. *See Waiahole*, 94 Hawai‘i at 130-33, 9 P.3d at 442-45 (agency’s public trust obligations were incorporated into Water Code).

179. Here, the public trust principles have been incorporated into the Conservation District statute. That law’s stated purpose is “to conserve, protect, and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety and welfare.” Haw. Rev. Stat. § 183C-1.

180. The Conservation District rules likewise provide:

> The purpose of this chapter is to regulate land-use in the conservation district for the purpose of conserving,

> protecting, and preserving 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.

Haw. Admin. R. § 13-5-1.

181. The criteria set out in Haw. Admin. R. § 13-5-30(c) expressly promote these public trust objectives. As specific examples: (1) Section 13-5-30(c)(1) requires that any proposed land use in the Conservation District be consistent with this purpose; (2) Section 13-5-30(c)(4) requires that the proposed land use not cause substantial adverse impacts to the existing natural resources within the surrounding area, community, or region; and (3) Section 13-5-30(c)(8) requires that the proposed land use not be materially detrimental to the public health, safety, and welfare.

182. Because the criteria set out in Haw. Admin. R. § 13-5-30(c) embody and implement the public trust doctrine, a thorough and diligent assessment of those criteria necessarily addresses the concerns that doctrine protects. *See Morimoto*, 107 Hawai‘i 296, 308, 113 P.3d 172, 184 (2005) (where BLNR properly concluded that project would not cause substantial adverse impact on natural resources of project area, claim that BLNR’s decision violated Article XI, section 1 and the public trust doctrine “present[s] no new arguments” and “does not implicate any error on the part of BLNR”).

183. The Conservation District rules do not supplant the protections of the public trust doctrine, but they do embody and implement them. Petitioners have not identified any public trust obligation that is not already reflected in the eight criteria of Section 13-5-30(c). Therefore, the conclusion that those criteria are satisfied – for the reasons set forth in detail above – is a compelling indication that the public trust obligations of both UHH and the BLNR are satisfied as well.

184. Whether the public trust obligations are viewed as being encompassed within the eight criteria of Haw. Admin. R. § 13-5-30(c) or as independent of those criteria, the approval of the CDUP here is consistent with and satisfies the public trust obligations of both UHH and the BLNR to protect Hawai‘i’s natural resources and to promote their development and utilization in a manner consistent with their conservation and in furtherance of the State’s self-sufficiency.

185. Viewed in light of the public trust obligations described above, and the implementation of those obligations through Haw. Admin. R. § 13-5-30(c), the TMT Project satisfies all legal obligations as it is “the most equitable, reasonable, and beneficial allocation of state [trust] resources.” *Waiahole*, 94 Hawai‘i at 140, 9 P.3d at 452.

186. Nonetheless, Petitioners contend that in considering the CDUA, the eight criteria of Section 13-5-30(c), and the public trust doctrine, the BLNR should understand the mandate of “conservation” to require that nothing be built, and they

argue that the BLNR should not take into account any economic aspects of the proposed Project. As a matter of law, Petitioners are wrong on both counts.

187. The Hawai‘i Supreme Court has made clear that the positions now asserted by Petitioners are incorrect. As the Court stated in *Waiahole*:

> The framers deemed it necessary to define "conservation" and agreed on the following: "the protection, improvement and use of natural resources according to principles that will assure their highest economic or social benefits." *See* Stand. Comm. Rep. No. 77, in 1978 Proceedings, at 685-86 (emphases added). The second clause of article XI, section 1 thus resembles laws in other states mandating the maximum beneficial or highest and best use of [trust] resources. *See, e.g.*, Cal. Const. art. X, § 2; N.D. Cent. Code § 61-04-01.1.1 (Supp. 1999). . . . [A]rticle XI, section 1's mandate of "conservation"-minded use recognizes "protection" as a valid purpose consonant with assuring the "highest economic and social benefits" of the resource. . . . In short, the object is not maximum consumptive use, but rather the most equitable, reasonable, and beneficial allocation of [trust] resources, with full recognition that resource protection also constitutes "use."

94 Hawai‘i at 139-40, 9 P.3d at 451-52.

188. The TMT Project provides for the development and utilization of natural resources for scientific and educational purposes for the benefit of the people of the State. It satisfies the obligations of protection and maximizing reasonable and beneficial use, and it is consistent with the constitutional, statutory, and regulatory mandates of "conservation."

2. The Protection of Customary and Traditional Native Hawaiian Rights

189. The Hawai‘i Constitution also mandates that the State recognize and protect customary and traditional native Hawaiian rights. Article XII, section 7 provides:

> The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua‘a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.

190. The Hawai‘i Supreme Court has confirmed that the practices which are protected by Article XII, section 7 are those "associated with the ancient way of life"

that have been continued, without harm to anyone. *Kalipi*, 66 Haw. at 10, 656 P.2d at 751. In other words, to be constitutionally protected, rights must have been "customarily and traditionally held by ancient Hawaiians." *Pele Defense Fund v. Paty*, 73 Haw. 578, 619, 837 P.2d 1247, 1271 (1992).

191. Some "customary and traditional" native Hawaiian rights are codified either in Article XII, section 7 of the Hawai'i Constitution or in Haw. Rev. Stat. §§ 1-1 and 7-1. *Id.* Practices that are not codified in Article XII, section 7 or Haw. Rev. Stat. §§ 1-1 and 7-1 will still be entitled to constitutional protection as "customary and traditional" if it is proven that those practices were established by Hawaiian usage by November 25, 1892. *PASH*, 79 Haw. at 447, 903 P.3d at 1268 (citing *State v. Zimring*, 58 Haw. 106, 115 n.11, 566 P.2d 725, 732 n.11 (1977)).

192. The Petitioners' beliefs and practices are entitled to respect. Nonetheless, Petitioners, their conduct, and their claims are governed by the laws of the State of Hawai'i. Under Hawai'i law, "it is the obligation of the person claiming the exercise of a native Hawaiian right to demonstrate that the right is protected." *Hanapi*, 89 Hawai'i at 185-186, 970 P.2d at 493-494. Petitioners, however, offered no testimony or evidence to establish that they engage in any conduct on Mauna Kea that is constitutionally protected as a native Hawaiian right or that the TMT Project would interfere with any of their practices or that the Project would interfere with constitutionally protected conduct.

193. With respect to the first *Hanapi* factor for establishing that conduct is constitutionally protected as a native Hawaiian right, Petitioners Ching, Neves, Pisciotta, and the representatives of the Flores-Case 'Ohana testified that they are native Hawaiian. Although these Petitioners did not offer any direct testimony or specific evidence indicating that they are descendants of native Hawaiians who inhabited the Hawaiian islands prior to 1778, it has not been disputed that several of the Petitioners are native Hawaiian. Therefore, Petitioners have satisfied the first factor of the *Hanapi* analysis.

194. To satisfy the second *Hanapi* factor, Petitioners were required to "establish that [their] claimed right is constitutionally protected as a customary or traditional native Hawaiian practice." *Hanapi*, 89 Hawaii at 185-186, 970 P.2d at 493-494.

195. Applying the standards from *Kalipi*, *PASH*, and *Paty* set forth above, Petitioners have not offered evidence or testimony sufficient to establish that any of their practices with respect to Mauna Kea are entitled to constitutional protection. In particular, Petitioners have offered no proof that they are seeking protection for practices that were established by Hawaiian usage by November 25, 1892. Petitioners' failure to satisfy the second *Hanapi* factor is another independent basis for concluding that they have not established any practice that is entitled to constitutional protection.

196. With respect to the third *Hanapi* factor, the evidence establishes that the practices for which Petitioners seek protection have occurred on undeveloped or less than fully developed land on Mauna Kea.

197. Under the *Hanapi* standard, Petitioners did not make the factual showing necessary to demonstrate that any practices involving viewplanes from Mauna Kea are traditional and customary practices entitled to constitutional protection.

198. Petitioners identified other areas in the summit region of Mauna Kea in which they engage in contemporary native Hawaiian cultural practices, but they offered no evidence of any cultural or religious practices by native Hawaiians – whether contemporary, or customary and traditional – at the five-acre site on which the TMT Observatory is proposed to be located, on the TMT Access Way, or in the Batch Plant Staging Area and the affirmative evidence from UHH's witnesses confirmed that no such practices have been documented at those locations. Exhibit A-311 at 4-5 4-9; WDT Collins at 7-8.

199. Petitioners offered no testimony or other evidence to suggest that they have ever conducted any cultural practices at the TMT Project site, on the TMT Access Way, or in the Batch Plant Staging Area.

200. Approval of the CDUP for the TMT Project is consistent with and satisfies the BLNR's and UHH's obligations under Article XII, section 7 to recognize and protect customary and traditional native Hawaiian rights.

201. Distinguishing between traditional and customary practices and contemporary practices is important as the Hawaii Constitution affords special protection to some practices. Although Article XII, section 7 of the Hawaii Constitution, *PASH*, and *Ka Pa'akai* protect traditional and customary practices by native Hawaiians, they do not protect contemporary cultural practices.

202. Even if Petitioners established that they engage in practices that are customary and traditional, and so are entitled to constitutional protection, Article XII, section 7 confirms that ancient rights are to be protected "subject to the right of the State to regulate such rights."

203. As quoted above, under *PASH*, the State is obligated "to protect the reasonable exercise of customary and traditionally exercised rights of Hawaiians to the extent feasible." 79 Haw. at 450 n.43, 903 P.2d at 1271 n.43. Likewise, in *Ka Pa'akai*, the Court held that the State (and its agencies) must "preserve and protect customary and traditional native Hawaiian rights to the extent feasible." 94 Hawai'i at 47, 7 P.3d at 1084.

204. Even if Petitioners had satisfied their burden of establishing a customary and traditional practice, and even if any of their practices relating to Mauna Kea are deemed to be traditional and customary practices entitled to constitutional protection, the TMT Project preserves and protects the reasonable exercise of Petitioners' practices to the extent feasible.

205. Recently, in *State v. Pratt*, 127 Hawai`i 206, 277 P.3d 300 (2012), the Hawaii Supreme Court confirmed that even if all three elements of the *Hanapi* test has been satisfied, the privilege for native Hawaiian practices is not absolute. Rather, after a party satisfies all aspects of *Hanapi*, a balancing of interests must be done, considering the totality of the circumstances. *Id.* at 213-18, 277 P.3d at 307-12. As set forth above, Petitioners did not satisfy the second element of the *Hanapi* test – but even if they had satisfied all three elements, their objection would still fail. Considering all of the facts and circumstances surrounding Petitioners' asserted activities, and then balancing the parties' interests as described in detail herein, Petitioners' activities "do not fall under constitutional protection." *Id.* at 218, 277 P.3d at 213. Consequently, in light of *Pratt*, it is appropriate for the TMT project to proceed.

3. <u>Religious Freedom</u>

206. Belief in an area's religious sacredness does not make development of that area an unconstitutional infringement of religion, and does not give the believer a legal right to stop the development. *See Dedman v. BLNR*, 69 Haw. 255, 261, 740 P.2d 28, 32 (1987); *Lyng v. Northwest Cemetery Protective Ass'n*, 485 U.S. 439 (1988); *see also PASH*, 79 Haw. at 447 n.38, 903 P.2d at 1268 n.38 (citing *Lyng* for this proposition). Constitutional rights protect against unreasonable interference with religious practices; those rights do not protect against offenses to religious beliefs.

207. To determine if there is an unconstitutional infringement of religious rights, the inquiry focuses on practices rather than beliefs:

> [I]t is necessary to examine whether or not the *activity* interfered with by the state was motivated by and rooted in a legitimate and sincerely held religious belief, whether or not the parties' free *exercise* of religion had been burdened by the regulation, the extent or impact of the regulation on the parties' religious *practices*, and whether or not the state had a compelling interest in the regulation which justified such a burden.

Dedman, 69 Haw. at 260, 740 P.2d at 32 (citations omitted, emphasis added). "[T]he United States Supreme Court has 'long recognized a distinction between the freedom of individual belief, which is absolute, and the freedom of individual conduct, which is not absolute.'" *Id.* (citations omitted).

208. A person claiming a violation of the constitutional right to free exercise of religion must "show the coercive effect of the [law] as it operates against him in the *practice* of his religion." *Id.* (brackets in original, emphasis added, citations omitted). To demonstrate that a project will result in an unconstitutional infringement of rights, a petitioner must show a "substantial burden" on his or her religious practices. *Id.* at 261, 740 P.2d at 33.

209. Moreover, even if proposed governmental action would adversely affect claimants' religious practices, the right of free exercise of religion is not violated unless the affected individuals would "be coerced by the Government's action into violating their religious beliefs" or the governmental action would "penalize religious activity by denying any person an equal share of the rights, benefits, and privileges enjoyed by other citizens." *Lyng*, 485 U.S. at 449.

210. Petitioners concede that, in essence, their beliefs should give them veto power over any proposed land use on Mauna Kea. *See* Tr. 8/25/11 at 77 ("And you can ask, but we can also say, no, and we have a right to have that upheld."). The law does not support that view. The constitutional right to free exercise of religion "must apply to all citizens alike, and it can give to none of them a veto over public programs that do not prohibit the free exercise of religion." *Id.* at 452. "[G]overnment simply could not operate if it were required to satisfy every citizen's religious needs and desires." *Id.* Giving any objector the power to stop a project based upon his or her personal beliefs would violate the establishment clauses of both the federal and state Constitutions. *See* U.S. Const. amend. 1; Haw. Const. art. I, sec. 4.

211. As the United States Supreme Court has held, native religious practitioners may well feel they require "an unobstructed view" and that they "must be surrounded by *undisturbed* naturalness" – but "such beliefs could easily require *de facto* beneficial ownership of some rather spacious tracts of public property." *Lyng*, 485 U.S. at 453 (emphasis in original). "Whatever rights [native practitioners] may have to the use of the area, however, those rights do not divest the Government of its right to use what is, after all, *its* land." *Id.* (emphasis in original, citation omitted).

212. According to the evidence adduced in this proceeding, the Petitioners have not conducted or participated in religious ceremonies on the specific location at issue; they have not identified practices that will be interfered with; and the BLNR's approval of the TMT Project will not threaten them with sanctions if they engage in religiously motivated conduct. Moreover, except for actual construction areas while the Project is being built (and, once it is completed, the interior of the TMT Observatory), Petitioners and everyone else will have continued access to the area, for religious practices and for any other activity. Therefore, Petitioners fail to show "the kind of objective danger to the free exercise of religion that the First Amendment was designed to prevent." *Dedman*, 69 Haw. at 261-62, 740 P.2d at 33 (citation omitted).

213. To withhold approval of the TMT Project "based on the mere assertion of harm to religious practices would contravene the fundamental purpose of preventing the state from fostering support of one religion over another." *Id.*

214. Under these circumstances, as a matter of law, BLNR's approval of the Project does not and will not unreasonably interfere with Petitioners' religious freedoms.

4. Ka Pa‘akai

215. As reflected in the TMT CDUA and in the testimony and documents admitted into evidence in the contested case proceeding, UHH has identified and inventoried in detail all of the valued cultural, historical, and natural resources in the application area, including the extent to which traditional and customary native Hawaiian rights are exercised in the TMT Project area. This is reflected in great detail in Finding of Fact No. 344 hereinabove.

216. As reflected in the CDUA and in the testimony and documents admitted into evidence in the contested case proceeding, UHH has quantified in great detail the extent to which valued cultural, historical, and natural resources in the application area, including traditional and customary native Hawaiian rights, will be affected or impaired by the Project. This is reflected in Finding of Fact No. 348 hereinabove.

217. As reflected in the CDUA and in the testimony and documents admitted into evidence in the contested case proceeding, UHH has identified in great detail the feasible actions to be taken to reasonably protect the native Hawaiian rights that exist. This is reflected in Finding of Fact No. 360 hereinabove.

218. The BLNR has not delegated its authority to the University. The BLNR retains supervisory and ultimate control over the University's leased lands and over any decisions that might have an impact on native Hawaiian traditional and customary practices. It has reviewed and approved the CMP and the corresponding sub-plans, and retains the authority to enforce compliance with these plans. The CMP and sub-plans are the State of Hawai‘i's plans for the UH Management Areas on Mauna Kea. The BLNR can enforce, and has enforced, compliance with approved CDUPs, including compliance with any conditions on such CDUPs that the BLNR may choose to impose.

219. The BLNR's handling of the CDUA for the TMT Project further demonstrates that there has been no improper delegation. The BLNR conducted a detailed independent review and analysis of the Project's impact on customary and traditional rights and practices, *prior* to approving the CDUA. Moreover, that approval was accompanied by a condition prohibiting the Project from moving forward until after the contested case has been concluded and the BLNR has reviewed the Hearing Officer's recommendations and made its own decision. Thus, the BLNR and no one else will have ultimate responsibility for assessing what effects the Project may have on customary and traditional native Hawaiian rights and practices, and whether any such effects have been appropriately mitigated. The BLNR has not delegated these responsibilities to any other party. Thus, if the "non-delegation" aspect of *Ka Pa‘akai* applies here, its requirements have been satisfied.

220. It is not clear that this aspect of *Ka Pa‘akai* applies in the current case. UHH is a State entity. *See* Haw. Rev. Stat. § 304A-101; Haw. Rev. Stat. § 304A-103. It is not "a private petitioner who, unlike a public body, is not subject to public

accountability." *Ka Pa'akai*, 94 Hawai'i at 52, 7 P.3d at 1089. UHH is unquestionably subject to public scrutiny and accountability. In addition, UHH, as a state agency, must comply with all federal and state laws and regulations, including the State of Hawaii Sunshine Laws, Haw. Rev. Stat. § 92. Under Haw. Rev. Stat. § 92, UHH is required to hold open public meetings when conducting official business. Plainly, UHH is a public body subject to public accountability.

221. Even Petitioners have conceded:

> As a state agency and the general lessor, the University is also charged with fiduciary responsibility - and to comply with all laws respecting its status - federal, state, county, DLNR's rules and regulations, etc. While DLNR is primarily charged with such fiduciary responsibility, by conditions of the general lease and its agency status with the State of Hawaii, the University, is also charged to comply with such conditions - and also cause its sub-lessees to also be in compliance.

WDT Ching at 5. This testimony strongly supports a conclusion that the rationale underlying *Ka Pa'akai* does not apply here. However, as noted, because there has been no improper delegation, even if this portion of the *Ka Pa'akai* decision is pertinent here, there has been no improper delegation, and the case's requirements have been satisfied.

5. <u>Contemporary Practices</u>

222. As set forth above, *Ka Pa'akai* is concerned with the preservation and protection of customary and traditional native Hawaiian rights, not with contemporary cultural practices. Nonetheless, UHH's extensive efforts to identify cultural practices, potential impacts on or impairment of those practices, and feasible actions to be taken to reasonably protect the native Hawaiian rights that exist, described in detail above, encompass not only customary and traditional practices, but contemporary practices as well. Therefore, any obligation pursuant to Haw. Rev. Stat. § 343-2 to evaluate and disclose effects on cultural practices, including, if applicable, contemporary practices, has been satisfied.

223. Additionally, Haw. Rev. Stat. § 343-2 relates to the Environmental Assessment / Environmental Impact Statement phase of a project. As described above, the time for any challenge to the FEIS for the TMT Project expired long ago. Consequently, any argument under Haw. Rev. Stat. § 343-2 would be untimely and cannot be raised now.

C. Petitioners' Other Arguments

1. Petitioners Have Received Due Process

224. At the February 25, 2011 regular meeting of the BLNR, an objection was made that the BLNR should not vote on whether to grant the CDUP prior to the holding of a contested case hearing in this matter. For a variety of reasons, that objection was overruled. No appeal was requested or taken by any of Petitioners from the Board's actions overruling that objection or from its subsequent actions related to the CDUA.

225. In a preliminary ruling by the BLNR, the CDUP was granted and the following condition was simultaneously imposed by the BLNR: "If a contested case proceeding is initiated, no construction shall occur until a final decision is rendered by the Board in favor of the applicant or the proceeding is otherwise dismissed." Exhibit A-316 at 37. Immediately thereafter, on its own motion, the BLNR voted to direct that a contested case be held, and provided a date for interested parties to petition to participate in the contested case. *Id.* at 39-40. The condition quoted above is formalized as Condition 21 in the BLNR's March 3, 2011 letter to the University. Exhibit A-319 at 3. Thus, the BLNR retained responsibility to review and accept, reject, or modify the Hearing Officer's proposed findings and conditions. By immediately ordering that a contested case be held and prohibiting construction until, if ever, it rendered its "final decision" in favor of the applicant following the conclusion of the contested case proceeding, the BLNR demonstrated that its February 25, 2011 vote and subsequent March 3, 2011 letter constituted a preliminary ruling and did not reflect any final agency action.

226. In their petition for a contested case, Petitioners asserted their view that the BLNR had erred by approving the University's request for a CDUP on February 2, 2011 prior to holding a contested case hearing, and simultaneously acknowledged that whether this was a legal error, and the consequences of the asserted error, were matters that could and should be addressed by the Hearing Officer in the contested case proceeding that the BLNR ordered. Exhibit A-320.

227. In accordance with the condition imposed by the BLNR, no work on the TMT Project has occurred, pending the outcome of this proceeding and the BLNR's ultimate determination.

228. In their brief in the contested case proceeding, Petitioners did not argue that the contested case hearing should have been held before the BLNR voted on the CDUA. They did, however, mention that issue, at least in passing, during closing arguments. Tr. 9/30/11 at 130. Petitioners' position is not supported by the DLNR's Rules of Practice and Procedure, which specifically provide for a contested case hearing to occur after the public hearing on the matter, not before. Thus, Haw. Admin. R. § 13-1-28(b) states: "The contested case hearing shall be held after any public hearing which by law is required to be held on the same subject matter." (Emphasis added.) The order of proceedings here complied with that rule.

229. In any event, Petitioners cannot plausibly claim that they have been deprived of due process or, indeed, that they have suffered any harm at all by the order of proceedings. The condition imposed by the BLNR and quoted above mandated that no work be done on the TMT Project unless and until the contested case has concluded and the BLNR has finally resolved the matter in UHH's favor. That condition has been honored. The Hearing Officer was promptly appointed, and the contested case was held in due course. The Project remains in abeyance pending the outcome of this process. The BLNR must still vote again on the matter. The BLNR has at all times retained the authority to review and accept, reject, or modify the Hearing Officer's proposed findings and conclusions, and until the BLNR has voted again, there has been no final agency action on this application. For all practical purposes, Petitioners are exactly where they would have been if the process had not followed the BLNR's Rules of Practice and Procedure, but instead had occurred in the manner they desired.

230. Further, as Petitioners themselves acknowledged in closing, the fact that UHH accepted the burden of proof in this proceeding has already resolved any issue they might have raised about "due process" based on the order of events. Tr. 9/30/11 at 130-31.

231. Moreover, as made clear from the facts recited above, Petitioners have received an abundance of process. They have no basis to claim that they have been deprived of due process, and if they assert any such claim, it is rejected.

232. The BLNR's adoption of these Findings of Fact, Conclusions of Law and Decision and Order constitutes the agency's final action on this application.

2. <u>The General Lease</u>

233. Section 4 of the General Lease provides that the land leased to the University "shall be used by the Lessee as a scientific complex, including without limitation thereof an observatory . . . ." Exhibit B-2 at 3. Petitioners' assertion that this language limits UHH to only one observatory on Mauna Kea is incorrect.

234. Because the reference to "an observatory" is prefaced by the phrase "including without limitation," it is illustrative and not exhaustive; in other words, it does not mean "only one observatory." *See, e.g., In re Linerboard Antitrust Litig.*, 443 F. Supp. 2d 703, 714 (E.D. Pa. 2006) ("It is clear that the list of Excluded Assets is illustrative and not exhaustive because it is prefaced by the phrase 'including, without limitation. . . .' The plain meaning of that phrase is 'to contain as part of something' or 'indicates a partial list.' Black's Law Dictionary 766 (7th ed.1999). Thus, the terms of the contract preclude the conclusion that the list of Excluded Assets is exhaustive."); *Turtle Island Restoration Network v. Nat'l Marine Fisheries Serv.*, 340 F.3d 969, 975 (9th Cir. 2003) ("Congress used the phrase 'including but not limited to' and in so doing, contemplated that the list of potential obligations that the United States had under the Agreement was not exhausted by those listed in the subsection."); *State v. Lorillard Tobacco Co.*, 1 So.3d 1, 12 (Ala. 2008) ("The use of the phrase 'including, without limitation,' indicates that the disputes listed are illustrative only and do not constitute an

exhaustive list of arbitrable disputes. *See In re Mark Anthony Constr., Inc.,* 886 F.2d 1101, 1106 (9th Cir.1989) ('In construing a statute, the use of a form of the word "include" is significant, and generally thought to imply that terms listed immediately afterwards are an inexhaustive list of examples, rather than a bounded set of applicable items.').").

3. <u>Sublease Rent</u>

235. Petitioners contend that under Haw. Rev. Stat. §§ 171-17 and -18, "BLNR must assess the fair market value of the land and charge for its use." Exhibit A-202 at 41.

236. To the extent this is a claim at all, it is not a claim against UHH, but one against the BLNR – which is not a party to this contested case proceeding. Before the BLNR has rendered its decision regarding the contested case, any claim against it relating to the TMT Project is premature and unripe.

237. If Petitioners are seeking to assert any claim relating to sublease rent for any telescopes other than TMT, any such claim would be beyond the scope of this contested case proceeding. In addition, because it would relate to telescopes erected in the past, *see* Exhibit A-202 at 41 (describing "BLNR's failure to collect rent over the last 40 years"), any claim relating to the purported failure to require rent for past projects was time-barred long ago.

238. In any event, Haw. Rev. Stat. §§ 171-17 and -18 do not apply.

239. Under Haw. Rev. Stat. § 171-95, "[n]otwithstanding any limitations to the contrary," the BLNR may lease state land to governments and government agencies at such rent and on such other terms and conditions as it may decide. The BLNR's past practices have conformed with Section 171-95, which has been in effect since 1962.

240. More recently, in 2009, the Legislature enacted Act 132, which demonstrates that Petitioners' challenges to rent issues relating to the TMT Project are unfounded. In particular, Haw. Rev. Stat. § 304A-2170 established the "Mauna Kea lands management special fund." The provision states:

> (a) There is established the Mauna Kea lands management special fund, into which shall be deposited:
>
> . . .
>
> (2) All net rents from leases, licenses, and permits, including fees and charges for the use of land and facilities within the Mauna Kea lands[.]
>
> . . .

(b) The proceeds of the special fund shall be used for:

(1) Managing the Mauna Kea lands, including maintenance, administrative expenses, salaries and benefits of employees, contractor services, supplies, security, equipment, janitorial services, insurance, utilities, and other operational expenses; and

(2) Enforcing administrative rules adopted relating to the Mauna Kea lands.

241. Under Section 304A-2170(f), "'Mauna Kea lands' shall mean the same as defined in section 304A-1901." Section 304A-1901 defines "Mauna Kea lands" as "the lands that the University of Hawaii is leasing from the board of land and natural resources, including the Mauna Kea Science Reserve, Hale Pōhaku, the connecting roadway corridor between Hale Pōhaku and the Mauna Kea Science Reserve, and any other lands on Mauna Kea that the University of Hawaii leases or over which the University of Hawaii acquires control or jurisdiction."

242. Because Haw. Rev. Stat. § 304A-2170 expressly requires the University to put sublease rent from the TMT Project into a special fund, Petitioners' "rent" arguments fail. The BLNR cannot ignore this law or declare it illegal, and Petitioners do not claim that it can or should do either. *See HOH Corp. v. Motor Vehicle Indus. Licensing Bd., Dep't of Commerce & Consumer Affairs*, 69 Haw. 135, 141, 736 P.2d 1271, 1275 (1987) ("The law has long been clear that agencies may not nullify statutes.") (citations omitted).).

4. "Find Spots" and the CDUA

243. As described above, in his closing argument, Petitioner Flores claimed that the CDUA was intentionally incomplete in failing to identify certain "find spots." Mr. Flores contends this alleged omission warrants revocation of the CDUP. For the reasons described in the findings of fact, this accusation is factually unfounded. Therefore, it cannot provide any basis for revocation of a CDUP.

D. Summary

244. The BLNR approved the CMP, CRMP, NRMP, PAP, and Decommissioning Plan on April 9, 2009 and March 25, 2010. These documents are the State of Hawaii's management documents for the UH Management Areas on Mauna Kea.

245. The activities that would be carried out if the TMT Project is approved and implemented are consistent with the management actions described in the CMP and sub-plans. This provides consistency and viability of management objectives, which include ensuring the sustained use of natural resources in the Resource subzone under Haw. Admin. R. § 13-5-13.

246. A project-specific management plan has been developed for the TMT Project that adopts the approach, goals, objectives and management strategies and actions of the CMP and sub-plans in their entirety. The TMT Management Plan implements all relevant action items and plans of the CMP and sub-plans on a site-specific basis, ensuring that the management actions called for in the CMP and sub-plans which are applicable to the TMT Project are effectively and responsibly implemented.

247. Protection of native Hawaiian practitioners' exercise of customary and traditional practices on the summit area of Mauna Kea and within the area covered by the Application for the Conservation District Use Permit can be accomplished through implementation of the following conditions:

a. Implementation of a Cultural and Natural Resources Training Program that will require all construction managers, contractors, supervisors, construction workers, and TMT staff to be trained annually regarding the potential impact to cultural and archaeological resources and the measures to prevent such impact.

b. Development and implementation of an Archaeological Monitoring Plan that will be submitted to SHPD for review and approval. Such plan shall provide for the employment of an archaeologist during the construction of the TMT Project who shall be onsite during construction to insure minimal disturbance to any native Hawaiian cultural sites, practices and access to historical and cultural resources.

c. Development and implementation of an Archaeological Mitigation Plan pursuant to Haw. Admin. R. § 13-284-8(a)(2). Such plan will be developed in consultation with native Hawaiian organizations, including the Office of Hawaiian Affairs.

d. Employment of a cultural resource specialist to work in conjunction with the archaeological monitor at all times and in all places or situations where on-site archaeological monitoring is required.

e. Regular consultation with Kahu Kū Mauna and other community groups regarding cultural resources.

f. Development of exhibits regarding cultural, natural, and historic resources in coordination with OMKM and ʻImiloa that could be used at the Mauna Kea VIS, ʻImiloa, TMT facilities, and other appropriate locations.

g. Reduced TMT Observatory operations to minimize daytime activities on up to four days per year in observance of native Hawaiian cultural practices.

248. The protection of the natural resources of the Mauna Kea summit and the area covered by the application for the Conservation District Use Permit can be accomplished through implementation of the following conditions:

a. Implementation of a Cultural and Natural Resources Training Program that will require all construction managers, contractors, supervisors, construction workers, and TMT staff to be trained annually regarding the potential impact to cultural and archaeological resources and the measures to prevent such impact.

b. Development and implementation of an Invasive Species Prevention and Control Program which will ensure: (1) all material shipments will be repacked off of Mauna Kea so that only essential packing material is used for final transportation to the TMT Project site; (2) the washing and cleaning of all materials, clothing, construction vehicles, and heavy equipment off of Mauna Kea; (3) inspection of all construction materials, equipment, crates, and containers and packing materials by a full-time trained biologist selected by OMKM and approved by the DLNR to assure no invasive plants or animals are introduced to the Mauna Kea summit areas; (4) weekly monitoring of the TMT Project sites by a trained biologist for the presence of invasive species; and (5) implementation of control measures by a trained biologist selected by OMKM and approved by the DLNR.

c. Monitoring of arthropods in the area of the TMT Access Way prior to, during, and for two years after construction of the Access Way.

d. Implementation of a Ride-Sharing Program that will limit vehicle trips to the summit, thus reducing the amount of dust generated along the unpaved section of the Mauna Kea Access Road and TMT Access Way.

e. Development of exhibits regarding cultural, natural, and historic resources in coordination with OMKM and ʻImiloa that could be used at the Mauna Kea VIS, ʻImiloa, TMT facilities, and other appropriate locations.

f. Procurement of a National Pollutant Discharge Elimination System permit prior to the start of construction of the TMT Project from the State of Hawaiʻi Department of Health.

249. The TMT Management Plan, Archaeological Monitoring Plan, Construction Plan, Historical and Archaeological Site Plan, Arthropod Access Way Monitoring Plan, and all other existing plans and agreements designed to protect the natural and cultural resources of Mauna Kea shall be complied with by the permittee.

250. UHH has proven by a preponderance of the evidence that it meets the requirements for the granting of the Conservation District Use Application for the TMT Project.

251. Provided that the special conditions discussed above and as set forth below, and the standard conditions set forth in Section 13-5-42, Hawaii Administrative Rules, as modified below, are imposed:

a. The proposed land use will be consistent with the purpose of the conservation district;

b. The proposed land use will be consistent with the objectives of the Resource subzone;

c. The proposed land use will comply with provisions and guidelines contained in Chapter 205A, where applicable;

d. The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region;

e. The proposed land use, including buildings, structures, and facilities, will be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels;

f. The existing physical and environmental aspects of the land will be reasonably preserved or improved upon, whichever is applicable;

g. Subdivision of land will not be utilized to increase the intensity of land uses in the conservation district; and

h. The proposed land use will not be materially detrimental to the public health, safety, and welfare.

252. The Board approved the CMP and sub-plans at its regular meetings on April 9, 2009 and March 25, 2010.

253. The Board now approves the TMT Management Plan.

254. Therefore, the proposed land use meets the criteria for issuance of a Conservation District Use Permit. The proposed land use also reasonably protects identified native Hawaiian rights.

255. Accordingly, the Board grants the CDUA, subject to the conditions stated below.

256. Any conclusion of law improperly designated as a finding of fact shall be deemed or construed as a conclusion of law. Any finding of fact improperly designated as a conclusion of law shall be deemed or construed as a finding of fact.

257. Pursuant to Haw. Rev. Stat. § 91-12, any of the proposed findings of fact submitted by UHH, KAHEA, MKAH, Mr. Ching, Ms. Ward, Mr. Neves, and the

Flores-Case ‘Ohana not already ruled upon by the BLNR by adoption herein, or rejected by clearly contrary findings of fact herein, are hereby denied and rejected.

DECISION AND ORDER

Based on the foregoing, the CDUA is GRANTED, and a Conservation District Use Permit is issued subject to the following conditions.

(Unless otherwise explicitly indicated or clear from the context, “Board” and “BLNR” shall mean the Board of Land and Natural Resources; “Chairperson” shall mean the Chairperson of the Board of Land and Natural Resources; and “Department” shall mean the Department of Land and Natural Resources.).

1. UHH shall comply with all applicable statutes, ordinances, rules, regulations, and conditions of the Federal, State, and County governments, and applicable parts of the Hawaii Administrative Rules, Chapter 13-5;

2. UHH shall obtain appropriate authorization from the Department for the occupancy of state lands, if applicable;

3. UHH shall comply with all applicable Department of Health administrative rules;

4. Any work done or construction to be done on the land shall be initiated within two (2) years of the Board’s final approval of such use following the conclusion of the contested case proceeding, in accordance with construction plans that have been signed by the Chairperson, and, unless otherwise authorized, shall be completed within twelve (12) years of the Board’s final approval. (Such periods shall exclude any time when final approval and implementation of the CDUP is stayed.) UHH shall notify the Department in writing when construction activity is initiated and when it is completed;

5. Before proceeding with any work authorized by the Board, UHH shall submit four copies of the construction and grading plans and specifications to the Chairperson or his authorized representative for approval for consistency with the conditions of the permit and the declarations set forth in the permit application. Three of the copies will be returned to UHH. Plan approval by the Chairperson does not constitute approval required from other agencies;

6. All representations relative to mitigation set forth in the Environmental Impact Statement and Conservation District Use Application are incorporated as conditions of the permit;

7. All mitigation measures and management actions contained in the Historic Preservation Mitigation Plan, Construction Plan, Historical &

Archaeological Site Plan, Maintenance Plan, and Arthropod Monitoring Plan, are incorporated as conditions of this permit;

8. The TMT Project will comply with any terms and conditions outlined in the Comprehensive Management Plan and associated sub-plans;

9. The TMT Management Plan is approved, including all specific management actions articulated in the TMT Management Plan including, Cultural Resources Management, Natural Resources Management, Education & Outreach, Astronomical Resources, Permitting and Enforcement, Infrastructure and Maintenance, Construction Guidelines, Site Recycling, Decommissioning, Demolition & Restoration, Future Land Uses, and Monitoring, Evaluation & Updates. These management actions and their associated mitigation measures and the implementation of the recommendation contained in these plans (for example, the incorporation of a Decommissioning Funding Plan in any sublease) are incorporated as conditions of this permit;

10. The following additional conditions shall be implemented by OMKM and TMT:

- Ensuring that employees attend mandatory cultural and natural resources training;
- Working with the ‘Imiloa Astronomy Center and OMKM to develop informational exhibits for visitors regarding the natural, cultural and archaeological resources of Mauna Kea;
- Funding the re-naturalization of the closed access road on Puʻu Poliʻahu, partially re-naturalizing of the batch plant staging area after construction has been completed, and camouflaging the utility pull boxes in certain locations to reduce the visual impact from the summit area;
- Implementing an invasive species control program;
- Working with OMKM to develop and implement a habitat restoration study;
- Implementing the “Zero Waste Management” policy;
- Filling employment opportunities locally to the greatest extent possible;
- Mandating that employees traveling beyond Hale Pōhaku take part in a ride-sharing program using project vehicles;

- Using energy savings devices such as solar hot water systems, photovoltaic power systems, energy efficient light fixtures, and the use of Energy Star rated appliances;

- Providing $1 million annually, adjusted for inflation, for “Community Benefits Package” which will commence with construction and continue through the term of the sublease. The package will be administered via The Hawai’i Island New Knowledge (THINK) Fund Board of Advisors; and

- Partnering with other institutions to implement a Workforce Pipeline Program, headed by at least one full-time position through the Community Outreach office, to prepare local residents for jobs in science, engineering, and technical fields;

- The University will ensure that the survey of the power line corridor easement complies with DLNR standards and is in accordance with the conditions contained in the grant of easement (including the Mauna Kea Ice Age Natural Area Reserve) that was approved by the BLNR in August 1985. The University will provide copies of the survey to DOFAW;

- OMKM will consult with the U.S. Fish and Wildlife Service and experts who are advising OMKM, including representatives from the DLNR, on surveys of the wēkiu bug and invertebrates regarding surveys along the utility corridor, including Puʻu Hau Kea and the puʻu west of the Parking Area 1;

- The construction contractor will be required to minimize the visual changes to land within the utility line right-of-way during utility upgrades. Any disturbance outside of the easement area of the construction corridor will be restored to the extent possible;

- UHH will present a plan for handling recreational parking during construction to the OCCL for review and approval prior to beginning construction;

- Following construction, TMT shall keep their area clean and free of trash or unattended tools and equipment, unless authorized by OMKM and OCCL;

- The Archaeological Monitoring Plan will be submitted to the State Historic Preservation Division for review and approval prior to the onset of construction; and

- TMT will pay a “substantial” amount for sublease rent. The rent would be deposited into the Manna Kea Land Fund, and only used for management of Mauna Kea.

11. UHH will notify OCCL of the date of the twice-annual inspections of the project site and allow Department staff to attend if available;

12. UHH will provide OCCL and BLNR a copy of TMT’s annual report to OMKM;

13. UHH will allow BLNR to name a DLNR representative to participate in the five-year management review process;

14. When provided or required, potable water supply and sanitation facilities shall have the approval of the Department of Health and the county Board of Water Supply;

15. UHH understands and agrees that this permit does not convey any vested rights or exclusive privilege;

16. In issuing this permit, the Department and Board have relied on the information and data that UHH has provided in connection with this permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Department may, in addition, institute appropriate legal proceedings;

17. Where any interference, nuisance, or harm may be caused, or hazard established by the use, UHH shall be required to take the measures necessary to minimize or eliminate the interference, nuisance, harm, or hazard;

18. Should historic remains such as artifacts, burials or concentration of charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact the State Historic Preservation Division (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary; the Applicant will also notify the Office of Hawaiian Affairs at the same time;

19. During construction, appropriate mitigation measures shall be implemented to minimize impacts to off-site roadways, utilities, and public facilities;

20. No construction work shall be initiated until the Applicant demonstrates compliance with all preconstruction conditions and mitigation measures

outlined in this report. Once this condition has been satisfied, the Department will issue notice to proceed with construction;

21. TMT shall set aside funds annually in a sufficient amount to allow for site observatory and access way site restoration;

22. Daytime activities at TMT will be minimized on up to four days per year, as identified by Kahu Ku Mauna;

23. Other terms and conditions as may be prescribed by the Chairperson; and

24. Failure to comply with any of these conditions shall render this Conservation District Use Permit null and void.

DATED: Honolulu, Hawaii, 12 April 2013.

WILLIAM J. AILA, JR., Chairperson

SAM M. GON, III, Member

JERRY EDLAO, Member

ROBERT PACHECO, Member

DAVID GOODE, Member

JOHN MORGAN, Member

BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAI`I

In re Petition requesting a Contested Case Hearing Re Conservation District Use Permit (CDUP) HA-3568 for the Thirty Meter Telescope at the Mauna Kea Science Reserve, Kaohe Mauka, Hamakua, Hawaii, TMK (3) 4-4-015:009	DLNR File No. HA-11-05

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the Findings of Fact, Conclusions of Law, and Decision and Order on the above case, dated April 12, 2013, was served upon the following parties via email on April 12, 2013, and via regular mail on April 12, 2013, addressed as follows:

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Dated: Honolulu, Hawai`i, April 12, 2013

Michael Cain
Department of Land & Natural Resources
State of Hawai`i