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UNIVERSITY OF HAWAI'I AT HILO

BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAI'I

IN THE MATTER OF Contested Case Hearing Re Conservation District Use Application (CDUA) HA-3568 for the Thirty Meter Telescope at the Mauna Kea Science Reserve, Ka'ohe Mauka, Hāmakua, Hawai'i, TMK (3) 4-4-015:009	Case No. BLNR-CC-16-002 APPLICANT UNIVERSITY OF HAWAI'I AT HILO'S **OPENING BRIEF**; CERTIFICATE OF SERVICE

APPLICANT UNIVERSITY OF HAWAI'I AT HILO'S OPENING BRIEF

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I. INTRODUCTION

This case relates to the Conservation District Use Application (the "CDUA") submitted by the University of Hawai'i at Hilo ("University") for the Thirty Meter Telescope Project (the "Project" or "TMT Project") to be located in the Mauna Kea Science Reserve ("MKSR"), District of Hāmākua, Island and County of Hawai'i. If built as proposed, the Project will arguably be the most important new undertaking of the 21st century for Hilo, for Hawai'i Island, for the State of Hawai'i—and, in terms of scientific value and academic prominence, for the entire world.

Under Article X, section 1 of the Hawai'i State Constitution, the University has a constitutional mandate to promote and advance public education in the State in a nondiscriminatory manner. Consistent with this mission, the University strives to increase the educational and human capital of the state it serves by providing all of its residents and future Hawai'i generations with affordable access to higher education including opportunities for training, research and service in fields requiring Science, Technology, Engineering and Mathematical ("STEM") education. The Project would further that objective by cementing Hawai'i as the world's premier place to study astronomy. The proposed Thirty Meter Telescope ("TMT")—if constructed—would be the most powerful telescope in the world, superior to the Hubble Space Telescope. The Project incorporates cutting-edge technology that would allow Hawai'i to keep pace with other new telescopes recently built or under construction at rival astronomical sites in other parts of the world.

The Hearing Officer set forth three issues to be decided in the contested case hearing: (1) whether the Project is consistent with statutory and regulatory requirements for developments in the State Land Use Conservation District ("Conservation District"); (2) whether the Project is consistent with Article XII, Section 7 of the Hawai'i State Constitution and *Ka Pa'akai O*

Ka'Āina v. Land Use Comm'n. State of Hawai'i, 94 Hawai'i 31, 7 P.3d. 1068 (2000); and (3) whether the Project is consistent with Article XI, Section 1 of the Hawai'i State Constitution and the public trust doctrine.

Section 13-5-30(c) of the Hawai'i Administrative Rules ("HAR") is the overarching framework that guides this contested case. Section § 13-5-30(c) sets forth the eight criteria by which the Board of Land and Natural Resources ("Board") is to evaluate the CDUA ("Eight Criteria"). The University has expended enormous time, effort, and resources to do everything right. The evidence will show that the University—through careful planning and extensive community outreach—has satisfied the requirements of the Eight Criteria, and the related obligations under Article XII, Section 7 of the Hawai'i State Constitution, *Ka Pa'akai*, Article XI, Section 1 of the Hawai'i State Constitution, and the public trust doctrine.

From its inception, the Project has received the highest level of care, input, scrutiny, and process, all commensurate with its significance. Building upon the foundations of the previously approved Comprehensive Management Plan, the Project reflects a fundamentally reformed approach to astronomy on Mauna Kea. All constituencies, including native Hawaiian cultural practitioners and environmental activists—indeed, including many of the parties currently opposing the Project—had their views solicited, considered, and incorporated. The people and entities responsible for the TMT Project paid equally painstaking attention and care to every legal and regulatory consideration. The University not only listened to the community's concerns, it carefully considered and addressed them. The University and its consultants have prepared detailed sub-plans to manage Mauna Kea's resources in an appropriate and respectful manner. The University has taken great care to mitigate any adverse impacts, to the extent feasible. The Project is the culmination of more than a decade of planning, community

consultation, consensus building, design refinement, and cooperative problem-solving. The resulting CDUA represents a careful consideration of resource conservation, environmental health, public welfare, and native Hawaiian traditional and customary rights.

Based on the evidence that will be presented, there is no legal question that the Project is consistent with all applicable authorities; the CDUA should therefore be approved.

II. FACTUAL BACKGROUND

A. ASTRONOMY ON MAUNA KEA

In May 1960, three tsunamis swept over Hilo, causing numerous casualties and destroying more than 500 homes and businesses. Mitsuo Akiyama, a lifelong Hilo resident and then-secretary of the Hawai'i Island Chamber of Commerce, saw the devastation caused by the tsunamis and decided to use astronomy as a means to revitalize the island's crippled economy and propel Hawai'i to the forefront of scientific discovery. Amidst a renewed push to strengthen the University's academic reputation, the University sought to partner with NASA to build the first telescope observatory on Mauna Kea. The University—which was viewed as an upstart in the world of astronomy—prevailed over the likes of Harvard University and the University of Arizona to secure NASA's approval and funding to build the observatory.

In 1968, the State of Hawai'i, through the Board, entered into a lease with the University that today encompasses the 11,288 acre area in the summit region of Mauna Kea known as the MKSR. The MKSR was established for use as a scientific complex, including the development of astronomy facilities. The University's 2.2-meter telescope, situated within the MKSR, began operations in 1970 and is still in service today. That observatory established the University's reputation as a world-class astronomy graduate program. Hawai'i's success as one of the most sought-after astronomical sites in the world led the University to establish the Institute for Astronomy, one of the world's leading astronomical research centers. Over time, the University

subleased portions of the MKSR to other coalitions of universities and research organizations around the world to build additional telescope observatories on Mauna Kea. The University, as the ground lessee for the MKSR, receives an allotment of observation time at each observatory. Therefore, through its management of the MKSR, the University is able to provide its students and faculty with unparalleled access to the world's finest astronomical observatories.

However, Hawai'i's reputation as a leader in astronomy rests on its ability to keep up with evolving, cutting-edge technology. If the Project is not approved, Hawai'i will quickly be overshadowed and dwarfed by newer, more advanced telescopes, and the research coalitions funding the existing Mauna Kea observatories may reconsider any ongoing investment in Mauna Kea due to the regulatory uncertainties facing astronomy's future on the mountain. Those outcomes would be a severe blow to Hawai'i's astronomy-based research, educational, and economic opportunities.

B. THE UNIVERSITY'S MANAGEMENT OF MAUNA KEA

Although astronomy has unquestionably been a benefit for the State, the University's management of the MKSR has not been without controversy. Some native Hawaiian and environmental activists have criticized the University's management of Mauna Kea as lacking in transparency and accountability, and a 1998 State audit found that the University's stewardship of the resources on Mauna Kea was inadequate.

The University has acknowledged past problems and has taken significant steps to improve its management of the MKSR. In 2000, the University adopted the MKSR Master Plan ("Master Plan"). The Master Plan provides a guide for development of the MKSR through 2020 and was developed to address the issues raised by the community regarding environmental conservation, the cultural and historical significance of Mauna Kea to native Hawaiians, preventing over-exploitation of the mountain, and astronomy research. The Master Plan

contained provisions ensuring access to Mauna Kea for Hawaiian cultural practitioners. It also established the 525-acre Astronomy Precinct within the MKSR, with astronomy development restricted to a 150-acre area within that precinct. The remaining 95% of the MKSR—approximately 10,763 acres—was set aside as a natural and cultural preservation area. The Master Plan implemented a new management structure and established the Office of Mauna Kea Management ("OMKM"), the Mauna Kea Management Board, and a native Hawaiian Kahu Kū Mauna Council to oversee and manage the MKSR. OMKM has day-to-day management of the MKSR and is charged with providing community-based management and outreach to protect, preserve and enhance the resources of Mauna Kea.

The University's implementation of the Master Plan has vastly improved the management of the MKSR. The August 2014 report on the follow-up audit of the University's management of Mauna Kea found that the University had addressed many of the recommendations made in the 1998 audit. The audit report found the University's efforts resulted in "an improved and more comprehensive framework that coordinates the [University's and the Department of Land and Natural Resources'] efforts to manage and protect Mauna Kea while balancing the competing interests of culture, conservation, scientific research, and recreation."

C. DESCRIPTION OF THE PROJECT

The TMT Project is a collaboration among The Regents of the University of California, the California Institute of Technology, and national governmental research organizations from Japan, China, India, and Canada. It will involve the construction, operation, and ultimate decommissioning of a Next Generation Large Telescope ("NGLT") observatory and related facilities within an area below the summit of Mauna Kea that is part of the 525-acre Astronomy

Precinct in the MKSR. The Project is intended to address the critical need identified worldwide by scientific communities to overcome the limitations of existing astronomical facilities.

The Project includes a telescope with a 98-foot (30-meter) primary mirror, the accompanying instruments to record data, the enclosing dome, the attached support and maintenance building, and parking. In addition to the observatory itself, the CDUA covers the proposed TMT Access Way, an improved road and underground utilities connecting the TMT Observatory with existing roads and utilities. It also provides for the use during construction, and eventual partial restoration, of the existing four-acre Batch Plant Staging Area. Finally, the University proposes upgrades to the existing electrical transformers and related equipment within the Hawaii Electric Light Company substation near the mid-level Hale Pōhaku facility and to the underground electrical wires from that substation to the start of the Access Way.

The Project would have nine times the light collecting area of the current largest optical and infrared telescopes, letting in more light than any existing telescope and allowing astronomers to see farther and with finer detail. Indeed, with 156 times the light gathering power and, at a given wavelength, 12.5 times the resolution of the Hubble Space Telescope, the TMT Project will push the frontier of technology, providing an advanced and powerful ground-based observatory capable of carrying out cutting edge astronomical research for many years.

Research by the TMT Project 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, including some 13 billion light years away, to the formation of planets and planetary systems today in our own Milky Way Galaxy. This research will facilitate an unprecedented understanding of the evolution of galaxies from the origins of the Universe to the current era, and will undoubtedly lead to discoveries that we cannot yet anticipate due to existing technological

limitations. The TMT Project will advance humankind's quest to answer fundamental questions about the nature and workings of the Universe and to unravel the mysteries of cosmic phenomena such as dark matter and black holes. Through the TMT Project, humankind will observe the earliest stars and galaxies formed after the Big Bang.

Based on observational site testing results and other factors, Mauna Kea was identified as the only place in the northern hemisphere possessing the attributes ideal for the TMT Project. The TMT Observatory is proposed for approximately five acres of land in what is generally referred to as the 13-North ("13N") site within "Area E." The Master Plan identified Area E within the Astronomy Precinct as the preferred location for the future development of a NGLT. This location is considered preferred for a NGLT because it provides suitable observation conditions with minimum impact on existing facilities, wēkiu bug habitat, archaeological/historic sites, and viewplanes. Moreover, it avoids any additional use of or building on the Kūkahau'ula area of the summit.

The Project is committed to the stewardship of Mauna Kea and will serve as a model of sustainable astronomy. The TMT Project will also bring significant benefits to Hawai'i and its residents. The TMT Project is already advancing educational opportunities for Hawai'i's residents and community and providing benefits to the local economy, including a one million dollar annual investment in STEM education through the THINK Fund and substantial monetary commitment to workforce pipeline development.

D. HISTORY OF THE PROJECT

From the Project's inception, the University has engaged various community groups to participate in the Project planning process. Several of the parties opposing the CDUA in this proceeding have participated directly in and contributed to the processes that shaped the Project. In 2008, the University, in consultation with the TMT Observatory Corporation ("TMTOC"),

began exploring the possibility of developing the Project in Area E. To aid in this process, the University commenced environmental scoping activities pursuant to Hawai'i Revised Statutes ("HRS") Chapter 343. The University ran advertisements in the local papers notifying interested persons and organizations that an Environmental Impact Statement Preparation Notice/Environmental Assessment ("EISPN/EA") for the Project was forthcoming. These interested persons and organizations—specifically including Petitioners KAHEA, Mauna Kea Anaina Hou, and Paul Neves for Royal Order of Kamehameha I—were sent advance copies of the EISPN/EA.

On September 23, 2008, the University officially published the EISPN/EA for the Project. The publication was announced that day by the Office of Environmental Quality Control ("OEQC") in The Environmental Notice. This publication opened the 30-day scoping period. Public scoping meetings were also held throughout the State in October 2008.

The University commenced work on a Draft Environmental Impact Statement ("DEIS"), which was then published in The Environmental Notice on May 23, 2009. The DEIS's publication opened a 45-day comment period. KAHEA, Mauna Kea Anaina Hou, Paul Neves, Deborah Ward (on behalf of Sierra Club's Hawai'i Chapter), Harry Fergerstrom, Lanny Sinkin (counsel for the Temple of Lono), and Kalikolehua Kanaele were among those that submitted comments on the DEIS.

In 2009, the University developed a Comprehensive Management Plan ("CMP") to govern its internal management of the MKSR. The CMP contained a total of 103 management actions and associated reporting requirements that would govern the future of the MKSR. The CMP was submitted to the Board for approval. On April 8 and 9, 2009, the Board held public

hearings in Hilo on the CMP, and, on April 9, 2009, approved the CMP.[1] That approval was conditioned on the University developing a Project Development and Management Framework and four sub-plans: a Natural Resources Management Plan; a Cultural Resources Management Plan; a Public Access Plan; and a Decommissioning Plan. The Board also required the University to submit an annual status report on the development of each sub-plan and a status report on the development of each management action. In satisfaction of those conditions, the University developed and submitted its Project Development Implementation Framework and the four sub-plans, which were approved on March 25, 2010.

On May 8, 2010, the OEQC published the notice of availability of Final Environmental Impact Statement ("FEIS") for the Project. The FEIS was accepted by the Governor on May 19, 2010. The period during which acceptance of the FEIS could be challenged ended on August 7, 2010. No challenges were made to the FEIS.

Because the MKSR is part of the State's Conservation District, uses on the land are subject to the Conservation District rules (HAR Chapter 13-5) and permit conditions. Before construction work may begin in the MKSR, a Conservation District Use Permit must be obtained from the Board. *See* HAR § 13-5-30(b). Based on these rules, the University submitted its CDUA to the Board on September 2, 2010.

In November 2010, written comments on the CDUA were submitted on behalf of KAHEA (represented by Miwa Tamanaha and Marti Townsend); Mauna Kea Anaina Hou (represented by Kealoha Pisciotta); Paul Neves (claiming to represent the Royal Order, Moku O

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[1] Mauna Kea Anaina Hou, Royal Order of Kamehameha I (by Paul Neves), Sierra Club, Hawai'i Chapter (by Deborah Ward), KAHEA and Clarence Kukauakahi Ching requested a contested case hearing on the Board's approval of the CMP. On August 28, 2009, the Board denied those requests. The petitioners appealed that denial to the Circuit Court of the Third Circuit. That appeal was dismissed by the Circuit Court on February 17, 2010. The Intermediate Court of Appeals thereafter affirmed the dismissal, and the Hawai'i Supreme Court denied certiorari.

Mamalahoa, and Heiau Mamalahoa Helu 'Elua); Sierra Club Hawai'i (represented by Deborah Ward); and Clarence Kukauakahi Ching.

On December 2 and 3, 2010, extensive public hearings relating to the CDUA were held in Hilo and Kona, respectively. Mauna Kea Anaina Hou (Kealoha Pisciotta), Paul Neves, Deborah Ward, and Clarence Kukauakahi Ching offered live testimony at the Hilo hearing on December 2. Mauna Kea Anaina Hou (Kealoha Pisciotta), Deborah Ward, Clarence Kukauakahi Ching and E. Kalani Flores and his family also testified at the December 3 hearing in Kona.

At the February 25, 2011 Board meeting at which the CDUA for the Project was considered, testimony was offered by KAHEA (from Miwa Tamanaha and Marti Townsend), Mauna Kea Anaina Hou (from Kealoha Pisciotta), Kahu Kū Mauna (from Tiffnie Kakalia), and Clarence Kukauakahi Ching.

At the conclusion of the February 25, 2011 meeting, the Board voted to approve the University's CDUA and subsequently held a contested case hearing. The Hawai'i Supreme Court vacated the Board's preliminary approval as procedurally improper and remanded the case back to the Board to hold the instant contested case hearing. *Mauna Kea Anaina Hou v. Bd. of Land and Natural Res.*, 136 Hawai'i 376, 363 P.3d 224 (2015).

III. ISSUES

On September 23, 2016, the Hearing Officer issued Minute Order No. 19, setting forth the issues to be decided in the contested case hearing:

1. Is the proposed land use, including the plans incorporated in the application, consistent with Chapter 183C of the Hawai'i Revised Statutes, the eight criteria in HAR §13-5-30(c), and other applicable rules in HAR, Title 13, Chapter 5 Conservation District?

2. Is the proposed land use consistent with Article XII, Section 7 of the Hawai'i State Constitution and *Ka Pa'akai O Ka'Āina v. Land Use Comm'n. State of Hawai'i*, 94 Hawai'i 31, 7 P.3d. 1068 (2000)?

3. Is the proposed land use consistent with Article XI, Section 1 of the Hawai'i State Constitution and the public trust doctrine?

[Doc. 281]. These issues were confirmed in the Amended Notice of Contested Case Hearing, dated October 5, 2016. [Doc. 325].

IV. LEGAL ANALYSIS

A. THE TMT PROJECT IS CONSISTENT WITH HRS CHAPTER 183C AND HAR § 13-5-30(C)

The Department of Land and Natural Resources ("DLNR") administers public lands within the Conservation District pursuant to HRS Chapter 183C and its implementing regulations. In evaluating a proposed land use in the Conservation District, the Board shall apply the Eight Criteria set forth in HAR § 13-5-30(c). As described below, the evidence in this proceeding will show that the land use proposed in the CDUA—the TMT Project—is consistent with the Eight Criteria.[2]

1. The Project is Consistent with the Purpose of the Conservation District

Under the first criterion, HAR § 13-5-30(c)(1), the proposed land use is to be "consistent with the purpose of the conservation district." Under HRS § 183C-1, 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. (Emphasis added.) *See also* HAR § 13-5-1. Neither this Chapter nor its rules *prohibit* development in the Conservation District. To the contrary,

[2] Although the facts and law will overwhelmingly support the conclusion that the Project satisfies each of the Eight Criteria, it bears noting that nothing in the text of HAR § 13-5-30(c) requires that all eight criteria be satisfied, or that each criterion must be given equal weight for a proposed land use to be approved.

development is expressly contemplated and permitted, so long as it is done in a responsible manner. The critical inquiry, therefore, is whether the proposed use will be *appropriately managed to protect and promote the sustainability of important natural resources, public health, safety and welfare*. The TMT Project satisfies this criterion.

As will be shown at the hearing, the TMT Project will be subject to management through various plans, include a) the BLNR-approved CMP and associated subplans, b) the BLNR-approved TMT Management Plan (which complies with Exhibit 3 of HAR § 13-5), and c) the University's internal Master Plan. Together, these plans provide the framework of unprecedented comprehensiveness and strength for managing the development of the TMT Project, and protecting, preserving and enhancing the resources within the MKSR. The management strategies contained within these plans specifically and thoughtfully address natural resources, cultural resources, public access, and the ultimate decommissioning of the Project and restoration of its site. The evidence will demonstrate that the Project will not consume significant natural resources. It will not pollute. It will not harm species of concern, or the environment generally. It will not interfere with customary and traditional cultural practices. It will not impede recreational uses. It will not threaten the public health, safety, or welfare.

The Project, as proposed in the CDUA, *will* make optimum and sustainable use of the environmental factors that make Mauna Kea arguably the best place on Earth to conduct astronomical research. Mauna Kea's unique suitability for astronomy—its altitude, atmospheric clarity, absence of light pollution, *etc.*—is itself a precious natural resource to be protected and preserved for long term astronomical study. The Project has also committed to contributing funds towards the management of Mauna Kea; the first astronomy development since the inception of the Master Plan to do so. These contributions will support and enhance the

management of not only the TMT Project site, but all of the MKSR, while also enabling the University to remain at the forefront of astronomy research and education.

In sum, as the plans and evidence demonstrate, the Project does provide for "appropriate management" and for a use that promotes long-term sustainability of resources as well as addressing and promoting public health, safety and welfare. Therefore, the Project is consistent with and satisfies the first criterion.

2. The Project is Consistent with the Objectives of the Resource Subzone

Under the second criterion, HAR § 13-5-30(c)(2), a proposed land use is to be "consistent with the objectives of the subzone on the land on which the use will occur." Under HAR § 13-5-13, the objective of the resource subzone "is to ensure, *with proper management*, the sustainable use of the natural resources of those areas." (Emphasis added.) In other words, the Board's rules recognize that the *"resources" within a resource subzone are allowed to be used, as long as the use is sustainable and properly managed.*

"Astronomy facilities under an approved management plan" are an expressly permitted land use in the resource subzone of the Conservation District pursuant to HAR § 13-5-24(c). An approved "management plan" is a project or site based plan to protect and conserve natural and cultural resources. *See* HAR § 13-5-2. The TMT Project is unquestionably an "astronomy facility." The CMP with its associated subplans and the TMT Management Plan,[3] both of which were approved by the BLNR, are plainly "management plans" as they provide for the protection and conservation of natural and cultural resources. Based on a plain reading of the rule, the TMT Project is a *specifically permitted use in the resource subzone.*

[3] 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.

Additionally, through the comprehensive management schemes set forth in the management plans, along with carefully conceived design elements and mitigation measures, the TMT Project satisfies the objective of responsible and sustainable use of resource subzone lands and resources that are particularly suited for astronomy. The plans fully satisfy the requirement for an "approved management plan" and therefore, the Project fully complies with the second criterion.

3. The Project Complies with Applicable Provisions and Guidelines Contained in HRS Chapter 205A

Under the third criterion, HAR § 13-5-30(c)(3), a proposed land use should "compl[y] with provisions and guidelines contained in chapter 205A, HRS, entitled 'Coastal Zone Management,' where applicable." Because the entire State of Hawai'i is within the Coastal Zone Management Area, the Project site on Mauna Kea is subject to HRS Chapter 205A. As the DLNR staff report observed, most of Chapter 205A's objectives parallel the objectives of the Conservation District, including protecting historic, scenic and open space, and recreational resources. In this brief, those common objectives are discussed under the headings for each specific criterion. Chapter 205A describes additional objectives relating specifically to coastal ecosystems (including the impact of upland areas on coastal ecosystems), which are essentially aimed at promoting and protecting water quality. As the CDUA demonstrates and the evidence will show, the Project satisfies all the objectives of Chapter 205A as to water quality issues.

Design elements and management guidelines for the TMT Project, along with the natural characteristics of the surrounding environment will protect against any potential adverse impacts to water quality. While construction of the TMT Project will result in an increase of impermeable surfaces at the Project site, due to the high permeability of the surrounding ground surface, rainwater runoff will not reach anywhere near coastal areas. Instead, rainwater will

simply percolate into the ground, as it otherwise would with or without the Project. In addition, the physical terrain, including topographic and subsurface features, makes it impossible for any conceivable runoff from the TMT Project to reach Lake Waiau.

Furthermore, the CMP provides that the Project will utilize a zero-discharge wastewater system, under which wastewater will be collected and transported off the mountain for proper disposal. The Project will not release any wastewater into the surrounding environment. The Project will also implement plans for storage and waste management, including a Spill Prevention and Response Plan that will greatly reduce the risk of discharge of hazardous materials; such materials will similarly be transported to waste treatment and disposal facilities off-mountain.

Even in the extremely unlikely event of a spill, there is no significant risk to groundwater. First, the Project will immediately respond to and remediate any spill in accordance with the Spill Prevention and Response Plan and applicable environmental laws. Second, high-level groundwater is impounded by subsurface geologic structures that compartmentalize the groundwater; and there are no wells extracting groundwater near the summit of Mauna Kea. Third, the nature of the porous subsurface lava naturally treats and filters any percolating water. Furthermore, the alpine desert in which the Project is located is not a watershed recharge area for Mauna Kea so there is no reasonable prospect of adverse impact on either drinking or coastal waters. Accordingly, the Project is consistent with the third criterion in HAR § 13-5-30(c)(3).

4. The Project Will Not Cause Substantial Adverse Impacts to Existing Natural Resources Within the Surrounding Area, Community, or Region

The fourth criterion, HAR § 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." A "natural resource" is defined as "resources such as plants, aquatic life and wildlife,

cultural, historic, recreational, geologic, and archeological sites, scenic areas, ecologically significant areas, watersheds, and minerals." HAR § 13-5-2. On its face, the fourth criterion instructs that "existing" resources be considered—*i.e.,* that a proposed project be assessed in the context of what is already there. Thus, it is appropriate for the TMT Project to be considered in light of existing conditions and uses within the context of the entire MKSR, which was specifically established for use as a scientific complex and the development of astronomy facilities. In determining whether a proposed use would have a substantial adverse impact on natural resources, it is also appropriate to consider mitigating measures. When these factors are properly considered, it is clear that the TMT Project will not cause a substantial adverse impact within the surrounding area, community or region.

a. Biological Resources

The evidence will show that the Project will involve only extremely limited and minimal impacts on biological resources, which are reasonably mitigated. Because of the harsh environment in the summit region, there is almost no flora in the region. Most, if not all types of the vegetation in the region exists at lower elevations. There are no endangered or threatened species of flora in the TMT Project area, nor are there any species of flora unique to the region. Accordingly, the Project will not have a significant impact on the flora of Mauna Kea.

Similarly, there will be no significant impact on the fauna of Mauna Kea. Although the construction of the Access Way will displace roughly 0.2 acres of alpine cinder cone habitat of the wēkiu bug, wēkiu bugs were found only in low abundance in this small area, which is not considered critical or substantial. Disturbance has been limited to the greatest extent possible by using the alignment of existing roads, reducing the Access Way from two lanes to one in the relevant area, and paving this portion of the way to reduce dust. The much larger critical wēkiu bug habitat will remain contiguous and undisturbed by the Project.

In addition to the design of the Access Way described above, the evidence will also show that the Project entails numerous other mitigation measures designed to reduce impacts on biological resources. An invasive species program will be implemented. A ride-sharing program will reduce traffic, dust, and noise. And an arthropod monitoring program will be performed before, during, and two years after construction in the portion of the Access Way crossing alpine cinder cone habitat. Thus, there will be no significant impact on biological resources.

b. Cultural, Historic and Archaeological Sites

From the Project's inception and throughout its development, the Project has involved sensitivity to and dialogue with the community, and particularly with native Hawaiians, to a degree unprecedented in the history of modern astronomy on Mauna Kea. This very high level of outreach and input has informed, guided, and shaped the Project in many ways. In particular, the Project has been sited in an area away from places of highest cultural concern on Mauna Kea's summit, including the Kūkahau'ula traditional cultural property and Lake Waiau. The TMT Observatory and Access Way will not be visible from those areas or from Pu'u Līlīnoe. Efforts to identify historic and archaeological sites confirmed that there are no known burial sites, ahu, or other historic features on or near the Project's location.

As will be shown, all valued cultural, historic, and archaeological resources were identified in detail in the CDUA, including the extent to which traditional and customary native Hawaiian rights are exercised in the Project area.[4] The CDUA quantified any potential effects on

[4] Under the definition of "Natural resource" in HAR § 13-5-2, cultural, historical, and archaeological "sites" are "natural resources;" cultural *practices* are *not*. Nonetheless, in an abundance of caution, the University did evaluate the impact of the Project on cultural practices as well. No customary and traditional cultural practices have been documented at the Project site. 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 Project will not restrict anyone

or impairments of those resources by the Project, and the feasible actions to reasonably protect those rights and practices have been considered and adopted. By locating the Project away from the most culturally sensitive sites in the summit area, the University has avoided impacts with the actual exercise of traditional and customary native Hawaiian practices in those areas. Potential impacts on demonstrated traditional and customary practices have been identified and considered; and feasible steps have been taken to reasonably protect those rights. As a result, the Project will have no significant adverse impact in these resources.

c. Viewplanes

The CDUA and other evidence will show that as a result of intensive planning and design efforts, the Project's effect on viewplanes will not be significant. The proposed site for the Project is not a bare mountain top. Rather, the Project will be added to an Astronomy Precinct already containing other astronomy observatories. The current observatories are visible from 43% of Hawai'i Island's area; the Project will increase that only slightly, to 44.2 %. In other words, although it will add a visual element to the northern plateau of the Mauna Kea summit area, it will be only one of many similar visual elements. Significantly, it will not block or substantially obstruct the views and viewplanes of the mountain. It will not be visible from culturally sensitive areas like the summit of Mauna Kea, Lake Waiau, and Pu'u Līlīnoe. The portions of the summit region from which it will be visible—the northern plateau and the northern ridge of Kūkahau'ula—are where most of the other observatories are already located and visible.

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 smallest dome possible to

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from any portion of the summit area. Moreover, on an ongoing basis, the Project will be required to comply with the detailed Cultural Resources Management Plan that accompanies the CMP.

accommodate a mirror of its size. Thus, although its mirror (30 meters in diameter) is larger than those of other observatories, TMT's dome height (roughly 180 feet above finished grade) is barely taller than existing observatories like Gemini (151 feet) and Subaru (141 feet), which have mirrors that are 10 and 8 meters in diameter, respectively. Since the TMT Observatory has been sited lower on the mountain than the other existing large observatories, it will not affect viewplanes vertically. The TMT Observatory's exterior has been designed to minimize its visual impact, with the dome's reflective aluminum-like coating less visible at all times except sunrise and sunset. The support facility will use materials and natural colors designed to blend with the surrounding landscape. For these reasons, the Project will not have a significant adverse effect on viewplanes or other aesthetic resources.

d. Recreational Resources

The CDUA and other evidence will show that the Project will have no significant impact on recreational resources. The main recreational activities on Mauna Kea are hiking, stargazing, and snow play. The Project is not located near any active recreation area and should not have any significant adverse impacts on any of these activities.

e. Water Resources, Wastewater, Solid Waste and Hazardous Waste

As described above, the Project's numerous protective measures addressing waste and water issues ensure that there will be no significant impact on water resources.

f. The Project's Cumulative Impacts on Mauna Kea's Natural Resources Are Not Significant

The evidence will show that, when viewed in light of existing conditions, the Project will have only a small, incremental impact on Mauna Kea's natural resources. As the FEIS for the Project observed, existing observatories on Mauna Kea have already had significant impacts on natural resources. These significant impacts will remain significant with or without TMT.

However, the Project does not result in any new significant adverse impact—either by virtue of the Project itself or by its cumulative effect when combined with the other observatories.

Moreover, the Project's impact is substantially mitigated by several factors. Unlike the other observatories, its location is removed from the Kūkahau'ula summit and the other most culturally sensitive areas. It is removed from sites of traditional and customary cultural practices, from historical sites, from critical species habitat, and from recreational areas. It has been located and designed to reduce its impacts. It will operate under a strong management regime that addresses and respects the interests of all constituencies. As a whole, the Project adds only incremental impacts to an area that already contains significant effects, and its cumulative impacts or additions do not increase those effects in any significantly adverse way.

5. The Project is Compatible With the Locality and Surrounding Area

The fifth criterion, HAR § 13-5-30(c)(5), states that 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[.]" The Project meets this criterion because it will be constructed within the 150-acre portion of the Astronomy Precinct that was specifically reserved for astronomy development, and is the site of other existing astronomical observatories. Astronomy facilities under an approved management plan, such as the Project, are an expressly permitted land use in the resource subzone of the Conservation District pursuant to HAR § 13-5-24, as discussed above. The Project, strives to set a new standard for achieving compatibility with not just the physical locality as required by this criterion, but with all interests and constituencies. The Project's location was chosen to remove it from areas of greatest cultural sensitivity and practice, to avoid disturbance of biological and recreational resources, and to minimize its visual impacts. Accordingly, because there has already been considerable astronomy development in the Astronomy Precinct, and because the

Project will fulfill the site's designated purposes and was carefully designed to achieve compatibility with the locality and surrounding area, it satisfies the fifth criterion.

6. The Project Preserves or Improves Upon the Existing Physical and Environmental Aspect of the Land

The sixth criterion, § 13-5-30(c)(6), states that 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." This criterion also requires the assessment of a project in the context of its *existing* surrounding environment, including the development that has already occurred. The CDUA and other evidence will show that the Project will be built in a location within the Conservation District specifically contemplated by the Hawai'i Administrative Rules to be used for astronomical observatories. It will be one observatory among others, but is noteworthy for its physical removal from traditional cultural properties and its conscious efforts to minimize its impacts on the surrounding environment. As DLNR staff concluded, when viewed from the perspective of the whole summit region, the physical and environmental aspects will at least be preserved, and, in some respects, will be improved upon.

In addition, various mitigation measures that will ameliorate potential and pre-existing impacts have been considered and are contemplated, including that, over time, existing telescopes on the Kūkahau'ula summit will be decommissioned and removed. The University's long-term goal is to have fewer telescopes in the summit region than exist today, while maintaining Mauna Kea's status as a world class center for education and research. The reduction in the number of telescopes will enhance the environmental aspects of the region by reducing the physical and visual presence of the structures. Therefore, the plan for this Project and the area is consistent with existing uses and planned improvements so that the sixth criterion is met.

7. The Project Does Not Result in a Subdivision of Land

The seventh criterion, HAR § 13-5-30(c)(7), states: "Subdivision of land will not be utilized to increase the intensity of land uses in the conservation district." The Project does not involve the subdivision of land. Accordingly, the seventh criterion is not an impediment to approval.

8. The Project Will Not Be Materially Detrimental to the Public Health, Safety, and Welfare

The eighth criterion, HAR § 13-5-30(c)(8), states: "The proposed land use will not be materially detrimental to the public health, safety and welfare." DLNR staff observed that it had seen no evidence that the Project will be detrimental to public health, safety, and welfare. In fact, there is no such credible evidence. As the CDUA and other evidence will demonstrate, the Project has been carefully planned to address health and safety concerns to the maximum extent possible. Noise generated by the Project will be below allowable limits, and will not impact any culturally significant sites. Wastewater and hazardous waste will be collected, removed from the mountain, and taken to appropriate treatment and/or disposal facilities. Management strategies will be in place for handling hazardous materials with extreme care and in accordance with all applicable regulations, and plans will be in place to prevent spill incidents and also to contain and remediate such events if, despite all precautions, they occur.

As for the public welfare, as DLNR staff concluded, the Project will be a benefit rather than a detriment. It will result in near-term and long-term economic gains from construction contracts, new jobs, and research grants. It will yield significant educational benefits, keeping Hawai'i's schools at the forefront of astronomy. And it will contribute to the greater good of human knowledge. Thus, the eighth criterion is fully satisfied.

B. THE TMT PROJECT IS CONSISTENT WITH ARTICLE XII, SECTION 7 OF THE HAWAI'I STATE CONSTITUTION AND *KA PA'AKAI*

1. Obligations Under Article XII, Section 7 of the Hawai'i State Constitution and *Ka Pa'akai*

The Hawai'i State Constitution mandates that the State recognize and protect customary and traditional native Hawaiian practices. 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.*

(Emphasis added.) This provision acknowledges that the State may permit development that interferes with the exercise of customarily and traditionally exercised Hawaiian rights; however, it places upon the State an affirmative duty "to protect the *reasonable exercise* of customarily and traditionally exercised rights of native Hawaiians *to the extent feasible* under the Hawai'i State Constitution and relevant statutes." *Public Access Shoreline Hawaii v. Hawaii Cnty. Planning Comm'n*, 79 Hawai'i 425, 437, 903 P.3d 1246, 1258 (1995) ("*PASH*") (emphasis added); *Ka Pa'akai*, 94 Hawai'i at 45, 7 P.3d at 1082 (2000). As such, State agencies may not act "without independently considering the effect of their actions on Hawaiian traditions and practices." *See Ka Pa'akai,* 94 Hawai'i at 46, 7 P.3d at 1083.

The Hawai'i Supreme Court, in *Ka Pa'akai,* developed a framework "to accommodate the competing interests of protecting native Hawaiian culture and rights, on the one hand, and economic development and security, on the other." *Ka Pa'akai,* 94 Hawai'i at 46, 7 P.3d at 1083. This framework provides that:

> In order to fulfill its duty to preserve and protect customary and traditional native Hawaiian rights to the extent feasible, the [State] . . . must—at a minimum—make specific findings and conclusions as to the following: (1) the identity and scope of "valued cultural, historical, or natural resources" in the petition 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 [State] to reasonably protect native Hawaiian rights if they are found to exist.

Id. at 47, 7 P.3d at 1084. Moreover, "[t]he power and responsibility to determine the effects on customary and traditional native Hawaiian practices and the means to protect such practices may not validly be delegated by [the agency] to a private petitioner who, unlike a public body, is not subject to public accountability." *Id.* at 52, 7 P.3d at 1089. The University was established as the state university of the State of Hawai'i. Therefore, both the University and the Board share the constitutional duty to protect the reasonable exercise of customary and traditional native Hawaiian practices.

2. The Project and Contested Case Will Meet the Requirements of *Ka Pa'akai*

As the evidence in this case will show, the University has undertaken substantial efforts to identify natural and cultural resources as well as customary and traditional practices that could be impacted by the Project, and to quantify the potential impacts to these resources and practices, as well as develop means to mitigate any impacts.[5] These efforts are reflected in numerous studies, plans, and impact statements for this area. By engaging in these efforts, the University has satisfied the requirements of *Ka Pa'akai.*

As will be shown at the hearing, the Project does not unreasonably impair native Hawaiian traditional and customary practices. The Project has purposely been located in an area removed from the most culturally sensitive locations in the summit region. It is sited in a place

[5] As noted in Section IV.A.4.b, even though the definition of "Natural resource" in HAR § 13-5-2 does not expressly include customary and traditional practices, in an abundance of caution, the University evaluated the impact of the Project on these practices in the context of HAR § 13-5-30(c)(4); and, in doing so, also satisfied the review concerns addressed in *Ka Pa'akai.*

where no religious or traditional and customary cultural practices are documented. Other than limiting access to the actual construction site for safety reasons and to the interior of the Observatory facilities once construction is completed, the Project will not restrict anyone from any portion of the Mauna Kea summit area that is otherwise presently accessible. Under these circumstances, the University has taken appropriate actions to ensure the Project does not and will not unreasonably interfere with any customary and traditional practices.

In addition, the Board—through the Hearing Officer and this contested case proceeding—will independently assess the impact of the Project on Hawaiian traditional and customary practices. By holding this contested case hearing to make independent findings about the Project's "effects on customary and traditional native Hawaiian practices and the means to protect such practices," the Board is fulfilling its duties under *Ka Pa'akai*. The Board retains supervisory and ultimate management control over the University's leased areas and over any decisions that might have an impact on native Hawaiian traditional and customary practices. The Board has reviewed and approved the CMP and the corresponding sub-plans and retains ultimate authority to enforce compliance with those plans. Even if the Board approves the CDUA, it can still enforce compliance with the approved CDUP, as it has done in the past. Therefore, approval of the CDUA will be consistent with the Board's duties under *Ka Pa'akai*.

C. THE TMT PROJECT IS CONSISTENT WITH ARTICLE XI, SECTION 1 OF THE HAWAI'I STATE CONSTITUTION AND THE PUBLIC TRUST DOCTRINE

1. Obligations Under Article XI, Section 1 of the Hawai'i State Constitution and the Public Trust Doctrine

Article XI, section 1 of the Hawai'i State Constitution states:

> CONSERVATION AND DEVELOPMENT OF RESOURCES
>
> Section 1. 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.

(Emphasis added.) The Hawai'i Supreme Court has stated that this provision "manifests the framers' intent to incorporate the notion of the public trust into our constitution" and thus "adopt[s] the public trust doctrine as a fundamental principle of constitutional law in Hawai'i." *In re Water Use Permit Applications*, 94 Hawai'i 97, 131-32, 9 P.3d 409, 443-44 (2000) ("*Waiahole*"). The Court has never articulated the precise scope of resources covered by Hawai'i's public trust doctrine; the doctrine is, however, traditionally associated with and/or applied to water resources. As such, it is not entirely clear that the public trust doctrine applies to the land that is specifically approved for astronomy use. Nonetheless, in an abundance of caution, the University submits that the evidence will show that the Project is consistent with the public trust doctrine.

Article XI, section 1 expressly provides that the State is required to both "conserve and protect" natural resources *and* to "promote the development and utilization of" these resources. *See also Waiahole,* 94 Hawai'i at 138-39, 9 P.3d at 450-51. Thus, the public trust doctrine "embodies a dual mandate of 1) protection and 2) maximum reasonable beneficial use." *Id.* The public trust doctrine requires the State and its agencies to "take the initiative in considering, protecting, and advancing public rights in the resource at every stage of the planning and decision-making process." *Id.* at 143, 9 P.3d at 455. It must consider the cumulative impact of the existing uses and implement reasonable measures to mitigate such impact. *Id.* "In sum, the state may compromise public rights in the resource pursuant only to a decision made with a level

of openness, diligence, and foresight commensurate with the high priority these rights command under the laws of our state." *Id.*

2. Consideration of the Public Trust is Encompassed in the Board's Evaluation of the Eight Criteria

Even though the public trust doctrine is a recognized legal principle applicable in this state, that does not mean that a distinct legal claim exists for its enforcement in all circumstances or forums. Rather, the public trust doctrine may be viewed in the context of the relevant applicable statute, if it embodies the principles of the public trust. *See Waiahole*, 94 Hawai'i at 130-33, 9 P.3d at 442-45. In *Waiahole*, the Court found that the public trust principles, and the agency's public trust obligations, were already incorporated into the Water Code. *See id.* at 130, 9 P.3d at 442.

Similarly, in the present case, 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." HRS § 183C-1. 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 resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety and welfare.

HAR §13-5-1. The criteria set out in HAR § 13-5-30(c) clearly promote these objectives: Section 13-5-30(c)(1) requires that any proposed land use in the Conservation District be consistent with this purpose; 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 Section 13-5-30(c)(8) requires that the proposed land use not be

materially detrimental to the public health, safety, and welfare. Thus, the criteria set out in HAR § 13-5-30(c) embody the public trust doctrine, and a thorough and diligent assessment of those criteria necessarily addresses the concerns that doctrine protects. *See Morimoto v. Bd. of Land and Natural Res.*, 107 Hawai'i 296, 308, 113 P.3d 172, 184 (2005) (where Board properly concluded that the project would not cause substantial adverse impacts on natural resources of project area, a claim on appeal that the Board'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 Board"). In addition, the efforts taken to review issues addressed by the public trust doctrine have clearly been incorporated and preserved in the record and demonstrate compliance with those principles whether they are deemed to apply here or not. By properly assessing whether the Project satisfies the Eight Criteria, as well as the applicant's efforts to deal with specific additional concerns covered by those criteria and state law, the Board will be able to satisfy its obligations under the public trust doctrine "both to 'protect' natural resources *and* to promote their 'use and development.'" *Waiahole*, 94 Hawai'i at 138-39, 9 P.3d at 450-51 (emphasis in original). Since the Project satisfies the Eight Criteria, which embody and implement the concepts and principles that are implicit in the public trust doctrine, the Project is also consistent with the public trust doctrine and Article XI, section 1 of the Hawai'i State Constitution. *See supra,* Section IV.A.

3. Regardless of the Eight Criteria, the Project is Consistent with the Public Trust Doctrine

Even if the public trust obligations are viewed as independent of the Eight Criteria, approval of the Project as set forth in the CDUA is consistent with and satisfies any public trust obligations. The Hawai'i Supreme Court has recognized that the State's obligation to "conserve" public trust resources, as set forth in Article XI, section 1, involves "the protection, improvement

and *use* of natural resources according to principles that will assure their *highest economic or social benefits*." *Waiahole*, 94 Hawaii at 139-40, 9 P.3d at 451-52 (citing Stand. Comm. Rep. No. 77, in 1978 Proceedings, at 685-86). That requires a balancing of competing uses on a case-by-case basis. *See id.* at 142, 9 P.3d at 454. "The result ... is controlled development of resources, rather than no development." *See id.* at 141, 9 P.3d at 453 (ellipses in original).

The Project is entirely consistent with the public trust doctrine. As explained above and will be shown, it represents controlled development that promotes the best economic and social interests of the State. It serves important purposes, both educational and economic, as it advances Hawai'i's prominence as a leader in the field of astronomy, in both a national and a global context. The potential benefits from the proposed land use include and extend beyond the local residents, and would substantially contribute to the collective body of scientific knowledge. There is no better land use for the site than the pursuit of scientific discovery for the benefit of all. The Project has been designed and located with an unprecedented degree of sensitivity to both community and environmental concerns, and, as demonstrated in the CDUA and FEIS, its impacts will be mitigated to the fullest extent possible. Moreover, the Project's construction, operation, and ultimate decommissioning will all take place within a comprehensive management framework that places environmental and community concerns at the forefront. Therefore, the Project is entirely consistent with the important policy concerns of the public trust doctrine.

V. CONCLUSION

The TMT Project, once built, will secure Hawai'i's place as a leader in astronomy for the foreseeable future and foster scientific discoveries of the universe around us. In addition to furthering the tradition of astronomy on Mauna Kea, the Project will advance public higher education in the State and attract researchers from all over the world to collaborate with

University students and faculty and the Mauna Kea observatories. The Project will create high quality STEM jobs commanding higher wages for our local residents and will help to diversify a local economy that is highly dependent on military and tourism spending.

The University understands that in the present context, its most important role is as the steward of Mauna Kea. The University has carefully and thoroughly satisfied each of the Eight Criteria for issuance of the Conservation District Use Permit. The University carefully evaluated the impacts of the Project and determined that the Project is the highest and best use of the land, with minimal risk to the environment. The Project has design elements that mitigate adverse impacts to native Hawaiian traditional and cultural practices. Based on the evidence that will be presented, the University has satisfied its obligations under *Ka Pa'akai*, as well as Article XII, section 7 and Article XI, section 1 of the Hawai'i State Constitution.

For these reasons, the Board should approve the Project's CDUA.

DATED: Honolulu, Hawai'i, October 11, 2016.

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BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAI'I

IN THE MATTER OF Contested Case Hearing Re Conservation District Use Application (CDUA) HA-3568 for the Thirty Meter Telescope at the Mauna Kea Science Reserve, Ka'ohe Mauka, Hāmakua, Hawai'i, TMK (3) 4-4-015:009	Case No. BLNR-CC-16-002 CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

The undersigned certifies that an electronic copy of the foregoing document was served upon the following parties by email unless indicated otherwise:

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