

COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAI'I

Surface Water Use Permit Applications,) Case No. CCH-MA15-01
Integration of Appurtenant Rights and)
Amendments to the Interim Instream Flow) HUI O NĀ WAI 'EHĀ'S, MAUI
Standards, Nā Wai 'Ehā Surface Water) TOMORROW FOUNDATION, INC.'S,
Management Areas of Waihe'e, Waiehu,) AND OFFICE OF HAWAIIAN AFFAIRS'
'Īao, & Waikapū Streams, Maui) JOINT PROPOSED FINDINGS OF FACT,
) CONCLUSIONS OF LAW, AND DECISION
) AND ORDER; CERTIFICATE OF SERVICE
)

HUI O NĀ WAI 'EHĀ'S, MAUI TOMORROW FOUNDATION, INC.'S,
AND OFFICE OF HAWAIIAN AFFAIRS' JOINT PROPOSED FINDINGS OF FACT,
CONCLUSIONS OF LAW, AND DECISION AND ORDER

AND

CERTIFICATE OF SERVICE

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Pursuant to Minute Order No. 9, dated November 29, 2016, as last amended by Minute Order No. 11, dated February 10, 2017, Petitioner-Intervenor Hui o Nā Wai 'Ehā and Maui Tomorrow Foundation, Inc. (together, the "Community Groups") and Intervenor Office of Hawaiian Affairs ("OHA") hereby respectfully submit their Joint Proposed Findings of Fact, Conclusions of Law, and Decision and Order in this consolidated contested case hearing.

In this case, numerous individual community members filed SWUPAs and supporting materials and participated in the contested case hearing on a *pro se* basis. Many of these *pro se* community member applicants took up the invitation by the University of Hawai'i at Mānoa William S. Richardson School of Law's Environmental Law Clinic offering assistance in preparing the applicants' filings. Because these clinic-assisted applicants follow a consistent format and standard, the Community Groups and OHA address them together as a group for organization purposes in these proposed FOFs. *See* Proposed Findings of Fact, Part VI. To avoid any confusion regarding attribution or representation, the Community Groups and OHA make clear that they are submitting their Joint Proposed FOFs, COLs, and D&O on their own

behalf, to inform and assist the Hearings Officer's and Commission's decisionmaking, and *not at the behest or on behalf of any of the individual applicants.*

The Community Groups and OHA provide a full set of recommendations regarding the determination of interim instream flow standards ("IIFSs"), including key proposed provisions regarding implementation and monitoring. *See Proposed Conclusions of Law, Part IV.* The Community Groups and OHA, however, do not provide recommendations regarding determinations for each and every water use permit application ("SWUPA") in this case, but rather provide their recommendations on certain SWUPAs and reserve their position on the others.

The Community Groups and OHA thank the Commission for this opportunity to submit these proposals, and the Hearings Officer for his long-running years of work on this important case.

DATED: Honolulu, Hawai'i, February 17, 2017.



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TABLE OF CONTENTS

PROPOSED FINDINGS OF FACT

I.	PROCEDURAL BACKGROUND SUMMARY	A-1
II.	INSTREAM USES AND VALUES	A-6
	A. Native Stream Life and Habitats	A-7
	B. USGS Streamflow Report	A-14
	C. Parharm Report	A-19
	D. Commission Staff Report and Testimony	A-23
	E. Estuarine and Nearshore Marine Ecosystem and Resources	A-28
	F. Wetland Ecosystems and Resources	A-31
	G. Recreation and Aesthetic Values	A-34
	H. Scientific Study and Education	A-36
	I. Water Quality	A-37
	J. Needs of Downstream Users	A-39
	K. Groundwater Aquifer Recharge	A-40
III.	NATIVE HAWAIIAN RIGHTS	A-43
IV.	FRAMEWORK FOR DETERMINING LAND AND WATER USES AT THE TIME OF THE MĀHELE	B-1
	A. Physical Evidence	B-3
	B. Kama‘āina Testimony, Oral History, and Historical Records	B-4
	C. Māhele Records Interpretation and Analysis	B-5
	1. Historical background on Māhele records	B-5
	2. Guidelines for interpreting kuleana award records	B-7
V.	AGRICULTURAL WATER DUTIES	B-12

A.	Water Duty for Wetland Kalo.....	B-12
B.	Water Duty for Diversified Agriculture.....	B-15
VI.	PRO SE COMMUNITY MEMBERS' SWUPAS.....	B-17
A.	WAIHE'E: Waihe'e River.....	B-17
B.	WAIHE'E: Waihe'e Ditch – Pi'ihana Field 49 Kuleana Pipe & Pi'ihana Mill Pipe.....	B-27
C.	WAIHE'E: Waihe'e Ditch – Wailuku Town Kuleana Ditch.....	B-30
D.	WAIHE'E: Waihe'e Ditch (Waihe'e/'Īao/Waikapū).....	B-34
E.	WAIHE'E: Spreckels Ditch – North Waihe'e 'Auwai.....	B-36
F.	WAIHE'E: Spreckels Ditch – South Waihe'e 'Auwai & Field 4 'Auwai.....	B-61
G.	WAIHE'E: Spreckels Ditch – Reservoir 25 – WWC Line.....	B-103
H.	WAIIEHU: North Waiehu Stream.....	B-107
I.	WAIIEHU: North Waiehu 'Auwai.....	B-109
J.	WAIIEHU: South Waiehu Stream.....	B-114
K.	WAIIEHU: South Waiehu 'Auwai.....	B-119
L.	WAIIEHU: Waiehu Stream.....	B-123
M.	WAILUKU: 'Īao-Maniania Ditch – Pu'uohala Kuleana Pipe.....	B-124
N.	WAILUKU: Wailuku River.....	B-127
O.	WAILUKU: 'Īao-Waikapū Ditch – Reservoir 10.....	B-140
P.	WAIKAPŪ: Waikapū Stream/Kuleana 'Auwai (Waikō Road).....	B-147
Q.	WAIKAPŪ: South Waikapū Ditch – Reservoir 1 – Kuleana 'Auwai.....	B-169
R.	Miscellaneous.....	B-179
1.	Waihe'e.....	B-179
2.	Waiehu.....	B-179
3.	Wailuku.....	B-182
4.	Waikapū.....	B-186

VII.	RIGHTS TO KULEANA WATER COURSES OR ACCESS.....	B-187
VIII.	COMMERCIAL USERS AND OTHER WWC CUSTOMERS.....	C-1
A.	HC&S (SWUPA 2205).....	C-2
1.	Closure of Sugar Operations.....	C-2
2.	Water Needs for Diversified Agricultural Operations.....	C-4
3.	Well 7.....	C-8
4.	System Losses.....	C-11
B.	Waikapu Properties, LLC, (SWUPAs 2297N, 2356, 3417N, 3472N & 2206) and Maui Tropical Plantation (SWUPA 2203).....	C-13
1.	WP’s Appurtenant Rights Claims.....	C-14
2.	MTP’s Appurtenant Rights Claims.....	C-15
3.	WP’s Permit Requests and Water Needs.....	C-18
4.	MTP’s Permit Request and Water Needs.....	C-31
5.	Alternatives.....	C-32
C.	Makani Olu Partners, LLC; Avery & Mary Chumbley (SWUPAs 2207/2208N).	C-34
D.	MMK Maui, LP (SWUPA 2186).....	C-38
1.	Permit Request and Water Needs.....	C-38
2.	Alternatives.....	C-39
E.	Wailuku Country Estates (SWUPAs 2189, 2190N, 2195).....	C-42
1.	Appurtenant Rights Claims.....	C-42
2.	Permit Request and Water Needs.....	C-47
3.	Alternatives.....	C-52
F.	Waikapu Ranch Owners.	C-53
1.	Background.....	C-53
2.	Ken Ota (SWUPA 3665N).....	C-55

3.	Anthony Takatani (SWUPA 4444N).....	C-56
4.	Kurt Sloan (SWUPA 3671N).....	C-58
5.	Gerald Lau Hee (SWUPA 4442N)	C-61
6.	Shane Victorino (SWUPA 4445N).....	C-62
G.	Wahi Ho‘omaluku (SWUPA 2351N).....	C-64
1.	Background.....	C-64
2.	Appurtenant Rights Claims.....	C-65
3.	Permit Request and Water Needs.	C-72
H.	Wailuku Water Company (SWUPA 2157).....	C-75
I.	Miscellaneous Applicants.....	C-76
J.	Recycled Water Resources.	C-79

PROPOSED CONCLUSIONS OF LAW

I.	LEGAL FRAMEWORK	1
A.	Public Trust Doctrine.....	1
B.	Instream Flow Standards.....	4
C.	Traditional and Customary Native Hawaiian Rights.....	8
D.	Appurtenant Rights.....	12
E.	Extinguishment of Appurtenant Rights.	15
F.	Protection of T&C and Appurtenant Rights in Instream Flow Standards and Water Use Permitting.....	19
G.	Water Use Permit Applicants’ Burden of Proof.	21
H.	Structure and Steps for Decisionmaking in This Combined Contested Case Hearing.....	26
I.	Rights to the “Water Course” or “Means” of Water Use and Access.	29
II.	INSTREAM USES AND VALUES OVERVIEW.....	33

III.	NONINSTREAM USES OVERVIEW	40
A.	Appurtenant and T&C Rights and Lo'i Kalo Water Uses.....	40
B.	HC&S.....	41
C.	Atherton Entities.....	48
D.	MMK Golf Courses.....	52
E.	Wailuku County Estates.....	54
F.	MDWS.....	56
G.	Other WWC Customers; WWC System Losses	57
IV.	IIFS DETERMINATION AND IMPLEMENTATION.....	58
A.	Background and Context.....	58
B.	Determination of the IIFS and Balancing of Instream and Noninstream Uses.....	67
C.	Consideration of Economic Impacts.....	78
D.	Ka Pa'akai Analysis.....	80
E.	Implementation.....	82
1.	Monitoring	82
2.	Flow Passage at the Diversions.....	83
3.	Revision of IIFS Based on 'Auwai Restoration.....	84
V.	APPURTENANT RIGHTS AND WATER USE PERMITS DETERMINATION AND IMPLEMENTATION	85
A.	Applicants with Appurtenant and/or T&C Rights.....	85
1.	<i>Pro Se</i> Community Applicants	85
2.	Wahi Ho'omalu (SWUPA 2351).....	88
B.	Existing Use SWUPAs.....	90
1.	Pro Se Community Applicants.....	90
2.	HC&S (SWUPA 2205).....	90

3.	MMK Maui, LP (SWUPA 2186).....	92
4.	Wailuku Country Estates (SWUPAs 2189, 2190N & 2196).....	93
C.	New Use SWUPAs.....	95
1.	Wahi Ho‘omalu (SWUPA 2351–New Uses).....	95
D.	Conclusions re: Recycled Water.....	95
E.	Administration of Permits and Rights.....	96
1.	Water Course and Access Rights and Appointment of a Special Master	96
2.	Water Use Reporting.....	98
Table 1: Kuleana On Ditch, Upstream, or Downstream.....		T-1
Table 2: Approved Appurtenant Rights Quantifications		T-4
Table 3: Approved SWUPAs for Applicants with T&C and/or Appurtenant Rights.....		T-8
Table 4: Approved “Existing Use” SWUPAs.....		T-13

PROPOSED DECISION AND ORDER

PROPOSED FINDINGS OF FACT

I. PROCEDURAL BACKGROUND SUMMARY

A-1. The background procedural history of the previous Nā Wai ‘Ehā proceedings is summarized in the Commission’s Findings of Fact (“FOFs”), Conclusions of Law (“COLs”), and Decision and Order (“D&O”) filed on June 10, 2010 (“2010 Decision”) and Order Adopting: 1) Hearings Officer’s Recommendation on the Mediated Agreement Between the Parties; and 2) Stipulation re Mediator’s Report of Joint Proposed FOFs, COLs, D&O, dated April 17, 2014 (“2014 Order”) and incorporated by reference herein. *See* 2010 Decision FOFs 1-33, 2014 Order FOFs 1-13. This history extends as far back as 2001, when the petition to designate the ‘Āao and Waihe‘e Aquifers as ground water management areas was filed. The original IIFS proceeding began on June 25, 2004 with the filing of the IIFS petition; the 24-day contested case hearing concluded on October 14, 2008; Hearings Officer-Commissioner Lawrence Miike submitted his proposed decision on April 9, 2009; and the Commission majority issued the 2010 Decision, with the Hearings Officer-Commissioner dissenting, on June 10, 2010.

A-2. On appeal, the Hawai‘i Supreme Court issued its decision vacating and remanding the 2010 Decision on August 15, 2012. In the remand IIFS proceeding, after completing pre-hearing briefing, the parties entered into mediation, which led to the Commission issuing the 2014 Order on April 17, 2014.

A-3. While the original IIFS proceeding was ongoing, the Commission, in response to the Community Groups’ petition, designated Nā Wai ‘Ehā as a surface water management area on March 13, 2008, based on the statutory criterion that “serious disputes respecting the use of surface water resources are occurring.” *See* Haw. Rev. Stat. § 174C-45(3). This triggered the

water use permitting process that is incorporated in this combined contested case hearing. The effective date of designation was April 30, 2008, when the public notice was published, and the deadline to file existing use permit applications was one year later, April 30, 2009.

A-4. As of the April 30, 2009 “existing use” application deadline, the Commission received 125 SWUPAs, 115 of which were accepted as complete. As of September 27, 2011, 72 SWUPAs for “new uses” were filed, 51 of which were requests for additional water by applicants who had filed existing use SWUPAs. None of the new use SWUPAs were formally accepted.

A-5. In April to June 2009, the Commission served and published a series of six notices and requests for comments on the existing use SWUPAs, dividing the SWUPAs among the six installments. Comments and objections were filed from May to June 2009, within the prescribed deadlines in each notice. Responses to the comments and objections were also filed.

A-6. On December 1 and 2, 2010, the Commission held the initial public hearing on Maui for the SWUPAs for existing uses. The public hearing was left open and continued on a yearly basis until it was closed on October 14, 2015.

A-7. On September 27, 2011, the Commission approved a three-step process for determining appurtenant water rights in Nā Wai ‘Ehā: (1) notice to potential claimants of the Commission’s intent to address appurtenant rights claims as part of the permitting process; (2) determination of whether the claimant’s land has appurtenant rights; and (3) quantification of the amount of water for the appurtenant right. The procedural history related to step one and the “provisional recognition” of appurtenant rights under step two is summarized in the Hearings Officer’s Findings and Recommendations, dated October 14, 2014, as modified by the Hearing’s Officer’s Amended and Revised Findings and Recommendations, dated December 31, 2014

(Attachments A & B, respectively, to the Commission’s Nā Wai ‘Ehā Provisional Order on Claims that Particular Parcels Have Appurtenant Rights, dated December 31, 2014), and is incorporated by reference herein.

A-8. Notices of appurtenant rights claims were published in November 1 and 8, 2011, August 29 and September 5, 2012, and March 4 and 11, 2013, and written objections were filed on September 19, 2012 and March 25, 2013.

A-9. On August 15, 2013, the Commission delegated authority to the Chairperson to appoint a hearings officer to hear appurtenant rights claims in Nā Wai ‘Ehā and make recommendations to the Commission; Dr. Lawrence Miike was appointed. On August 21, 2013, the Commission determined that a contested case hearing is required for the provisional recognition of appurtenant rights in Nā Wai ‘Ehā.

A-10. On August 30, 2014, the Hearings Officer issued initial Findings and Recommendations regarding provisional recognition of appurtenant rights, to which parties filed objections on October 9, 2014. The Commission held hearings on Maui on October 14 and November 12, 2014 regarding the proposed provisional recognition and objections.

A-11. On December 31, 2014, the Commission issued its Nā Wai ‘Ehā Provisional Order on Claims that Particular Parcels Have Appurtenant Rights (“Provisional Order”). The Provisional Order adopted the Hearing’s Officer’s Findings and Recommendations and the attached Exhibit 7 summarizing the appurtenant rights information, as amended, and subject to later additional information and determinations. *Id.* at 2-3. The Provisional Order also set forth the steps in which the Commission would address subsequent issues. These included, first, addressing the question of “how much water a particular parcel has a claim to use,” and the SWUPAs for “water on parcels involving Appurtenant rights and quantify[ing] the reasonable

beneficial use of water on these parcels.” *Id.* at 2. Next, the Commission would consider “all other [SWUPAs] for existing uses.” *Id.* Further, “after the full factual record is developed,” the Commission would address legal arguments, including but not limited to the issue of “severance” of appurtenant rights under *Reppun v. Bd. of Water Supply*, 65 Haw. 531, 656 P.2d 57 (1982).
Provisional Order at 2.

A-12. On January 28, 2015, the Commission determined that a contested case hearing is required for the determination of surface water use permits in Nā Wai ‘Ehā and designated authority to the Chairperson to appoint a hearings officer. Dr. Miike was appointed.

A-13. On June 25, 2015, the Hearings Officer issued Minute Order No. 1, which scheduled a prehearing conference for the contested case hearing on appurtenant rights and SWUPAs on August 11, 2015 and also previewed the contested case hearing process, categories of applications, and additional documentation necessary to address the final appurtenant rights and SWUPA determinations.

A-14. At the August 11, 2015 prehearing conference and in subsequent Minute Order No. 2 dated October 6, 2015, the Hearings Officer further discussed (1) the evidence applicants must provide for the quantification of appurtenant rights and the amounts of water requested for water use permits, (2) the procedures for submitting written testimonies and documents, and (3) the tentative start date of the contested case hearing in June 2016 and the date of the next pre-hearing conference on November 5, 2015.

A-15. After the November 5, 2015 prehearing conference, Minute Order No. 3 dated January 15, 2016 set the dates for the prehearing submissions and the start of the contested case hearing and also specified document, format, filing, and service requirements. Minute Order No.

4 dated March 7, 2016 amended the service requirements and the prehearing and hearing timetable in response to concerns regarding pro se applicants' hardships in serving all parties.

A-16. Opening submissions were filed on February 5, 2016, and Minute Order No. 3 extended the time to file until March 18, 2016. Responsive submissions were filed on April 29, 2016. Pursuant to an extension provided in Minute Order No. 5 dated May 16, 2016, Reply submissions were filed on May 31, 2016.

A-17. On March 9, 2016, the Community Groups filed a combined Petition to Amend Upward the Interim Instream Flow Standards for [Nā Wai 'Ehā] ("2016 IIFS Petition"); and Motion to Consolidate or Consider in Parallel with Case No. CCH-MA 15-01. The petition requested an increase in the IIFSs established under the 2014 Order, based on the newly announced pending closure of Hawaiian Commercial & Sugar ("HC&S") and historical precedents of other plantation closures including the *Waiāhole* case. It also requested the Commission to consolidate or consider or parallel the petition and the pending SWUPA proceeding.

A-18. After taking up the 2016 IIFS Petition on June 17, 2016 at its regularly scheduled meeting, the Commission, on July 7, 2016, issued an Order accepting the petition for further consideration and granting the motion to consolidate the petition with CCH-MA 15-01.

A-19. A prehearing conference was held on June 27, 2016 to discuss the organization and schedule of the contested case hearing. At the prehearing conference, the Hearing Officer expressed the expectation that each applicant appear to testify in person during the contested case hearing, unless otherwise excused.

A-20. The contested case hearing was held over 11 hearing days on July 11-13, 18-19, 22, 28-29, September 19-20, and October 14, 2016. During the hearing, a total of 96 witnesses testified, and 77 applicants appeared and presented testimony.

II. INSTREAM USES AND VALUES

A-21. In the original proceeding, the Hawai‘i Supreme Court observed: “as Hui/MT shows, the record contains substantial evidence that establishing mauka-to-makai flow in all the streams of Nā Wai ‘Ehā would support the public interest by fostering many of the statutorily-designated instream uses.” *In re ‘Īao Ground Water Mgm’t Area*, 128 Hawai‘i 228, 251, 287 P.3d 129, 152 (2012) (“*Nā Wai ‘Ehā*”).

A-22. This case incorporates the record from the previous proceedings regarding the importance of instream flow—and, conversely, the harms of streamflow diversions—to public trust instream uses. The following summarizes the scientific and cultural foundations in the record, many of which this Commission previously established in findings and the Hawai‘i Supreme Court emphasized on appeal. *See FOFs infra*.

A-23. Overall, the Commission has designated each of Nā Wai ‘Ehā’s rivers and streams as “Candidate Streams for Protection,” a distinction it conferred on only 44 out of the 376 perennial streams in Hawai‘i and only nine streams on Maui. The Commission also designated the Nā Wai ‘Ehā rivers and streams as “Blue Ribbon Resources,” meaning that they featured the “few very best resources” in their respective resource areas. 2010 Decision, FOF 63.

A. Native Stream Life and Habitats.

A-24. The life cycle of native amphidromous stream life—in which adults breed in the streams and lay eggs, the eggs and larvae drift to the ocean, and the larvae develop for various periods of time before migrating back into the streams as postlarvae—requires continuous flow to biologically link the mountains (mauka) to the ocean (makai). Benbow WT 9/14/07, ¶ 10; Ex. A-221 (Way et al. study) at 54 (MA06-01).

A-25. The scientific evidence and testimonies all recognized the importance of instream flows to the native stream animals and ecosystem. The degrees of emphasis of this importance included:

- “the single most important requirement,” DAR, Hawaiian Streams: The Mauka to Makai Connection, <http://dlnr.hawaii.gov/dar/habitat/streams/about-streams/> (cited in Community Groups’ 9/14/07 Open. Br. at 26);
- “[a]n overriding factor,” Benbow WT 9/14/07, ¶ 8; and
- “one of the most important components of the stream ecosystem, which ultimately determines the productivity,” Tr. 12/11/07 (Ford) at 60:19-23 (MA06-01).

A-26. As another example, a study by one of HC&S’s consultants in the original IIFS proceeding explained that:

The importance of base flow to stream ecology has been recognized. Particularly in periods of seasonally natural low flows, base flow is important to transport larvae to the marine environment, support post-larval recruitment back into the stream, and augment the near and offshore nutritional pool.

Ex. A-220 (Lindstrom study) at 54-56 (MA06-01).

A-27. The importance of instream flow to the stream ecosystem has been long established and recognized by this Commission. In the *Waiāhole* case, for example, the Commission found that “high base flow is important to the estuary ecosystem as well as the

stream itself,” and that “generally, the higher the volume of instream flow and closer the streamflow approaches its natural pre-diversion levels, the greater the support for biological processes in the stream and its ecosystem.” *In re Waiāhole Ditch Combined Contested Case Hr’g*, 94 Hawai‘i 97, 158, 146, 9 P.3d 409, 470, 458 (2000) (“*Waiāhole I*”).

A-28. Likewise, in the original Nā Wai ‘Ehā proceeding, the Commission found the disruption of natural flow via large-scale offstream diversions to be an “overriding factor” impairing the biological and ecological integrity of Central Maui streams. 2010 Decision, FOF 68.

A-29. Offstream diversions compromise the life cycles of native amphidromous species in numerous ways that compound the negative impacts on their overall populations from mauka to makai. 2010 Decision, FOF 71; Benbow WT 9/14/07, ¶ 12 (MA06-01). These harms include but are not limited to the following:

A-30. Diversions diminish postlarval upstream recruitment by reducing flows that regenerate habitat and provide cues for postlarvae to migrate, and by restricting the availability of flow corridors through which the postlarvae can migrate. Benbow WT 9/14/07, ¶ 11 (MA06-01).

A-31. Diversions diminish larval drift to the ocean by capturing eggs and larvae. 2010 Decision, FOF 71; Benbow WT 9/14/07, ¶ 11; Tr. 12/12/07 (Payne) at 74:24 to 75:5, 75:21-24 (MA06-01). Diversions also diminish flows necessary to transport larvae to the ocean, delaying the transport of larvae to the marine environment and negatively affecting or killing larvae. 2010 Decision, FOF 73; Ex. A-220 at 55 (MA06-01). *See also* Tr. 10/14/08 (Lindstrom) at 59:8-11, 19:2-10 (MA06-01).

A-32. Diversions also reduce or eliminate the overall reproductive potential of ‘o‘opu. Benbow WT 9/14/07, ¶ 11 (MA06-01). ‘O‘opu reproduction has been shown to be consistently higher and significantly correlated with streamflow under relatively undiverted conditions, indicating that maintenance of median flows with prolonged periods of elevated discharge are important to successful reproduction. Ex. A-221 at 53, 64 (MA06-01).

A-33. Diversions degrade or destroy habitat, diminish food availability, and disturb species interactions and food web processes. Benbow WT 9/14/07, ¶¶ 9, 32 (MA06-01). Low flow has been shown to decrease in-stream primary and secondary productivity that would likely have strong effects at higher trophic levels, perhaps even magnifying the effects of flow. Ex. A-220 at 97, 69 (MA06-01).

A-34. Diversions allow for the persistence of harmful invasive species, as well as associated diseases and parasites, that would otherwise be flushed out of the stream during natural, undiverted flooding events. Benbow WT 9/14/07, ¶ 11 (MA06-01). *See also* Ex. A-220 at 54-55 (MA06-01) (observing the benefits of water “free of parasites” and that this factor “would most likely be negatively impacted by lower streamflow”).

A-35. In addition to their adverse impacts on amphidromous stream life, diversions also diminish the diversity, abundance, and biomass of instream macroinvertebrate communities, including native insects and crustaceans. Benbow WT 9/14/07, ¶ 13 (MA06-01).

A-36. Instream macroinvertebrate communities are scientifically recognized as indicia of overall health of aquatic ecosystems and a dominant and fundamental component of Hawaiian stream ecosystems. They provide and convert food resources for higher levels in the food web in the stream, riparian forest, and marine intertidal habitats. Benbow WT 9/14/07, ¶ 13 (MA06-01).

A-37. The “limnetic” fauna living entirely within the stream include hundreds of species and comprise the largest component of native stream biota and the bulk of biodiversity in Hawaiian streams. Tr. 12/12/07 (Polhemus, DAR) at 132:14 to 133: 8; Benbow WT 11/16/07, ¶ 7 (MA06-01). These species form the fundamental building blocks of the interconnected stream ecosystem and are necessary to make the community function in the long term. Tr. 12/12/07 (Polhemus, DAR) at 133:24 to 134:23 (MA06-01).

A-38. In the original proceeding, MA06-01, Eric Benbow, Ph.D. was qualified and testified as an expert on aquatic biology and ecology, including specifically the streams of Central Maui. Tr. 12/10/07 at 16:24 to 17:3. Dr. Benbow’s experience studying Central Maui streams, including Nā Wai ‘Ehā, spans from 1994 to the present and has totaled thousands of hours of field work and produced hundreds of thousands of data on Central Maui streams. Benbow WT 9/14/07, ¶¶ 2-8; Tr. 12/10/07 (Benbow) at 13-16 (MA06-01).

A-39. Dr. Benbow’s research has examined the impacts of streamflows and diversions on biological communities and has produced the first peer-reviewed studies on such impacts in Hawai‘i streams. Benbow WT 9/14/07, ¶ 2; Tr. 12/10/07 (Benbow) at 16:3-20 (MA06-01). Much of Dr. Benbow’s research on Central Maui streams has been published in peer-reviewed scientific journals, with more in preparation for publication. Benbow WT 9/14/07, ¶ 6; Ex. A-1 (MA06-01). Dr. Benbow’s research remains the most extensive, long-running, and in-depth body of field work and peer-reviewed published studies on the aquatic biology and ecology of Central Maui streams, including Nā Wai ‘Ehā.

A-40. Dr. Benbow’s multi-year studies of Central Maui streams have examined and documented numerous aspects of Nā Wai ‘Ehā instream biology and ecology, including but not

limited to postlarval recruitment, larval drift, and macro-invertebrate communities. *See* FOFs, *infra*.

A-41. There is a direct correlation between streamflow volume under non-freshet conditions and postlarval recruitment in Central Maui streams, such that increased streamflow correlates with increased recruitment at the stream mouth. 2010 Decision, FOF 75; Benbow WT 9/14/07, ¶ 37; Tr. 12/10/07 (Benbow) at 21: 9-12 (MA06-01).

A-42. In addition, the largest migrations of native stream species occur in streams with relatively minimal or no diversions. Benbow WT 9/14/07, ¶¶ 11, 36 (MA06-01). Thus, for example, Makamaka‘ole Stream recorded a migration peak two and a half times greater than Waihe‘e River, even though Waihe‘e River had almost twice the seasonal mean flows at the mouth. *Id.* ¶ 36.

A-43. Similar disparities in larval drift occur based on the relative extent of diversions. Thus, substantially less larval drift occurred in Waihe‘e River compared to its smaller but undiverted counterparts Makamaka‘ole and Kahakuloa Streams, which indicates lower reproductive populations upstream. Benbow WT 9/14/07, ¶ 36 (MA06-01).

A-44. Stream flow volume also positively correlates with the rate or speed of upstream migration. Benbow WT 9/14/07, ¶ 55 (MA06-01). Streamflows affect such migration rates by providing cues for o‘opu, ‘ōpae, and hīhīwai to move upstream. Benbow WT 9/14/07, ¶¶ 48-50, 55.

A-45. As for instream macroinvertebrates, including the endemic ‘ōpae and hīhīwai, the “overwhelming conclusion” is that historical diversion conditions significantly impair macroinvertebrate communities in Nā Wai ‘Ehā streams, which decreases the food and energy available to other organisms in the stream and indicates overall degradation of the native stream

food web and ecosystem. Benbow WT 9/14/07, ¶¶ 13, 28-32, 41-43, 47 (MA06-01). Multi-year research showed a 50 percent reduction in median flow caused a proportional decline in endemic insect populations in a year and almost complete loss over a longer-term period of four to five years. *Id.* ¶ 25. This was equivalent to the death of the miner’s canary, reflecting an overall decline in stream habitats and functions, with potential cascading impacts throughout the entire ecosystem. *Id.*

A-46. Overall, under historical diversion conditions, vastly diminished stream life in Nā Wai ‘Ehā streams indicate significant impairment of stream biological and ecological functions. Benbow WT 11/16/07, ¶ 6 (MA06-01). The overall diversity and density of stream life from mauka to makai, both upstream and downstream of the diversions, are diminished compared to other, pristine or relatively undiverted streams. Entire communities or vast portions—up to 80 or 90 percent or more—of native stream life are missing compared to relatively undiverted streams. *Id.* ¶ 15.

A-47. The negative impacts of diversions on Nā Wai ‘Ehā stream life was and continues to be undisputed in this case. HC&S’s consultants, for example, acknowledged it is “intuitive” and “not surprising” that diverted streams would support less recruitment, less reproduction, and lower density of macroinvertebrates. Tr. 12/10/07 (Ford) at 217:4-10, 11-16; Tr. 12/11/07 (Ford) at 91:12-14, 102:23 to 103:2 (MA06-01).

A-48. It was and continues to be undisputed in this case that restored flow in Nā Wai ‘Ehā streams would benefit stream life, including native amphidromous species. HC&S’s consultants, for example, did not dispute that flow should be restored. Tr. 10/14/08 (Ford) at 197:24 to 198:2 (MA06-01).

A-49. Restored mauka-to-makai flows in Nā Wai ‘Ehā streams are anticipated to result in sustained amphidromous recruitment, the reestablishment of instream stream life populations, and restoration of a functioning ecosystem. Tr. 12/10/07 (Benbow) at 168:5 to 169:6 (MA06-01).

A-50. Restored mauka-to-makai flows in Nā Wai ‘Ehā streams will also have tangible benefits to the limnetic portion of the biota living entirely within the stream. Tr. 12/12/07 (Polhemus, DAR) at 192:19-22 (MA06-01).

A-51. Restoration of mauka-to-makai flows in Nā Wai ‘Ehā streams will allow repopulation of instream biota in two ways. The limnetic biota will follow the restored water downstream from the headwater bowl in the mountain reaches. The amphidromous biota will colonize the stream in an upstream fashion from the marine environment. Tr. 12/12/07 (Polhemus, DAR) at 193:15 to 194:11 (MA06-01).

A-52. Based on the record in the original IIFS proceeding, the Hawai‘i Supreme Court acknowledged these scientific foundations regarding the harms of diversions and the need for streamflow restoration in Nā Wai ‘Ehā, concluding that:

The Commission found that [amphidromous] species suffer in Nā Wai ‘Ehā due to the disruption of natural flow caused by the offstream water diversions; the diversions degrade or destroy habitat, diminish food sources, diminish larval drift by capturing eggs and larvae, and impair flows necessary to transport larvae to the ocean. The Commission also found that discharge of sufficient duration and volume is necessary to attract and accommodate upstream migration of post-larval fish, mollusks, and crustaceans; there is a direct correlation between stream volume and recruitment, such that increased streamflow correlates with increased recruitment at the stream mouth.

Nā Wai ‘Ehā, 128 Hawai‘i at 249, 287 P.3d at 151.

A-53. In addition, the negative impact of the diversion *structures* on native stream life is established and undisputed in the scientific evidence and testimony. The diversion structures consisting of grates spanning the entire stream channel are potentially the worst possible configuration from a biological perspective because they sever the mauka to makai flow continuum and impose a physical barrier and trap preventing passage of native amphidromous stream life between upstream habitats and the ocean. Benbow WT 9/14/07, ¶ 16; Tr. 12/12/07 (Payne) at 103:1-22 (MA06-01).

A-54. HC&S's consultants also acknowledged the harm of the diversion structures in this case and the beneficial effect of providing a continuous pathway around these types of structures. Tr. 12/11/07 (Ford) at 131:16 to 132:23; Tr. 12/12/07 (Payne) at 104: 4-16 (MA06-01). Various mechanisms are available to provide water, and these diversion structures could be modified to provide continuous flow, including blocking off some of the grated areas. Tr. 12/11/07 (Ford) at 131:16 to 132:23; Tr. 12/12/07 (Payne) at 104:4-16 (MA06-01).

B. USGS Streamflow Report.

A-55. In 2010, USGS published its report entitled Effects of Surface-Water Diversion on Streamflow, Recharge, Physical Habitat, and Temperature, Nā Wai 'Ehā, Maui, Hawai'i ("USGS Streamflow Report"). See Ex. AR-1 (MA06-01 Remand). The report was published after the Hearing Officer's 2009 Proposed Decision and the parties' exceptions and arguments, and it was not referenced or incorporated in the 2010 Decision.

A-56. USGS Streamflow Report presents results of a study to characterize the effects of existing surface-water diversions on streamflow, groundwater recharge, physical habitat for native stream fauna, and water temperature in the Nā Wai 'Ehā streams. *Id.* at iii.

A-57. Since 1983, USGS has maintained two continuous-record stream-gaging stations in the Nā Wai ‘Ehā area: station 16614000, Waihe‘e River above Waihe‘e Ditch intake); and station 16604500, ‘Īao Stream at Kepaniwai Park, above Wailuku Water Company’s (“WWC’s”) ‘Īao diversion. USGS Streamflow Report at 34-35. These data from 1984 to 2007 provide a reasonable proxy for long-term data in the study area. *Id.* at 35.

A-58. Although continuous streamflow data for North and South Waiehu and Waikapū Streams are not available during the 1984 to 2007 timeframe, flow statistics were estimated using record-extension methods, by correlating available flow records to data from longer-term index stations. USGS Streamflow Report at 35-46. The flow figures for North Waiehu, South Waiehu, and Waikapū Streams were calculated as an average of various estimates based on several index stations on other streams, but excluding the ‘Īao index station which resulted in the highest estimates but were considered least reliable. *Id.* at 46.

A-59. The USGS Streamflow Report presents streamflow figures for Nā Wai ‘Ehā streams. *Id.* at 46-52. The median undiverted flows during climate years 1984 to 2007 were 34 mgd for Waihe‘e River near an altitude of 605 feet, 25 mgd for ‘Īao Stream near an altitude of 780 feet, an estimated 3.2 mgd for North Waiehu Stream near an altitude of 880 feet, an estimated 3.2 mgd for South Waiehu Stream near an altitude of 870 feet, and an estimated 4.3 mgd for Waikapū Stream near an altitude of 1,160 feet (or 5.6 mgd near an altitude of 880 feet),¹ or a total of 69.7 or 71 mgd. *Id.* at iii, 44-52, 67-74.

¹ Between those two elevations on Waikapū Stream, a tributary joins the stream. *Id.* at 64.

A-60. Available hydrograph-separation analyses for undiverted Hawaiian streams indicate that median base flow values generally are in the range of the Q₆₀ to Q₈₀ duration flows. USGS Streamflow Report at 104.

A-61. The Q₇₀ flows during climate years 1984 to 2007 were 28 mgd for Waihe'e River near an altitude of 605 feet, 17 mgd for 'Īao Stream near an altitude of 780 feet, an estimated 2.5 mgd for North Waiehu Stream near an altitude of 880 feet, an estimated 2.3 mgd for South Waiehu Stream near an altitude of 870 feet, and an estimated 4.5 mgd for Waikapū Stream near an altitude of 880 feet, or a total of 54.3 mgd. USGS Streamflow Report at 44-52, 67-74.

A-62. Existing stream diversions in the Nā Wai 'Ehā area have a combined capacity exceeding at least 75 mgd and are capable of diverting all or nearly all of the dry-weather flows of these streams. Hourly photographs collected by USGS during 2006-2008 indicate that some stream reaches downstream of diversions are dry more than 50 percent of the time. Many of these reaches would be perennial or nearly perennial in the absence of diversions. USGS Streamflow Report at 1.

A-63. USGS surveys during 2008 for the USGS Streamflow Report identified the presence of native fauna in each of the Nā Wai 'Ehā streams. USGS Streamflow Report at 2. The USGS surveys, along with other sources including the Commission's Hawai'i Stream Assessment and the state Division of Aquatic Resources field work, have observed 'o'opu (gobies) and 'ōpae (shrimp) as well as pinao 'ula (endemic native damselflies) and āholehole (native nearshore fish whose juveniles commonly inhabit lower stream reaches and estuaries), at times in each of the Nā Wai 'Ehā waters *Id.* at 17-18, 22, 30.

A-64. The amphidromous life cycle of the native fauna requires stream connectivity to the ocean to enable recruitment, and any condition that impedes the mauka to makai connectivity can affect the distribution and abundance of the amphidromous fauna. USGS Streamflow Report at iii, 22.

A-65. Nā Wai ‘Ehā’s diversions directly remove native species larvae and also reduce stream water velocity, which increases the mortality of larvae before they reach the ocean. This may alter the streams from “source” habitats to “sink” habitats, which cause a net minus on the native larval population. USGS Streamflow Report at 34. *Accord* Ex. F-1 (Parham report) at 102 (MA06-01) (explaining that stream life observed in Nā Wai ‘Ehā under diverted conditions could represent a “sink” that does not contribute to the offshore larval pool).

A-66. Another effect of reduced stream flow is a reduction in the size of the estuary and the freshwater plume that extends into the marine environment. The native amphidromous species cue on the freshwater plume to begin their recruitment to the stream mouths. USGS Streamflow Report at 34.

A-67. In general, data indicate that physical habitat increases monotonically with discharge up to the median natural discharge. USGS Streamflow Report at 2; *accord* Oki, USGS WT 9/14/07, ¶ 49 (“In general, for low-flow conditions (less than median flow), the availability of suitable physical habitat generally increases as streamflow increases.”) Conversely, diversion of surface water from a stream reduces the amount of physical habitat available during low-flow conditions. USGS Streamflow Report at 2.

A-68. For low-flow conditions and main diversions in their current (2009) configurations (ignoring the smaller private ‘auwai and assuming none of the diverted water is returned to streams), surface-water diversions reduce physical habitat for native stream fauna by:

100 percent for Waihe‘e River near an altitude of 45 feet; more than 60 percent for Waiehu Stream near an altitude of 20 feet; 100 percent for ‘Īao Stream near an altitude of 35 feet; and more than 90 percent for Waikapū Stream near an altitude of 400 feet (below the Reservoir 6 intake). USGS Streamflow Report at 2.

A-69. The USGS Streamflow Report estimated the effects of surface-water diversions on physical habitat used by native stream fauna, using the Physical Habitat Simulation System or PHABSIM approach. Measurements of microhabitat under different flow conditions were combined with habitat-suitability criteria modified from those developed for streams in northeast Maui (Gingerich and Wolff 2005). Habitat-suitability criteria specific to the Nā Wai ‘Ehā area were not developed for this study because populations of native species within the study reaches were considered too small for development of site-specific criteria. USGS Streamflow Report at 97.

A-70. The USGS Streamflow Report calculated a generalized relation between physical habitat and discharge indicating that if the natural, undiverted Q_{70} discharge, which is an indicator of median base-flow conditions, is reduced in half by diversions, then habitat will be reduced to about 80 percent of what it would be at the Q_{70} discharge. *Id.* at v-vi.

A-71. The USGS Streamflow Report identified “additional information and research needs” and indicated that streamflows can be more precisely determined by establishing long-term continuous-record stream-gaging stations at selected sites of interest upstream of diversions in Waiehu and Waikapū Streams and downstream of diversions in all streams. These gaging stations also would provide useful information for quantifying streamflow losses and groundwater recharge. Controlled releases along the lines of what USGS had previously requested, restoring streamflows at different rates for extended periods (exceeding a few weeks),

would allow better characterization of the effects of surface-water diversions on recharge and physical habitat. *Id.* at vi.

A-72. The USGS Streamflow Report does not predict the effects of flow restoration on native species abundance, no does the study address water requirements for kalo cultivation and aesthetic or recreational uses, algae and invertebrate food sources for native macrofauna, or reproduction of native species. *Id.* at vi.

A-73. The seepage amounts for Waikapū Stream “may not accurately reflect low-flow conditions and contain much uncertainty” because seepage run measurements required extrapolation from flows exceeding the median flow and were collected during periods of recession. USGS Streamflow Report at 77, 74.

A-74. Estimates of losses in the lower reaches of Waikapū Stream can be improved by restoring all flow to the stream for a period sufficient to attain steady flow conditions. USGS Streamflow Report at 74. Full restoration of flow to Waikapū Stream during extended dry-weather conditions would establish whether Waikapū Stream flows continuously to Keālia Pond for natural, undiverted, low-flow conditions. *Id.* at 64.

C. Parharm Report.

A-75. During the remand proceeding, the Commission contracted with Bishop Museum to prepare a report on the quantification of impacts of water diversions on native stream animal habitat in Nā Wai ‘Ehā. James E. Parham, a research hydrologist and aquatic biologist with the Hawai‘i Biological Survey at Bishop Museum, prepared the report entitled “Technical Report: Quantification of the impacts of water diversions in the Nā Wai ‘Ehā streams, Maui on native stream animal habitat using the Hawaiian Stream Habitat Evaluation Procedure,” dated

December 31, 2013 (“Parham Report”). On February 19, 2014, the Parham Report was filed in the record as “Exhibit F1,” together with a supporting Declaration of James E. Parham and Dr. Parham’s resume.

A-76. The Parham Report used Dr. Parham’s Hawaiian Stream Habitat Evaluation Procedure (HSHEP) model to provide a quantification of the amount and distribution of native stream animal habitat and the impacts on native stream animals’ habitat resulting from water diversions. The HSHEP analysis addressed three areas: (1) loss of habitat as a result of water diversion; (2) barriers to animal movement and migration resulting from the diversion structures; and (3) entrainment of animals in the diversion ditches. *Id.* at 1.

A-77. The Parham Report determines overall “Habitat Units” in an area of concern by multiplying habitat quality (calculated in “Habitat Suitability Indexes”) with habitat quantity (area). *Id.* at 3. It leverages the data in the Division of Aquatic Resources Aquatic Surveys Database to develop quantitative measures of habitat suitability for native stream animals. *Id.* at 3. It also incorporates information from the USGS Streamflow Report, which includes use of USGS’s habitat suitability indices to estimate the changes in habitat in response to changes in baseflow (Q₇₀). *Id.* at 4, 8.

A-78. The Parham Report analyzed eight species of native stream animals for purposes of quantifying habitat availability in Nā Wai ‘Ehā streams. These included five species of fish (‘o‘opu nākea, ‘o‘opu ‘alamo‘o, ‘o‘opu naniha, ‘o‘opu nōpili, and ‘o‘opu ‘akupa), two species of crustaceans (‘ōpae kala‘ole and ‘ōpae ‘oeha‘a), and one species of mollusk (hīhīwai). *Id.* at 9-28. The Parham Report modeled the Nā Wai ‘Ehā streams by dividing each stream into segments based on conditions that may decrease habitat suitability, block passage, or entrain

animals (e.g., “side diversion” or “bottom grate diversion,” or a “barrier” due to no flow at the mouth), and estimating the impacts of such conditions. *Id.* at 8-9, 29-54.

A-79. The Parham Report modeled six scenarios representing a range of flow and diversion conditions:

- (1) “Natural”: No diversions or channel alterations;
- (2) “Undiverted”: Similar to the “Natural” scenario except the impact of ‘Āao Stream channelization is included;
- (3) “Fully Diverted”: Stream diversions operating at maximum diversion capacity;
- (4) “2010 IFS”: Stream flows based on the IIFSs in the 2010 Decision;
- (5) “Flow to Ocean”: Modeling continuous flow from the upstream reaches to the ocean;
- (6) “Flow to Ocean with ‘Āao Stream Channelization Improvements”: Adding to the “Flow to Ocean” scenario a possible ‘Āao Stream channelization improvement project.

Id. at 5, 54-56.

A-80. The Parham Report explained that in the “Flow to Ocean” scenario, achieving continuous flow from the upstream reaches to the ocean was the goal. This scenario analyzed flow conditions of: 10 mgd at the mouth of Waihe‘e Stream; 1.6 mgd at the mouth of Waiehu Stream; 6.7 mgd at the mouth of ‘Āao Stream; and 4 mgd below the Reservoir 6 Diversion on Waikapū Stream. The Parham Report stated that this scenario “reflects the dissenting opinion to the 2010 IFS standards.” *Id.* at 55-56. The flow figures, however, actually correspond to the recommended IIFSs in the Hearings Officer’s 2009 Proposed FOFs, COLs, & D&O at 187-89 (“2009 Proposed Decision”).

A-81. The Parham Report quantified the amount of habitat units expected to occur within each segment of the streams for each species and for each scenario. It also combined the habitat units for all species in each segment to indicate the results for “all species combined.” *Id.* at 69.

- Under the “Natural” scenario, ‘Īao Stream (49%) and Waihe‘e Stream (37.8%) comprised a large majority of combined species habitat units.
- Under the “Fully Diverted” scenario, the overall amount of habitat in the Nā Wai ‘Ehā streams decreases by over 99%, and native species habitat units are effectively eliminated from ‘Īao and Waihe‘e Streams.
- Under the “Flow to Ocean” scenarios, an increase in habitat units was observed for all species combined. Flow restoration returns approximately 27% of habitat units to the Nā Wai ‘Ehā Streams, and additional habitat improvement to the ‘Īao Stream channel increases the total to over 30% of natural habitat units. *Id.* at 71-72.

A-82. The Parham Report concluded that restoration of baseflows to the Nā Wai ‘Ehā Streams will substantially increase available stream animal habitat. Under fully diverted conditions, less than 1% of natural habitat units are expected to be suitable for native amphidromous animals. Under the flow restoration scenarios models (Scenarios 4 to 6), 16 to 30% of natural habitat units were restored. *Id.* at 99.

A-83. The Parham Report also concluded that one clear result is the need for both habitat and passage to achieve suitable habitat for native amphidromous animals in Nā Wai ‘Ehā Streams. Water and suitable instream habitat must exist, but reducing the barriers and potential entrainment greatly enhances the reproductive productivity of the stream habitat. *Id.* at 99.

A-84. The Parham Report modeled flow restoration with the water returned to the stream passing the diversion and staying in the stream channel. In contrast, some restorations have passed a small amount of water over the diversion dam for “biological connectivity” while

the bulk of the water is released down stream through the diversion structure. *Id.* at 99; *see id.* at 100, Figures 37 & 38 (pictures of a small channel iron splashing water onto the face of the Spreckels Ditch dam on Waihe'e River, and the downstream release point). This approach appears to be a water return "of convenience" for the diverter, but likely does not result in the greatest ecological gain. *Id.* at 100-01. The Parham Report concludes that improvement of passage at diversions should be a high priority with any water return scenario. *Id.* at 101.

D. Commission Staff Report and Testimony.

A-85. In this proceeding, the Hearings Officer arranged for Commission staff to provide information and testimony regarding implementation and monitoring of the current IIFS established by the 2014 Order. A report prepared by Ayron Strauch, Ph.D, dated October 3, 2016, was filed in this case on October 4, 2016 ("Staff Report"). On October 7, 2016, Dr. Strauch submitted Supplemental Testimony attaching a Table 1 that was inadvertently not included in the October 4 filing.

A-86. In its "Overview of Results," the Staff Report observed that a lack of Commission staff limited the maintenance of gaging efforts from 2011 to 2014. In 2014, Commission staff began to update the rating curve for each monitoring station, which has improved the reliability of the data gathered. *Id.* at 1.

A-87. For each stream, the Staff Report provides: a map showing the IIFS point(s) and the monitoring station in the streams; the dates of the Commission staff fieldwork, including measuring flows and downloading gaging data; the rating curve for the monitoring station; and a graph of the mean daily flows measured at the IIFS monitoring station, in relation to the mandated IIFS. *Id.* at 1-2.

A-88. For Waikapū Stream, the 2014 Order established an IIFS of 2.9 mgd at an elevation of around 950 feet, below the return of water from the South Waikapū Ditch and above the Everett Ditch intake at 920 feet. *Id.* at 28, Ex. B thereto; Staff Report at 4. One monitoring station was installed at an elevation of 880 feet; and “[f]or ease of access and monitoring,” a second location was established at an elevation of 600 feet (CWRM ID 6-86) such that the ditch managers may directly read flow values on a daily basis. Staff Report at 4.

A-89. The IIFS value at station 6-86 at the 600-foot elevation “is assumed to be 2.9 mgd,” which is the amount required at 950-foot elevation. However, seepage runs between the 915-foot and 600-foot elevations produced a mean change in flow of 0.28 mgd, which represents an almost 10 percent gain and suggests that the IIFS value at station 6-86 should be adjusted accordingly. Staff Report at 4-5.

A-90. The graph of Waikapū Stream flow monitoring shows numerous periods when monitored mean daily stream flow fell below the IIFS value at the 600-foot elevation monitoring location. For example, stream flows were consistently below the assumed 2.9 mgd IIFS from February to May 2016. Staff Report at 8, Figure 3.

A-91. The 2014 Order maintained the status quo at the downstream Waihe‘e Ditch diversion on Waikapū Stream, which is that the streamflows are diverted into Waihe‘e Ditch except during periods of high flow, when most of the flow passes or tops the diversion, and excess ditch flow is discharged into Waikapū Stream. *Id.* at 28. During the time of the contested case hearing, such “excess” water was being discharged into Waikapū Stream from the Waihe‘e Ditch, even after, as discussed below, the diversions from Wailuku River had been blocked by a major flood event. *See* Ex. OHA-48 (photographs); Tr. 10/14/16 (Strauch) at 86:4 to 89:11.

A-92. For Wailuku River, the 2014 Order established an IIFS of 10 mgd “just below” WWC’s diversion, subject to adjustment under lower flow conditions. *Id.* at 27. A location at Kepaniwai Park approximately 750 feet downstream below the return of water from the ‘Īao Ditch (CWRM ID 6-85) is used for monitoring the stream flows. Staff Report at 10, 13.

A-93. Implementation of the IIFS “just below” WWC’s diversion has still left a generally dewatered section between the dam and the point where water is returned about 1,000 feet below the diversion. Tr. 10/14/16 (Strauch, CWRM) at 114:4 to 115:8. But it is Commission staff’s “goal to prevent the amount needed to meet the IIFS from actually being diverted in the first place.” *Id.* at 115:13-17. The current several-foot plate across the grate is insufficient to meet the IIFS, and based on consultation with Division of Aquatic Resources regarding what would be appropriate biologically, Commission staff agrees that more flow needs to be restored at the diversion point. *Id.* at 115:20 to 116:11.

A-94. In September 2016, a large flood in Wailuku River buried WWC’s diversion and the riverbed below it and also carved a new river channel around the diversion structure. Tr. 10/14/16 (Strauch, CWRM) at 116:12 to 117:17; Ex. Na Wai-43 (photograph). As work proceeds on excavating the flood material, Commission staff is in discussions regarding modifications of the diversion to provide better continuous flow. *Id.* at 117:18 to 118:12.

A-95. An IIFS site near the mouth of the river was established at 5 mgd. 2014 Order at 27. According to the Staff Report, “[d]ue to upstream channel conditions and the Army Corps of Engineers jurisdictional control over channelized stream segments, it is not possible to continuously monitor the IIFS at the mouth.” Based on the approximately 5.6 mgd loss in stream flow between Kepaniwai Park and the stream mouth, however, the 5 mgd IIFS near the mouth

means that HC&S is permitted to divert water during higher flows, but not during low flows. Staff Report at 10.

A-96. For North Waiehu Stream, the 2010 Decision established an IIFS of 1.6 mgd below the North Waiehu Ditch diversion at 870 feet in elevation, and the 2014 Order relocated the IIFS to a new location just below another diversion at around 560 feet, to reflect the abandonment of the upper diversion of North Waiehu Ditch. 2014 Order at 26; Staff Report at 16. The IIFS in the 2014 Order was calculated as 1.0 mgd, which was intended to reflect the approximately 0.6 mgd of seepage loss between the two points. 2014 Order at 26. For South Waiehu Stream, the 2010 Decision established an IIFS of 0.9 mgd below the Spreckels Ditch diversion, and the 2014 Order modified the IIFS to provide approximately 250,000 to the kuleana intake during low stream flows. 2014 Order at 26-27.

A-97. A location approximately 400 feet downstream of the confluence of the North and South Waiehu branches (CWRM ID 6-69) is used for monitoring the stream flows. The IIFS at that location is approximated based on the estimated seepage losses between the established IIFS locations and the combined sum of flows. Staff Report at 16, 19.

A-98. The graph of Waiehu Stream flow monitoring also shows numerous periods when monitored mean daily stream flow fell below the “assumed” IIFS value at the 400-foot elevation monitoring location. For example, stream flows were consistently below the assumed IIFS from September 2012 to April 2014. Staff Report at 19, Figure 9.

A-99. For Waihe’e River, the 2010 Decision established an IIFS of 10 mgd below the Spreckels Ditch diversion. *Id.* at 185. Due to stream channel conditions, a location approximately 3,000 feet downstream of the diversion return point (CWRM ID 6-68) is used for monitoring the stream flows. Staff Report at 21, 24.

A-100. The graph of Waihe'e River flow monitoring also shows numerous times when monitored mean daily stream flow fell below the IIFS value at the 400-foot elevation monitoring location. For example, stream flows were routinely below the IIFS from August 2012 to March 2014. From March 2014 to November 2014, there is a period of missing data. Staff Report at 24, Figure 12.

A-101. Under the current IIFS monitoring system implemented by Commission staff, flow data from gages are downloaded periodically when Commission staff conducts field visits, and the data looks backward at whether the IIFS was complied with during the previous period. Tr. 10/14/16 (Strauch, CWRM) at 80:2 to 81:15, 89:17-24. Commission staff indicated that real-time monitoring would cost 8 to 10 thousand dollars for equipment installation, which a private party could fund, after which Commission staff could manage the operation and maintenance. 10/14/16 (Strauch, CWRM) at 90:9 to 91:7.

A-102. Regarding the times when the Commission's monitoring records showed that the IIFSs were not being met, Commission staff indicated that they "discuss" such incidents and "bring it up to the diverter." 10/14/16 (Strauch, CWRM) at 121:20 to 122:25. But Commission staff is "still coming up with a policy for enforcement," including fines, which they acknowledge would help motivate diverters to comply. *Id.* at 123:4-12.

A-103. Table 1 of the Staff Report presents flow figures at various elevations for Nā Wai 'Ehā streams, including: "Natural," "Regulated," and "Diverted" flows. The "Natural" flow figures are the total Q_{50} stream flows based on the 2014 USGS Report. The "Diverted" flow figures are based on mean monthly reported values by the diversion operator. The "Regulated" flow figures are Q_{50} instream flows remaining after diversions. The "Regulated" flow figures are either estimated by applying the reported diversion amounts to tables in the 2014

USGS Report, or measured by the Commission's monitoring stations. Staff Report at 2 & Table 1.

E. Estuarine and Nearshore Marine Ecosystem and Resources.

A-104. The interrelationships between streams and estuarine and nearshore intertidal habitats are scientifically recognized. Benbow WT 9/14/07, ¶ 14 (MA06-01). Streams are a major source of nutrients and minerals to the tropical marine system, and biological communities use these organic resources in numerous ways, creating a natural functioning mauka to makai ecosystem. Ex. A-220 (Lindstrom study) at 69; Benbow WT 9/14/07, ¶ 14 (MA06-01).

A-105. As William Devick, former DAR Director during the *Waiāhole* case, explained:

In biological reality, Hawaii's streams are mauka-makai lifelines that inextricably tie the land and sea in a unified system that sustains a native biota unique to the islands. Properly managed streams literally feed the sea, not just with water. They replenish groundwater and wetlands. They form estuaries, green-blue bridges, where fresh and salt waters mix. These transition zones serve as nurseries for a wide variety of marine organisms and are especially susceptible to upset from human interference with naturally functioning ecosystems.

Ex. A-166 (Devick journal article) at 327 (MA06-01).

A-106. The Commission has previously established and recognized the importance of high base flow to the estuary ecosystem. In the *Waiāhole* case, the Commission found that the base flow carries the steady load of nutrients that is essential for estuarine productivity, and is essential to sustain the nutrient levels throughout the year. *Waiāhole I*, 94 Haw. at 158, 9 P.3d at 470.

A-107. By limiting the natural transport of organic matter to the ocean, diversions impact the biological communities that depend on these resources, including crustaceans,

cephalopods, and nearshore and pelagic fishes. The negative impacts of diverted flows thus encompass the entire mauka to makai system including the estuarine and nearshore intertidal habitats. Benbow WT 9/14/07, ¶ 14 (MA06-01).

A-108. Kama‘āina and cultural practitioners in Nā Wai ‘Ehā provided extensive cultural testimony reaffirming this interconnection between the stream and nearshore marine habitats. Duke Sevilla, a resident of the coastal land of Paukūkalo between Wailuku River and Waiehu Stream, explained that based on traditional Native Hawaiian practices and knowledge of fishing and limu gathering handed down since time immemorial and learned over his lifetime, the nearshore environment and marine life, including fish and limu, depend upon fresh water seeping and flowing into the ocean. Sevilla WT 9/14/07, ¶ 9 (MA06-01). As Native Hawaiian practitioner, kumu hula, and ‘Īao resident Roselle Bailey summarized, the interplay between freshwater and ocean water creates the water cycle which sustains all life; without fresh water, there is no water cycle. Bailey WT 9/14/07, ¶ 4 (MA06-01).

A-109. Wailuku River and Waiehu Stream feed into and support the nearshore marine ecosystem of Ka‘ehu Bay off the coast of Paukūkalo, where many kama‘āina and Native Hawaiians gather and fish for subsistence. Ivy WT 3/2/08, ¶ 15; Ex. A-45 (aerial photograph); Ex. A-54 (cultural study) at 20-27 (MA06-01).

A-110. Long-time Paukūkalo community members documented their practices of fishing and gathering limu along that coastline. The Kekona ‘ohana, for example, have gathered limu (including wāwae‘iole, kohu, ‘ele‘ele, līpe‘epe‘e, ogo) and caught lobster and crab, he‘e, and fish (including āholehole, kala, weke, manini, kūmū, moi, mullet). Kekona WT 9/14/07, ¶ 5 (MA06-01). The Sevilla ‘ohana has likewise picked limu (including wāwae‘iole, ogo, huluhuluwaena) and caught lobster, he‘e and fish (including āholehole, mullet, moi, manini,

nenue, ulua, pāpi‘o, ‘ōmilu). Sevilla WT 9/14/07, ¶ 9 (MA06-01). *See also* Almeida WT 1/07/14, ¶ 7 (MA06-01 Remand).

A-111. A cultural study of Paukūkalo and Ka‘ehu Bay explained that the cultural informants all spoke of the importance and significance of their families’ dependence on the subsistence fishing they have and continue to practice in the area of Ka‘ehu. Ex. A-54 at 20-21 (MA06-01).

A-112. The lack of freshwater flow into the ocean, however, negatively affects limu growth, which in turn hurts the populations and vigor of fish, turtles, crustaceans, shellfish, kūpe‘e, and other shoreline resources. Springs along the kahakai (shoreline) are nil and the life that thrives along the kahakai dies. Bailey WT 9/14/07, ¶ 5 (MA06-01); *accord* Kekona WT 9/14/07, ¶ 6 (MA06-01) (“The limu and nearshore marine life have also declined.”).

A-113. Returning consistent stream flows in this area is essential to making the nearshore marine ecosystem whole and enhancing the availability of marine resources for traditional fishing and gathering. Sevilla WT 9/14/07, ¶ 14 (MA06-01); *accord* Ivy WT 3/2/08, ¶ 17 (MA06-01) (“Influx of freshwater into the near-shore marine waters would provide us with more marine resources, like limu, he‘e, and fish.”); Almeida WT 1/07/14, ¶ 9 (MA06-01 Remand).

A-114. Similarly, the largest fringing reef on the island of Maui stretches along the coast of Waihe‘e, around the mouth of Waihe‘e River. The coastline is a favorite gathering and fishing area for community members. Fisher WT 9/14/07, ¶ 22 (MA06-01).

A-115. Long-time community members like the Faustino ‘ohana seek to gather limu and fish in Waihe‘e, which necessitates stream flows to support the ocean ecosystem. Faustino

WT 9/14/07, ¶ 8 (MA06-01). Without freshwater, ocean life cannot survive, and the cycle of ocean life stops. *Id.*

F. Wetland Ecosystems and Resources.

A-116. Each of the four waters of Nā Wai ‘Ehā support coastal wetland ecosystems. These wetlands are recognized by the U.S. Fish and Wildlife Service. Ex. A-78 (Hawai‘i Stream Assessment) at 182, 286 (MA06-01).

A-117. In 2008, the USGS report published a report entitled Ground-Water Availability in the Wailuku Area, Maui, Hawai‘i (“USGS Groundwater Report”). *See* Ex. A-R2 (MA06-01 Remand). The report indicates, among other findings, that streamflow restoration would increase fresh groundwater levels across Nā Wai ‘Ehā, including in the coastal wetland areas, by a range starting from .1 to .5 feet and extending to more than 3 feet. *See id.* at 69 (Figure 45), 63, 66 (MA06-01 Remand).

A-118. Kama‘āina and cultural testimony also recognized the interconnection between Nā Wai ‘Ehā streamflows and coastal wetlands, as well as the community uses and values the wetlands support. Cultural histories, for example, describe kiha or mo‘owahine—spiritual beings that inhabit Nā Wai ‘Ehā’s coastal springs and travel through the region from one spring to the next. These accounts underscore that in ancient times, Native Hawaiians recognized the hydrologic connection between springs, as well as between ground and surface water. Ex. A-54 (cultural study) at 29; Akana WT 9/14/07, ¶ 7; Sevilla WT 9/14/07, ¶ 6 (MA06-01).

A-119. The ‘ili of Paukūkalo between Wailuku River and Waiehu Stream is historically and culturally renowned for its springs and wetlands, collectively known as the

Ka‘ehu Wetlands. Ivy WT 3/2/08, ¶¶ 1, 9; Ex. A-54 at ii, 6; Kekona WT 9/14/07, ¶ 3; Sevilla WT 9/14/07, ¶¶ 2 (MA06-01).

A-120. Paukūkalo community members, including ‘ohana with multi-generational ties to these lands, confirm that when Wailuku River and Waiehu Stream flow continuously to the ocean, the seeps and springs on their lands “come alive” and are recharged with water. Ivy WT 9/14/07, ¶ 8; Kekona WT 9/14/07, ¶¶ 3-4; Tr. 12/4/07 (Kekona) at 211:ll.2-7; Sevilla WT 9/14/07, ¶ 8 (MA06-01). *Accord* USGS Groundwater Report at 69, Figure 45 (MA06-01 Remand) (showing elevated groundwater levels from restored streamflows in the lower reaches of Wailuku River and Waiehu Stream).

A-121. Freshwater flows in the Ka‘ehu Wetlands have supported community uses such as fishponds and farming, including kalo, as well as spiritual and healing practices. Kekona WT 9/14/07, ¶ 5; Sevilla WT 9/14/07, ¶¶ 2-6 (MA06-01); Almeida WT 1/7/14, ¶ 6 (MA06-01 Remand). Waiola Spring on the Sevilla ‘ohana’s land, for example, is a historically renowned cultural resource. Sevilla WT 9/14/07, ¶¶ 2-6; Ex. A-67 (old photograph of spring), Ex-68 (Maui history text); Ex. A-54 at 31 (MA06-01). The Paukūkalo wetlands also support community cultural and education initiatives. Sevilla WT 9/14/07, ¶¶ 10-13; Ivy WT 3/2/08, ¶¶ 12-14 (MA06-01); Sevilla WT 2/8/14, ¶ 7 (MA06-01 Remand); Sevilla WT 3/18/16, ¶ 34.

A-122. These wetland resources and uses in Paukūkalo, however, have been severely diminished and need restoration of recharge. Kekona WT 9/14/07, ¶¶ 4, 6; Ivy WT 9/14/07, ¶¶ 13, 16-17; Sevilla WT 9/14/07, ¶¶ 7-8 (MA06-01); Almeida WT 1/7/14, ¶ 6 (MA06-01 Remand). Community members have thus requested restoration of streamflows for the purpose of reviving these wetlands, as well as recognition and permit approvals of their water rights and uses. Kekona WT 9/14/07, ¶ 6; Ivy WT 3/2/08, ¶¶ 10, 17-18 (MA06-01).

A-123. In this proceeding, long-time kama‘āina community member Duke Sevilla, who has testified in each of the Nā Wai ‘Ehā proceedings, reported that with the partial restoration of Wailuku River streamflows, the flow in the Waiola Spring on his ‘ohana’s land has increased and become more consistent, remaining saturated throughout the hot summer months. This confirms his lifetime experience and the broader community understanding of the correlation between the amount of water in the river and amount of water in the springs. Sevilla WT 3/18/16, ¶¶ 13, 35; Ex. 2275 SEVILLA-7 (before and after photographs of Waiola Spring).

A-124. Waihe‘e River likewise supports wetlands around the Waihe‘e coast. The river flows into the Waihe‘e Coastal Dunes and Wetlands Refuge, which also contains the Waihe‘e or Kapoho Wetlands. Fisher WT 9/14/07, ¶¶ 4, 7 (MA06-01). These wetlands are sustained mostly by Waihe‘e River. Ex. A-223 (groundwater well study) at 6 (MA06-01). *Accord* Ex. USGS Groundwater Report at 69, Figure 45 (MA06-01 Remand) (showing elevated groundwater levels from restored streamflows in the lower reaches of Waihe‘e River).

A-125. This Kapoho Wetland habitat is the third largest and among the highest quality on Maui, hosting endangered bird species and containing numerous cultural resources including an ancient loko kalo i‘a (combined fishpond and lo‘i). Fisher WT 9/14/07, ¶¶ 12, 7-9 (MA06-01). The Refuge supports extensive outreach and education programs, serving over a thousand visitors each year. *Id.* ¶ 18. The Kapoho Wetlands has also declined and needs restoration of flows and recharge. *Id.* ¶¶ 13-21; Ex. A-38C (U.S. Fish & Wildlife draft waterbirds recovery plan) at 80, 97 (MA06-01).

A-126. Other community members have documented wetland uses historically and/or currently supported by Waihe‘e River. For example, on the north side of the Waihe‘e River near the mouth, the Poka ‘ohana kuleana lands contained spring flows and wetlands that supported

kalo cultivation, but these quickly dried up when WWC and HC&S (together, the “Companies”) augmented their streamflow diversions. Schwartz WT 11/29/07, ¶¶ 1-7 (MA06-01). Just mauka of the highway, Paeloko is a sacred pond that is part of the freshwater cycle in Waihe‘e and connected to the Kapoho Wetlands. Piko A‘o WT 1/7/14, ¶¶ 5-11 (MA06-01 Remand). The pond was previously filled when the highway was expanded, but the wetlands has recently been returning and providing habitat for endangered native birds and a resource for cultural education. *Id.* ¶¶ 5-19. The Native Hawaiian organization Piko A‘o currently owns the land where Paeloko is located and hosts over a thousand students each year for cultural education programs. *Id.* ¶ 4.

A-127. Waikapū Stream’s delta is at the Keālia Pond wetlands, which has been established as a National Wildlife Refuge to preserve, restore, and manage essential habitat for endangered waterbirds. Ex. C-R12 (Keālia Pond Refuge conservation plan) at 1-1 (MA06-01 Remand). The stream is the principal influent and major contributor to Keālia Pond and the western part of Maalaea Bay. Ex. A-165 (Maciolek study) at 6 (MA06-01); Ex. C-R12 at 3-12 (MA06-01 Remand).

A-128. The Commission has designated Waikapū Stream as a “Blue Ribbon” candidate for protection of its “riparian” resources, specifically based on its connection with the wetlands at Keālia Pond. Ex. A-78 (Hawai‘i Stream Assessment) at 272, 186 (MA06-01). Waikapū Stream provides recovery habitat for threatened and endangered bird species and rare native plants. *Id.* at 182, 186.

G. Recreation and Aesthetic Values.

A-129. In assessing instream recreational values, the Commission has recognized that water-related recreation is a part of life in Hawai‘i, and that streams ranked highly for recreation

tend to be correlated with high flow rates. Ex. A-78 (Hawai‘i Stream Assessment) at 232, 244 (MA06-01).

A-130. The Commission has recognized that the Nā Wai ‘Ehā waters support important public outdoor recreational activities, including hiking, fishing, swimming, parks, scenic views, and nature study—evidently referring to their upstream reaches above the diversions. Ex. A-78 at 248, 252 (MA06-01).

A-131. Waihe‘e River and ‘Īao Stream ranked as “Blue Ribbon Resources” and “Statewide Outstanding Streams” for recreation, among only three streams on Maui and 18 streams in the state with this distinction. Ex. A-78 at 248, 252, 272 (MA06-01). Waikapū and Waiehu Streams also support recreational opportunities. *Id.* at 248, 252.

A-132. Historical dry conditions below the diversions were plainly unsuitable for recreational purposes. *See, e.g.*, Exs. A-7 to -10 (photographs).

A-133. For each of the Nā Wai ‘Ehā waters, community members uniformly testified to the degraded aesthetic and recreational values of the streams in their historical diverted conditions and sought the restoration of flow to support such values. On Waihe‘e River, for example, the Alueta ‘ohana and children cannot enjoy the stream in stagnant and dirty diverted conditions. Alueta WT 9/14/07, ¶ 9 (MA06-01). On Waiehu Stream, the Higashino ‘ohana want their children to enjoy playing in the stream as they grow up, but in diverted conditions, the stream is not suitable for recreation such as swimming and bathing. Higashino WT 9/14/07, ¶¶ 5-6 (MA06-01). On Waikapū Stream, the Pellegrino ‘ohana would like students to be able to swim in the stream, which is another important part of the cultural experience, but with the current stream flow, all they can do is wade. Pellegrino WT 9/14/07, ¶ 28 (MA06-01).

A-134. On Wailuku River, community members, including children, had enjoyed some recreational uses below WWC's 'Īao diversion in the past, when leaks in the dam allowed a pool to form at its bottom. J. Duey WT 9/14/07, ¶ 19; Ornellas WT 9/14/07, ¶ 14; Horcajo WT 9/14/07, ¶¶ 6-7; Ex. A-31 (photograph of pool) (MA06-01). In 2004, the year the Nā Wai 'Ehā proceedings began, WWC eliminated the swimming pond by burying it with boulders and concrete. J. Duey WT 9/14/07, ¶ 19; Ornellas WT 9/14/07, ¶ 15; Ex. A-27 to A-30 (photographs of rebuilt dam and dry stream bed) (MA06-01).

A-135. Since partial restoration of flows to Wailuku River, resident children have begun to swim in the river again. *See, e.g.*, Tr. 7/18/16 (Ornellas) at 37:1-5. Mr. Ornellas, cultural descendant and long-time resident of 'Īao Valley, testified that his "grandchildren learning how to swim right there in the river" is "the highlight of it all." *Id.* Mr. Dodd, long-time resident of Waikapū, testified that when he was growing up, Keālia Pond "was mud flats," but since water has been returned to Waikapū Stream, Keālia Pond has water, "[a]nd this has brought joy to my life. Water has returned to Kealia where it belongs." Tr. 7/28/16 (Dodd) at 14:19 to 15:7. Mr. Nakama, whose 'ohana has been farming kalo for generations in Waihe'e and Waiehu, expressed thanks for the restoration of consistent flow and testified that, before his father passed away, "he would be overcome with joy at the sight and sound of water flowing," and "to me, that was priceless." Tr. 9/19/16 (Nakama) at 97:3-12.

H. Scientific Study and Education.

A-136. Scientists and community members testified to use of Nā Wai 'Ehā waters, and the need for restored streamflows, to support scientific study and education. Dr. Benbow and his colleagues, for example, have taken the proactive step of conducting baseline studies to

provide a foundation for follow-up studies after the restoration of flows; this leaves the return of stream flows as the necessary next step. Benbow WT 9/14/07, ¶¶ 18-21 (MA06-01). The scientific consensus is that long-term flow restoration is essential to support ecological studies. *Id.* ¶ 21. The USGS Streamflow Report also indicated that flow restoration would allow additional and better analysis of the effects of surface-water diversions on recharge and physical habitat. *Id.* at vi.

A-137. In each of the Nā Wai ‘Ehā waters, community members use or would like to use streamflows as part of numerous community-based cultural education initiatives. These include:

- in Waikapū, the Pellegrino ‘ohana’s Noho‘ana Farm; and Kukulū Kumuhana o Maui Summer Hawaiian Immersion Youth Program, Pellegrino WT 9/14/07, ¶¶ 24-28; Alboro WT 9/14/07, ¶¶ 4-6 (MA06-01);
- in Wailuku and Waiehu, Kumu Hula Roselle Bailey’s teaching of her haumana (students), Bailey WT 9/14/07, ¶ 2 (MA06-01); and Ke Ao I Ka Makani Ho‘eha Ili’s expansion of Neighborhood Place of Wailuku’s Ho‘onui Mana ‘Ohana initiative, Sevilla WT 9/14/07, ¶¶ 10-13 (MA06-01); Sevilla WT 1/7/14, ¶ 7 (MA06-01 Remand).
- in Waihe‘e, Waihe‘e Coastal Dunes and Wetlands Refuge’s education and research programs for students of all ages from a long list of organizations, Fisher WT 9/14/07, ¶ 18 (MA06-01); and Piko A‘o’s cultural educational programs, Piko A‘o WT 1/7/14, ¶¶ 1-4 (MA06-01 Remand).

These programs collectively serve thousands of visitors and students, yet have been limited by the historical lack of flows. *See, e.g.*, Bailey WT 9/14/07, ¶ 2 (“I primarily use ‘Īao Stream . . . to show [my haumana] what happens to the biota when a streambed goes dry.”).

I. Water Quality.

A-138. The State of Hawai‘i Department of Health (“DOH”) has designated Waihe‘e River, ‘Īao Stream, and Waikapū Stream as “impaired” in water quality under the Clean Water

Act. Penn, DOH WT 9/14/07 at 6, 10 (MA06-01). Nā Wai ‘Ehā streams account for three of the ten streams on Maui that DOH has determined are impaired. Tr. 12/6/07 (Penn, DOH) at 222:17 to 223:1 (MA06-01).

A-139. As DOH explained, such impaired water quality poses a wide array of harms to aquatic life and habitat and recreational and aesthetic values. *Id.* at 6-10. The designated uses of Nā Wai ‘Ehā streams under the water quality standards include: “recreational purposes,” “support and propagation of aquatic life,” “scientific and educational purposes,” “protection of native breeding stock,” “aesthetic enjoyment,” and “other nondegrading uses.” Penn, DOH WT 9/14/07 at 23-24 (MA06-01).

A-140. There is a direct relation between offstream diversions and the impairment of Nā Wai ‘Ehā water quality. Greater diversions mean greater impairment, including decreased stream assimilative capacity, increased pollutant concentrations, increased pollutant deposition, longer pollutant residence times, degraded stream habitat quality, and decreased stream biotic integrity. Penn, DOH WT 9/14/07 at 24 (MA06-01). Conversely, the greater amount of water in the stream, the greater the assimilative capacity to deal with pollutants. Tr. 12/6/07 (Penn, DOH) at 209:5-17 (MA06-01).

A-141. Constant base flows are able to assimilate and transport pollutants in a fairly continuous manner. Tr. 12/6/07 (Penn, DOH) at 210:19-23 (MA06-01). Reduced base flows via diversion have low assimilative capacity and allow pollutants to settle out and deposit, rather than being transported continuously through the system. *Id.* at 210: 24 to 211:9. Storm flows, on the other hand, deliver a massive pollutant load extremely rapidly, including the pollutants accumulated over time in the system because diverted flows. *Id.* at 211:11-21.

A-142. DOH agreed that restoring high, steady base flows to Nā Wai ‘Ehā streams would improve their water quality. Tr. 12/6/07 (Penn, DOH) at 214:4-7 (MA06-01).

J. Needs of Downstream Users.

A-143. Throughout these Nā Wai ‘Ehā proceedings, numerous landowners, residents, and Native tenants located downstream of the Companies’ diversions have testified to the need for restored streamflows to supply water downstream for lo‘i kalo and other uses.

A-144. These community members include, for example: on Waikapū Stream, numerous ‘ohana on the North Waikapū ‘auwai such as the Pellegrinos and Harders; on Wailuku River, the Duey, Ornellas, and Lozano ‘ohana, as well as the community organization Ke Ao I Ka Makani Ho‘eha Ili, which is seeking to restore lo‘i kalo on the Paukūkalo lands between Wailuku River and Waiehu Stream; on Waiehu Stream, the Higashino and Hashimoto ‘ohana; on Waihe‘e River, numerous ‘ohana on the North Waihe‘e ‘auwai such as the Faustinos, Rodrigueses, Freitas, and Barretts, as well as Hawaiian Islands Land Trust, which is seeking to restore lo‘i kalo, fishponds, and wetlands near the mouth of the river.

A-145. For example, the Duey ‘ohana testified in 2007 that they are ready to open their lo‘i, but “[t]he only limiting factor is the availability of water.” J. Duey WT 9/14/07, ¶ 13 (MA06-01). Similarly, the Pellegrino ‘ohana testified in 2007 that they would like to restore the 12 ancient lo‘i on their land, but “are only able to cultivate two lo‘i at a time, because there is insufficient water.” Pellegrino WT 9/14/07, ¶¶ 15, 17 (MA06-01). See *Nā Wai ‘Ehā*, 128 Hawai‘i at 240-41, 287 P.3d at 141-42 (citing these and other testimonies).

A-146. These downstream users have also filed SWUPAs and asserted appurtenant and Native Hawaiian traditional and customary rights in this proceeding, which are discussed in detail below and incorporated here by reference.

K. Groundwater Aquifer Recharge.

A-147. As the Commission has found, in the lower reaches of the Nā Wai ‘Ehā area, the stream channels overlie the basal freshwater lenses, allowing stream waters to migrate from the stream bed to the basal lenses. 2010 Decision, FOF 90 (citing Oki, USGS WT 9/14/07, ¶ 12 (MA06-01)). The USGS Streamflow Report and USGS Groundwater Report examined the impacts of the Companies’ diversions on the recharge of the basal aquifers in Nā Wai ‘Ehā. *See* USGS Streamflow Report at 91-97; USGS Groundwater Report at 63-68.

A-148. Waihe‘e River overlies the Waihe‘e Aquifer, Wailuku River and Waiehu Stream overlie the ‘Īao Aquifer, and Waikapū Stream overlies the Waikapū Aquifer. All these surface and groundwater resources lie within the larger Wailuku Aquifer Sector. *See* Ex. B-13 (aquifer map) (MA06-01); USGS Groundwater Report at 31 (Figure 18), 2 (Figure 1).

A-149. The ‘Īao and Waihe‘e Aquifers both supply public drinking water for the County of Maui. *See* Taylor, MDWS Dec. 2/5/16, ¶ 8; USGS Groundwater Report at 61 (Table 8). The ‘Īao Aquifer is central Maui’s principal drinking water source. Eng, MDWS Dec. 9/14/07, ¶ 7 (MA06-01). The Waikapū Aquifer is also being contemplated for various prospective potable water wells. *See, e.g.*, Ex. 2189 WCEIC-270 (Nance Report) at 7-8.

A-150. Downstream of the uppermost Nā Wai ‘Ehā diversions, the USGS Streamflow Report documented a total amount of recharge under natural, undiverted low-flow conditions (up to median flow) of 14.5 mgd: 1.7 mgd from Waihe‘e River, 2.9 mgd from Waiehu Stream, 5.6

from ‘Āao Stream, and 4.3 mgd from Waikapū Stream. USGS Streamflow Report at iii-v. The Companies’ diversions are capable of reducing this recharge by more than 80 percent for Waihe‘e River, ‘Āao Stream, and Waikapū Stream, and by more than 33 percent for Waiehu Stream. *Id.* at v.

A-151. In their current (2009) configurations, the Companies’ diversions reduce recharge by 1.7 mgd from Waihe‘e River, 1 mgd from Waiehu Stream, 4.8 mgd from ‘Āao Stream/Wailuku River, and 4 mgd from Waikapū Stream, or a total of 11.5 mgd. USGS Streamflow Report at 2. In comparison, the current sustainable yields of ‘Āao, Waihe‘e, and Waikapū Aquifers are, respectively, 20 mgd or less, 8 mgd, and 2 mgd, or a total of about 30 mgd. *See* Ex. B-13 [()] (MA06-01). As another comparison, Maui Department of Water Supply (“MDWS”) is under contract with Wailuku Water Company (“WWC”) to pay for up to 3.2 mgd of water diverted from Wailuku River. *See* Ex. B-14 at 1 (MA06-01).

A-152. The USGS Groundwater Report further analyzed the benefits of Nā Wai ‘Ehā streamflow restoration to these aquifers. The report found that, without restored streamflow, continued groundwater pumping at 1996 and 2006 rates would over the long term cause well levels to decrease 2 to 3 feet or more, the transition zone between fresh and salt water to rise by 200 to 300 feet or more, and several wells to reach “cautionary or threatened” salinity levels. *Id.* at iv.

A-153. The USGS Groundwater Report also analyzed scenarios including full and one-third streamflow restoration and determined that all Wailuku Aquifer Sector well fields show significant water-level increases and salinity decreases with the addition of recharge from the streams. *Id.* at 63-66. This includes wells in the Waikapū Aquifer, which USGS modeled to

draw a total of 4.5 mgd, as opposed to the current 2 mgd sustainable yield. *Id.* at 66-67, 61 (Table 8).

A-154. In comparison to the scenario without streamflow restoration, average water levels increase by up to more than 5 feet, the transition zone deepens by up to more than 200 feet, and salinity levels are lower at all of the well fields. USGS Groundwater Report at 66; *see also id.* at 67-70 (Figures 43-46). Increased water levels and depths are greatest around ‘Īao and Waiehu Streams where most of the additional recharge is located. *Id.* at 66. In sum, additional recharge from restored streamflow significantly increases water levels, thickens the freshwater body, and decreases salinity at withdrawal sites in the Waihe‘e and ‘Īao Aquifer Systems. *Id.* at iv (emphasis added).

A-155. The USGS Groundwater Report indicated that streamflow restoration would raise groundwater levels across Nā Wai ‘Ehā and extending into the central plain. *See id.* at 69 (Figure 45). USGS has documented that ground water in the isthmus improves in quality toward west Maui, where there apparently is significant underflow of good quality water from west Maui. Ex. A-145 (USGS report) at 4 (MA06-01). HC&S has also expressly acknowledged that the Kahului Aquifer benefits from such down gradient groundwater flows. Ex. C-90 (HC&S letter) (MA-06-01).

A-156. The USGS Groundwater Report, moreover, analyzed a combined scenario of “no agricultural irrigation” in addition to streamflow restoration. *Id.* at 66-68. As a result, most Wailuku Aquifer Sector well fields show significant water-level increases and salinity decreases. Near these withdrawal wells, the effect of the additional recharge beneath the streams is greater than the effects from the loss of recharge beneath the central isthmus. *Id.* Again, the recharge

benefits are greatest around ‘Īao and Waiehu Streams, where most of the additional recharge occurs. *Id.* at 68.

A-157. Notably, the USGS Groundwater Report analyzed these benefits of recharge in 2008, based on the then-current calculation of 12.3 mgd total potential recharge. *See id.* at 18. The USGS Streamflow Report in 2010 subsequently incorporated further seepage data and calculated 14.5 mgd total recharge. Thus, the groundwater aquifer benefits would be even greater than stated in the 2008 USGS Groundwater Report.

III. NATIVE HAWAIIAN RIGHTS

A-158. In the original proceeding, the Hawai‘i Supreme Court recognized the Commission’s findings regarding traditional and customary Native Hawaiian practices, including: “a distinct connection between Nā Wai ‘Ehā and Hawaiian history and culture”; recognition that “[N]ative Hawaiian practices still continue in Nā Wai ‘Ehā”; and “connection between current traditional and customary practices and streamflow levels.” *Nā Wai Ehā*, 128 Hawai‘i at 245-47, 287 P.3d at 146-48. The Court observed that the Commission’s findings satisfied the mandated legal framework’s initial step of identifying the scope of Native Hawaiian rights in Nā Wai ‘Ehā. *Id.* at 248, 287 P.3d at 149.

A-159. This case incorporates the record and findings from the previous proceedings regarding traditional and customary Native Hawaiian rights. The following summarizes these foundations, none of which have been controverted in this case. *See FOFs, infra.*

A-160. Water is critically significant to all aspects of Hawaiian life and culture. Holt-Padilla WT 9/14/07, ¶ 7 (MA06-01). In Hawaiian culture, Kāne, the creator of the world and one of the four major Gods of Hawai‘i, is found in all waters and is considered the most basic

element for all things living. *Id.* Akana WT 9/14/07 (MA06-01). Kāne is most closely associated with freshwater, especially flowing surface water. In ancient times, water signified life and was called “ka wai ola O Kāne,” the life giving water of the god Kāne, because without water there can be no life. Apoliona WT 9/14/07, ¶ 4 (MA06-01).

A-161. “Wai” in the Hawaiian language means water, and the importance of water to Hawaiians is signified in the term for wealth, or “waiwai.” Apoliona WT 9/14/07, ¶ 5; Tr. 12/3/07 (Apoliona), p. 12, l. 22 to p. 13, l (MA06-01).

A-162. In Hawaiian culture, kalo is the ancestor of all Native Hawaiians. The story of Hāloa acknowledges Native Hawaiians’ familial relationship with kalo as an elder sibling, and the resulting cultural significance of cultivating kalo in a traditional manner. 2010 Decision, FOFs 61-62.

A-163. Native Hawaiian traditional and customary practices are guided by the principles of aloha ‘āina and mālama ‘āina (to love, care for, and protect the land), emphasizing the interconnectedness of the land, water, and people. Apoliona WT 9/14/07, ¶ 8 (MA06-01). Aloha ‘āina is the foundation of Hawaiian culture and the practice of Hawaiian customs, lifestyles and traditions; it means we humans are intimately connected to the land that we live on, to the waters and the oceans that surround us. Holt-Padilla WT 9/14/07, ¶ 6; Tr. 12/4/07 (Holt-Padilla) at 187:12-24 (MA06-01).

A-164. Due to the profusion of fresh flowing water in ancient times, Nā Wai ‘Ehā supported one of the largest populations and was considered the most abundant area on Maui; it also figured centrally in Hawaiian history and culture in general. 2010 Decision, FOF 34. Nā Wai ‘Ehā’s abundant water resources served as a base of political and economic power for the region in ancient times. *Id.* FOF 48.

A-165. The name “Nā Wai ‘Ehā” and the inclusion of “wai” in the names of each ahupua‘a are testaments to the importance of these waters to their communities. Ex. C-2 (Tengan report) (MA06-01) at 2-4. Cultural histories also emphasize Nā Wai ‘Ehā’s significance, such as the legend of the earth mother Haumea arriving in Hawai‘i and planting the tree Kalauokekahuli in Nā Wai ‘Ehā, which illustrates the central role of Nā Wai Ehā as a source of life, farming and subsistence activities, religious evolution and order, and social growth. *Id.* at 5-8; Tr. 12/4/07 (Tengan) at 15:5 to 17:23 (MA06-01).

A-166. The heiau (places of worship, temples) in Nā Wai ‘Ehā – the largest number by area among all Maui island communities – also indicate large populations and agricultural pursuits and underscore the cultural, historical, and political importance of this region. 2010 Decision, FOFs 45-46.

A-167. The abundance of water in Nā Wai ‘Ehā enabled extensive lo‘i kalo (wetland kalo) complexes, including varieties favored for poi making such as “throat-moistening lehua poi.” 2010 Decision, FOF 35.

A-168. The four ahupua‘a of Nā Wai ‘Ehā and their streams comprised the largest continuous area of wet taro cultivation in the islands. 2010 Decision, FOF 36. Cultural accounts describe the extensive stream- and spring-fed lo‘i and ‘auwai systems in Nā Wai ‘Ehā. *See, e.g., id.* FOFs 37-39; Ex. C-2 at 7-10 (MA06-01).

A-169. In addition to extensive agricultural production, traditional and customary practices thrived in Nā Wai ‘Ehā, including the gathering of upland resources, such as thatch and ti, and protein sources from the streams, including ‘o‘opu, ‘ōpae, and hīhīwai. 2010 Decision, FOF 40.

A-170. Cultural accounts refer to traditional gathering and diet of ‘o‘opu, ‘ōpae and hīhīwai in Nā Wai ‘Ehā. The name of the famous “kili ‘o‘opu” wind, for example, refers to the appetizing aroma of cooking ‘o‘opu brought by the wind. 2010 Decision, FOFs 41-42; Holt-Padilla WT 9/14/07, ¶ 22 (MA06-01).

A-171. Cultural accounts and studies also refer to traditional and customary ocean fishing and gathering practices in Nā Wai ‘Ehā. Ex. C-2 at 15; Ex. A-54 (cultural study) at 20-27 (MA06-01).

A-172. Nā Wai ‘Ehā also supports traditional and customary practices of gathering native plants such as hau, palapalai, la‘ī, and laua‘e for hula ceremonies and performances. As part of the protocol for gathering these items, practitioners always soak the leaves they gather in the stream flow nearby. This practice necessitates a flowing stream. 2010 Decision, FOF 53 (quoting Akana WT 9/14/07, ¶ 6 (MA06-01)). *Accord* Holt-Padilla WT 9/14/07, ¶ 21; Tr. 12/4/07 (Holt-Padilla) at 190:14 to 191:13 (MA06-01) (explaining that practitioners gather native plants like ‘ie ‘ie, halapepe, palapalai, and kupukupu wherever the streams flow freely along its banks, and that clean stream water is required for the gathering protocols, including for washing and soaking the plants).

A-173. Nā Wai ‘Ehā also supported traditional and customary religious and spiritual practices. Bailey WT 9/14/07, ¶ 7 (MA06-01). For example, the waters of Nā Wai ‘Ehā were renowned for the traditional and customary practice of hiding the piko, or the naval cord of newborn babies. 2010 Decision, FOF 43. ‘Īao Valley is a legendary and sacred burial place of chiefs. *Id.* FOF 44.

A-174. Streamflow is also required for hi‘uwai, a religious practice of ritual bathing for purification that has been engaged in in Nā Wai ‘Ehā since time immemorial and continues to

be important to traditional practitioners in Nā Wai ‘Ehā. Holt-Padilla WT 9/14/07, ¶ 24 (MA06-01); *see also* Bailey WT 9/14/07, ¶ 7 (MA06-01). This practice, which requires immersion in the water, often occurred around the time of makahiki, when individuals would go into the rivers or into the ocean in order to do a cleansing for the new year, and was also conducted before you start or end certain ceremonies. For ceremonies dedicated to Kāne, having a hi‘uwai in a stream magnifies the mana. 2010 Decision, FOF 54.

A-175. In Nā Wai ‘Ehā, it is a traditional Native Hawaiian practice for cultural practitioners to gather in the ahupua‘a in which she lives; an ahupua‘a in which she has ancestral ties, even if no family member then resides there; or an ahupua‘a that contains certain resources of value to her as a member of a Hawaiian cultural group such as traditional Hawaiian healers, who may use a specific area to gather lā‘au lapa‘au (native plants for medicine); hālau hula, whose chants and dances may honor deities associated with a specific natural resource area, and which may need to gather certain native plants from these areas; and fishermen, hunters, and gatherers who have accessed and used the ahupua‘a for subsistence. 2010 Decision, FOF 52.

A-176. Under the cultural protocols regarding who could exercise traditional and customary Native Hawaiian practices in an area, traditionally, if you lived in the area or you have direct access to the place, then you’re free to gather. That has also expanded as families have expanded or relocated to different places throughout our islands. Tr. 12/4/07 (Holt-Padilla) at 192:8-18 (MA06-01). By custom in Nā Wai ‘Ehā, however, gathering is not strictly limited to the ahupua‘a in which one resides. Holt-Padilla WT 9/14/07, ¶ 16 (MA06-01).

A-177. Historical and cultural accounts document how the development of the sugar industry in Nā Wai ‘Ehā beginning in the mid-19th century harmed traditional and customary Native Hawaiian practices such as kalo farming, although those practices continued to persist in

Nā Wai ‘Ehā into the early 20th-century to the present. Ex. C-2 at 15-18 (reviewing the cultural histories including the 1866 account by Hakuole of “Wailuku being destroyed by the sugar plantation” and “taro patches being dried up by the foreigners”).

A-178. Cultural experts and community witnesses provided uncontroverted testimony regarding limitations on Native Hawaiians’ ability to exercise traditional and customary rights and practices in the greater Nā Wai ‘Ehā area due to the lack of freshwater flowing in Nā Wai ‘Ehā’s streams and into the nearshore marine waters. 2010 Decision, FOF 49 (quoted in *Nā Wai ‘Ehā*, 128 Hawai‘i at 241, 287 P.3d at 142).

A-179. Despite significant challenges, some Native Hawaiian practitioners in Nā Wai ‘Ehā continue to exercise traditional and customary rights and practices, including gathering stream life such as hīhīwai, ‘ōpae, ‘o‘opu, and limu for subsistence and medicinal purposes, as well as cultivating taro for religious and ceremonial uses, gathering materials for hula, lua (ancient Hawaiian martial arts), and art forms. 2010 Decision, FOF 51.

A-180. Practitioners would like to expand the scope of their traditional and customary practices and plan to do so if water is returned to the streams. For example, many families seek to reestablish the tradition of growing kalo in Nā Wai ‘Ehā. 2010 Decision, FOF 55.

A-181. A subsistence lifestyle can be maintained in today’s cash economy, but with different demands upon subsistence growers. In the old days, you could pay taxes to chiefs with taro. Those in-kind of tax payments are no longer allowable, so even subsistence farmers would inevitably have to sell some of their taro for cash in order to pay taxes. 2010 Decision, FOF 56.

A-182. Nā Wai ‘Ehā continues to hold the potential to once again support enhanced traditional and customary rights and practices if sufficient water is restored. Restoring

streamflow to Nā Wai ‘Ehā would enormously benefit Native Hawaiians and other communities who seek to reconnect with their culture and live a self-sustaining lifestyle, and more people would be able to engage in traditional and customary practices with more water. 2010 Decision, FOF 57.

A-183. Restoration of mauka-to-makai flow to the streams is critical to the perpetuation and practice of Native Hawaiian culture in Nā Wai ‘Ehā. If we are not able to maintain our connection to the land and water and teach future generations our cultural traditions, we lose who we are as a people. 2010 Decision, FOF 58.

A-184. The return of the waters of Nā Wai ‘Ehā to levels that can sustain the rights of Native Hawaiians to practice their culture will result in the betterment of the conditions of Native Hawaiians by restoring spiritual well-being and a state of “pono” (goodness, righteousness, balance) to the people and communities of Nā Wai ‘Ehā. 2010 Decision, FOF 59.

A-185. Cold, free-flowing water is essential for kalo cultivation, which in turn is integral to the well-being, sustenance, and cultural and religious practices of Native Hawaiians. Kalo cultivation provides not only a source of food, but also spiritual sustenance, promotes community awareness and a connection to the land, and supports physical fitness and mental well-being. 2010 Decision, FOF 60.

IV. FRAMEWORK FOR DETERMINING LAND AND WATER USES AT THE TIME OF THE MĀHELE

B-1. Following the provisional recognition phase, applicants claiming appurtenant rights were directed to estimate the amount of water use on their lands at the time of the Māhele, provide additional supporting documents if necessary, and submit a written statement in support of their claims. Minute Order No. 1 at 3-4. The University of Hawai‘i at Mānoa William S. Richardson School of Law’s Environmental Law Clinic facilitated workshops and provided informational and other assistance to pro se community applicants to facilitate their understanding of and participation in this process. Minute Order No. 2 at 2.

B-2. To further assist pro se community applicants in quantifying their appurtenant rights, the Community Groups and OHA sponsored the testimony of two experts: Lilikalā K. Kame‘eleihiwa, Ph.D., and Paul Reppun. Dr. Kame‘eleihiwa provided historical and cultural expertise regarding background on the Māhele and guidance for determining land and water uses on kuleana lands at the time of the Māhele. Kame‘eleihiwa WT 2/5/16, ¶¶ 2, 8-47. Mr. Reppun provided farming expertise regarding the water duty for lo‘i kalo.

B-3. Dr. Kame‘eleihiwa is Director and Senior Professor at the Kamakakūokalani Center for Hawaiian Studies, Hawai‘inuiākea School of Hawaiian Knowledge, University of Hawai‘i at Mānoa. Kame‘eleihiwa WT 2/5/16, ¶¶ 3-7; Ex. Nā-Wai-3. Dr. Kame‘eleihiwa was qualified in this proceeding as an expert in Native Hawaiian history and culture, and specifically on the Māhele and Māhele records. Tr. 7/11/16 at 38:9-15.

B-4. Mr. Reppun has actively farmed both wetland and dryland kalo for over 40 years and has extensive experience in kalo cultivation, including the amount of water necessary to grow healthy wetland kalo. Mr. Reppun has visited every major kalo growing area in Hawai‘i that is still in production, and meets and works with kalo farmers throughout the islands on the

restoration of ancient lo‘i kalo and ‘auwai. Reppun WT 2/5/16 at 1; Reppun WT 9/14/07 (MA06-01) (resubmitted as Ex. OHA-1) at 2, ¶¶ 1-3; Tr. 7/11/16 (Reppun) at 107:8-10, 16-22; Tr. 12/3/07 (Reppun) at 104:3-20; 105:1-4; 105:23–106:12; 106:18-23 (MA06-01). Mr. Reppun was qualified in this proceeding as an expert in kalo cultivation with an emphasis on the water needs of kalo, Tr. 7/11/16 at 107:21-24; he has been so qualified in three previous matters, Ex. OHA-2.

B-5. Generally, one cannot ascertain the precise area of cultivation and amount of water use based on Māhele records. Kame‘eleihiwa WT 2/5/16, ¶¶ 2, 21. The purpose of Māhele records, specifically for kuleana awards, was to document property claims by describing the use of the land. *Id.* ¶ 15; Tr. 7/11/16 (Kame‘eleihiwa) at 65:22 to 66:2. Māhele claimants were not required to specifically document or quantify water use in the Māhele process. Tr. 7/11/16 (Kame‘eleihiwa) at 66:4-18 (“So it’s like air, you don’t say how much air you get a week, you just use it. Same thing with water.”).

B-6. Most Māhele records, however, particularly those pertaining to kuleana, contain a description of the crops in cultivation on a specific kuleana or ‘āpana (parcel). Kame‘eleihiwa WT 2/5/16, ¶¶ 2, 21. This helps to identify what was being cultivated on the land, and to reasonably estimate water uses at the time of the Māhele. *Id.*

B-7. Māhele records also sometimes provide the number of lo‘i being cultivated on a kuleana or ‘āpana, but generally do not specify the size of those lo‘i. *Id.* ¶ 27. Without knowing the size of the lo‘i, which can vary among kuleana, the number of lo‘i is not a useful guide for determining the area in cultivation under a particular kuleana award. *Id.* Nonetheless, such information is useful to indicate the existence and general extent of wetland kalo cultivation or other water uses on a kuleana or ‘āpana. *Id.*

B-8. Pro se community applicants assisted by the Environmental Law Clinic submitted three types of evidence to indicate land uses and estimate water uses during the time of the Māhele: (1) physical evidence on the land, including archaeological, topographical, and natural land and water features; (2) kama‘āina testimony, oral history, and historical records (other than Māhele records); and (3) Māhele records interpretation and analysis.

A. Physical Evidence

B-9. Pro se community applicants rely on various forms of direct, physical evidence of the land’s purpose and use at the time of the Māhele, including lo‘i walls, terracing, and complexes, land slope, close proximity to streams, ‘auwai, and springs, and cultural artifacts.

B-10. Many pro se community applicants submitted proof that their kuleana lands contain intact traditional lo‘i or remnants of a lo‘i kalo complex. These applicants described and/or submitted photographs of existing stone walls, terracing, and/or land slope, and where relevant to parcels with mixed-use descriptions in the Māhele records, approximated the area of land these features comprise. *See, e.g.*, SWUPA 2249 (Kahalekai) Attachments at 2 (description), Exs. 3i, 3j (photos); SWUPA 2233 (Goo) Addendum at 1 (description); Ex. 2233-GOO-1 (photos); Ex. 2298-VAREL-5 (photos); Pellegrino WT 2/5/16, ¶ 15 (description); 2275-SEVILLA-7, -8 (photos); Ex. 2276-SHIMIZU-2 (photos); Fisher WT 2/5/16, ¶ 51 (estimated area of ancient lo‘i); Teixeira WT 2/5/16, ¶ 10 (estimated area of ancient lo‘i). A few applicants testified to finding historical artifacts indicating lo‘i kalo cultivation on their land. *See, e.g.*, Exs. 2307-CERIZO-4 (pōhaku ku‘i ‘ai and kukui nut lamp), 2219-CABACUNGAN-3 (pōhaku ku‘i ‘ai).

B-11. Many pro se community applicants submitted proof that their kuleana lands contain parts of traditional ‘auwai or are adjacent or near to these traditional water courses. *See, e.g.*, Koki WT 12/22/15, ¶ 16; SWUPA 2252, Ex. 3B (Koki; photo of ‘auwai); Shimizu WT

2/3/16, ¶¶ 7-8; 2276-SHIMIZU-2 (photo of ‘auwai). Some pro se community applicants also described water features occurring naturally on their kuleana lands, such as the Nā Wai ‘Ehā streams themselves running through, along, or near the land, or natural springs flowing on the land. *See, e.g.*, Pellegrino WT 2/1/16, ¶ 15 (Waikapū Stream); SWUPA 2332 at Ex. 3 (photo no. 6 of Waikapū Stream); Sevilla WT 3/18/16, ¶ 14 (Waiola Spring); 2275-SEVILLA-8 (photos of Waiola Spring). Based on the traditional and cultural practice of growing lo‘i kalo near to streams and springs, and constructing ‘auwai to bring water to the lo‘i, close proximity to streams, springs, or ‘auwai indicates that the kuleana was cultivated in lo‘i kalo at the time of the Māhele. Kame‘eleihiwa WT 2/5/16, ¶ 35; Tr. 7/11/16 (Kame‘eleihiwa) at 48:2-23, 49:21 to 50:6.

B-12. While the presence of historical lo‘i walls or other physical evidence shows that the land was cultivated in lo‘i, the absence of lo‘i walls does not mean lo‘i did not exist, since lo‘i were also constructed with compacted earth and not stone walls, and such cultural remains may have been lost or eliminated over time. Tr. 7/11/16 (Kame‘eleihiwa) at 51:18 to 52:15.

B. Kama‘āina Testimony, Oral History, and Historical Records

B-13. Some pro se community applicants provided historical accounts of the use of their lands, either through their own recollections of ancient lo‘i, oral history and tradition passed down through their ‘ohana for generations since at least the time of the Māhele, traditional and historical knowledge from kūpuna (elders) and longtime residents in their communities in Nā Wai ‘Ehā, or historical records (other than Māhele records). *See, e.g.*, Ornellas WT 2/3/16, ¶ 9 (‘ohana traditional knowledge); Higa WT 2/3/16, ¶ 9 (childhood recollection of ancient lo‘i); 2275-SEVILLA-3 (Ka Lahui Hawaii newspaper); Tr. 7/18/16 (Sevilla) at 84:14-18, 91:16 to 92:20 (kūpuna oral history, Ashdown book).

C. Māhele Records Interpretation and Analysis

B-14. Pro se community applicants also provided the Māhele records for their lands. For kuleana lands, these documents included the Native Register, Native Testimony and Foreign Testimony, Land Commission Award (“LCA”), and Royal Patent (“RP”). Kame‘eleihiwa WT 2/5/16, ¶¶ 8-27. Such records from the Māhele are stored at the State Archives and are now also accessible online via several searchable databases, which are reliable and efficient tools for researching the records and especially critical for people who are not located on O‘ahu. *Id.* ¶ 18-20.

1. Historical background on Māhele records

B-15. Kuleana awards are LCAs granted under the 1850 Kuleana Act to *hoa‘āina* (Native tenants) for lands they improved, including cultivated lands and *pāhale* (houselots). Paragraph 6 of the Kuleana Act entitles *hoa‘āina* to only those lands they were actually cultivating, and Paragraph 5 limits the amount of land that could be awarded for a *pāhale* to one quarter of an acre. Kame‘eleihiwa WT 2/5/16, ¶¶ 11-14; Ex. Nā Wai-4 (1850 Kuleana Act), ¶¶ 5-6.

B-16. To obtain a kuleana award, *hoa‘āina* first had to register a claim describing their cultivated lands and/or *pāhale* in what is referred to as a Native Register. The Native Register is written in Hawaiian and often included a claim number, which was affixed to all documents referring to the particular claim, and, eventually, if the claim was awarded, became the LCA number. Kame‘eleihiwa WT 2/5/16, ¶ 23.

B-17. Next, claimants under the Kuleana Act were required to provide witness testimony to support their claims, usually from neighbors residing or farming land in the same region. Native Testimony is written in Hawaiian, and usually confirms or, in some instances, challenges a claim. The typical components of Native Testimony include claim number,

claimant name, date of testimony, witness name, statements describing each ‘āpana within a kuleana, statement regarding any pō‘alima, statements regarding boundaries (referencing neighboring owners), and a statement regarding whether the claimant’s interest in the land is disputed. *Id.* ¶ 23.

B-18. Foreign Testimony is written in English, and often, but not always, contains information identical to the Native Testimony for the same LCA. Sometimes Foreign Testimony appears to be an English translation of the Native Testimony. *Id.* ¶ 23.

B-19. The Land Commission then appointed a land surveyor to survey the land. Based on all of this evidence, the Land Commission either awarded an LCA, or denied the claim. Thus, the LCA is the source of land title, and contains descriptions of the lands awarded, usually by ‘āpana. The typical components of an LCA include the LCA number, claimant name, location of the land, ‘ili (smaller subdivision within an ahupua‘a) in which the ‘āpana is located, total area of the ‘āpana in acres, identification of pō‘alima (if any), location and date of the survey, and survey diagram. If any information regarding what was being cultivated on the ‘āpana is included in the LCA, it will usually be located at the beginning of each ‘āpana description, before the metes and bounds of the survey. *Id.* ¶¶ 9, 23.

B-20. Generally, the LCA for a kuleana award was confirmed via a Royal Patent (“RP”), but an RP was not necessary to convey fee-simple title to kuleana awards. An RP on an LCA merely evidences the extinguishment of the government’s interest in the land. RPs usually include boundaries of the land award and rarely contain information regarding land use. *Id.* ¶¶ 15, 23.

B-21. Kuleana LCAs are distinguished from other types of Māhele conveyances—such as government grants and konohiki awards, none of which required the land to be in cultivation. *Id.* ¶¶ 8-10, 16-17.

B-22. Government grants memorialized the purchase of fee-simple title to government lands. These lands could be sold without being in cultivation. *Id.* ¶ 16; Ex. Nā Wai-4, ¶ 4; Tr. 7/11/16 (Kame‘eleihiwa) at 84:9-23.

B-23. Konohiki LCAs likewise did not require proof of cultivation. These LCAs were issued to konohiki by the Land Commission after the 252 konohiki and Kamehameha III, Kauikeaouli divided amongst themselves the interests to large land divisions, such as ‘ahupua‘a and ‘ili. These LCAs granted konohiki life estates, which they could commute to fee-simple upon payment of one-third the value of the land or one-third of the land itself to the government. Kame‘eleihiwa WT 2/5/16, ¶ 8-9.

2. Guidelines for interpreting kuleana award records

B-24. Kuleana award records provide information that can help determine how the land was being used, and estimate how much water was being used, at the time of fee-simple conversion under the Māhele. *Id.* ¶¶ 2, 21-22, 28, 39; Tr. 7/11/16 (Kame‘eleihiwa) at 39:5 to 41:9.

B-25. Such information in kuleana award records includes descriptions of crop cultivation or other uses, for example:

- Various references to “kalo” and “loi,” which indicate wetland kalo cultivation. Kame‘eleihiwa WT 2/5/16 ¶¶ 25, 34, 42; Tr. 7/11/16 (Kame‘eleihiwa) at 45:15-22.
- “Poalima” (literally translated as “Friday”) refers to lands farmed by hoā‘āina for the ali‘i or konohiki, usually one day a week, and generally on a Friday. A portion of the product of a pō‘alima was given to the ali‘i or konohiki as a form of taxation.

Kame‘eleihiwa WT 2/5/16, ¶ 29. In Nā Wai ‘Ehā, based on the Māhele records and historical background, “poalima” refers to lands cultivated in lo‘i kalo, as opposed to any other crop. *Id.* ¶¶ 25, 29, 30, 42; Tr. 7/11/16 (Kame‘eleihiwa) at 46:22 to 47:13.

- “Kula” means a non-flooded cultivated area and generally refers to unirrigated pasture or plains and, in the Nā Wai Ehā area, also is used in Māhele records to refer to dryland agricultural crops. Kame‘eleihiwa WT 2/5/16, ¶¶ 25, 36. Use of this descriptor in Nā Wai ‘Ehā records is sparse, compared to records for other regions throughout Hawai‘i. *Id.* ¶ 37.
- “Pahale” means a house lot. According to Māhele records for Nā Wai ‘Ehā, many pāhale in this region were grouped together, and it was common for kuleana to be in cultivation entirely with no pāhale; in other words, generally lands the hoa‘āina farmed were grouped together in one area, and pāhale lands on which they lived were grouped together in another area. *Id.* ¶¶ 25, 38.

B-26. Kuleana award records may also include information on the number of lo‘i on a kuleana, which is not useful for calculating the area in cultivation, but is useful to indicate the general extent of lo‘i cultivation relative to other crops or uses that may be referenced in the records. *Id.* ¶ 27.

B-27. Based on the 1850 Kuleana Act and patterns Dr. Kame‘eleihiwa observed in her 30 years of researching Māhele records throughout Hawai‘i, which were also reinforced by her review of Māhele records for Nā Wai ‘Ehā, Dr. Kame‘eleihiwa developed five “rebuttable presumptions” and three “guiding principles” for determining land and water use on kuleana awards at the time of the Māhele. *Id.* ¶¶ 2, 28-47; Tr. 7/11/16 (Kame‘eleihiwa) at 42:13 to 23.

B-28. These “rules of thumb” are intended to help kuleana landowners interpret Māhele records today and provide a reasonable and accurate way to ascertain water use on their lands at the time of the Māhele. Tr. 7/11/16 (Kame‘eleihiwa) at 40:23 to 42:1; Kame‘eleihiwa WT 2/5/16, ¶¶ 2, 39. They comprise the best available historical and cultural information and understanding, in the absence of more details on a specific parcel due to the limitations in the historical record and the passage of time. *Id.* ¶ 39. These presumptions and principles apply specifically to kuleana awarded under the 1850 Kuleana Act, and not to other types of Māhele land grants. *Id.*

B-29. Presumption No. 1: Absent other indicia in a kuleana award (*e.g.*, if no pāhale is mentioned), the entire kuleana should be presumed to be in cultivation. *Id.* ¶¶ 25, 40; Tr. 7/11/16 (Kame‘eleihiwa) at 42:17 to 45:11. This presumption is consistent with the 1850 Kuleana Act, which restricted kuleana awards to lands *hoa‘āina* were actually cultivating or living on at the time. Kame‘eleihiwa WT 2/5/16, ¶¶ 8, 40. This was the reason for kuleana awards—to award *hoa‘āina* only their house lots and the lands they were actually cultivating. Tr. 7/11/16 (Kame‘eleihiwa) at 44:2-10. Even fallow *lo‘i* were excluded from kuleana awards. *Id.* at 44:10 to 45:9, 64:24 to 65:2.

B-30. Presumption No. 2: If a pāhale is referenced in the kuleana award, but no size of the pāhale is provided, the area for the pāhale should be presumed to be no more than one quarter of an acre. Kame‘eleihiwa WT 2/5/16, ¶¶ 25, 41; Tr. 7/11/16 (Kame‘eleihiwa) at 43:11-23, 45:12-14 (Kame‘eleihiwa). This presumption is also based on the 1850 Kuleana Act, which limited kuleana awards for house lots to one-quarter acre. Kame‘eleihiwa WT 2/5/16, ¶ 41. Also, a commutation fee had to be paid for pāhale, but not on *lo‘i*, so there was no reason to claim a larger pāhale area. Tr. 7/11/16 (Kame‘eleihiwa) at 43:11-23.

B-31. Presumption No. 3: If any of the various descriptors of lo‘i, kalo, or pō‘alima are used to describe a kuleana or an ‘āpana within a kuleana, without referencing any other crop or pāhale, the entire parcel should be presumed to be cultivated in lo‘i kalo. Kame‘eleihiwa WT 2/5/16, ¶ 42. This presumption is appropriate because Nā Wai ‘Ehā was renowned as the largest continuous area of wetland kalo cultivation—the “kalo capitol of the world”—with approximately 800 kuleana awarded in the region out of the 8,000 granted throughout Hawai‘i. Tr. 7/11/16 (Kame‘eleihiwa) at 45:25 to 46:10, 46:19-20; 2010 Decision, FOF 36. Moreover, wetland kalo represents the traditional “highest and best use” of the land: wetland kalo is 10 to 15 times more productive than dryland kalo, and therefore land cultivated in kalo would be assumed to have been in wetland kalo cultivation. Tr. 7/11/16 (Kame‘eleihiwa) at 39:24 to 40:6, 47:2-9.

B-32. Presumption No. 4: All pō‘alima should be presumed to be cultivated in lo‘i kalo. Kame‘eleihiwa WT 2/5/16, ¶ 43; Tr. 7/11/16 (Kame‘eleihiwa) at 46:22 to 47:13. This is especially true for Nā Wai ‘Ehā given the high presence of pō‘alima in the region. Kame‘eleihiwa WT 2/5/16, ¶ 31.

B-33. Presumption No. 5: Where Māhele records for a particular kuleana do not specify the crop being farmed on the land or the presence of a house lot, if the kuleana includes, abuts, or is near to a stream, ‘auwai, or other lands for which lo‘i kalo documentation exists, such as a pō‘alima, it should be presumed that wetland kalo was being cultivated on that kuleana. Kame‘eleihiwa WT 2/5/16, ¶ 44. This presumption is based on the same understandings explained above, as well as the generally accepted cultural traditions and practices, confirmed by records for Nā Wai ‘Ehā, of placing lo‘i alongside or near to streams and ‘auwai, and also

grouping lo‘i near to each other, separate from other crops and pāhale. Kame‘eleihiwa WT 2/5/16, ¶¶ 35, 38; Tr. 7/11/16 (Kame‘eleihiwa) at 47:14 to 49:3, 49:21 to 50:6, 63:19-25.

B-34. Guiding Principle No. 1: Related to Presumption No. 5, where kuleana award records are unclear about the ‘āpana on which a particular use or crop was located, neighboring ‘āpana or kuleana can serve as a guide. Kame‘eleihiwa WT 2/5/16, ¶ 45. For instance, if records for a kuleana award are unclear about which ‘āpana was a house lot and which was cultivated in lo‘i, records for neighboring kuleana awards can help identify the house lot apana and the lo‘i apana. This is because Hawaiians commonly lived in villages and farmed in a different location. *Id.* ¶¶ 38, 45; Tr. 7/11/16 (Kame‘eleihiwa) at 49:5 to 51:15. This is also consistent with the understanding that Hawaiians would not use lands suitable for wetland kalo for any other purpose than farming wetland kalo. *Id.* at 47:2-9.

B-35. Guiding Principle No. 2: Cultural land features can help determine the location and size of the lo‘i on a kuleana or ‘āpana. For example, where remnants of lo‘i walls and terraces exist in a kuleana, these land features provide evidence of the amount of land used for lo‘i kalo at the time of the Māhele. Kame‘eleihiwa WT 2/5/16, ¶ 46; Tr. 7/11/16 at 51:16 to 53:3 (Kame‘eleihiwa). Again, the current absence of such physical evidence does not mean that lo‘i did not exist. *Id.* at 52:5-15.

B-36. Guiding Principle No. 3: In the absence of any other evidence or guidance on the land and water uses on and around the kuleana, an equal distribution of land among the noted land uses may be the only justifiable compromise. For example, if the parcel is described as “loi and kula,” absent any other evidence suggesting how the land was apportioned between these two uses, then a fair estimation would be to attribute “at least” half to lo‘i and the rest to kula.

Kame‘eleihiwa WT 2/5/16, ¶ 47; Tr. 7/11/16 (Kame‘eleihiwa) at 53:4-23, 86:13 to 87:23, 93:5 to 94:2.

V. AGRICULTURAL WATER DUTIES

A. Water Duty for Wetland Kalo

B-37. Scientific research and collective experience among kalo farmers have established as common knowledge that, at 77°F, taro rot begins to form, and at 80°F, the rot accelerates exponentially. Reppun WT 9/14/07 (MA06-01) (resubmitted as Ex. OHA-1) at 2, ¶ 5; Tr. 7/11/16 (Reppun) at 130:2-10. Problems from taro rot become more severe as the water gets warmer. Ex. A-176, pp. 17-18 (MA06-01).

B-38. Apple snails, which are invasive pests that thrive in lo‘i and feed on taro, have also become a problem for kalo farmers. Cooler water helps to control the snails by slowing their metabolism and reproductive cycle. Ex. OHA-1 at 2, ¶ 6; Tr. 12/3/07 (Reppun) at 158:2-12 (MA06-01).

B-39. The primary means that a kalo farmer has to maintain the cooler temperatures necessary to control disease and pests is to control the “throughflow,” which is water that flows through and out of the lo‘i carrying away heat. Ex. OHA-1 at 3, ¶ 7.

B-40. Throughflow is distinct from water that is consumed in the lo‘i by percolation through the soil, transpiration by the leaves of the kalo plants, and evaporation to the surrounding air. Successful kalo cultivation requires sufficient water for both throughflow and consumption, which together comprise the total water flowing into the lo‘i, or the “inflow.” Ex. OHA-1 at 2, ¶ 7; Tr. 12/3/07 (Reppun) at 131:9-15 (MA06-01).

B-41. From planting to harvest, taro has a crop cycle of about 14 to 15 months and requires flowing water throughout that period, with the amount of water varying by the stage in the crop cycle. Reppun WT 2/5/16 at 2, ¶ 5. When the lo‘i are prepared and planted, and for the

first month or two after planting, kalo farmers need only enough water to keep the surface covered, which prevents weeds from germinating. One or two months after planting, when the taro begins to get taller, the flow to the lo‘i is opened; from then until the taro is 8 to 10 months old, depending on the variety, flow is stopped only for fertilizing and weeding. Ex. OHA-1 at 2, ¶¶ 15-19.

B-42. During the first 8 months, the taro gets taller and provides leaf cover that shades out the soil, resulting in cooler water temperatures. At about 8 months, the corm starts to form and the taro becomes more sensitive to temperature. From that point through harvest, the leaf shrinks, so more sunlight infiltrates and the water temperature increases, and the corm fills out and rises up out of the ground. During this maturing period, the taro is most vulnerable to rot, and requires the most water to carry away heat. Ex. OHA-1 at 2, ¶¶ 20-21; Tr. 7/11/16 at 116:25-117:8; 117:18-24.

B-43. Water requirements also depend on factors other than the stage of the crop cycle, such as the weather, the season, and the location of the lo‘i, all of which are directly related to the temperature of the water and hence its capacity to absorb heat and carry it away from the lo‘i. The colder the water, the greater its capacity to absorb heat, and the less water farmers need to keep their crop cool. Ex. OHA-1, ¶¶ 23-24.

B-44. As water passes through and cools the lo‘i, that water absorbs heat, increasing in temperature. Farmers who use water downstream of the point where an upstream user returns flows to the stream must use more water, because they start with warmer water. Ex. OHA-1, ¶ 24; Tr. 12/3/07 (Reppun) at 139:7-141:2 (MA06-1).

B-45. An average wetland taro complex requires between 100,000 to 300,000 gallons per acre per day (“gad”) of water to maintain water temperatures low enough to prevent

crop failure due to rot and pests. Within that range, the lower end would apply, for example, if a farmer had only two lo‘i, and kept one fallow. Ex. OHA-1, ¶¶ 4-5; Tr. 12/3/07 (Reppun) at 114:21-115:9 (MA06-1).

B-46. A water duty in the range of 100,000 to 300,000 gad duty is consistent with estimates of kalo farmers that have measured their actual water use in Nā Wai ‘Ehā. *See* Santiago WT 10/26/07, ¶ 7; Tr. 12/7/07 (Santiago) at 122:13-124:20 (MA06-01) (receiving about 576,000 gad, the majority of which returns to the ‘auwai and supplies other kuleana users); J. Duey WT 9/14/07, ¶ 14 (MA06-01) (estimating based on current usage his ‘ohana’s need for about 270,000 gad).

B-47. Early reports of claimed kalo water duties do not accurately represent the amount of water needed to grow healthy wetland kalo. Ex. OHA-1, ¶¶ 26, 29-30; Ex. A-172 at 0003 (MA06-01) (Joel Cox’s introduction to the Miles’s 1931 Hanapēpē study). *See also* Tr. 12/3/07 (Miike) at 113:18-22 (MA06-01) (recognizing that former studies of kalo water use “were measuring what is lost [to] the stream,” while the emphasis of Mr. Reppun’s testimony regarding kalo water use “is on adequate temperatures to maintain healthy taro growth.”).

B-48. Water duties that are based solely on consumptive use and fail to account for the amount of water needed for throughflow actually provide a water duty for dryland kalo, “which is a different crop” than wetland kalo and “not suitable for poi.” Ex. OHA-1, ¶ 35.

B-49. The USGS’s 2007 open-file report on Water Use in Wetland Kalo Cultivation in Hawai‘i (“kalo water report”) provides baseline information on wetland kalo irrigation practices for a variety of geographical settings in the Hawaiian Islands. Ex. A-12 at 2-3 (MA06-01).

B-50. Data for the USGS kalo water report were collected on commercial kalo farms, because commercial farmers “maximize their production by the very nature of being commercial.” Tr. 12/3/07 at 128:20-23.

B-51. The USGS kalo water measurements averaged an inflow for all lo‘i complexes on all four islands of 260,000 gad. On Maui, the average inflow was 230,000 gad. Ex. A-12 at 67 (MA06-01).

B-52. The average inflow for individual lo‘i on Kaua‘i and O‘ahu was 350,000 gad. Individual lo‘i were not measured on Maui. Ex. A-12 at 67 (MA06-01).

B-53. The USGS’s measurements for both lo‘i complexes and individual lo‘i fall within or above the range necessary to grow healthy kalo, indicating that an accurate kalo water duty is much higher than estimated by previous studies. Ex. OHA-1, ¶ 41.

B-54. During the USGS kalo water study, the outflow water temperature often exceeded the threshold for root fungus, indicating that 300,000 gad is a reasonable, but potentially low, estimate of the kalo water duty during times of peak usage. Ex. A-12 at 3 (MA06-01); Ex. OHA-1, ¶ 44. *See also* Tr. 12/3/07 at 157:25 to 158:1 (“[I]n every case the farmer said that they would like to have more water.”).

B-55. 300,000 gad must be consistently available to satisfy current demand for water to grow healthy kalo. Ex. OHA-1, ¶ 13; Tr. 12/3/07 (Reppun) at 131:1-6.

B-56. Water requirements for kalo may be greater today than they were at the time of the Māhele because of changed conditions, such as more noxious weeds that have been introduced, and the effects of climate change. Tr. 7/11/16 (Reppun) at 110:7-111:13.

B. Water Duty for Diversified Agriculture

B-57. In the Waiāhole case, the Commission evaluated extensive evidence regarding water requirements for diversified agriculture and determined that 2,500 gad is a reasonable

water duty for diversified agriculture in the Commission's allocation of water for IIFSs and water use permits. *See* 94 Hawai'i at 429, 474-76, 9 P.3d at 117, 162-64.

B-58. In contrast, some applicants have attempted to justify their water requests by citation to tables such as "Table 4-4: Oahu Water Requirements Forecast for Selected Crops," which is from the Oahu Water Management Plan 1992 Draft ("Table 4.4"), or "Table 4. HDOA Irrigation Water Use Guidelines" from the 2004 revision of the Agricultural Water Use and Development Plan" ("Table 4").

B-59. As the Commission staff recognized more than a decade ago, the Commission does not rely on these guidelines in its water allocation recommendations and decisions: "the findings in the Waiahole Ditch contested case hearing suggested that the guidelines overestimate irrigation requirements. In addition, the guidelines do not take into account regional climatic variability and other factors that determine water use, such as soil properties, irrigation system type and other agricultural practices." July 12, 2006 Staff Submittal for the Commission on Water Resource Management (Ref: wup765.sub2) ("7/12/06 Staff Submittal") at 4.

B-60. Rather than rely on such guidelines, the Commission entered a contract with The UH College of Tropical Agriculture and Human Resources "to develop an irrigation model that would address some of the deficiencies in the guidelines." 7/12/06 Staff Submittal, at 4. The principal investigator, Dr. Ali Fares, recalculated the irrigation demand for the subject application (which the applicant had determined was 0.470 mgd based on Table 4-4), and determined the irrigation requirement for the applicant's proposed end uses was 0.260 mgd. *Id.*

B-61. The original Nā Wai 'Ehā IIFS proceeding provided another example of why the guidelines are not used for Commission water allocation determinations. Dr. Fares calculated the water requirement of sugar cane grown on the Iao-Waikapu Fields and, in contrast

to the 6,800 gad cited in Table 4-4, or the average 7,716 gad HC&S used on these fields in 2004-2006, the irrigation requirement calculated by Dr. Fares’s model was 5,150 gad (or 5,026 gad excluding Field 920). See 2010 Decision, FOF 441, 465, 467. Along similar lines, almost every water duty figure in Table 4-4 and Table 4 for various crops falling under the general category of diversified agriculture exceeds, often by a factor of two or three or more, the 2,500 gad figure that the Commission determined in the *Waiāhole* case is a reasonable water duty for diversified agriculture.

VI. PRO SE COMMUNITY MEMBERS’ SWUPAS

This Part VI contains findings of fact for each pro se community member’s SWUPA(s).¹

A. WAIHE‘E: Waihe‘e River

SWUPA 2365N – Diannah Lai Goo

B-62. Diannah Lai Goo filed a total of five SWUPAs for lands her ‘ohana owns mauka and makai in Waihe‘e, which receive water directly from Waihe‘e River and two kuleana ‘auwai—the “Waihe‘e Valley North” ‘auwai and the “Waihe‘e Valley South” ‘auwai: SWUPAs 2231, 2232N, 2233, 2234N, and 2365N. Goo WT 1/11/16, ¶ 1, 2. Diannah’s daughter April Goo testified in support of all applications. *Id.* ¶ 2.

B-63. The Goos seek a water use permit for two mauka parcels that would receive water directly from Waihe‘e River—TMK Nos. (2) 3-2-004:008 (“Parcel 8”) and (2) 3-2-004:010 (“Parcel 10”)—if water were restored to the river downstream of the major diversions. *Id.* ¶ 1; SWUPA 2365N at 3, Addendum at 1.

¹ The SWUPAs are presented and organized in accordance with the Commission’s Provisional Order, Exhibit 7 table, except that within each ‘auwai/ditch system, applications are organized mauka to makai to the extent possible.

B-64. The Goo ‘ohana request recognition of appurtenant rights for Parcels 8 and 10 in the amount of 315,000 gpd, and a permit for these parcels in the amount of 315,000 gpd. Goo WT 1/11/16, ¶ 5; SWUPA 2365N at 3, Addendum at 2.

Traditional and Customary Rights

B-65. The Goo ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Goo WT 1/11/16, ¶ 3; Goo WT 1/29/07, ¶ 1 (MA06-01).

B-66. The Goo ‘ohana intend to grow lo‘i kalo on Parcels 8 and 10 in the traditional manner for subsistence and cultural purposes. Goo WT 1/11/16, ¶¶ 44, 46; SWUPA 2365N at 2-4.

Appurtenant Rights Claims

B-67. Parcels 8 and 10 still contain, in their entirety, ancient lo‘i kalo terraces. *Id.* at 1. The Goo ‘ohana historically cultivated lo‘i on these lands. Goo WT 1/11/16, ¶ 31.

B-68. Combined, Parcels 8 and 10 make up the entirety of LCA 3507:2, confirmed by RP 4114. *Id.* ¶ 8; Ex. 2365-GOO-1 to -2; SWUPA 2365N Addendum at 1; Goo WT 11/29/07, ¶ 2 (MA06-01); Ex. A-168 (MA06-01). Parcel 8 is all of ‘āpana 2, mahele 1 of LCA 3507 and Parcel 10 is all of ‘āpana 2, mahele 2 of LCA 3507. Goo WT 1/11/16, ¶ 8; Ex. 2365-GOO-1.

B-69. The foreign testimony supporting LCA 3507 confirm ‘āpana 2 was a “section of lois.” Goo WT 1/11/16, ¶¶ 9, 11; Ex. 2365-GOO-1. The LCA map for ‘āpana 2 depicts a pō‘alima separating mahele 1 and mahele 2, and an ‘auwai adjacent to both mahele, further evidencing Parcels 8 and 10 were cultivated in lo‘i kalo. Goo WT 1/11/16, ¶ 11; Ex. 2365-GOO-

1. The Commission provisionally approved appurtenant rights for LCA 3507:2. Provisional Order, Ex. 7 at 1.

B-70. Parcel 8 is 0.85 acre and Parcel 10 is 0.20 acre. Goo WT 1/11/16, ¶ 12; SWUPA 2365N at 3. The Goos request a quantification of appurtenant rights for Parcels 8 and 10 in the amount of 315,000 gpd (1.05 acres x 300,000 gad). Goo WT 1/11/16, ¶ 27.

Permit Request

B-71. Parcels 8 and 10 are on the north side of Waihe‘e River. Goo WT 1/11/16, ¶ 30; Goo WT 11/29/07, ¶ 4 (MA06-01). This land historically received water from an ‘auwai that brought water directly from Waihe‘e River. Goo WT 1/11/16, ¶ 30; Goo WT 11/29/07, ¶ 4 (MA06-01). The water flowed through the lo‘i kalo on Parcels 8 and 10, then back into the river. Goo WT 1/11/16, ¶ 30; Goo WT 11/29/07, ¶ 4 (MA06-01).

B-72. Diannah Lai Goo testified in the original IIFS contested case and recalled “water flowing through the ‘auwai” from Waihe‘e River as late as 1941, “when the Japanese attacked Pearl Harbor.” Goo WT 11/29/07, ¶ 4 (MA06-01); Tr. 12/7/07 at 40:22 to 41:12 (MA06-01). She recalled that her ‘ohana used the kuleana water on their mauka land for domestic purposes and kalo cultivation: “We carried the water to the home, which was higher, in buckets. One bucket to drink, one bucket for cooking. And then there were diversions into the lo‘i, and it went and flowed back into the Waihe‘e Stream.” Goo WT 11/29/07, ¶ 4 (MA06-01); Tr. 12/7/07 at 40:22 to 41:12 (MA06-01). The Goos declared their water use on this land with the Commission in 1989. Goo WT 1/11/16, ¶ 8; Ex. 2365-GOO-1.

B-73. If adequate water were available in Waihe‘e River, the Goo ‘ohana would restore the lo‘i they historically cultivated on the entire acreage of Parcels 8 and 10, and they

request 315,000 gpd for that purpose (1.05 acres x 300,000 gpd). Goo WT 1/11/16, ¶¶ 31-32; Goo WT 11/29/07, ¶ 4 (MA06-01); Tr. 12/7/07 at 41:13 to 42:7 (MA06-01).

SWUPA 3470N – John Varel (Emmanuel Lutheran Church)

B-74. John Varel owns four sets of properties in Waihe‘e and Waiehu for which he is seeking permits, three of which he acquired after the SWUPAs were filed and is thus pursuing in place of the original applicants. He submitted testimony in support of these SWUPAs, including SWUPAs 2262 and 2263N (Paleka), 2298 and 2299N (Varel), 2593N (Koolau Cattle Co.), and 3470 (Emmanuel Lutheran Church). Varel WT 9/12/16, ¶¶ 1, 3.

B-75. Varel has more than 40 years experience as an organic farmer and has been farming in Waihe‘e since 2002. In the last 13 years, he purchased his properties in Waihe‘e and Waiehu, and all the properties have 20-year ag designations. His farming operations seasonally employ between 25 and 50 Nā Wai ‘Ehā residents. Varel WT 9/12/16, ¶¶ 2-4.

1. Emmanuel Lutheran Church of Maui filed SWUPA 3470N on February 3, 2012, for a parcel in Waihe‘e, TMK No. (2) 3-2-004:005 (“Parcel 5”). John Varel purchased this parcel and testified in support of the application. Varel WT 9/12/16, ¶ 150.

B-76. Varel requests recognition of appurtenant rights for Parcel 5 in the amount of 567,000 gpd and a permit for 300,000 gpd. Varel WT 9/12/16, ¶¶ 152, 168.

Appurtenant Rights Claims

B-77. Parcel 5 is the entirety of LCA 11258, confirmed by RP 5348, and encircles a pō‘alima, which is not part of Parcel 5, and which Varel does not own. Varel WT 9/12/16, ¶ 153; Ex. 3470-EMMANUEL-2. The LCA describes LCA 11258 as “aina kalo.” Varel WT 9/12/16, ¶ 156; Ex. 3470-EMMANUEL-1. This description, coupled with the presence of a pō‘alima inside the kuleana and ancient lo‘i walls, confirms Parcel 5 was cultivated exclusively

in lo‘i kalo at the time of the Māhele. Varel WT 9/12/16, ¶¶ 155-58. The Commission approved appurtenant rights for LCA 11258. Provisional Order, Ex. 7 at 2.

B-78. Excluding the pō‘alima, Parcel 5 is 1.89 acre. Varel WT 9/12/16, ¶ 157. Varel estimates the water right appurtenant to Parcel 5 is 567,000 gpd (1.89 acres x 300,000 gad). Varel WT 9/12/16, ¶¶ 158-59.

Permit Request

B-79. In his written testimony, Varel stated that the former applicant incorrectly filed a new use application and actually had an existing use, because lo‘i kalo was being grown on the property prior to 2008, although at the time of designation the lo‘i was being fallowed (with the ‘auwai still flowing on the property) according to best management practice. Varel WT 9/12/16, ¶ 149.

B-80. As submitted by the former applicant, SWUPA 3470N requests 6,000 gpd for 1 acre of taro using a “flood” irrigation system. *Id.* at 2-3. The applicant based this figure on a table of crop water requirements which apparently was not referring to wetland kalo. *Id.* Addendum at 1. SWUPA 3470N also requests 3,600 gpd for two dwellings, based on a figure of 1,800 gpd for domestic use for each dwelling. *Id.*

B-81. Varel currently requests water to irrigate 1.0 acre of lo‘i kalo on Parcel 5, which is the amount that was cultivated before and after the time of designation in 2008. Varel WT 9/12/16, ¶ 161. Varel requests 300,000 gpd for this purpose. Varel WT 9/12/16, ¶¶ 162-63.

SWUPA 2362N – Joseph Alueta

B-82. Joseph Alueta filed a SWUPA for new use on April 23, 2009 for his 3.84-acre parcel in Waihe‘e, TMK No. (2) 3-2-003:001. Alueta WT 1/17/16, ¶ 1; SWUPA 2362N at 1, 3.

Alueta requests recognition of appurtenant rights in the amount of 120,000 gpd, and a permit for 600,000 gpd. Alueta WT 1/17/16, ¶ 5; Tr. 7/12/16 (Alueta) at 17:21-22.

B-83. Alueta and his wife Shannon purchased the land on July 28, 2003 and their ‘ohana has lived there since they completed construction of their home in December 2006. Alueta WT 1/17/16, ¶1; Alueta WT 9/14/07, ¶1 (MA06-01). The Aluetas “bought the land with the specific purpose of trying to preserve” it “and to farm it so that it didn’t fall in the wrong hands.” Tr. 7/12/16 (Alueta) at 22:6-8. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources prohibits further development of the land, as numerous cultural sites have been identified, including lo‘i kalo. Alueta WT 1/17/16, ¶ 16; *see* Tr. 7/12/16 (Alueta) at 22:20 to 23:10.

B-84. The Aluetas intend to restore the lo‘i. Alueta WT 1/17/16, ¶ 16; SWUPA 2362 at 3; SWUPA 2362 Addendum at 1; Alueta WT 1/17/16, ¶ 21. They collaborated with SHPD to produce a Preservation Plan for Waihe‘e Irrigated Taro Complex (SIHP Site 50-50-04-2846). Alueta WT 1/17/16, ¶ 16. Pursuant to the plan, in order to plant the lo‘i with kalo and make them productive again, the Aluetas removed java plum trees with aggressive roots that were undermining the ancient lo‘i terraces. *Id.*

Traditional and Customary Rights

B-85. The Alueta ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Alueta WT 1/17/16, ¶ 3; Alueta WT 9/14/07, ¶ 2 (MA06-01).

B-86. The Alueta ‘ohana intend to restore and cultivate ancient lo‘i kalo in the traditional manner for subsistence and cultural purposes. Alueta WT 1/17/16, ¶¶ 16, 29; Tr. 7/12/16 at 24:18-22; SWUPA 2362N Addendum at 1-4.

Appurtenant Rights Claims

B-87. The deed to Alueta's land contains a reservation of appurtenant rights. Alueta WT 1/17/16, ¶ 2.

Permit Request

B-88. Alueta requests a permit for the amount of water necessary for hydroelectricity generation, 2.0 acres of lo'i kalo, and 0.5 acre of diversified agriculture. *Id.* ¶¶ 21-24. Alueta plans to divert water from the Waihe'e River using a pipe, first to generate hydroelectricity before the water flows into his lo'i kalo. *Id.* ¶ 21. After flowing through the lo'i, some of the water will then be piped to his other diversified agriculture crops like betelnut, ma'o (Hawaiian cotton), tobacco, sweet potato, fruit trees, and flowering trees, before flowing back to Waihe'e River. *Id.* ¶ 21.

B-89. Alueta requests 600,000 gpd for the lo'i (2 acres x 300,000 gad). *Id.* ¶ 22. Applying the water duty for diversified agriculture used in the Waiāhole case, Alueta requests 1,250 gpd for his diversified agriculture (0.5 acre x 2,500 gad). *Id.* ¶ 23. Because this amount will be used after flowing through the lo'i kalo, he is not requesting an additional amount for the diversified agriculture. *Id.*; Tr. 7/12/16 at 17:19-22.

SWUPA 2706N – Hawaiian Islands Land Trust

B-90. Maui Coastal Land Trust, Hawaiian Islands Land Trust's ("HILT's") predecessor, filed a SWUPA for new use on August 3, 2010, for the Waihe'e Coastal Dunes and Wetlands Refuge at TMK Nos. (2) 3-2-010:001 ("Parcel 1") and (2) 3-2-010:002 ("Parcel 2"). Fisher WT 2/3/16, ¶¶ 1, 4, 6.

B-91. The Waihe'e Refuge expands over 7,000 feet of marine shoreline, 103 acres of dune ecosystem, 27 acres of marsh wetlands, and more than 10 acres of riparian wetlands in

and along Waihe'e River and Kalepa Gulch between Waiehu and Waihe'e. Important cultural resources are located throughout the Refuge, including the ancient sites of a village complex and several heiau. The Waihe'e Refuge features a seven-acre loko kalo i'a, and an ancient 'auwai connecting the loko kalo i'a to Waihe'e River. *Id.* ¶ 2.

B-92. As a priority in its restoration work at the Refuge, HILT is restoring the loko kalo i'a to reestablish the ancient Native Hawaiian use of the land as a fishery and lo'i kalo in the traditional manner, thereby reviving traditional agricultural and cultural practices on the land. Restoring water to the ancient 'auwai and loko kalo i'a will also help sustain wetland habitat for indigenous and endemic plants and animals in the region, many of which are endangered or threatened. *Id.* ¶ 3.

B-93. HILT Interim Executive Director Scott Fisher testified in support of HILT's application. Fisher is Native Hawaiian and since 2003 has spent countless hours on the Waihe'e Refuge, overseeing all aspects of ecological restoration work. *Id.* ¶ 4.

B-94. HILT requests recognition of appurtenant rights for at least 108,120 gpd on Parcel 1 and 901,175 on Parcel 2, and a permit for 2,700,000 gpd on both parcels. *Id.* ¶¶ 57-58, 67, 72.

Appurtenant Rights Claims

B-95. The deed to the Waihe'e Refuge contains a reservation of water rights, with the exception of six kuleana within Parcel 1 and one kuleana that is the entirety of Parcel 2. *Id.* ¶¶ 7-8, 49.

B-96. The six kuleana in Parcel 1 are: LCA 4296B:2, confirmed by RP 5357; LCA 4389D:2.1 & 2.2, confirmed by RP 6752; LCA 3886B:2 & 3, confirmed by RP 5991; LCA

4405B:2, confirmed by RP 2163; LCA 4405C:2, confirmed by RP 6145; and LCA 4405N:2, confirmed by RP 5260. *Id.* ¶ 8.

B-97. According to the records supporting the six kuleana in Parcel 1, land uses at the time of the Māhele were as follows:

- ‘āpana 2 of LCA 4296B (0.95 acre) was a fishpond
- ‘āpana 2, mahele 1 of LCA 4389D (0.52 acre) was a house lot; ‘āpana 2, mahele 2 of LCA 4389D (0.15 acre) was a fishpond
- ‘āpana 2 (0.34 acre) and 3 (0.55 acre) of LCA 3886B were house lots
- ‘āpana 2 of LCA 4405B (0.28 acre) was a house lot
- ‘āpana 2 of LCA 4405C (0.2 acre) consisted of 5 lo‘i
- ‘āpana 2 of LCA 4405N (0.17 acre) was a fishpond

Id. ¶¶ 11-14, 25-26, 30, 34, 45-46; Exs. 2706-HILT-2, -3, -9, -11, -13, -19.

B-98. The kuleana that is Parcel 2 is LCA 3775:1, confirmed by RP 5360. Fisher WT 2/3/16, ¶ 49. The documents supporting LCA 3775 states ‘āpana 1 was in “loi and lauhala” at the time of the Māhele. Fisher WT 2/3/16, ¶¶ 49-51; Ex. 2706-HILT-21. Based on the lo‘i walls that still exist on Parcel 2, which is a total of 3.47 acres, Fisher estimates about 3 acres was in lo‘i kalo cultivation and 0.47 was used for lauhala. Fisher WT 2/3/16, ¶ 51.

B-99. Fisher applied the following water duties to estimate appurtenant rights quantification: the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes of 600 gpd per household; the aquaculture water duty in the Commission’s 1992 Oahu Water Management Plan of 36,000 gad; the upper end of the Reppun water duty range for lo‘i kalo of 300,000 gad; and the water duty for diversified agriculture the Commission used in the Waiāhole case of 2,500 gad. *Id.* ¶¶ 52-55. Applying these standards, Fisher estimates the water

right appurtenant to the six kuleana in Parcel 1 is 108,120 gpd (4 house lots, 1.27 acres of fishpond, and 0.2 acre of lo‘i), and the water right appurtenant to Parcel 2 is 901,175 gpd ((3 acres x 300,000 gad = 900,000 gpd) + (0.47 acre x 2,500 gad = 1,175 gpd)). *Id.* ¶¶ 57-58.

Permit Request

B-100. The Waihe‘e Refuge receives water from the “Waihe‘e Valley South” ‘auwai after it crosses under Kahekili Highway near Waihe‘e School, flows through open ditches through residential lands, and then empties into the Refuge, where it then flows to the ocean. *Id.* ¶ 60. HILT requests 600,000 gpd from this ‘auwai to restore two acres of lo‘i kalo on the Waihe‘e Refuge. *Id.* ¶61.

B-101. The Waihe‘e Refuge borders Waihe‘e River, so HILT also seeks to restore water from Waihe‘e River to the Waihe‘e Refuge to revive an ancient ‘auwai and seven-acre loko kalo i‘a. *Id.* ¶62. Restoring these unique ancient features will help reinvigorate Native Hawaiian practices on the land and revive an important food source for the local community, in addition to creating a more consistent wetland habitat for native plants and animals, including endangered bird species. *Id.*

B-102. Many reports have been produced about this area, documenting the historical importance of the Waihe‘e Refuge. Ancient Hawaiians founded Kapoho Village no later than 1464 C.E., and around this time, Native Hawaiians built an extensive loko kalo i‘a system in and around the wetlands with an ‘auwai to supply this area with freshwater from Waihe‘e River. A loko kalo i‘a is a system that utilizes water flowing throughout taro patches in order to raise fish. Both the loko kalo i‘a system and ‘auwai are registered as historic sites (State Inventory Site Nos. 2405 and 2464 respectively), highlighting their importance for native culture and practices. *Id.* ¶ 63.

B-103. The makahā (fishpond outlet and sluice gate) of this system returned the freshwater flow to the ocean. Use of this loko kalo i‘a continued for hundreds of years and included fish and wetland taro production in traditional times and also rice cultivation in the historic period to the early 20th century. The ‘auwai continued to run until the 1920s. *Id.* ¶ 64.

B-104. HILT believes 300,000 gad will be sufficient for both the cultivation of lo‘i and raising fish in the traditional manner within the seven-acre loko kalo i‘a, and accordingly requests 2,100,000 gpd directly from the Waihe‘e River (7 acres x 300,000 gad). *Id.* ¶ 66.

B. WAIHE‘E: Waihe‘e Ditch – Pi‘ihana Field 49 Kuleana Pipe & Pi‘ihana Mill Pipe

B-105. At a point just downstream of where the ‘Īao-Maniania Ditch drains into the Waihe‘e Ditch, a 6-inch pipe taps the Waihe‘e Ditch and brings water several miles to an area known as Pi‘ihana, near the old mill in Wailuku. The 6-inch pipe then splits into two separate pipes: the “Pi‘ihana-Field 49” ‘auwai and the “Pi‘ihana Mill” ‘auwai. Jeremiah Dec. 1/28/08, ¶ 19; Tr. 12/7/07 (Santiago) at 96:8-19, 115:20-25; Ex. A-194C (MA06-01).

B-106. The “Pi‘ihana-Field 49” ‘auwai services kuleana users on the north side of Wailuku River, including the Cockett ‘ohana. *Id.*

B-107. The “Pi‘ihana/Mill” ‘auwai crosses Wailuku River and services the kuleana users on the south side of the stream, including Santiago, who farms on DeMello ‘ohana lands. *Id.*; Santiago WT 2/2/16, ¶ 13.

SWUPA 2223 – Winifred & Gordon Cockett

B-108. Winifred and Gordon Cockett filed a SWUPA for existing use on April 23, 2009, for a parcel in Wailuku, TMK No. (2) 3-4-031:008 (“Parcel 8”). Cockett WT 8/28/16, ¶ 1.

B-109. The Cocketts request recognition of appurtenant rights in the amount of 195,000 gpd, and a permit for 942 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 3.

Traditional and Customary Rights

B-110. The Cockett ‘ohana are tenants of the ahupua‘a of Wailuku who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1-2.

B-111. The Cocketts grow food crops and Native Hawaiian medicinal plants in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 2, 13; SWUPA 2223 Attachment A.

Appurtenant Rights Claims

B-112. Parcel 8 is a portion of LCA 3382, confirmed by RPs 3793 and 5288. The foreign testimony supporting LCA 3382 states there were 24 lo‘i on this kuleana, and the physical features existing today confirm this land was cultivated entirely in lo‘i kalo. Cockett WT 8/28/16, ¶¶ 7, 9; Ex. 2215-COCKETT-1. The Commission provisionally approved appurtenant rights for LCA 3382. Provisional Order, Ex. 7 at 2.

B-113. Parcel 8 is 0.65 acre. Cockett WT 8/28/16, ¶ 8. The Cocketts estimate the water right appurtenant to Parcel 8 is 195,000 gpd (0.65 acre x 300,000 gad). *Id.* ¶¶ 10-11.

Permit Request

B-114. The Cocketts use water from the “Pi‘ihana-Field 49” ‘auwai that runs through Happy Valley and Wailuku Town to irrigate their 0.314-acre non-commercial garden consisting of fruits, vegetables, herbs, Native Hawaiian medicinal plants, and flowers. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, they believe 942 gpd (0.314 acre x 3,000 gad) is sufficient for their garden. *Id.* ¶¶ 12-14.

SWUPA 2273 & 2274N – Alfred Santiago

B-115. Alfred Santiago and El Ranchitos DeMello filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for two parcels in Wailuku, TMK Nos. (2) 3-4-

024:022 (“Parcel 22”) and (2) 3-4-024:027 (“Parcel 27”). Santiago WT 2/2/16, ¶ 1. These parcels have been in the DeMello ‘ohana for generations, but the ‘ohana agreed that permits should be issued in Santiago’s name, as he has cultivated the lo‘i on these kuleana for decades.

Id.

B-116. Santiago requests recognition of appurtenant rights on Parcels 22 and 27 in the amount of 487,800 gpd, and a permit for 460,000 gpd, of which 10,000 gpd is the existing use on April 30, 2008. *Id.* ¶ 4.

Traditional and Customary Rights

B-117. Santiago is a tenant of the ahupua‘a of Wailuku who is a descendant of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Santiago WT 2/2/16, ¶ 2; Tr. 7/13/16 (Santiago) at 108:22; Santiago WT 10/26/07, ¶ 1 (MA06-01).

B-118. Santiago intends to restore lo‘i kalo on Parcels 22 and 27 in the traditional manner for subsistence and cultural purposes. Santiago WT 2/2/16, ¶ 15; SWUPA 2274N Attachment 1.

Appurtenant Rights Claims

B-119. Parcels 22 and 27 are comprised of portions of two LCAs—LCA 3257C:2, confirmed by RP 4329, and LCA 3333, confirmed by RP 5152—as well as a portion of a pō‘alima. Santiago WT 2/2/16, ¶ 7; Ex. 2273-SANTIAGO-4. The records supporting the two LCAs, that part of Parcel 22 is a pō‘alima, and the close proximity of these kuleana to the river and ‘auwai, confirm these lands were cultivated exclusively in lo‘i kalo at the time of the Māhele. Santiago WT 2/2/16, ¶¶ 8-10; Exs. 2273-SANTIAGO-4 to -6. The Commission provisionally approved appurtenant rights for LCA 3333. Provisional Order, Ex. 7 at 3.

B-120. Together, Parcels 22 and 27 are 1.626 acres. Santiago WT 2/2/16, ¶ 5; Ex. 2273-SANTIAGO-1. Santiago estimates the water right appurtenant to these kuleana is 487,800 (1.626 acres x 300,000 gad). Santiago WT 2/2/16, ¶ 12.

Permit Request

B-121. Santiago uses 0.8 acre of Parcel 22 and 0.7 acre of Parcel 27 (total of 1.5 acres) for diversified agriculture, including tapioca, dry land kalo, banana, sweet potato, and similar crops. Based on his over 30-year experience and expertise in farming these lands, Santiago estimates current use for these purposes to be 10,000 gpd. Santiago WT 2/2/16, ¶¶ 17-18.

B-122. Santiago would like to re-establish lo‘i kalo on these portions of Parcels 22 and 2, and based on his 30 years’ experience farming lo‘i kalo, he agrees with Reppun’s water duty and estimates he will need 450,000 gpd (1.5 acre x 300,000). *Id.* ¶¶ 21, 27.

C. WAIHE‘E: Waihe‘e Ditch – Wailuku Town Kuleana Ditch

B-123. The “Wailuku Town” ‘auwai receives water from a pipe in the Waihe‘e Ditch, south of Wailuku River. Velez WT 2/3/16, ¶ 12; Ibara WT 12/9/15, ¶ 9. The water travels in pipes and ditches through Wailuku Town, and eventually passes kuleana lands on Kalua Road. Velez WT 2/3/16, ¶ 12; Ibara WT 12/9/15, ¶ 9.

B-124. The flow in the “Wailuku Town” ‘auwai is inconsistent, but when it does flow, kuleana users along Kalua Road, including the Ibara, Ciotti, and Velez ‘ohana access some of it via pipes in the ‘auwai. Velez WT 2/3/16, ¶ 12; Ibara WT 12/9/15, ¶ 9; Ciotti 12/9/15, ¶ 9.

SWUPA 2245 & 2246N – Greg Ibara

B-125. Greg Ibara filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Wailuku, TMK No. (2) 3-4-004:020 (“Parcel 20”), which he purchased in 1998. Ibara WT 12/9/15, ¶ 1. Ibara requests recognition of appurtenant rights in

the amount of 351,300 gpd, and a permit for 8,100 gpd, of which 2,100 gpd is the existing use as of April 30, 2008. *Id.* ¶ 3.

Appurtenant Rights Claims

B-126. Parcel 20 is comprised of portions of two LCAs—LCA 2621, confirmed by RP 3214, and LCA 3233:2, confirmed by RP 7559. Ibara WT 12/9/15, ¶ 4; Ex. 2245-IBARA-1.

B-127. Records supporting LCAs 2621 and 3233:2 state these kuleana were mo‘o kalo without referencing any other land use. Ibara WT 12/9/15, ¶¶ 5-6; Exs. 2245-IBARA-2, -3. Physical features, including land slope and proximity to an ‘auwai intake and pō‘alima, further evidence these lands were cultivated in lo‘i. Ibara WT 12/9/15, ¶¶ 5-6. The Commission provisionally approved appurtenant rights for LCAs 2621 and 3233:2. Provisional Order, Ex. 7 at 3.

B-128. Parcel 20 is 1.171 acres. Ibara WT 12/9/15, ¶ 4. Ibara estimates the water right appurtenant to Parcel 20 is 351,300 gpd (1.171 acre x 300,000 gad). *Id.* ¶¶ 7-8.

Permit Request

B-129. Ibara uses water from the “Wailuku Town” ‘auwai to irrigate 0.007 acre of lo‘i kalo, for which he requests 2,100 gpd (0.007 acre x 300,000 gad). Ibara WT 12/9/15, ¶¶ 9-11.

B-130. Ibara wishes to restore additional lo‘i on 0.02 acre of his land, for which he requests an additional 6,000 gpd (0.02 acre x 300,000 gad). *Id.* ¶¶ 12, 13.

SWUPA 2247 & 2248N – Jordanella Ciotti

B-131. Vanessa Ince and William Scott Kinzer filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Wailuku, TMK No. (2) 3-4-004:019 (“Parcel 19”). SWUPA 2247 at 1; SWUPA 2248N at 1; Ciotti WT 12/9/15, ¶ 1. Jordanella

Ciotti subsequently purchased this land, on which she now resides, and she testified in support of these applications. Ciotti WT 12/9/15, ¶ 1.

B-132. Ciotti requests recognition of appurtenant rights in the amount of 135,300 gpd, and a permit for 18,805 gpd, of which 1,088 gpd is the existing use on April 30, 2008. *Id.* ¶¶ 3, 25.

Appurtenant Rights Claims

B-133. Parcel 19 primarily is comprised of LCA 3209:4, confirmed by RP 7893. Ciotti WT 12/9/15, ¶ 4; Exs. 2247-CIOTTI-1 (TMK map), 2247-CIOTTI-3 (Kīpuka map). The records supporting LCA 3209:4 state there were five lo‘i kalo, without referencing any other use. Ciotti WT 12/9/15, ¶ 6; Ex. 2247-CIOTTI-2. The Commission provisionally approved appurtenant rights for LCA 3209:4. Provisional Order, Ex. 7 at 3.

B-134. The LCA 3209:4 portion of Parcel 19 is 0.23 acre. Ex. 2247-CIOTTI-2 at 1.

Permit Request

B-135. Ciotti currently uses water on 0.1125 acre to irrigate her yard and non-commercial garden, including banana, tī, plumeria, coconut, hibiscus, and herbs such as oregano and rosemary. In accordance with the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, Ciotti estimates this existing use is 338 gpd (0.1125 acre x 3,000 gad). Ciotti WT 12/9/15, ¶ 10. Ciotti also uses water to irrigate an 18 by 6-foot lo‘i kalo, comprising approximately 0.0025 acre. Ciotti estimates she is using 750 gpd for her lo‘i (0.0025 acre x 300,000 gad). *Id.* ¶¶ 11, 13, 14.

B-136. Ciotti requests additional water to restore a 60 by 40-foot lo‘i on approximately 0.0551 acre and to irrigate grass and non-commercial crops throughout the remainder of her property, or 0.3957 acre. *Id.* ¶¶ 16-17. Applying the upper end of the Reppun

water duty range for lo‘i kalo and the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, Ciotti estimates she will need an additional 17,717 gpd for these purposes (0.0551 acre x 300,000 gad = 16,530 gpd) + (0.3957 acre x 3,000 gad = 1,187 gpd). *Id.* ¶¶ 18-19.

B-137. Ciotti requests water for lo‘i totaling 0.058 acre (0.0025 acre + 0.0551 acre).

SWUPA 2241 & 2242N – Mary Ann Velez

B-138. Darrell Higa filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for two parcels in Wailuku, TMK Nos. (2) 3-4-004:016 (“Parcel 16”) and (2) 3-4-004:017 (“Parcel 17”). Velez WT 2/3/16, ¶ 1. Higa has since passed away. *Id.* ¶ 2. His partner Mary Ann Velez, whose mother Perolina Domogma is the majority owner of Parcels 16 and 17, testified in support of these applications. *Id.* Velez has been managing these lands for her mother since Higa passed. *Id.*

B-139. Velez requests recognition of appurtenant rights for Parcels 16 and 17 in the amount of 273,900 gpd, and a permit for 139,200 gpd, of which 1,200 gpd is the existing use as of April 30, 2008. *Id.* ¶¶ 5, 21.

Appurtenant Rights Claims

B-140. Parcels 16 and 17 lie entirely within two kuleana—LCA 3339:2, confirmed by RP 6251, and LCA 2532:4, confirmed by RP 5515. Velez WT 2/3/16, ¶ 7; Exs. 2241-VELEZ-1 to -3. The records supporting these LCAs describe these kuleana as lo‘i kalo lands. Velez WT 2/3/16, ¶¶ 8-9; Exs. 2241-VELEZ-4, -5. These kuleana are directly fed by an ancient ‘auwai that runs along Kalua Street, further confirming lo‘i kalo cultivation. Velez WT 2/3/16, ¶¶ 8-9. The Commission provisionally approved appurtenant rights for LCAs 3339:2 and 2532:4. Provisional Order, Ex. 7 at 2-3.

B-141. Together, Parcels 16 and 17 are 0.913 acre. Velez WT 2/3/16, ¶ 6. Velez estimates the water right appurtenant to these parcels is 273,900 gpd (0.913 acre x 300,000 gad). *Id.* ¶¶ 10-11.

Permit Request

B-142. Velez requests water for existing domestic uses for two houses, including maintenance of a home garden of kukui, tī leaf, mai‘a, ‘ulu, eggplant, okra, and pumpkin. *Id.* ¶¶ 14, 17. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic use, she requests 1,200 gpd for these uses (2 houses x 600 gpd). *Id.* ¶ 14.

B-143. Velez is also requesting water to restore lo‘i kalo on 0.235 acre of Parcel 16 and 0.225 acre of Parcel 17, for a total of 0.46 acre. *Id.* ¶ 15. Velez estimates she would need 138,000 gpd for the lo‘i (0.46 acre x 300,000 gpd). *Id.* ¶ 16.

D. WAIHE‘E: Waihe‘e Ditch (Waihe‘e/‘Īao/Waikapū)

SWUPA 2298 & 2299N – John Varel

B-144. On April 29, 2009, Varel filed SWUPA 2298 for an existing use of 25,500 gpd and SWUPA 2299N for a new use of 1,494,500 gpd (1,520,000 gpd total) on a large parcel in Waihe‘e, TMK No. (2) 3-2-001:001 (“Parcel 1”). On September 12, 2016, he submitted written testimony requesting recognition of appurtenant rights in the amount of 5,238,582 gpd and permits for existing and new uses totaling 1,557,300 gpd. Varel WT 9/12/16, ¶ 38.

Appurtenant Rights Claims

B-145. The deed to Parcel 1 contains a reservation of appurtenant rights to HC&S and WWC. *Id.* ¶ 33.

Permit Request

B-146. Of the 937.807 acres that make up Parcel 1, 474 acres are designated Conservation Lands and are a part of the watershed. *Id.* ¶¶ 35, 57. In his existing use SWUPA

2298, Varel listed uses of 12,500 gpd for 5 acres of “diversified ag fruit trees,” 10,000 gpd for 2 acres in a “nursery,” and 3,000 gpd for 5 households, for a total of 25,500 gpd. SWUPA 2298 at 3-4. In his new use SWUPA 2299N, Varel requested 1,494,500 gpd for 340 acres of macadamia nuts. SWUPA 2299N at 2-3.

B-147. For the past 13 years, Varel has been receiving water for his farm from two major leaks in the Waihe‘e Ditch system. At their peak, each leak was at minimum 1 mgd and more consistently 2 mgd, but a few years ago, WWC attempted to repair the leaks, so Varel now receives approximately 72,000 gpd from each leak in three places for a total of approximately 216,000 gpd. He has directed the leaks to supply irrigation uses on his farm and allowed the excess to flow into the Spreckels Ditch. Varel WT 9/12/16, ¶¶ 37, 59.

B-148. In his existing use SWUPA 2298, Varel indicated that he was using the water from the leaks to irrigate the 25,500 gpd of diversified ag, nursery, and household uses. In his new use SWUPA 2299N, covering his 340 acres of macadamia nuts, he stated that “[t]his acreage is currently not being irrigated from the leaks, for could not make a financial commitment to restore irrigation until I knew where my consistent supply of water would come from.” *Id.* Addendum at 1.

B-149. In his written testimony, Varel stated that the figure for his existing use in SWUPA 2298 “was not accurate because did not list the large volume of water I was using from the leaks in the ditch system to irrigate my 340 acres of macadamia nuts.” Varel WT 9/12/16, ¶ 58. But it remains unclear how much water he was actually using for macadamia nuts at the time of designation. Tr. 9/19/16 (Varel) at 169:24 to 174:1.

B-150. Varel currently requests 1,494,500 gpd for 340 acres of macadamia nuts, based on a 4,400 gad figure; 37,500 gpd for 15 acres of organic fruit trees including banana,

papaya, orange, mango, tangerine, grapefruit, lime, lemon, and other plants like kalo and sugarcane, based on a 2,500 gad figure for diversified agriculture; 10,000 gpd for a 2-acre nursery where he grows starter Native Hawaiian and landscaping plants, based on a 5,000 gad figure for “foliage”; and 13,800 gpd for 23 worker houses, based on a figure of 600 gpd per home, as well as the Maui Code provision that per every \$35,000 of gross income on a farm, he is eligible to build one manager’s home, divided into the gross income of his farm of \$800,000. Varel WT 9/12/16, ¶¶ 65-67.

B-151. Varel acknowledges that groundwater is the most viable alternative to water from the ditch system. Varel WT 9/12/16, ¶ 72. He spent over \$100,000 to construct a well, but the Commission granted him a permit for only 3,000 gpd pending resolution of these surface water proceedings. *Id.* Varel agreed that if well water is available, it is “all the same” to him as using surface water, because he uses solar power to pump the water and “it wouldn’t cost me a whole lot more to pump.” Tr. 9/19/16 (Varel) at 166:22 to 168:6.

E. WAIHE‘E: Spreckels Ditch – North Waihe‘e ‘Auwai

B-152. The “Waihe‘e Valley North” ‘auwai historically received water directly from Waihe‘e River. Faustino WT 9/14/07, ¶ 3 (MA06-01); Freitas WT 10/26/07, ¶ 4 (MA06-01); Tr. 12/13/07 (Faustino) at 13:17-20, 16:12-15 (MA06-01).

B-153. WWC currently delivers water from Spreckels Ditch to the “Waihe‘e Valley North” ‘auwai. Jeremiah Dec. 1/28/08, ¶ 12 (MA06-01); Freitas WT 10/26/07, ¶ 5 (MA06-01); Tr. 12/7/07 (Ellis) at 26:16-19 (MA06-01). A pipe carries water from Spreckels Ditch on the south side of Waihe‘e River and across Waihe‘e River, where the pipe empties into an open ‘auwai on the north side of Waihe‘e River. The ‘auwai then splits into two branches. Jeremiah Dec. 1/28/08, ¶ 12 (MA06-01); Freitas WT 10/26/07, ¶ 5 (MA06-01); Tr. 12/13/07 (Faustino) at

16:8-11 (MA06-01); Tr. 12/7/07 (Ellis) at 26:16-19 (MA06-01); *see also* Ex. A-194A (MA06-01).

B-154. The first branch of the “Waihe‘e Valley North” ‘auwai brings water to kuleana users, including the Ellis/Emoto and Faustino lands, among others. The water remaining in the branch ‘auwai, including discharge from lo‘i kalo, is returned to Waihe‘e River at the Faustino land. Jeremiah Dec. 1/28/08, ¶ 12 (MA06-01); Ellis WT 10/26/07, ¶ 5 (MA06-01); Faustino WT 9/14/07, ¶ 3 (MA06-01); Tr. 12/7/07 (Ellis) at 24:11-19 (MA06-01); Tr. 12/13/07 (Faustino) at 18:10-12 (MA06-01); Goo WT 1/11/16, ¶ 33; *see also* Ex. A-194A (MA06-01).

B-155. The main branch of the “Waihe‘e Valley North” ‘auwai flows down the valley and currently and/or historically fed kuleana lands, including the Rodrigues, Pang, Barrett, La‘a/Rodrigues, Koki, Freitas, and other lands. Jeremiah Dec. 1/28/08, ¶ 12 (MA06-01); Faustino WT 9/14/07, ¶ 3 (MA06-01); Tr. 12/7/07 (Ellis) at 28:1-8 (MA06-01); Tr. 12/7/07 (Rodrigues) at 85:9-15 (MA06-01); Tr. 12/13/07 (Faustino) at 18:13-19 (MA06-01); Tr. 12/13/07 (Freitas) at 41:3-14 (MA06-01); Pang WT 1/24/16, ¶ 24; Ex. 2283-PANG-4; Koki WT 12/22/15, ¶ 24; *see also* Ex. A-194A (MA06-01).

B-156. Historically, the “Waihe‘e Valley North” ‘auwai supported kalo cultivation makai of Kahekili Highway, including the Freitas ‘ohana’s lands and further makai. Freitas WT 10/26/07, ¶ 4 (MA06-01); Tr. 12/13/07 (Freitas) at 38:23 to 39:3, 42:20 to 43:5 (MA06-01).

B-157. At the time of the first IIFS case, the flow of water in the “Waihe‘e Valley North” ‘auwai stopped before reaching the Kahekili Highway. Jeremiah Dec. 1/28/08, ¶ 12 (MA06-01); Freitas WT 10/26/07, ¶ 5 (MA06-01); Tr. 12/13/07 (Freitas) at 39:7-9 (MA06-01);

see also Ex. A-194A (“Point 9”² depicts the end flow of water in the main ‘auwai up until 2012) (1/28/08) (MA06-01). In 2012, the Freitas ‘ohana restored kuleana water to their land makai of Kahekili Highway. Freitas WT 1/29/16, ¶ 22.

SWUPA 2233 & 2234N – Diannah Lai Goo

B-158. Diannah Lai Goo filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for one parcel in Waihe‘e, TMK No. (2) 3-2-004:007 (“Parcel 7”). Goo WT 1/11/16, ¶ 1; SWUPA 2233 at 4; SWUPA 2234N at 3. This is one of the mauka parcels the Goo ‘ohana owns in the valley. Goo WT 1/11/16, ¶¶ 1, 2. Two other mauka parcels are addressed under SWUPA 2365N. *Id.* ¶ 1. The Goo ‘ohana also owns a number of makai parcels addressed under SWUPAs 2231 and 2232N. *Id.*

B-159. The Goo ‘ohana request recognition of appurtenant rights for Parcel 7 in the amount of 217,200 gpd, and a permit for 217,200 gpd, of which 54,300 gpd is the existing use as of April 30, 2008. *Id.* ¶ 6; SWUPA 2233 at 2, Addendum at 2; SWUPA 2234N Addendum at 2.

Traditional and Customary Rights

B-160. The Goo ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Goo WT 1/11/16, ¶ 3.

B-161. The Goo ‘ohana grow kalo on the mauka parcels, including Parcel 7, in the traditional manner, for subsistence and cultural purposes. *Id.* ¶¶ 44, 46; SWUPA 2233 Addendum at 1-3; SWUPA 2234N Addendum at 2.

Appurtenant Rights Claims

B-162. Parcel 7 is a portion of the konohiki award to Kamāmalu, LCA 7713:24. Goo WT 1/11/16, ¶ 14. The Lai/Goo ‘ohana received this land many years ago from C. Brewer, in

² The reference in Jeremiah Dec. 1/28/08, ¶ 12 to “Point 12” is a typographical error; the end of the flow is represented by “Point 9,” as shown on Ex. A-194A.

exchange for a parcel of land up mauka that had been in their ‘ohana since the time of the Māhele. *Id.* ¶ 17. They believe Parcel 7 was a pō‘alima of LCA 7713:24. *Id.* This is supported by the existence of ancient lo‘i kalo terraces throughout the entire parcel, which the ‘ohana has used to grow kalo in the traditional manner for generations. *Id.* The Goos submitted photographs depicting these ancient lo‘i kalo terraces. *Id.*; Ex. 2233-GOO-1. The Goo ‘ohana also submitted a 1922 map prepared by E.D. Baldwin depicting Parcel 7. Goo WT 1/11/16, ¶ 15; Ex. 2233-GOO-1.

B-163. Parcel 7 is 0.724 acre. Goo WT 1/11/16, ¶ 19; SWUPA 2233 at 4; SWUPA 2234N at 3. The Goos request quantification of appurtenant rights for Parcel 7 in the amount of 217,200 gpd (0.724 acre x 300,000 gad). Goo WT 1/11/16, ¶ 28.

Permit Request

B-164. Parcel 7 is on the south bank of the Waihe‘e River. *Id.* ¶ 33; SWUPA 2233 Addendum at 1; SWUPA 2234N Addendum at 1. Before major diversions were constructed, the Goo/Lai ‘ohana accessed water for this land directly from Waihe‘e River, and if there were water in the river downstream of the diversions, they would do so again. SWUPA 2233 Addendum at 1; SWUPA 2234N Addendum at 1; Tr. 12/7/07 (Goo) at 45:19 to 46:5 (MA06-01). The Goo ‘ohana declared their water use on this land with the Commission in 1989. Goo WT 1/11/16, ¶ 14; Goo WT 11/29/07, ¶ 2 (MA06-01).

B-165. Currently, the Goo ‘ohana access kuleana water from the pipe that brings water across the river to the “Waihe‘e Valley North” ‘auwai. Goo WT 1/11/16, ¶ 33; SWUPA 2233 Addendum at 1; SWUPA 2234N Addendum at 1. There is a valve on the pipe before it crosses Waihe‘e River that allows them to access water from the pipe on their land. Goo WT 1/11/16, ¶ 33; SWUPA 2233 Addendum at 1; SWUPA 2234 Addendum at 1. The Goo ‘ohana

submitted photographs of the ‘auwai pipe and their intake pipe. SWUPA 2233 Ex. 3; SWUPA 2234N Ex. 3.

B-166. As of April 30, 2008, the Goo ‘ohana cultivated lo‘i on 0.181 acre of Parcel 7. Goo WT 1/11/16, ¶ 34; SWUPA 2233 at 4. Applying the upper end of Reppun’s water duty range for lo‘i kalo, they request 54,300 gpd (0.181 acre x 300,000 gad). Goo WT 1/11/16, ¶ 34; SWUPA 2233 at 2. They also use some of this water on their banana and other crops, before the remaining water flows back to the Waihe‘e River. Goo WT 1/11/16, ¶ 34; SWUPA 2233 Addendum at 1.

B-167. With sufficient water, the Goo ‘ohana would resume lo‘i kalo cultivation on the remainder of the parcel—0.543 acre—as they historically did. Goo WT 1/11/16, ¶ 35; SWUPA 2234N Addendum at 2. They request an additional 162,900 gpd to restore lo‘i kalo cultivation to historic levels (0.543 acre x 300,000 gad). Goo WT 1/11/16, ¶ 35; SWUPA 2234N Addendum at 2.

B-168. The Goo ‘ohana request water for lo‘i totaling 0.724 acre (0.181 + 0.543).

SWUPA 2227 – Richard Emoto & Roys Ellis

2. Richard Emoto and Roys Ellis filed a SWUPA on April 23, 2009, for two parcels in Waihe‘e, TMK Nos. (2) 3-2-004:011 (“Parcel 11”) and (2) 3-2-004:012 (“Parcel 12”). Emoto & Ellis WT 11/25/15, ¶ 1; SWUPA 2227 at 4. Emoto owns these parcels, and Ellis has lived on them for over 20 years. Emoto & Ellis WT 11/25/15, ¶ 1; SWUPA 2227 Attachment A at 1; Ellis 10/26/07, ¶ 1 (MA06-01).

B-169. Emoto and Ellis request recognition of appurtenant rights for Parcels 11 and 12 in the amount of 253,500 gpd, and a permit for Ellis’ current use of 432,000 gpd, which is the existing use as of April 30, 2008. Emoto & Ellis WT 11/25/15, ¶ 3; SWUPA 2227 at 2.

Appurtenant Rights Claims

B-170. The existence of rock walls throughout Parcel 11 evidences this parcel was cultivated in lo‘i kalo at the time of the Māhele. Emoto & Ellis WT 11/25/15, ¶ 8.

B-171. Parcel 11 is the entirety of LCA 4405P:1, confirmed by RPs 4120 and 6149. *Id.* ¶ 4. LCA 4405P labels ‘āpana 1 as “aina kalo,” and the foreign testimony supporting the award describes ‘āpana 1 as containing “20 patches.” *Id.* ¶¶ 5, 8; 2227-EMOTO-1. The Commission provisionally approved appurtenant rights for LCA 4405P:1. Provisional Order, Ex. 7 at 5.

B-172. Parcel 12 is situated within Parcel 11 and is a pō‘alima of the konohiki award to Kamāmalu, LCA 7713:24. Emoto & Ellis WT 11/25/15, ¶¶ 4, 6, 7, 9; 2227-EMOTO-2 to -3.

B-173. Parcel 11 is 0.8 acre and Parcel 12 is 0.045 acre. Emoto & Ellis WT 11/25/15, ¶ 4. Emoto and Ellis request quantification of appurtenant rights on Parcels 11 and 12 in the amount of 253,500 gpd (0.845 acre x 300,000 gad). *Id.* ¶¶ 11-12.

Permit Request

B-174. Ellis receives water from the first branch of the “Waihe‘e Valley North” ‘auwai through a pipe that directs the flow through a water wheel that generates hydroelectricity. Emoto & Ellis WT 11/25/15, ¶ 13; SWUPA 2227 Attachment A at 1, Attachment D (photos); Ellis WT 10/26/07, ¶ 5 (MA06-01); Tr. 12/7/07 at 27:20-23 (MA06-01). From there, some of the water is used for domestic purposes. Emoto & Ellis WT 11/25/15, ¶ 13; SWUPA 2227 Attachment A at 1, Attachment D. The rest flows through lo‘i kalo via an open ditch. Emoto & Ellis WT 11/25/15, ¶ 13; SWUPA 2227 Attachment A at 1, Attachment D. As of April 30, 2008, Ellis estimated he was cultivating lo‘i kalo on 0.4 acre of Parcel 11 and 0.045 acre of Parcel 12, for a total of 0.445 acre. SWUPA 2227 at 4. Some water is taken by pipe and sprinkler system

to water the lawn and non-commercial garden (0.4 acre on Parcel 11), which includes foods like beans, broccoli, cherry tomatoes, daikon, and eggplant. Emoto & Ellis WT 11/25/15, ¶ 13; SWUPA 2227 at 4, Attachment A at 1, Attachment D; Ellis WT 10/26/07, ¶ 4 (MA06-01); Tr. 12/7/07 at 24:2-6 (MA06-01).

B-175. Emoto and Ellis are requesting water sufficient to run the water wheel and irrigate the lo'i and garden, and for domestic uses. Emoto & Ellis WT 11/25/15, ¶ 13; SWUPA 2227 Attachment A at 1, 2. The water wheel requires approximately 432,000 gpd to generate a sufficient amount of hydroelectricity (which is supplemented with photo-voltaic panels). Emoto & Ellis WT 11/25/15, ¶ 14; SWUPA 2227 Attachment A at 2. This calculation is based on the 300 gallons per minute the wheel requires to produce the necessary electricity (300 gallons per minute x 1440 minutes per day = 432,000 gpd). Emoto & Ellis WT 11/25/15, ¶ 14; SWUPA 2227 Attachment A at 2. This is the minimum amount of water needed to generate electricity for the home and this was the amount of water in use for these purposes on April 30, 2008. Emoto & Ellis WT 11/25/15, ¶ 14; SWUPA 2227 Attachment A at 2.

SWUPA 2228 & 2229N – Stanley Faustino & Kanealoha Lovato-Rodrigues

B-176. Stanley Faustino filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Waihe'e, TMK No. (2) 3-2-004:013 ("Parcel 13"). Faustino WT 2/29/16, ¶ 1; SWUPA 2228 at 4; SWUPA 2229N at 3. Faustino later requested that his grandson, Kanealoha Lovato-Rodrigues, who testified orally at the contested case hearing and is largely responsible for maintaining Parcel 13, be added to the SWUPAs. Faustino WT 2/29/16, ¶ 1; Tr. 7/12/16 (Lovato-Rodrigues) at 44:18 to 44:3.

B-177. Faustino and Lovato-Rodrigues request recognition of appurtenant rights in the amount of 210,000 gpd, and a permit for 201,000 gpd, of which 21,000 gpd is the existing

use as of April 30, 2008. Faustino WT 2/29/16, ¶ 13-14; SWUPA 2228 at 2; SWUPA 2229N at 2, Attachment A at 2.

Traditional and Customary Rights

B-178. The Faustino ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Faustino WT 2/29/16, ¶¶ 1, 3; SWUPA 2228 Attachment A at 2, 4; SWUPA 2229N Attachment A at 2, 4-5.

B-179. The Faustino ‘ohana grow lo‘i kalo on their land in the traditional manner for subsistence and cultural purposes. Faustino WT 2/29/16, ¶¶ 3, 17; SWUPA 2228 Attachment A at 2-4; SWUPA 2229N Attachment A at 2-5.

Appurtenant Rights Claims

B-180. Faustino recalls that when he was a boy his ‘ohana tended 18 terraced lo‘i, which covered almost all of Parcel 13, and they received water from the kuleana ‘auwai that used to bring water directly from the Waihe‘e River. Faustino WT 9/7/07, ¶ 3 (MA06-01); SWUPA 2228 Ex. 3A (photo); SWUPA 2229N Ex. 3A (photo). These rock-wall lo‘i still exist on Parcel 13. Faustino WT 2/29/16, ¶ 8; SWUPA 2228 Ex. 3B (photos); SWUPA 2229N Ex. 3B.

B-181. Parcel 13 is the entirety of LCA 4405X, confirmed by RP 5319. Faustino WT 2/29/16, ¶ 5; Ex. 2228-FAUSTINO-2; Faustino WT 9/7/07, ¶ 1 (MA06-01). The native testimony supporting LCA 4405X states this kuleana was “[o]ne taro parcel.” Faustino WT 2/29/16, ¶¶ 6, 8; 2228-FAUSTINO-1; Faustino WT 9/7/07, ¶ 1 (MA06-01); Ex. A-33 (9/7/07) (MA06-01). The Commission approved appurtenant rights for LCA 4405X. Provisional Order, Ex. 7 at 5.

B-182. Parcel 13 is 0.7 acre. Faustino WT 2/29/16, ¶ 5. The Faustino ‘ohana request quantification of appurtenant rights on Parcel 13 in the amount of 210,000 gpd (0.7 acre x 300,000 gad). *Id.* ¶¶ 10-11.

Permit Request

B-183. The Faustino ‘ohana use water from the first branch of the “Waihe‘e Valley North” ‘auwai, after it passes the Emoto and Ellis land and flows through Parcel 13, which borders Waihe‘e River. Faustino WT 2/29/16, ¶ 12; SWUPA 2228 Attachment A at 1, Ex. 2; SWUPA 2229N Attachment A at 1, Ex. 2; Faustino WT 9/7/07, ¶ 1 (MA06-01). They divert some water through an open ditch, and the rest flows through their lo‘i kalo via an open ditch. Faustino WT 2/29/16, ¶ 12; SWUPA 2228 Attachment A at 1; SWUPA 2229N Attachment A at 1. They request a permit for the amount of water necessary to irrigate the kalo. Faustino WT 2/29/16, ¶ 12.

B-184. On April 30, 2008, the Faustinos were cultivating 0.07 acre in lo‘i. Faustino WT 2/29/16, ¶ 13; SWUPA 2228 at 4, Attachment A at 2, Ex. B. They estimated their water use was about 21,000 gpd. Faustino WT 2/29/16, ¶ 13; SWUPA 2228 at 3, Attachment A at 2.

B-185. The Faustino ‘ohana intend to restore all the ancient lo‘i on their land, an additional 0.6 acre, and thus request an additional 180,000 gpd (0.6 acre x 300,000 gad). Faustino WT 2/29/16, ¶ 14; SWUPA 2229N at 2-3, Attachment A at 2.

B-186. The Faustinos request water for lo‘i totaling 0.67 acre (0.07 + 0.6).

SWUPA 2269 & 2270N – Michael Rodrigues & William Freitas

B-187. Michael Rodrigues and William Freitas filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for three parcels in Waihe‘e, TMK Nos. (2) 3-2-004:015 (“Parcel 15”), (2) 3-2-004:016 (“Parcel 16”), and (2) 3-2-004:017 (“Parcel 17”). Rodrigues WT

1/29/16, ¶ 1; Pua‘a-Freitas WT 1/29/16, ¶ 1; SWUPA 2269 at 3-4; SWUPA 2270N at 2-3. At the contested case hearing, Rodrigues testified in support of the applications as to Parcels 15 and 17, and Freitas’ daughter Miki‘ala Pua‘a-Freitas, who manages the Freitas ‘ohana’s lands and runs the ‘ohana’s farm, testified in support of the applications as to Parcel 16. Rodrigues WT 1/29/16; Pua‘a-Freitas WT 1/29/16; Tr. 7/12/16 at 48:6-10. The Freitas ‘ohana also filed a SWUPA for new use for another parcel makai, TMK No. (2) 2-3-002:037, addressed separately under SWUPA 2364N.

B-188. Rodrigues requests recognition of appurtenant rights for Parcels 15 and 17 in the amount of 420,000 gpd, and a permit for these two parcels in the amount of 602,945 gpd, of which 296,700 gpd is the existing use as of April 30, 2008. Rodrigues WT 1/29/16, ¶ 3.

B-189. The Freitas ‘ohana request recognition of appurtenant rights for Parcel 16 in the amount of 99,000 gpd, and a permit for 177,300 gpd. Pua‘a-Freitas WT 1/29/16, ¶ 4.

Traditional and Customary Rights

B-190. The Freitas ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Pua‘a-Freitas WT 1/29/16, ¶ 2; Freitas WT 10/26/07, ¶ 1 (MA06-01).

B-191. The Freitas ‘ohana grow lo‘i kalo in the traditional manner for cultural and subsistence purposes. Pua‘a-Freitas WT 1/29/16, ¶ 35; SWUPA 2269 Attachment at 2-4; SWUPA 2270N Attachment at 2-4.

Appurtenant Rights Claims

B-192. Parcel 15 is the entirety of LCA 4405R:2, confirmed by RP 6459. Freitas WT 1/29/16, ¶ 4. The foreign testimony supporting LCA 4405R indicates there were eight lo‘i in ‘āpana 2. Rodrigues WT 1/29/16, ¶ 8; Ex. 2269-RODRIGUES-1.

B-193. As for Parcel 17, ancient lo‘i rock walls still exist today on majority of the parcel. Rodrigues WT 1/29/16, ¶ 9.

B-194. Parcel 17 is the entirety of LCA 4405S, confirmed by RP 2345. Rodrigues WT 1/29/16, ¶ 4. The foreign testimony supporting LCA 4405S indicates the land was partly in lo‘i and partly in kula, with three pō‘alima within the parcel. Rodrigues WT 1/29/16, ¶ 9; Ex. 2269-RODRIGUES-2.

B-195. Parcel 15 is 0.15 acre and Parcel 17 is 1.25 acres. Rodrigues WT 1/29/16, ¶ 4. Rodrigues estimates lo‘i was cultivated on approximately two thirds of Parcel 17 (0.833 acre of 1.25 acre). Tr. 7/13/16 (Rodrigues) at 38:20 to 39:5. Thus, Rodrigues estimates the water right appurtenant to Parcels 15 and 17 is around 295,000 gpd (0.983 acre x 300,000 gad). *Id.*

B-196. Parcel 16 is the entirety of a pō‘alima in the konohiki award to Kamāmalu, LCA No. 7713:24. Pua‘a-Freitas WT 1/29/16, ¶¶ 6, 13; Exs. 2364-FREITAS-3 to -5. Parcel 16 is 0.33 acre. Pua‘a-Freitas WT 1/29/16, ¶ 6. The Freitas ‘ohana request quantification of appurtenant rights on Parcel 16 in the amount of 99,000 gpd (0.33 acre x 300,000 gad). *Id.* ¶ 17.

B-197. The Commission provisionally approved appurtenant rights for LCAs 4405R:2 and 4405S, also noting Parcel 16 is a pō‘alima. Provisional Order, Ex. 7 at 6.

Permit Request

B-198. Parcels 15, 16, and 17 receive kuleana water from the “Waihe‘e Valley North” ‘auwai, near the top of the ‘auwai, where it splits into two branches. Rodrigues WT 1/29/16, ¶ 13; Pua‘a-Freitas WT 1/29/16, ¶ 19; SWUPA 2269 Attachment at 1; SWUPA 2270N Attachment at 1.

B-199. Rodrigues uses the water on Parcels 15 and 17 to feed his lo‘i kalo and garden of plants such as tī leaf and banana. Rodrigues WT 1/29/16, ¶ 14; SWUPA 2269 Attachment at

2. The water then passes to his neighbor and then back to Waihe'e River. Rodrigues WT 1/29/16, ¶ 14; SWUPA 2269 Attachment at 1; SWUPA 2270N Attachment at 1.

B-200. On April 30, 2008, Rodrigues was cultivating seven lo'i on approximately 0.55 acre. Rodrigues WT 1/29/16, ¶ 15; SWUPA 2269 Attachment at 2. He also had domestic usage on 0.4 acre of yard and plants. Rodrigues WT 1/29/16, ¶ 15; SWUPA 2269 at 4, Attachment at 2.

B-201. The Freitas 'ohana cultivate lo'i kalo on all of Parcel 16, or 0.33 acre. Pua'a-Freitas WT 1/29/16, ¶ 29; SWUPA 2269 at 4.

B-202. Rodrigues and the Freitas 'ohana submitted TMK maps marked to show the locations of Parcels 15, 16, and 17, the three 'auwai intake locations, and areas of lo'i kalo cultivation and domestic uses. Exs. 2269-RODRIGUES-3; 2364-FREITAS-5. They also submitted photographs of kuleana water flowing on their land from the "Waihe'e Valley North" 'auwai and portions of their domestic uses and lo'i (existing and proposed area). SWUPA 2269 Ex. 3; SWUPA 2270N Ex. 3.

B-203. Rodrigues and the Freitas 'ohana estimated their existing use for Parcels 15, 16, and 17 totaled 474,000 gpd, which they determined by measuring how long it took to fill a five-gallon bucket at each of the three intakes for the parcels. Rodrigues WT 1/29/16, ¶ 15; Pua'a-Freitas WT 1/29/16, ¶ 29; SWUPA 2269 Attachment at 2. They estimated that 1,200 gpd of the 474,000 was used for domestic plants on Parcel 17, and the remaining water, or 472,800 gpd was used for 0.88 acre of kalo on Parcels 15, 16, and 17. Rodrigues WT 1/29/16, ¶¶ 16-17; Pua'a-Freitas WT 1/29/16, ¶ 29; SWUPA 2269 Attachment at 2.

B-204. The Freitas 'ohana estimates they were using 177,300 gpd on Parcel 16 by calculating the pro rata amount of water for 0.33 acres of lo'i $((472,800 \text{ gpd}/0.88 \text{ acre}) \times 0.33$

acre = 177,300 gpd). Pua‘a-Freitas WT 1/29/16, ¶ 29; Rodrigues WT 1/29/16, ¶ 17. Rodrigues used the remaining 295,500 gpd on his 0.55 acre of lo‘i on Parcels 15 and 17 (472,800 gpd – 177,300 gpd). Rodrigues WT 1/29/16, ¶ 17; Pua‘a-Freitas WT 1/29/16, ¶ 29.

B-205. In his written testimony, Rodrigues stated he intended to use kuleana water for a water wheel on his land to produce domestic hydroelectricity. *Id.* ¶ 19; SWUPA 2270N Attachment at 2. Based on his neighbor Roys Ellis’ water wheel, he estimated he would need 432,000 gpd to produce enough electricity for his domestic needs. Rodrigues WT 1/29/16, ¶ 19; SWUPA 2270N Attachment at 2. Because he would use the water for his lo‘i, yard, and garden after the water is used to produce electricity, he did not request an additional amount of water for this use. Rodrigues WT 1/29/16, ¶ 19; SWUPA 2270N Attachment at 2.

B-206. In his written testimony, Rodrigues also stated he intended to restore an additional 0.57 acre of lo‘i, and applying the 537,273 gad from the bucket test, he requested an additional 306,245 gpd for the 0.57 acre of lo‘i. Rodrigues WT 1/29/16, ¶ 18.

B-207. At the hearing, however, Rodrigues clarified that he only requests water for lo‘i kalo totaling 0.98 acre. Tr. 7/13/16 at 39:21 to 40:14. He also amended his gpd request (based on the bucket test) to adopt Reppun’s figure, which reduced his request to around 295,000 gpd (0.98 acre x 300,000 gad) (his estimated appurtenant rights entitlement). *Id.* at 34:13-17, 35:19 to 36:13, 41:19 to 42:2.

B-208. In sum, Rodrigues requests a permit for Parcels 15 and 17 in the amount of 295,000 gpd, and the Freitas ‘ohana request a permit for Parcel 16 in the amount of 177,300 gpd, all for cultivation of lo‘i kalo. *Id.*; Pua‘a-Freitas WT 1/29/16, ¶ 30.

SWUPA 2283 – Lorrin Pang

B-209. Lorrin Pang filed a SWUPA for existing use on April 24, 2009, for a parcel in Waihe'e, TMK No. (2) 3-2-003:016. Pang WT 1/24/15, ¶ 1; SWUPA 2283 at 3. He has owned this land for fourteen years, and throughout that time used kuleana water to irrigate his 'ohana's non-commercial garden, fruit trees, and fishponds. Pang WT 1/24/15, ¶ 1; SWUPA 2283 at 4.

B-210. Pang requests recognition of appurtenant rights in the amount of 426,000 gpd and a permit for 10,800 gpd, which is the existing use as of April 30, 2008. Pang WT 1/24/15, ¶ 3; SWUPA 2283 at 2.

Appurtenant Rights Claims

B-211. The deed to Pang's land contains a reservation of appurtenant water rights. Pang WT 1/24/15, ¶ 2.

Permit Request

B-212. Pang uses kuleana water on 1.5 acres of his land to support diversified agriculture, including a non-commercial garden and fruit trees, and an additional 0.1 acre in fishponds. Pang WT 1/24/15, ¶ 19; SWUPA 2283 Attachments. Pang grows a variety of edible crops, including sweet potato, 'ulu, long squash, kabocha, longan berry, orange, lime, grapefruit, lilikoi, mango, coconut, fig, banana, avocado, papaya, cashew, mountain apple, watercress, and tī leaf. Pang WT 1/24/15, ¶ 20. To sustain 1.5 acres in these crops, he pumps approximately 5,400 gpd from the 'auwai, utilizing a 1,800 gph pump for a total of three hours per day. Pang WT 1/24/15, ¶ 20. Pang also pumps approximately 5,400 gpd from the 'auwai, utilizing a 1,800 gph pump for a total of three hours per day, to maintain and flush his fishponds on 0.1 acre. *Id.* ¶ 21.

SWUPA 2322 & 2323N – Robert Barrett & Lester Nakama

B-213. Robert Barrett and Lester Nakama filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for two parcels in Waihe‘e, TMK Nos. (2) 3-2-003:023 (“Parcel 23”) and (2) 3-2-003:024 (“Parcel 24”). Nakama WT 2/3/16, ¶ 76; SWUPA 2322 at 3-4; SWUPA 2323N at 2-3.

B-214. Aloha Poi has leased Parcels 23 and 24 from the Barrett ‘ohana since the 1940s to grow kalo in the traditional manner in ancient lo‘i. Nakama WT 2/3/16, ¶ 78; SWUPA 2322 Attachment 1 at 2; SWUPA 2323N Attachment 1 at 2.

B-215. Barrett and Nakama request recognition of appurtenant rights for Parcels 23 and 24 in the amount of 937,500 gpd, and a permit for 937,500 gpd, of which 72,000 gpd is the existing use as of April 30, 2008. Nakama WT 2/3/16, ¶ 79.

Background on Lester Nakama and Aloha Poi

B-216. Nakama’s ‘ohana has owned and operated Aloha Poi since 1939. Nakama has nearly 50 years of experience as a kalo farmer in Waiehu and Waihe‘e, having grown up in Waihe‘e Valley and learning the tradition and how to live in harmony with and respect the valley from his father who was growing kalo in Waihe‘e since 1935. *Id.* ¶ 2; Tr. 9/19/16 (Nakama) at 95:3-7, 6-10.

B-217. Nakama’s poi-making business, which provides the community with a nutritious and culturally significant food source, depends on the kalo they grow on land in Waiehu and Waihe‘e, some of which the Nakamas own, and some of which they lease. Nakama WT 2/3/16, ¶¶ 3, 138. Nakama testified in support of the SWUPAs for these lands, including SWUPAs 2316 and 2317N (Apo/Waihe‘e), 2318 and 2319N (Ideoka/Waihe‘e), 2320 and 2321N

(Anakalea/Waihe'e), 2322 and 2323N (Barrett/Waihe'e), 2326 and 2327N (Ciacci/Waiehu), 2328 and 2329N (Nakama/Waiehu), and 2330 and 2331N (Lee/Waiehu). *Id.* ¶ 1.

Appurtenant Rights Claims

B-218. Parcel 23 is the entirety of the parcel labeled 'āpana 3, mahele 1 in LCA 3701, confirmed by RP 5983, and referred to as 'āpana 2 in the native testimony in support of the award. *Id.* ¶¶ 82, 90; Ex. 2322-BARRETT-1. The native testimony states this land consisted of six lo'i kalo without referencing any other uses. Nakama WT 2/3/16, ¶ 90; Ex. 2322-BARRETT-1. The Commission provisionally approved appurtenant rights for LCA 3701:3.1. Provisional Order Ex. 7 at 6.

B-219. Parcel 24 is comprised of several LCAs, including: the entirety of LCA 4277:1, confirmed by RP 5988; the entirety of LCA 4416:1.1, confirmed by RP 4112; a large portion of LCA 4405E, confirmed by RP 5274; and the entirety of LCA 4405F, confirmed by RP 4089. Nakama WT 2/3/16, ¶ 81. Parcel 24 also contains six pō'alima of the konohiki award to Kamāmalu, LCA 7713:24. *Id.*

B-220. The records supporting LCAs 4277:1, 4416:1.1, 4405E, and 4405F describe these lands as lo'i kalo lands, without referencing any other use. Nakama WT 2/3/16, ¶¶ 83-87, 91-97; Exs. 2322-BARRETT-2 to -7. The Commission provisionally approved appurtenant rights for LCAs 4277:1, 4416:1.1, and 4405E:1. Provisional Order Ex. 7 at 6-7.

B-221. Parcel 24 is 3.08 acres in size and Parcel 23 is 0.045 acre in size. Nakama WT 2/3/16, ¶ 100. Together they total 3.125 acres. *Id.* Barrett and Nakama request quantification of appurtenant rights on Parcels 23 and 24 in the amount of 937,500 gpd (3.125 acres x 300,000 gad). *Id.* ¶¶ 100-02.

Permit Request

B-222. Using the bucket method, Nakama estimated that Aloha Poi used 72,000 gpd to cultivate 1.045 acres of lo‘i on the Barrett land on April 30, 2008. *Id.* ¶ 104; SWUPA 2322 Attachment 1 at 2. The existing use amount of 72,000 gpd was not enough water to produce a healthy crop of kalo. Nakama WT 2/3/16, ¶ 105; SWUPA 2323N Attachment 1 at 2. Although Aloha Poi tried to make do with what it had, the lack of water caused problems like small corms, taro rot, and uncontrollable weeds. Nakama WT 2/3/16, ¶ 105; SWUPA 2323N Attachment 1 at 2. Aloha Poi was also forced to maintain less lo‘i (only 1.045 acres) than was historically cultivated on the Barrett land (the full 3.125 acres). Nakama WT 2/3/16, ¶ 105; SWUPA 2323N Attachment 1 at 2.

B-223. Based on Nakama’s over 50 years of experience in kalo farming, Nakama believes he needs at least 300,000 gad for healthy wetland kalo, which would be a sufficient amount of water to keep temperatures cool and minimize crop diseases. Nakama WT 2/3/16, ¶ 106; SWUPA 2323N at 2. Applying this water duty, Nakama requests 937,500 gpd to irrigate 3.125 acres of lo‘i on the Barrett lands (3.125 acres x 300,000). Nakama WT 2/3/16, ¶ 107; SWUPA 2322 Ex. 3B (photos); SWUPA 2323N Ex. 3B (photos).

SWUPA 2252 & 2253N – Clifford & Cristal Koki

B-224. Clifford and Cristal Koki filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for three parcels in Waihe‘e, TMK Nos. (2) 3-2-003:004 (“Parcel 4”), (2) 3-2-003:032 (“Parcel 32”), and (2) 3-2-003:037 (“Parcel 37”). Koki WT 12/22/15, ¶ 1; SWUPA 2252 at 3-4; SWUPA 2253N at 2-3.

B-225. The Kokis request recognition of appurtenant rights for Parcels 4, 32, and 37 in the amount of 378,000 gpd, and a permit for 222,368 gpd, of which 1,568 gpd is the existing

use as of April 30, 2008. Koki WT 12/22/15, ¶ 5; SWUPA 2252 at 3, Attachment 1 at 2; SWUPA 2253N at 2, Attachment 1 at 2.

Traditional and Customary Rights

B-226. The Koki ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Koki WT 12/22/15, ¶ 3.

B-227. The Kokis cultivate kalo in ancient lo‘i, in the traditional manner, for subsistence and cultural purposes. SWUPA 2252 Attachment 1 at 1-3; SWUPA 2253N Attachment 1 at 1-3.

Appurtenant Rights Claims

B-228. The existence of lo‘i rock walls throughout, and an ‘auwai running on, the Koki lands, as well as the lands’ adjacency/proximity to other lo‘i kuleana evidence that the Koki lands were cultivated in lo‘i kalo at the time of the Māhele. Koki WT 12/22/15, ¶¶ 16-17; Exs. 2252-KOKI-5, -6 (aerial map); Tr. 7/13/16 (Koki) at 132:4-16; SWUPA 2252 Ex. 3B (photo); Ex. A-194A (MA06-01).

B-229. Parcel 4 is comprised of a portion of LCA 4377:1 to Keawe, confirmed by RP 4105. Koki WT 12/22/15, ¶ 6. Parcel 32 is comprised of a portion of LCA 4405E:1 to Puahu, confirmed by RP 5274. *Id.* ¶ 7. Parcel 37 is comprised of a portion of LCA 4377:1, as well as portions of LCAs 4426:1 to Kahinu, confirmed by RP 4937, and LCA 425 to Pi, confirmed by RP 3345. *Id.* ¶ 8.

B-230. The native testimony supporting LCA 4377 states that ‘āpana 1 was a “section of loi.” Koki WT 12/22/15, ¶¶ 9, 14; Ex. 2252-KOKI-1. The native and foreign testimonies supporting LCA 4405E state that ‘āpana 1 was “moo kalo,” or “a section of kalo.” Koki WT 12/22/15, ¶¶ 10, 15; Ex. 2252-KOKI-2. Thus, Parcels 4 and 32, and a portion of Parcel 37 were

lo‘i lands at the time of the Māhele. The Commission provisionally approved appurtenant rights for LCAs 4377:1 and 4405E:1. Provisional Order, Ex. 7 at 5-6.

B-231. As for the remainder of Parcel 37 (LCAs 4426:1 and 425), the foreign testimony supporting LCA 4426 states that ‘āpana 1 included “16 lois and one kula.” Koki WT 12/22/15, ¶¶ 11, 16; Ex. 2252-KOKI-3. The high number of lo‘i supports a finding that this ‘āpana was mostly cultivated in lo‘i, as opposed to kula, and therefore a ratio of 90-10% kalo to kula should be applied to the LCA 4426:1 portion of Parcel 37.

B-232. The foreign testimony supporting LCA 425 states this kuleana consisted of “one piece on which his house is situated, and several kalo patches.” Koki WT 12/22/15, ¶¶ 12, 17; Ex. 2252-KOKI-4. LCA 425 is 2.29 acre. Ex. 2252-KOKI-4. Setting aside 0.25 acre for the house leaves 2.04 acres in lo‘i, for an approximate ratio of 90% kalo to 10% house lot.

B-233. Parcel 4 is 0.5 acre, Parcel 32 is 0.16 acre, and Parcel 37 is 0.6 acre. Koki WT 12/22/15, ¶¶ 18-21; SWUPA 2252 at 4; SWUPA 2253N at 3. As Parcels 4 and 32 were entirely in lo‘i at the time of the Māhele, the quantification of appurtenant rights is the amount necessary to support lo‘i cultivation on 0.66 acre (0.5 + 0.16).

B-234. As for Parcel 37, although the LCA 4377:1 portion was all lo‘i land, because on this record it is unclear how much of the parcel is covered by each of the three kuleana (LCAs 4377:1 (all lo‘i), 4426:1 (90% lo‘i), and 425 (90% lo‘i)), 90% of Parcel 37 should be deemed to have been in lo‘i. Ninety percent of Parcel 37 is 0.54 acre. The lo‘i lands of Parcels 4, 32, and 37 total 1.2 acres.

Permit Request

B-235. The Koki ‘ohana accesses water from the “Waihe‘e Valley North” ‘auwai via pipes and open ditch to grow kalo on Parcel 32 and attempt to grow kalo on Parcel 4. Koki WT

12/22/15, ¶ 24; SWUPA 2252 Attachment 1 at 1; SWUPA 2253N Attachment 1 at 1, Ex. 2 (maps), Ex. 3A-B (photos). Water flow is still inconsistent and insufficient to grow healthy, robust kalo. Koki WT 12/22/15, ¶ 24; SWUPA 2252 Attachment 1 at 1, 3; SWUPA 2253N Attachment 1 at 1, 3. The Kokis also utilize some water for their yard, domestic plants, and fruit trees on approximately 0.46 of Parcel 37, and 0.0625 acre of Parcel 4. Koki WT 12/22/15, ¶¶ 24, 25; SWUPA 2252 at 4, Attachment 1 at 2, Ex. 2 (maps), Ex. 3C-D (photos).

B-236. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, the Kokis’ estimate their existing domestic use is 1,568 gpd ((0.46 acre + 0.0625 acre) x 3,000 gad). Koki WT 12/22/15, ¶ 25; SWUPA 2252 at 3, Attachment 1 at 2.

B-237. When there is sufficient and consistent water flow, the Koki ‘ohana intend to restore their lo‘i cultivation to historic levels, or a total of 0.736 acres (all of Parcels 4 and 32, and about 1/8 of Parcel 37). Koki WT 12/22/15, ¶ 26; SWUPA 2253N at 3, Attachment 1 at 2. The Kokis request an additional 220,800 gpd (0.736 acre x 300,000 gad) for this purpose. Koki WT 12/22/15, ¶ 26; SWUPA 2253N Attachment 1 at 2.

SWUPA 2324 & 2325N – William La‘a & Emmett & Renette Rodrigues

B-238. William La‘a and Emmett and Renette Rodrigues filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for a parcel in Waihe‘e, TMK No. (2) 3-2-003:002 (“Parcel 2”). Rodrigues WT 11/17/15, ¶ 1; SWUPA 2324 at 3-4; SWUPA 2325N at 2-3. For almost 70 years, their ‘ohana leased this land to Aloha Poi to grow kalo in the traditional manner in ancient lo‘i. Rodrigues WT 11/17/15, ¶ 1. Over time, access to sufficient amounts of water for kalo diminished, making lo‘i cultivation difficult. *Id.* The Rodrigues ‘ohana is now cultivating this parcel on their own. *Id.* They also maintain lo‘i kalo on TMK No. (2) 3-2-

003:003 (“Parcel 3”), which is completely enclosed by Parcel 2, and owned by the George Ezaki Trust. *Id.* ¶¶ 1, 6; Exs. 2324-LAA-1, -3.

B-239. The Rodrigues ‘ohana request recognition of appurtenant rights for Parcels 2 and 3 in the amount of 524,100 gpd, and a permit for 492,000 gpd, of which 54,000 gpd is the existing use as of April 30, 2008. Rodrigues WT 11/17/15, ¶ 3.

Traditional and Customary Rights

B-240. The Rodrigues ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 2.

B-241. The Rodrigues ‘ohana cultivate kalo in ancient lo‘i on their land in the traditional manner, for subsistence and cultural purposes. *Id.*; SWUPA 2324 Attachment 1 at 2-4; SWUPA 2325N Attachment 1 at 2-4.

Appurtenant Rights Claims

B-242. Based on the ancient lo‘i walls, and the fact that almost all of the stream water they currently use is for ancient lo‘i that they have restored, the Rodrigues ‘ohana estimates 1.64 acres of Parcel 2’s total 2.053 acres was in kalo at the time of the Māhele. Rodrigues WT 11/17/15, ¶¶ 11-12.

B-243. Parcel 2 is a portion of LCA 4426:1, confirmed by RP 4937. *Id.* ¶¶ 4, 11. As discussed in the findings pertaining to SWUPAs 2252 and 2253N (Koki), this ‘āpana was mostly cultivated in lo‘i, as opposed to kula, and therefore a ratio of 90-10% kalo to kula should be applied. Parcel 2 is 2.053 acres. Rodrigues WT 11/17/15, ¶ 11. Ninety percent of Parcel 2 is 1.848 acres.

B-244. Parcel 3, 0.107 acre in size, sits at the center of Parcel 2, and is a pō‘alima of the konohiki award to Kamāmalu, LCA 7713:24. Rodrigues WT 11/17/15, ¶¶ 9, 10, 13; Exs. 2324-LAA-1, -3; SWUPA 2324 Ex. 2; SWUPA 2325N Ex. 2.

B-245. The Commission provisionally approved appurtenant rights for LCA 4426:1, noting the pō‘alima within the ‘āpana. Provisional Order, Ex. 7 at 7.

B-246. Although the George Ezaki Trust owns Parcel 3, the Rodrigues ‘ohana has always cultivated this pō‘alima along with their other lo‘i on Parcel 2, and therefore they claim appurtenant rights for Parcel 3 as well. Rodrigues WT 11/17/15, ¶ 9.

B-247. The total amount of lo‘i land on Parcels 2 and 3 equals 1.955 acres (1.848 + 0.107).

Permit Request

B-248. The Rodrigues ‘ohana receives kuleana water from the “Waihe‘e Valley North” ‘auwai through an open ditch at the Barrett lands, TMK No. (2) 3-2-003:024. SWUPA 2324 Attachment 1 at 1; SWUPA 2325N Attachment 1 at 1; SWUPA 2324 Exs. 3A & B (photos); SWUPA 2325N Exs. 3A & B (photos); *see also* Ex. A-194A (MA06-01). After the water flows through the Barrett lo‘i in open ditches and pipes, it flows to the Koki lands, TMK Nos. (2) 3-2-003:004 and :037, and then to the Rodrigues’ Parcel 2 at two places—a pipe and open ditch. SWUPA 2324 Attachment 1 at 1, Ex. 2; SWUPA 2325N Attachment 1 at 1, Ex. 2; Ex. 2324-LAA-3; *see also* Ex. A-194A (MA06-01). Water that does not evaporate or seep into the soil is returned directly to Waihe‘e River, which is adjacent to Parcel 2. SWUPA 2324 Attachment 1 at 1, Ex. 2; SWUPA 2325N Attachment 1 at 1, Ex. 2; Ex. 2324-LAA-3; *see also* Ex. A-194A (MA06-01).

B-249. By using the five-gallon bucket method, Rodrigues estimates he uses 54,000 gpd, as of April 30, 2008, to irrigate 1.64 acres of lo'i. Rodrigues WT 11/17/15, ¶¶ 17, 21; SWUPA 2324 Attachment 1 at 2; SWUPA 2325N Attachment 1 at 2. This existing use amount is not enough water to produce a healthy crop of wetland kalo. Rodrigues WT 11/17/15, ¶ 18; SWUPA 2325N Attachment 1 at 2. Although the Rodrigues 'ohana tries to make do with what they have, the lack of water causes problems like small corms, taro rot, and uncontrollable weeds. Rodrigues WT 11/17/15, ¶ 18; SWUPA 2325N Attachment 1 at 2.

B-250. The Rodrigues 'ohana request 492,000 gpd to irrigate 1.64 acres of lo'i (1.64 acres x 300,000 gad). Rodrigues WT 11/17/15, ¶¶ 19-20; SWUPA 2325N at 2.

SWUPA 2364N – William Freitas

B-251. William Freitas filed a SWUPA for new use on April 23, 2009, for a parcel in Waihe'e, TMK No. (2) 2-3-002:037 ("Parcel 37"), located makai of Kahekili Highway. Pua'a-Freitas WT 1/29/16, ¶¶ 1, 29; Ex. 2364-FREITAS-2; SWUPA 2364N at 2-3, Addendum at 1; Ex. A-194A (1/28/08) (MA06-01). Freitas' daughter Miki'ala Pua'a-Freitas testified in support of the application. Pua'a-Freitas WT 1/29/16.

B-252. The Freitas 'ohana request recognition of appurtenant rights for Parcel 37 in the amount of 232,500 gpd, and a permit for 150,825 gpd. *Id.* ¶ 3.

Traditional and Customary Rights

B-253. The Freitas 'ohana are tenants of the ahupua'a of Waihe'e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 2; Freitas WT 10/26/07, ¶ 1 (MA06-01).

B-254. The Freitas 'ohana grow lo'i kalo in the traditional manner for subsistence and cultural purposes. Pua'a-Freitas WT 1/29/16, ¶ 35; SWUPA 2364N Addendum at 2-4.

Appurtenant Rights Claims

B-255. The terracing and slope of the Freitas land, as well as the existence of ancient lo'i walls throughout the land, evidence Parcel 37 was lo'i kalo land at the time of the Māhele. Pua'a-Freitas WT 1/29/16, ¶ 12; Tr. 7/12/16 (Pua'a-Freitas) at 54:20 to 55:6, 58:16 to 59:5.

B-256. The Freitas 'ohana's land historically included all of LCA 4405EE:1, confirmed by RP 6207, but Parcel 37 currently includes just a portion of the 'āpana. Pua'a-Freitas WT 1/29/16, ¶ 5. The foreign testimony supporting LCA 4405EE:1 describes this 'āpana as a "section of kalo and kula land." *Id.* ¶¶ 7, 12; Ex. 2364-FREITAS-1. The Commission provisionally approved appurtenant rights for LCA 4405EE:1. Provisional Order, Ex. 7 at 7.

B-257. Absent additional evidence of land use on LCA 4405EE:1, a 50-50% ratio of kalo to kula should be applied. Parcel 37 is 0.775 acre. Half of Parcel 37 is 0.388 acre.

Permit Request

B-258. Parcel 37 currently is the last kuleana user of the "Waihe'e Valley North" 'auwai. Pua'a-Freitas WT 1/29/16, ¶ 20. The Freitas 'ohana historically accessed kuleana water through this 'auwai to grow kalo in five ancient lo'i for family use, in addition to fruits and vegetables. Freitas WT 10/26/07, ¶¶ 4, 7 (MA06-01); Tr. 12/13/07 (Freitas) at 39:4-6 (MA06-01). They declared their kuleana water usage to the Commission in 1989. Freitas WT 10/26/07, ¶¶ 4, 7 (MA06-01); Tr. 12/13/07 (Freitas) at 39:4-6 (MA06-01).

B-259. The lack of consistent water in the "Waihe'e Valley North" 'auwai, however, forced the Freitas 'ohana to stop growing kalo in 2002 or 2003, at which time the 'auwai was almost always dry at Parcel 37. Freitas WT 10/26/07, ¶ 7 (MA06-01); Tr. 12/13/07 (Freitas) at 39:7-9; 40:25 to 41:2 (MA06-01). Accordingly, the Freitas 'ohana was not using water on April

30, 2008, which is why they filed a SWUPA for new use, even though they had used kuleana water from the ‘auwai for generations. Pua‘a-Freitas WT 1/29/16, ¶ 21.

B-260. In 2012, the Freitas ‘ohana restored kuleana water to Parcel 37, and have been using some water to grow kalo in ancient lo‘i, and to water their yard, garden, and animals. *Id.* ¶ 22. Pua‘a-Freitas submitted a TMK map of Parcel 37 and the ‘auwai across the highway from Parcel 37, marked to show the location of the pipe that brings kuleana water to their land. *Id.* ¶¶ 8. 20; Ex. 2364-FREITAS-2.

B-261. The Freitas ‘ohana is currently restoring and replanting 0.5 acre of lo‘i kalo on Parcel 37; six have been restored on the makai side of the parcel, and they are working to restore more lo‘i in the area. *Id.* ¶ 23. They intend to restore all 0.5 acre of ancient lo‘i by January 2017. *Id.*

B-262. The Freitas ‘ohana request 150,000 gpd to irrigate 0.5 acre of lo‘i on Parcel 37 (0.5 acre x 300,000 gad). *Id.* ¶ 24.

B-263. The Freitas ‘ohana also use some kuleana water to grow fruits and vegetables throughout their yard, such as watercress, ‘ulu, and sugar cane, and various fruit trees like star fruit, mango, papaya, and coconut. *Id.* ¶ 25. They also use kuleana water for other domestic plants like tī leaf and ginger. *Id.* Their animals, such as ducks, chickens, and geese, also drink the kuleana water that flows in their lo‘i kalo. *Id.*

B-264. Approximately 0.275 acre of Parcel 37 is used for fruits, vegetables, and animals. *Id.* ¶ 26. Most of the fruits and vegetables are consumed by the Freitas ‘ohana and shared with friends and neighbors. *Id.* They also sell some of their fruits and vegetables at their roadside fruit stand to offset the costs associated with growing them. *Id.*

B-265. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, the Freitas ‘ohana estimates they use approximately 825 gpd for their fruits, vegetables, and other domestic plants and animals on Parcel 37 (0.275 acre x 3,000 gad)). *Id.* ¶ 27.

B-266. The Freitas ‘ohana have also established Kapuna Farms on Parcel 37, which produces honey for family consumption and for sale. *Id.* ¶ 28. They have beehives lined up along the banks of their lo‘i, and their bees use some of the water from their lo‘i kalo. *Id.* They rescue bees in the area, and produce honey. *Id.* They sell this honey to the public to cover the operating expenses of Kapuna Farms. *Id.* Kuleana water is essential for the survival of honeybees and for the production of honey. *Id.*

F. WAIHE‘E: Spreckels Ditch – South Waihe‘e ‘Auwai & Field 4 ‘Auwai

B-267. WWC delivers water from Spreckels Ditch to the “Waihe‘e Valley South” ‘auwai by a pipe that empties into the head of the ‘auwai. The “Waihe‘e Valley South” ‘auwai provides water to kuleana users south of Waihe‘e River. Jeremiah Dec. 1/28/08, ¶13 (MA06-01); Kahalekai WT 10/26/07, ¶ 12 (MA06-01); *see* Exs. A-93, A-194A (MA06-01).

B-268. The “Waihe‘e Valley South” ‘auwai splits into two branches near the top of Waihe‘e Valley Road. Jeremiah Dec. 1/28/08, ¶14 (MA06-01).

B-269. One branch of the “Waihe‘e Valley South” ‘auwai runs down Waihe‘e Valley Road, where the Kahalekai and Kamaunu ‘ohana receive some of the flow and return the outflow of their lo‘i kalo to Waihe‘e River. Kahalekai WT 12/14/15, ¶¶ 14, 15; Jeremiah Dec. 1/28/08, ¶13 (MA06-01); Kahalekai WT 10/26/07, ¶¶12-13 (MA06-01); Tr. 12/7/07 (Kahalekai) at 65:15, 66:1, 68:7-16 (MA06-01); Tr. 12/13/07 (Kamaunu) at 46:19-22 (MA06-01).

B-270. Some water remains in this branch, and continues east through the Kahalekai land, then down both sides of Waihe‘e Valley Road, where it supplies the Doherty, Varel (formerly Paleka), Sakata, Anakalea, and other lands. The water remaining in the branch ‘auwai, including discharge from lo‘i kalo, is returned to Waihe‘e River. Jeremiah Dec. 1/28/08, ¶ 13 (MA06-01); Tr. 12/11/07 (Sakata) at 15:18, 18:10 (MA06-01); Doherty WT 1/29/16, ¶ 28; Ex. 2225-DOHERTY-5; Varel WT 9/12/16, ¶ 21; *see* Ex. A-194A (MA06-01).

B-271. The second branch of the “Waihe‘e Valley South” ‘auwai crosses under Waihe‘e Valley Road toward the southeast. Jeremiah Dec. 1/28/08, ¶ 14 (MA06-01); *see* Ex. A-194A (MA06-01). The Teixeiras have the first intake on this branch of the ‘auwai, and some of the outflow through the Teixeira land meets up with the other branch of “Waihe‘e Valley South” ‘auwai that runs down Waihe‘e Valley Road. Jeremiah Dec. 1/28/08, ¶ 14 (MA06-01); Kahalekai WT 10/26/07, ¶ 14 (MA06-01).

B-272. Most of the water remaining in the second branch of the “Waihe‘e Valley South” ‘auwai continues to flow to the southeast, where it feeds and/or historically fed the Piko A‘o, Apo, Chang, Kana, Sarasin, Goo, and De Hart lands. Jeremiah Dec. 1/28/08, ¶ 14 (MA06-01); Tr. 12/13/07 (Kana) at 25:14-18 (MA06-01); Ishikawa WT 1/5/16, ¶ 61; Ex. 2264-PIKO A‘O-20; De Hart WT 1/20/16, ¶ 13; *see* Ex. A-194A (MA06-01).

B-273. The “Field 4” ‘auwai brings water to the Ideoka (Ono) and Kailiehu lands, among others. Kaulukukui Dec. 10/26/07, ¶ 4 (MA06-01); Jeremiah Dec. 1/28/08, ¶ 14 (MA06-01); Miyashiro WT 1/28/08, ¶ 4 (MA06-01); *see* Exs. A-194A, D-7 (MA06-01).

B-274. The source of the “Field 4” ‘auwai is unknown to local informants, but is believed to be Spreckels Ditch. Jeremiah Dec. 1/28/08, ¶ 15 (MA06-01). Any water remaining

in the “Field 4” ‘auwai joins the “Waihe‘e Valley South” ‘auwai. Jeremiah Dec. 1/28/08, ¶ 15 (MA06-01).

B-275. “Waihe‘e Valley South” ‘auwai, carrying any remaining water from both the “Waihe‘e Valley South” and “Field 4” ‘auwai, then flows south along Kahekili Highway, crosses Kahekili Highway near Waihe‘e School, and flows behind the makai Goo lands. Jeremiah Dec. 1/28/08, ¶ 14 (MA06-01); Tr. 2/21/08 (Miyashiro) at 191:10-23 (MA06-01).

SWUPA 2249 – Kenneth Kahalekai

B-276. Kenneth Kahalekai filed a SWUPA for existing use on April 23, 2009, which originally covered five parcels in Waihe‘e: TMK Nos. (2) 3-2-004:002 (“Parcel 2”), (2) 3-2-004:003 (“Parcel 3”), (2) 3-2-004:019 (“Parcel 19”), (2) 2-3-005:027 (“Parcel 27”), and (2) 2-3-005:029 (“Parcel 29”). SWUPA 2249 at 4; Kahalekai WT 12/14/15, ¶ 1. Kahalekai no longer oversees Parcels 19 and 27, which are now cared for by Kau‘i Kahalekai, who has a separate application, SWUPA 2312. *Id.* Water requests for Parcels 19 and 27 are addressed under SWUPA 2312.

B-277. Kahalekai requests recognition of appurtenant rights for Parcels 2, 3, and 29 in the amount of 785,100 gpd. *Id.* ¶ 3. He requests a permit for Parcels 2, 3, and 29 in the amount of 578,100 gpd, which is the existing use on April 30, 2008. *Id.*

Traditional and Customary Rights

B-278. The Kahalekai ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.*

B-279. The Kahalekais grow kalo in ancient lo‘i, in the traditional manner, for subsistence and cultural purposes. *Id.* ¶ 23; SWUPA 2249 Attachments at 1-4; Kahalekai WT 10/26/07, ¶¶ 4, 6, 8, 10-11 (MA06-01); Tr. 12/07/07 at 65:10-14, 69:10-16 (MA06-01).

Appurtenant Rights Claims

B-280. Parcel 2 is 0.957 acre and is comprised of the majority of LCA 3718, confirmed by RP 5452, and two pō‘alima of the konohiki award to Kamāmalu, LCA 7713:24. Kahalekai WT 12/14/15, ¶ 4. Parcel 3 is 1.44 acres and is comprised of all of LCA 4432:1, confirmed by RP 5361, and three pō‘alima of the konohiki award to Kamāmalu, LCA 7713:24. *Id.* Parcel 29 is 0.44 acre and is comprised of a portion of LCA 3718, confirmed by RP 5452, and a portion of the konohiki award to Kamāmalu, LCA 7713:24. *Id.* Parcels 2 and 29 together comprise the entirety of LCA 3718. *Id.*

B-281. The Commission provisionally approved appurtenant rights recognition for LCAs 3718 and 4432:1. Provisional Order, Ex. 7 at 8-9.

B-282. The records supporting LCAs 3718 and 4432:1 confirm all of Parcels 2 (0.957 acre) and 3 (1.44 acres), and one-half or 0.22 acre of Parcel 29 were cultivated in lo‘i. Kahalekai WT 12/14/15, ¶¶ 8-10; Exs. 2249-KAHALEKAI-1 to -2.

B-283. LCA 3718, the majority of which comprises all of Parcel 2 and approximately one-half of Parcel 29, contained 61 lo‘i. Kahalekai WT 12/14/15, ¶ 8; Ex. 2249-KAHALEKAI-1. Two pō‘alima awarded under the Kamāmalu grant are adjacent to an ‘auwai that runs adjacent to the Parcel 2 portion of LCA 3718. Kahalekai WT 12/14/15, ¶ 8; Ex. 2249-KAHALEKAI-1.

B-284. LCA 4432:1, which comprises the entirety of Parcel 3, contained 8 lo‘i and 3 pō‘alima awarded under the Kamāmalu grant. Kahalekai WT 12/14/15, ¶ 10; Ex. 2249-KAHALEKAI-2.

B-285. Kahalekai estimates the amount of land cultivated in lo‘i kalo at the time of fee-simple conversion totaled 2.167 acres: all 0.957 acre of Parcel 2; all 1.44 acres of Parcel 3;

and one half or .22 acre of Parcel 29. Kahalekai WT 12/14/15, ¶¶ 4-11; Exs. 2249-KAHALEKAI-1 to -2. Kahalekai requests quantification of appurtenant rights on Parcels 2, 3, and 29 in the amount of 785,100 gpd (2.617 acres x 300,000 gad). Kahalekai WT 12/14/15, ¶¶ 11-13.

Permit Request

B-286. The Kahalekai ‘ohana historically have and continue to access kuleana water for their land from the “Waihe‘e Valley South” ‘auwai, and they declared their kuleana water usage to this Commission in 1989. Kahalekai WT 10/26/07, ¶ 3 (MA06-01).

B-287. Kahalekai and his ‘ohana use water from the “Waihe‘e Valley South” ‘auwai. Kahalekai WT 12/14/15, ¶ 14. The water flows makai in the ditch and passes adjacent to Kahalekai’s property along Parcel 2. *Id.* Kahalekai accesses some of the water at three locations on Parcel 2. *Id.* The rest of the water continues to flow in the ‘auwai and crosses Waihe‘e Valley Road. *Id.*

B-288. The water from each of the three intakes feeds portions of lo‘i in Parcel 2 and then flows to portions of lo‘i in Parcel 3. *Id.* ¶ 15. The water then returns to the ‘auwai, where some flows to Kahalekai’s neighbors and/or ‘ohana downstream—including the Kamaunu ‘ohana and Kau‘i Kahalekai’s parcels—and some returns to the Waihe‘e River. *Id.*

B-289. Kahalekai also uses some water for domestic purposes, including watering domestic plants, such as fruits, vegetables, and herbs, as well as watering pigs and chickens. *Id.* ¶ 16.

B-290. Kahalekai submitted TMK maps, which he marked to show the locations, acreages, and uses of Parcels 2, 3, and 29, as well as the locations of the three intake locations from the ‘auwai along Parcel 2. Ex. 2249-KAHALEKAI-3. At the contested case hearing,

Kahalekai testified that the legend on one of the maps contained a typographical error. Tr. 7/12/16 at 70:11-18; Ex. 2249-KAHALEKAI-3-P.2. Item B on the map showing the acreage in lo‘i kalo for Parcel 3 should read 1.15 acres, not 0.15. Tr. 7/12/16 at 70:11-18; Ex. 2249-KAHALEKAI-3-P.2.

B-291. As part of his SWUPA, Kahalekai submitted photographs depicting the three intake points, his lo‘i terraces, and some of his domestic uses. SWUPA 2249 Attachments at 10-18.

B-292. On April 30, 2008, Kahalekai was cultivating 1.92 acres of lo‘i on Parcels 2 and 3. Kahalekai WT 12/14/15, ¶ 17. Kahalekai estimates he was using 576,000 gpd for his lo‘i (1.92 acres x 300,000 gad). *Id.*

B-293. On April 30, 2008, Kahalekai was using some water for domestic purposes on 0.7 acre. *Id.* Using the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, Kahalekai estimates he was using 2,100 gpd for domestic use (0.7 acre x 3,000 gad). *Id.*

SWUPA 2312 - Kau‘i Kahalekai

B-294. Kau‘i Kahalekai testified in support of a SWUPA for existing use filed on April 23, 2009, for two parcels in Waihe‘e, TMK Nos. (2) 3-2-005:023 (“Parcel 23”) and (2) 3-2-005:022 (“Parcel 22”), as well as two parcels originally included in SWUPA 2249, TMK Nos. (2) 3-2-004:019 (“Parcel 19”) and (2) 3-2-005:027 (“Parcel 27”). Kau‘i Kahalekai WT 1/28/16, ¶ 1; SWUPA 2312; SWUPA 2249. Kau‘i Kahalekai is now responsible for Parcels 19 and 27, so both are considered part of SWUPA 2312 instead of SWUPA 2249. Kau‘i Kahalekai WT 1/28/16, ¶ 1.

B-295. Kau‘i Kahalekai requests recognition of appurtenant rights for Parcels 19, 22, 23, and 27 in the amount of 812,835 gpd, and a permit for these same parcels in the amount of 832,800 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 3.

Traditional and Customary Rights

B-296. The Kahalekai ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 2.

B-297. The Kahalekai ‘ohana cultivate kalo in ancient lo‘i in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 2, 22; SWUPA 2312 Attachments at 1-4.

Appurtenant Rights Claims

B-298. Ancient lo‘i walls are still present on Parcel 19, which Kau‘i Kahalekai’s ‘ohana have cultivated for several generations. Kau‘i Kahalekai WT 1/28/16, ¶ 11. Parcel 19 is 1.17 acres and is comprised of all of LCA 3866:3, confirmed by RP 5330, and all of LCA 4303 and 4304:1, confirmed by RP 5358. *Id.* ¶ 4. LCA 3866:3 was cultivated partly in lo‘i kalo and partly in kula. *Id.* ¶ 11; Ex. 2312-KAHALEKAI-1. LCAs 4303 and 4304:1 were cultivated entirely in lo‘i kalo. Kau‘i Kahalekai WT 1/28/16, ¶ 11; Ex. 2312-KAHALEKAI-2. Based on the existence of ancient lo‘i walls on Parcel 19, which Kau‘i Kahalekai’s ‘ohana has cultivated for several generations, she estimates that 1 acre of Parcel 19 was cultivated in lo‘i kalo at the time of the Māhele, and the remaining 0.17 acre was cultivated in other crops. Kau‘i Kahalekai WT 1/28/16, ¶ 13. The Commission provisionally approved appurtenant rights for LCA 4303. Provisional Order, Ex. 7 at 9.

B-299. Parcel 22 is 0.12 acre and is a pō‘alima of the konohiki award to Kamāmalu, LCA 7713:24. Kau‘i Kahalekai WT 1/28/16, ¶¶ 4, 14; Exs. 2312-KAHALEKAI-3 to -5.

B-300. Ancient walls still exist on Parcel 23, which Kau‘i Kahalekai’s ‘ohana has cultivated for several generations. Kahalekai WT 1/28/16, ¶ 15. Parcel 23 is 1.1 acres and is wholly comprised of LCA 4405-HH:1 & 2, confirmed by RP 4119. *Id.* ¶¶ 4, 15; Ex. 2312-KAHALEKAI-3. LCA 4405-HH:1 & 2 were cultivated partly in lo‘i kalo and partly in kula. Kau‘i Kahalekai WT 1/28/16, ¶ 15; Ex. 2312-KAHALEKAI-3. Based on the ancient lo‘i walls, Kau‘i Kahalekai estimates that 75% of Parcel 23, or 0.825 acre, was cultivated in lo‘i kalo at the time of the Māhele, and 0.275 acre was cultivated in dryland crops. Kau‘i Kahalekai WT 1/28/16, ¶ 15. The Commission provisionally approved appurtenant rights for LCA 4405-HH:1. Provisional Order, Ex. 7 at 11.

B-301. Parcel 27 is 0.766 acres and is a pō‘alima of the Kamāmalu grant. Kau‘i Kahalekai WT 1/28/16, ¶¶ 4, 16; Exs. 2312-KAHALEKAI-1, -3, -6, -7.

B-302. In sum, Kau‘i Kahalekai estimates the amount of land cultivated in lo‘i at the time of fee-simple conversion totaled 2.705 acres, and the amount of land cultivated in other dryland crops totaled 0.445 acre. Kau‘i Kahalekai WT 1/28/16, ¶ 17. Applying the upper end of Reppun’s water duty range for lo‘i kalo, and the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, Kau‘i Kahalekai estimates the water right appurtenant to Parcels 19, 22, 23, and 27 is 812,835 gpd—811,500 gpd for lo‘i (2.705 acres x 300,000) plus 1,335 gpd for other diversified agriculture (0.445 acre x 3,000 gad). *Id.* ¶¶ 18-20.

Permit Request

B-303. Kau‘i Kahalekai and her ‘ohana currently use water from the “Waihe‘e Valley South” ‘auwai by receiving outflow from Kenneth Kahalekai’s land at TMK Nos. (2) 3-004:002 and :003, via pipes and open ditch. *Id.* ¶ 21; SWUPA 2312 Attachments at 1. The outflow runs through Parcels 19 and 27, then 23, and finally through an underground pipe to Parcel 22. Kau‘i

Kahalekai WT 1/28/16, ¶ 21; SWUPA 2312 Attachments at 7. Some of the outflow from Kau‘i Kahalekai’s property goes to the Anakalea property at TMK No. (2) 3-2-005:020. Kau‘i Kahalekai WT 1/28/16, ¶ 21. The rest of the water flows in an open ditch back to Waihe‘e River. *Id.*; SWUPA 2312 Attachments at 1.

B-304. On April 30, 2008, a total of 2.776 acres were being cultivated in lo‘i kalo: Parcel 19 (1.17 acres), Parcel 22 (0.076 acre), Parcel 23 (0.77 acre), and Parcel 27 (0.76 acre). Kau‘i Kahalekai WT 1/28/16, ¶¶ 22-23; SWUPA 2249 at 4; SWUPA 2312 at 4. Kau‘i Kahalekai requests 832,800 gpd for these lo‘i (2.776 acres x 300,000 gad). Kau‘i Kahalekai WT 1/28/16, ¶¶ 22-23.

SWUPA 2320 and 2321N – Ramsay Anakalea & Lester Nakama

B-305. Ramsay Anakalea filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for a parcel he leases to Aloha Poi in Waihe‘e, TMK No. (2) 3-2-005:020 (“Parcel 20”). Nakama WT 2/3/16, ¶¶ 54, 56; SWUPA 2320 and 2321N. Aloha Poi has leased this parcel since the 1950s to grow wetland kalo in ancient lo‘i in the traditional manner. Nakama WT 2/3/16, ¶ 56.

B-306. Anakalea and Nakama request recognition of appurtenant rights in the amount of 181,500 gpd, and a permit for 150,000 gpd, of which 72,000 gpd is the existing use as of April 30, 2008. *Id.* ¶ 57.

Appurtenant Rights Claims

B-307. Parcel 20 is the entirety of LCA 4405-V:1, 2, confirmed by RP 4117. *Id.* ¶ 58. The records supporting LCA 4405-V confirm some of this land was cultivated in wetland kalo and some in ‘uala at the time of the Māhele. *Id.* ¶ 61. Based on the slope of the land and the existence of lo‘i kalo walls, Nakama estimates half the land was in lo‘i kalo and half was in

‘uala. *Id.* The Commission provisionally approved appurtenant rights for LCA 4405-V:1, 2, Provisional Order, Ex. 7 at 65.

B-308. Parcel 20 is 1.2 acres in size. Nakama WT 2/3/16, ¶ 62. Applying the upper end of Reppun’s water duty range for lo‘i kalo, and the water duty for diversified agriculture used in the Waiāhole case, Nakama estimates the water right appurtenant to Parcel 20 is 181,500 ((0.6 acre x 300,000 gad) + (0.6 acre x 2,500 gad)). *Id.* ¶¶ 63-65.

Permit Request

B-309. Aloha Poi uses water from the “Waihe‘e Valley South” ‘auwai on 0.5 acre of Anakalea land. *Id.* ¶¶ 66-67. After the ‘auwai receives water from a pipe in the Spreckels Ditch, the water flows makai in the ditch and pipes until it flows through Kenneth Kahalekai’s lo‘i at the top of Waihe‘e Valley Road at TMK No. (2) 3-2-004:002. SWUPA 2320 Attachment 1 at 1; SWUPA 2321N Attachment 1 at 1. Some of Kahalekai’s outflow flows in pipes and ditches to Kaui Kahalekai’s land at TMK No. (2) 3-2-005:023. SWUPA 2320 Attachment 1 at 1; SWUPA No. 2321N Attachment 1 at 1. About half of the outflow from Kau‘i’s lo‘i flows onto Anakalea’s land via a pipe. SWUPA 2320 Attachment 1 at 1; SWUPA No. 2321N Attachment 1 at 1. After flowing through the Anakalea lo‘i, most of the outflow returns to the river via an open ditch through the Brown’s property at TMK No. (2) 3-2-005:028, and a small portion of Anakalea’s outflow returns to the ‘auwai running down Waihe‘e Valley Road. SWUPA 2320 Attachment 1 at 1; SWUPA 2321N Attachment 1 at 1.

B-310. Using the bucket method, as of April 30, 2008, Nakama estimates Aloha Poi uses about 72,000 gpd of kuleana water to irrigate 0.5 acre of wetland kalo in ancient lo‘i kalo on the Anakalea land. Nakama WT 2/3/16, ¶ 67; SWUPA 2320 Ex. 3; SWUPA 2321 Ex. 3 (photos). This amount is not sufficient to produce a healthy crop of wetland kalo. Nakama WT

2/3/16, ¶ 68. Although Aloha Poi tries to make do with this water amount, the lack of sufficient water causes problems like small corms, taro rot, and uncontrollable weeds. *Id.* ¶ 67.

B-311. Based on 50 years of experience growing kalo in the traditional manner in Waihe‘e and Waiehu, Nakama believes a water duty of 300,000 gad is a sufficient amount to keep temperatures cool enough to minimize crop diseases and grow healthy wetland kalo. Thus, for the lo‘i kalo Aloha Poi grows on Parcel 20, Nakama requests 150,000 gpd (0.5 acre x 300,000 gad). *Id.* ¶¶ 1, 2, 69.

SWUPA 2262 & 2263N – John Varel (Kalani & Tera Paleka)

B-312. Kalani and Tera Paleka filed SWUPAs 2262 and 2263N on April 23, 2009, for two parcels in Waihe‘e, TMK Nos. (2) 3-2-005:035 (“Parcel 35”) and (2) 3-2-005:041 (“Parcel 41”). Varel WT 9/12/16, ¶ 5; SWUPA 2262 at 4; SWUPA 2263N at 3. In 2009, John Varel purchased both of these parcels. Varel WT 9/12/16, ¶ 6. He requests recognition of appurtenant rights for Parcels 35 and 41 in the amount of 117,00 gpd, and permits for both parcels in the amount of 82,200 gpd, of which 61,851 gpd is the existing use as of April 30, 2008. *Id.* ¶ 8; SWUPA 2262 at 2.

Appurtenant Rights Claims

B-313. The deeds to Parcels 35 and 41 contain reservations of appurtenant rights. Varel WT 9/12/16 ¶ 7.

Permit Request

B-314. Parcels 35 and 41 receive water from the “Waihe‘e Valley South” ‘auwai, which flows adjacent to these parcels. *Id.* ¶ 21; Ex. 2262-PALEKA-4 (map); SWUPA 2262, Addendum at 1.

B-315. In 2008, the Paleka ‘ohana was using kuleana water to irrigate their lo‘i on 0.074 acre and the yards and domestic gardens of their two homes on about 0.27 acre. SWUPA 2262 at 4, Addendum at 2, Exs. 3-8 (photos). The Palekas used the bucket method to estimate their existing use for their lo‘i at about 61,851 gpd, and applied the 600 gpd figure for a single family home to estimate their domestic use at 1,200 gpd (2 homes x 600 gpd). Varel WT 9/12/16, ¶ 22; SWUPA 2262 at 2, Addendum at 2.

B-316. Varel plans to irrigate 0.16 acre of lo‘i kalo on Parcel 35, and 0.11 acre of lo‘i on Parcel 41 and requests 81,000 gpd (0.27 x 300,000 gpd) for this use. Varel WT 9/12/16, ¶¶ 23-25.

B-317. Varel also uses kuleana water to irrigate two small non-commercial gardens, consisting of fruits, vegetables, and herbs on Parcels 35 and 41. He requests 1,200 gpd for these domestic uses, applying the 600 gpd figure for a single family home. *Id.* ¶ 26.

SWUPA 2334 & 2335N – Burt Sakata & Peter Fritz

B-318. On April 30, 2009, Burt Sakata and Peter Fritz filed a SWUPA for existing use for four parcels in Waihe‘e, TMK Nos. (2) 3-2-005:011 (“Parcel 11”), (2) 3-2-005:013 (“Parcel 13”), (2) 3-2-005:019 (“Parcel 19”), and (2) 3-2-005:039 (“Parcel 39”), and a SWUPA for new use for three parcels in Waihe‘e, Parcel 13, and TMK Nos. (2) 3-2-005:015 (“Parcel 15”) and (2) 3-2-005:017 (“Parcel 17”). Sakata WT 1/15/16, ¶ 1; SWUPA 2334 at 4; SWUPA 2335N at 3.

B-319. Sakata requests recognition of appurtenant rights for Parcels 11, 13, 15, 17, 19, and 39 in the amount of 2,543,100 gpd, and requests a permit for current and future uses of these six parcels in the amount of 384,354 gpd, of which 4,254 gpd is the existing use on April 30, 2008. Sakata WT 1/15/16, ¶ 5; SWUPA 2334 at 2; SWUPA 2335N Attachment A.

Appurtenant Rights Claims

B-320. The deed to Parcels 11, 15, 19, and 39 contains a reservation of appurtenant rights. Sakata WT 1/15/16, ¶ 3; Tr. 7/13/16 (Sakata) at 55:21 to 56:2.

B-321. Parcel 13 is 0.61 acre and is wholly comprised of LCA 7686:1, confirmed by RP 6284. Sakata WT 1/15/16, ¶ 27; 2334-SAKATA-2. The native register supporting LCA 7686 indicates ‘āpana 1 included 11 lo‘i kalo, “some small kulas,” and a pāhale. Sakata WT 1/15/16, ¶ 27; Ex. 2334-SAKATA-2. Given the existence of rock walls on this land, and the high concentration of lo‘i kalo in this area, Sakata believes the majority of the parcel was lo‘i kalo, with only small areas of dryland cultivation on the lo‘i banks. Sakata WT 1/15/16, ¶ 28. Based on the common size of a pāhale at the time of the Māhele (0.25 acre), he estimates the amount of land cultivated in lo‘i kalo was 0.36 acre (0.61 total acre – 0.25 acre for pāhale). *Id.* The Commission provisionally approved appurtenant rights for LCA 7686:1. Provisional Order, Ex. 7 at 12.

B-322. Ancient rock walls are still present on Parcel 17, indicating this land was in lo‘i at the time of the Māhele. Sakata WT 1/15/16, ¶ 32. Parcel 17 is 0.81 acre and is comprised of the entireties of three kuleana: LCA 3770B:1,³ confirmed by RP 8066; LCA 4444B, confirmed by RP 8065; and LCA 4444:1, confirmed by RP 6380. *Id.* ¶ 30; Exs. 2334-SAKATA-3, -4, -6. The records supporting LCA 3770B:1, LCA 4444B, and LCA 4444:1 all reference only lo‘i kalo. Sakata WT 1/15/16, ¶ 32; Exs. 2334-SAKATA-3, -4, -6. The Commission provisionally approved appurtenant rights for LCA 3770B:1. Provisional Order, Ex. 7 at 12.

B-323. At the time of the Māhele, Sakata’s lands were used as follows:

- Parcel 13: 0.36 acre cultivated in lo‘i and 0.25 for a pāhale

³ LCA 3770B is mislabeled as LCA 3770. Ex. 2334-SAKATA-6; Sakata WT 1/15/16, ¶ 31; Kame‘eleihiwa WT 4/25/16, ¶¶ 3, 6.

- Parcel 17: 0.81 acre cultivated in lo‘i.

Sakata WT 1/15/16, ¶ 70.⁴ Sakata estimates the quantification of the water rights appurtenant to Parcels 13 and 17 is the amount of water sufficient to grow lo‘i on 1.17 acres using traditional methods, plus the amount of water for one pāhale. *Id.*

B-324. Applying the upper end of Reppun’s water duty range for lo‘i kalo and the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes, Sakata estimates the water right appurtenant to Parcels 13 and 17 is 351,600 gpd (1.17 acres x 300,000 gad = 351,000 gpd) + (1 pāhale x 600 gpd = 600 gpd). *Id.* ¶¶ 68-71.

Permit Request

B-325. Sakata receives water from the “Waihe‘e Valley South” ‘auwai through several intakes on Parcel 17 and 39 to irrigate his non-commercial garden, including banana, fruit trees (mango and citrus), hō‘ī‘o, and tropical flowers. *Id.* ¶ 72; SWUPA 2334 Attachment A, Attachment C (photos); SWUPA 2335N Attachment A, Attachment C (photos). The rest of the water flows through the open ditch back to the ‘auwai. Sakata WT 1/15/16, ¶ 72; SWUPA 2334 Attachment A; SWUPA 2335 Attachment A.

B-326. Sakata estimates that on April 30, 2008, he was using about 4,254 gpd for his non-commercial, domestic garden on about 1.248 acres on Parcels 11, 13, 19, and 39. Sakata WT 1/15/16, ¶ 73; SWUPA 2334 at 2, 4. Sakata’s water use is not gauged, so he arrived at this estimate by multiplying the net acreage he had in bananas, fruit trees, hō‘ī‘o, and tropical flowers on Parcels 11, 19, and 39 (0.01 acre, 1.12 acres, and 0.088 acre, respectively) by the 2002 Hawai‘i Water System Standard for Maui County domestic cultivation, for a total of 3,654 gpd (1.218 acres x 3,000 gad). Sakata WT 1/15/16, ¶ 74; SWUPA 2334 Attachment A. Sakata

⁴ Paragraph 70’s reference to a pāhale appears to be a typographical error.

added 600 gpd to that amount—the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes—to account for the water he uses outside his home on Parcel 13 for gardening, including hō‘ŕ‘o and tropical flowers. Sakata WT 1/15/16, ¶ 75; SWUPA 2334 Attachment A.

B-327. Sakata has ‘ohana from Waiāhole, and he has experience with lo‘i kalo farming. Tr. 7/13/16 (Sakata) at 60:19-23. Sakata used to cultivate kalo in the ancient lo‘i on his Waihe‘e parcels, but there was not enough water to continue cultivation without affecting his neighbors’ use of the water downstream. Sakata WT 1/15/16, ¶ 77; SWUPA 2334 Attachment A; SWUPA 2335N Attachment A; Tr. 7/13/16 at 59:4-24, 62:25 to 63:7.

B-328. If there were enough water for all kuleana users, he would restore 1.267 acres of lo‘i on Parcels 13, 15, and 17, which Sakata estimates would require 380,100 gpd (1.267 acres x 300,000 gad). Sakata WT 1/15/16, ¶¶ 77, 78; SWUPA 2335N at 3, Attachment A.

B-329. Sakata does not seek a separate allocation for his diversified agriculture, but intends to use some of the water that passes through his lo‘i to irrigate approximately 12 acres of macadamia trees. Sakata WT 1/15/16, ¶ 79; SWUPA 2335N Attachment A. Applying the water duty the Commission used for diversified agriculture in the Waiāhole case, Sakata estimates he would use 30,000 gpd (12 acres x 2,500 gad), of the 380,100 gpd requested for lo‘i, to water his macadamia trees. Sakata WT 1/15/16, ¶ 79; SWUPA 2335N Attachment A. All water remaining after seepage into the aquifer would be returned to the “Waihe‘e Valley South” ‘auwai. Sakata WT 1/15/16, ¶ 79; SWUPA 2335N Attachment A.

SWUPA 2225 & 2226N - Ka‘iulani (Michael) Doherty

B-330. Michael Doherty filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for three parcels in Waihe‘e, TMK Nos. (2) 3-2-005:006 (“Parcel 6”), (2) 3-2-

005:007 (“Parcel 7”), and (2) 3-2-005:008 (“Parcel 8”). Doherty WT 1/29/16, ¶ 1; SWUPA 2225 at 4; SWUPA 2226N at 3.

B-331. Doherty requests recognition of appurtenant rights for Parcels 6, 7, and 8 in the amount of 470,850 gpd, and a permit for the three parcels in the amount of 602,550 gpd, of which 302,250 gpd is the existing use as of April 30, 2008. Doherty WT 1/29/16, ¶ 4; SWUPA 2225 at 2, 24; SWUPA 2226N at 3.

Traditional and Customary Rights

B-332. The Doherty ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Doherty WT 1/29/16, ¶ 2.

B-333. The Doherty ‘ohana cultivates lo‘i kalo in the traditional manner, for subsistence and cultural purposes. *Id.* ¶ 28; SWUPA 2225 Addendum at 1-4; SWUPA 2226N Addendum at 1-4. The kalo feeds their ‘ohana and is shared with neighbors and community members. Doherty WT 1/29/16, ¶ 37; SWUPA 2225 Addendum at 2; SWUPA 2226N Addendum at 2.

Appurtenant Rights Claims

B-334. Parcel 7 is comprised of: a portion of LCA 3775:3,⁵ confirmed by RP 5360; all of LCA 4295:1, confirmed by RP 5401; all of LCAs 3770 & 4424:1; and all of LCA 4405NN, confirmed by RP 5104. Doherty WT 1/29/16, ¶ 5; Exs. 2225-DOHERTY-1 to -4. The Commission provisionally approved appurtenant rights for LCAs 3775:3, 4295:1, 4405NN, and 3770:1. Provisional Order, Ex. 7 at 7.

⁵ Doherty’s testimony mistakenly refers to ‘āpana 2 of LCA 3775 instead of ‘āpana 3. Doherty WT 1/29/16, ¶ 5. What was labeled as ‘āpana 2 in the foreign testimony refers to fishponds in Kapoho; ‘āpana 3 is located in Koiahi, the ‘ili in which Doherty’s lands are located. Ex. 2225-DOHERTY-1.

B-335. The foreign testimony supporting LCA 3775 states ‘āpana 3 was a “moo of kalo in Koiahi.” Ex. 2225-DOHERTY-1. Using the area measurement tool of the Kīpuka database, Doherty estimates that the portion of LCA 3775:3 within Parcel 7 is about 1 acre. Doherty WT 1/29/16, ¶ 13.

B-336. The native testimony supporting LCA 4295 states ‘āpana 1 was a “section of taro with dryland with house.” Doherty WT 1/29/16, ¶ 14; Ex. 2225-DOHERTY-2. The native register states “the majority of the 33 loi are in the land section of Koiahi,” where ‘āpana 1 is located. Doherty WT 1/29/16, ¶ 14; Ex. 2225-DOHERTY-2. Based on the existence of rock walls and other land features, the high concentration of lo‘i in this area, and the common practice for pāhale at the time of the Māhele, Doherty estimates the land uses for LCA 4295:1 were broken down as follows: 0.25 acre for pāhale, 0.25 acre dryland cultivation, and 0.5 acre lo‘i kalo. Doherty WT 1/29/16, ¶ 14.

B-337. The foreign testimony supporting LCA 3770 & 4424 states ‘āpana 1 was a “section of lois,” and thus was fully cultivated in lo‘i kalo at the time of the Māhele. *Id.* ¶ 15; Ex. 2225-DOHERTY-3.

B-338. The native testimony supporting LCA 4405NN states this kuleana contained nine lo‘i, and thus was fully cultivated in lo‘i kalo at the time of the Māhele. Doherty WT 1/29/16, ¶ 16; Ex. 2225-DOHERTY-4.

B-339. Parcels 6 and 8 are small parcels located within Parcel 7, and were pō‘alima of the konohiki award to Kamāmalu LCA 7713:24. Doherty WT 1/29/16, ¶¶ 6, 17-18; Ex. 2225-DOHERTY-2, -3.

B-340. Parcel 6 is 0.07 acre, Parcel 7 is 2.825 acres, and Parcel 8 is 0.05 acre, for a total of 2.945 acres. Doherty WT 1/29/16, ¶ 20. Doherty estimates the quantification of

appurtenant rights is the amount of water sufficient to grow lo‘i kalo on 1.445 acres using traditional methods, for one pāhale on 0.25 acre, for 0.25 acre of dryland cultivation, and for one acre of fishponds. *Id.* ¶ 21. Based on the correction noted above regarding LCA 3775:3, the one acre of fishponds should be treated as one acre of lo‘i. Therefore, the lo‘i lands total 2.445 acres.

Permit Request

B-341. The Doherty ‘ohana receives a small amount of water from the “Waihe‘e Valley South” ‘auwai, which passes north of their property. *Id.* ¶ 28. Almost all of the stream water they use is for kalo cultivation in ancient lo‘i that have been continuously cultivated since ancient times. *Id.*; SWUPA 2225 Addendum at 1, Ex. B (map), Ex. C (photo); SWUPA 2226N Addendum at 1, Ex. B (map), Ex. C (photo). They also use some water for domestic uses for their non-commercial garden.

B-342. As of April 30, 2009, the Doherty ‘ohana had one acre in lo‘i cultivation, and 0.75 acre in diversified agriculture, watering plants like banana, tī leaf, papaya, watermelon, yam, and peanuts. Doherty WT 1/29/16, ¶¶ 29, 31; SWUPA 2225 at 4, Addendum at 2, Ex. D (photos). Applying the upper end of the Reppun water duty range for lo‘i, they estimate they use 300,000 gpd for their existing lo‘i. Doherty WT 1/29/16, ¶ 29; SWUPA 2225 at 4. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, Doherty estimates they use 2,250 gpd (0.75 acre x 3,000 gad) for their domestic agriculture. Doherty WT 1/29/16, ¶ 31; SWUPA 2225 at 4.

B-343. The Doherty ‘ohana intends to resume lo‘i kalo cultivation on an additional acre on Parcel 7. Doherty WT 1/29/16, ¶ 30; SWUPA 2226N at 3. They request an additional 300,000 gpd for the new lo‘i. Doherty WT 1/29/16, ¶ 30; SWUPA 2226N at 3.

B-344. The Doherty ‘ohana also intends to grow citrus trees on 0.1 acre. Doherty WT 1/29/16, ¶ 32. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, they request 300 gpd (0.1 acre x 3,000 gad) for the citrus trees. *Id.*

B-345. The Doherty ‘ohana request water for lo‘i totaling 2.0 acre.

SWUPA 2280 & 2281N – Thomas Texeira & Denise Texeira

B-346. Thomas and Patricia Texeira and Denise Texeira filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for two parcels in Waihe‘e, TMK Nos. (2) 3-2-005:031 (“Parcel 31”) and (2) 3-2-005:032 (“Parcel 32”). Texeira WT 1/29/16, ¶ 1; SWUPA 2280 at 4; SWUPA 2281N at 3. Thomas and Patricia live on Parcel 31 and their daughter Denise lives on Parcel 32; a total of 11 family members, including six grandchildren, residing on the land. Texeira WT 1/29/16, ¶ 1; Tr. 7/13/16 (Texeira) at 63:20-22; Texeira WT 1/29/08, ¶ 1 (MA06-01).

B-347. The Texeiras request recognition of appurtenant rights for Parcels 31 and 32 in the amount of 98,100 gpd, and a permit for 45,165 gpd, of which 4,845 gpd is the existing use as of April 30, 2008. Texeira WT 1/29/16, ¶ 3; *see* Tr. 7/13/16 (Texeira) at 70:13 to 71:15, 72:25 to 73:21.

Traditional and Customary Rights

B-348. The Texeiras are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiians Islands prior to 1778. Texeira WT 1/29/16, ¶ 2.

B-349. The Texeira ‘ohana intend to grow lo‘i kalo in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 16, 19-20; SWUPA 2281N Addendum at 1-4.

Appurtenant Rights Claims

B-350. Parcel 31 is all of LCA 4405U:2, confirmed by RP 5990, and a portion of the konohiki award to Kamāmalu, LCA 7713:24. Teixeira WT 1/29/16, ¶ 4. The native testimony supporting LCA 4405U confirms ‘āpana 2 consisted of 10 lo‘i kalo. *Id.* ¶¶ 5-6; Ex. 2280-TEXEIRA-1. LCA 4405U:2 is 0.27 acre. Teixeira WT 1/29/16, ¶ 6; Ex. 2280-TEXEIRA-1.

B-351. Parcel 32 is all of LCA 3721:2, confirmed by RP 6439. *Id.* ¶ 4. The native testimony supporting LCA 3721 confirms that ‘āpana 2 was in lo‘i and dryland cultivation. *Id.* ¶¶ 7-8; Ex. 2280-TEXEIRA-2. Ancient lo‘i rock walls still exist on approximately 95% (0.057 acre) of Parcel 32. Teixeira WT 1/29/16, ¶¶ 8, 10. LCA 3721:2 is 0.06 acre. Teixeira WT 1/29/16, ¶ 8; Ex. 2280-TEXEIRA-2.

B-352. The Commission provisionally approved appurtenant rights for LCA 4405U:2 and LCA 3721:2. Provisional Order, Ex. 7 at 11.

B-353. Together, the lo‘i lands of Parcels 31 and 32 equal 0.327 acre. Teixeira estimates the water right appurtenant to Parcels 31 and 32 is 98,100 gpd (0.327 acre x 300,000 gad). Teixeira WT 1/29/16, ¶ 12.

Permit Request

B-354. The Teixeiras declared kuleana water usage to this Commission in 1989. Teixeira WT 1/29/08, ¶ 1 (MA06-01).

B-355. The Teixeiras access water from a branch of the “Waihe‘e Valley South” ‘auwai that runs adjacent to their land. Teixeira WT 1/29/16, ¶ 13; SWUPA 2280 Addendum at 1. They use pipes to bring water from an open ditch at Parcel 32 to their garden where they grow vegetables for subsistence, including string beans, squash, corn, pumpkin, and eggplant. Teixeira WT 1/29/16, ¶ 14; SWUPA 2280 Addendum at 1. They also water their lawn and other

domestic plants such as tī leaf, banana, papaya, crown flowers, heliconia, and plumeria, and maintain a greenhouse with orchids. Texeira WT 1/29/16, ¶¶ 13-14; SWUPA 2280 Addendum at 1. This kuleana water use covers about 0.535 acre of Parcels 31 and 32. Texeira WT 1/29/16, ¶ 14; SWUPA 2280 at 4. Using the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, the Texeiras estimate their existing domestic water use as of April 30, 2008 was 1,605 gpd (0.535 acre x 3,000 gad). Texeira WT 1/29/16, ¶ 14; SWUPA 2280 Addendum at 2.

B-356. As of April 30, 2008, Thomas Texeira was also using kuleana water to maintain four koi ponds on about 0.09 acre. Texeira WT 1/29/16, ¶ 15; SWUPA 2280 Addendum at 1. Due to contamination of river water in early 2016, however, his koi died and he no longer maintains koi ponds. Tr. 7/13/16 (Texeira) at 70:13 to 71:2.

B-357. The Texeiras intend to restore a total of 0.15 acre of lo‘i kalo that his ‘ohana historically maintained (0.06 acre stated in SWUPA plus 0.09 acre previously in koi ponds). Texeira WT 1/29/16, ¶ 16; SWUPA 2281N at 3; Tr. 7/13/16 (Texeira) at 70:13 to 71:15, 72:25 to 73:21.

SWUPA 2264 & 2265N – Piko A‘o, LLC (Lori Lei Ishikawa)

B-358. Piko A‘o, LLC filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for two parcels in Waihe‘e, TMK Nos. (2) 3-2-006:008 (“Parcel 8”) and (2) 3-2-006:019 (“Parcel 19”). Ishikawa WT 1/5/16, ¶ 1; SWUPA 2264 at 4; SWUPA 2265N at 3.

B-359. Piko A‘o, which means “center of learning,” has operated a Hawaiian learning center on these parcels since purchasing them in 2002 from Wailuku Agribusiness. Ishikawa WT 1/5/16, ¶ 2; Piko A‘o, LLC WT 1/7/14, ¶¶ 1, 3 (MA06-01 Remand). The culturally-based hui purchased these lands to preserve them as a place of cultural learning, and to

provide a space where Kānaka Maoli and their culture can thrive. Ishikawa WT 1/5/16, ¶ 2; Piko A‘o, LLC WT 1/7/14, ¶ 3 (MA06-01 Remand).

B-360. One of the organization’s principal goals is to feed its community: both physically and spiritually. Ishikawa WT 1/5/16, ¶ 2. Another core mission is to provide place-based educational opportunities for people of all ages, from elementary, high school, and college students and their families, to life-long learners who have finished their formal schooling. *Id.*; Ex. A-R4 (photos) (MA06-01 Remand). In an average year, over a thousand students and their families are served by Piko A‘o’s programs, all of which are done under a non-profit auspice. Ishikawa WT 1/5/16, ¶ 2.

B-361. Piko A‘o requests recognition of appurtenant rights for Parcels 8 and 19 in the amount of 5,622,925 gpd, and a permit for 1,451,675 gpd, of which 61,175 gpd is the existing use as of April 30, 2008. *Id.* ¶ 7; SWUPA 2264 at 2; SWUPA 2265N Attachment at 2.

Traditional and Customary Rights

B-362. Lori Lei Ishikawa, member and manager of Piko A‘o, testified that for over ten years, Piko A‘o has benefited the students and Kānaka Maoli of Maui by teaching them how the cultivation of native plants helps enable Native Hawaiian traditional and customary traditions, feeding the spirits and bodies of Kānaka Maoli with kalo and diversified agriculture farmed on the land, and encouraging the restoration of rare, endemic birds by maintaining a water bird recovery habitat. Ishikawa WT 1/5/16, ¶ 3.

B-363. Many families who access Piko A‘o land, including Ishikawa’s and each of the organization’s board members’, are tenants of Nā Wai ‘Ehā who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 5; Piko A‘o, LLC WT 1/7/14, ¶ 2 (MA06-01 Remand).

B-364. Piko A’o board members are traditional practitioners who endeavor to pass on to other Kānaka Maoli and the community at large their knowledge of customs ranging from kapa making to kalo cultivation. *Id.* ¶ 2. The sources of the board members’ collective knowledge are manifold, primarily coming from the direct teachings and oral traditions of their kūpuna. *Id.*

B-365. Piko A’o uses stream water predominantly for kalo cultivation, in traditional ways, for home, ceremonial, and educational purposes, as part of its mission is to feed the community both spiritually and physically. Ishikawa WT 1/5/16, ¶ 62; Tr. 7/13/16 (Ishikawa) at 30:25 to 31:5; Piko A’o, LLC WT 1/7/14, ¶ 15 (MA06-01 Remand). The hui also grows other traditional Native Hawaiian plants like wauke, dye plants, kī, ‘uala, ‘ulu, kukui, and mai‘a, and other crops like plumeria and macadamia trees. Ishikawa WT 1/5/16, ¶ 62. Piko A’o shares these plants and food with neighbors, students, and community members to nourish physical and spiritual well-being. *Id.* ¶ 74. Sharing is a Hawaiian value Piko A’o teaches and perpetuates. Piko A’o, LLC WT 1/7/14, ¶ 16 (MA06-01 Remand).

B-366. The organization also maintains an historic pond, Paeloko, which provides a place to practice cultural traditions and important habitat for endemic water birds. Ishikawa WT 1/5/16, ¶¶ 62, 71. Paeloko—or Pe’eloko, as some kūpuna pronounce it—is located at the northernmost section of the property, just mauka of Kahekili Highway. Piko A’o, LLC WT 1/7/14, ¶ 5 (MA06-01 Remand). For Kānaka Maoli, Paeloko is a sacred place. *Id.* ¶ 6. Its name, literally translated as “hidden pond,” reflects its spiritual significance—that it is, perhaps, not meant to be seen by all who pass through the region. *Id.*

B-367. The pond was home to a mo’owahine (lizard demi-goddess), and kūpuna, still living today, recall seeing her in the pond prior to it being filled around 1979 to accommodate

expansion of Kahekili Highway. *Id.* This mo‘owahine was respected by area residents, and was considered a caretaker of the area, watching over children in particular. *Id.* ¶ 7.

B-368. Paeloko is also referenced in the renowned Story of Maui, which showcases the demi-god who lassoed and slowed the sun so that his mother would have more daylight to dry her kapa. *Id.* ¶ 8. It is said that at the direction of his grandmother, Maui went to Paeloko to use the coconut trees and make the aho (cord) he eventually used to snare the sun. *Id.*

B-369. When Piko A‘o began inviting children to the pond for educational programs, the pond returned, despite being filled decades earlier. *Id.* ¶ 9; Ex. A-R4 (photos) (MA06-01 Remand). The pond serves as a focal point of educational tours. Piko A‘o, LLC WT 1/7/14, ¶ 9 (MA06-01 Remand). Every group that visits the learning center is taken to the pond where they learn mo‘olelo (stories) about the pond, the importance of wetland restoration, the significance of bringing children to the pond so that it can live, and that it is everyone’s kuleana to ensure water flows mauka to makai so that cultural resources like the pond survive. *Id.*; Ex. A-R4 (photos) (MA06-01 Remand).

B-370. Paeloko serves as an important recovery habitat for endemic water birds. Piko A‘o, LLC WT 1/7/14, ¶ 13 (MA06-01 Remand); Ex. A-R4 (photos) (MA06-01 Remand). Native birds, including the endangered ae‘o (Hawaiian stilt), ‘auku‘u (black-crowned night heron), and koloa (Hawaiian duck) are coming back in greater numbers each day. Piko A‘o, LLC WT 1/7/14, ¶ 13 (MA06-01 Remand); Ex. A-R4 (photos) (MA06-01 Remand). Pueo (Hawaiian short-eared owl) have been sighted on the outskirts of the pond. Piko A‘o, LLC WT 1/7/14, ¶ 13 (MA06-01 Remand).

B-371. Oral histories from this area detail the hydrologic connection between Paeloko and the Kapoho wetlands in Waihe‘e makai, including the wetlands now managed by the

Hawaiian Islands Land Trust. Ishikawa WT 1/5/16, ¶ 68; Piko A‘o, LLC WT 1/7/14, ¶ 11 (MA06-01 Remand). Piko A‘o passes on this knowledge through its ha‘awina (lessons), explaining the connection between Paeloko and Kapoho, and how caring for the pond positively affects the wetlands. *Id.*

B-372. As stewards of Paeloko, Piko A‘o has an obligation to ensure the pond is maintained and protected as both a precious site where cultural learning can take place, as well as a vital wildlife sanctuary. *Id.* ¶ 19.

B-373. Board member Dale Naho‘olewa and his wife U‘i maintain the area surrounding the pond. *Id.* ¶ 12. They remove macadamia trees, which are dying as the pond expands, and replace the trees with native plants, including wauke, ‘ohe, and kukui, which the organization uses as materials, tools, or dyes for kapa. *Id.* These plants enable student-visitors to experience hands-on learning of kapa making. *Id.*

Appurtenant Rights Claims

B-374. The deed to Piko A‘o’s lands contains a reservation of appurtenant rights. Ishikawa WT 1/5/15, ¶ 4.

Permit Request

B-375. Piko A‘o uses water from the “Waihe‘e Valley South” ‘auwai to irrigate its lo‘i and diversified agriculture. *Id.* ¶ 61. Some of the outflow goes into Paeloko pond, and the remainder flows back into Waihe‘e River. *Id.* The amount returned varies depending upon a number of factors, including crop needs and climate condition. *Id.*

B-376. As of April 30, 2008, Piko A‘o has been irrigating 0.17 acre of lo‘i on Parcel 8. *Id.* ¶ 63. It estimates its existing use for lo‘i is 51,000 gpd (0.17 acre x 300,000 gad). *Id.*

B-377. As of April 30, 2008, Piko A‘o has also been irrigating 3.83 acres of diversified agriculture on Parcel 8. *Id.* ¶ 64. Applying the water duty the Commission used for diversified agriculture in the Waiāhole case, Piko A‘o estimated its existing use for diversified agriculture is 9,575 gpd (3.83 acres x 2,500 gad). *Id.*

B-378. Piko A‘o also has an existing domestic water use for dish and hand washing. *Id.* ¶ 65. Using the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes, it estimated its domestic water use is 600 gpd. *Id.*

B-379. If provided sufficient water, Piko A‘o would expand its lo‘i cultivation by 4 acres on Parcel 8 and 0.61 acre on Parcel 19, and thus estimates its new use for lo‘i will be 1,383,000 gpd (4.61 acres x 300,000 gad). *Id.* ¶ 66. Piko A‘o requests water for lo‘i totaling 4.78 acres (0.17 + 4.61).

B-380. If provided with sufficient water, Piko A‘o would also expand its diversified agriculture by 3 acres, and thus estimates its new use for diversified agriculture will be 7,500 gpd (3 acres x 2,500 gad). *Id.* ¶ 67.

B-381. Some of the outflow from the lo‘i is directed to the Paeloko pond at a rate Piko A‘o estimates is 10 gallons per minute. *Id.* ¶ 68. This is much less water than was directed to this pond in the past, but it has allowed some level of restoration and endemic water birds have returned to use the pond once more. *Id.* Piko A‘o is not requesting a separate allocation for this use because it comes from the outflow of its lo‘i. *Id.*

SWUPA 2316 & 2317N – Gordon Apo & Lester Nakama

B-382. Gordon Apo and Lester Nakama filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for two parcels in Waihe‘e, TMK Nos. (2) 3-2-006:010 (“Parcel 10”) and (2) 3-2-006:011 (“Parcel 11”). Nakama WT 2/3/16, ¶ 4; SWUPA 2316 at 4;

SWUPA 2317N at 3. Aloha Poi leases this land from Apo, and has leased from the Apo ‘ohana since the 1970s to grow lo‘i kalo in the traditional manner in the ancient lo‘i on these lands.

Nakama WT 2/3/16, ¶ 6. The Apo ‘ohana also cultivates lo‘i kalo in some of the ancient lo‘i for subsistence purposes. *Id.* ¶ 7.

B-383. Apo and Nakama request recognition of appurtenant rights for Parcels 10 and 11 in the amount of 420,000 gpd, and a permit for these parcels in the amount of 219,000 gpd, of which 62,000 gpd is the existing use as of April 30, 2008. *Id.* ¶ 8; SWUPA 2316 at 2.

Traditional and Customary Rights

B-384. The Apo ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Nakama WT 2/3/16, ¶ 7; SWUPA Attachment 1 at 2; SWUPA 2317N Attachment 1 at 2.

B-385. The Apos grow kalo in the ancient lo‘i in the traditional manner for subsistence and cultural purposes. Nakama WT 2/3/16, ¶ 28; SWUPA 2316 Attachment 1 at 1-3; SWUPA 2317N Attachment 1 at 1-3.

Appurtenant Rights Claims

B-386. Parcel 10 includes approximately one fourth of LCA 4063, confirmed by RP 3429. Nakama WT 2/3/16, ¶ 9. The native testimony supporting LCA 4063 describes the land as “apana kalo,” or a “parcel of kalo.” *Id.* ¶ 14; Ex. 2316-APO-1. The Commission provisionally approved appurtenant rights for LCA 4063. Provisional Order, Ex. 7 at 11-12.

B-387. Parcel 11 is a small tract of land within Parcel 10, and was a pō‘alima of the konohiki award to Kamāmalu, LCA 7713:24. Nakama WT 2/3/16, ¶¶ 10, 15; Exs. 2316-APO-1 to -2.

B-388. Parcel 10 is 1.34 acres in size, Parcel 11 is 0.06 acre, and combined they total 1.40 acres. Nakama WT 2/3/16, ¶ 16; SWUPA 2316 at 4. Nakama estimates the water right appurtenant to Parcels 10 and 11 is 420,000 gpd (1.40 acres x 300,000 gad). Nakama WT 2/3/16, ¶¶ 18-19.

Permit Request

B-389. Apo and Nakama use kuleana water from the “Waihe‘e Valley South” ‘auwai that runs on Apo land. Nakama WT 2/3/16, ¶ 20; SWUPA 2316 Exs. 3A-3D (photos); SWUPA 2317N Exs. 3A-3D (photos). Some of this water is used to irrigate 0.67 acre of lo‘i on Parcel 10 and 0.06 acre of lo‘i on Parcel 11 for a total of 0.73 acre of lo‘i. Nakama WT 2/3/16, ¶¶ 13, 21; Ex. 2316-APO-3; SWUPA 2316 at 4, Ex. 2; SWUPA 2317N Ex. 2.

B-390. By using the bucket method, Nakama estimates they use about 62,000 gpd for 0.73 acre of lo‘i as of April 30, 2008. Nakama WT 2/3/16, ¶ 22; SWUPA 2316 Attachment 1 at 1-2; SWUPA 2317N Attachment 1 at 2. This amount, however, is not sufficient to produce a healthy crop of wetland kalo. Nakama WT 2/3/16, ¶ 23; SWUPA 2317N Attachment 1 at 2. Although Aloha Poi tries to make do with this water amount, the lack of sufficient water causes problems like small corms, taro rot, and uncontrollable weeds. Nakama WT 2/3/16, ¶ 23; SWUPA 2317N Attachment 1 at 2.

B-391. Due to the lack of sufficient water for healthy kalo, Nakama and Apo request an additional amount of water for the 0.73 acre of lo‘i kalo. Nakama WT 2/3/16, ¶ 24. Based on Nakama’s more than 50 years of experience as a kalo farmer, he believes 300,000 gad is necessary for the cultivation of healthy kalo, and therefore requests 219,000 gpd (0.73 acre x 300,000 gad). *Id.* ¶¶ 2, 24, 69 SWUPA 2317N Attachment 1 at 2.

SWUPA 2221 & 2222N – Cordell Chang

B-392. Cordell Chang filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Waihe‘e, TMK No. (2) 3-2-006:004 (“Parcel 4”). Chang WT 1/30/16, ¶ 1; SWUPA 2221 at 4; SWUPA 2222N at 3.

B-393. Chang requests recognition of appurtenant rights for Parcel 4 in the amount of 375,000 gpd, and a permit for 151,125 gpd, of which 1,125 gpd is the existing use as of April 30, 2008. Chang WT 1/30/16, ¶ 3.

Traditional and Customary Rights

B-394. The Chang ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Chang WT 1/30/06, ¶ 2; Chang WT 10/26/07, ¶ 1-3 (MA06-01).

B-395. Chang intends to cultivate kalo in ancient lo‘i on his kuleana in the traditional manner for subsistence and cultural purposes. SWUPA 2222N Attachments at 2-4; Chang WT 1/30/16, ¶ 13.

Appurtenant Rights Claims

B-396. Ancient lo‘i walls still exist on a majority of Parcel 4. Chang WT 1/30/16, ¶7. Parcel 4 includes all of one kuleana, LCA 3805, confirmed by RP 5352. *Id.* ¶ 5. The native register supporting LCA 3805 states the land included “forty two wetland taro patches, and a patch of pandanus (lauhala).” *Id.* ¶ 6; Ex. 2221-CHANG-1. Therefore, Chang estimates 1.25 acres of the 1.29 total acreage was cultivated in lo‘i kalo, with the remainder cultivated in lauhala. *Id.* ¶¶ 7-8. The Commission provisionally approved appurtenant rights for LCA 3805. Provisional Order, Ex. 7 at 7.

B-397. Chang estimates the water right appurtenant to Parcel 4 is 375,000 gpd (1.25 acres x 300,000 gad). Chang WT 1/30/16, ¶ 10.

Permit Request

B-398. The “Waihe‘e Valley South” ‘auwai runs along the northwest section of Chang’s land, where he accesses water using a three-inch pipe, which he shares with the Kana ‘ohana. Chang WT 1/30/16, ¶ 11; SWUPA 2221 Attachments at 2, 6-10 (photos); SWUPA 2222N Attachments at 2, 6-10 (photos); Kana WT 10/26/07, ¶ 4-5 (MA06-01). The three-inch pipe was installed by WWC, causing reduced water delivery to Chang’s kuleana, eventually causing him to stop kalo cultivation. SWUPA 2221 Attachments at 3, 7; 2222N Attachments at 2, 8; Chang WT 1/30/16, ¶ 13; 10/26/07, ¶ 7 (MA06-01); Tr. 12/7/07 (Chang) at 50:11-17 (MA06-01). Thus, Chang’s existing use on April 30, 2008 was limited by the lack of sufficient water availability, which prevented him from growing kalo in the ancient lo‘i on his land, as his ‘ohana historically did. Chang WT 1/30/16, ¶ 13; SWUPA 2221 Attachments at 1, SWUPA 222 Attachments at 1; Chang WT 10/26/07, ¶ 6-7 (MA06-01); Tr. 12/7/07 (Chang) at 48:23-25 (MA06-01).

B-399. On April 30, 2008, Chang was farming 0.45 acre of his 1.20 acres in bananas, tī leaf, ‘ulu, coconut, papaya, and other fruits and vegetables, which fed his family and farmworkers, and which he shared with churches and the homeless. Chang WT 1/30/16, ¶ 12; SWUPA 2221 Attachments at 5 (map), 8-9 (photos). Chang also sells some of his fruits and vegetables to offset the costs associated with the farm and to provide fresh, local food to the community. Chang WT 1/30/16, ¶ 12. Applying the water duty the Commission used for diversified agriculture in the Waiāhole case, Chang estimates his existing use is 1,125 gpd (0.45 acre x 2,500 gad). *Id.*

B-400. Chang also requests an additional amount to grow 0.5 acre of lo‘i kalo, which he estimates would require 150,000 gpd (0.5 acre x 300,000). *Id.* ¶ 13.

SWUPA 2313 & 2314N – Charlene & Jacob Kana

B-401. Charlene and Jacob Kana, Sr. filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for land in Waihe‘e, TMK Nos. (2) 3-2-006:001 (“Parcel 1”) and (2) 3-2-006:018 (“Parcel 18”). Kana WT 1/24/16, ¶ 2; SWUPA 2313 at 4; SWUPA 2314N at 3.

B-402. The Kanas request recognition of appurtenant rights for Parcels 1 and 18 in the amount of 471,000 gpd, and a permit for these two parcels in the amount of 345,999 gpd, of which 25,200 gpd is the existing use as of April 30, 2008. Kana WT 1/24/16, ¶ 5.

Traditional and Customary Rights

B-403. The Kanas are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiians Islands prior to 1778. *Id.* ¶ 1.

B-404. The Kanas cultivate lo‘i kalo in the traditional manner for subsistence and cultural purposes. Kana WT 1/24/16, ¶¶ 20, 26; SWUPA 2313 Attachment A at 2-4; SWUPA 2314N Attachment A at 2-5.

Appurtenant Rights Claims

B-405. Parcel 1 is comprised of a portion of LCA 3936, confirmed by RP 6457. Kana WT 1/24/16, ¶ 6. Parcel 18 is comprised of a portion of LCA 3936, confirmed by RP 6457; a portion of LCA 4296:1, confirmed by RP 5357; and four pō‘alima of the konohiki award to Kamāmalu, LCA 7713:24. *Id.* Together, these two TMKs include the majority of LCA 3963, a portion of LCA 4296:1, and the four pō‘alima. *Id.* The Commission provisionally approved appurtenant rights for LCA 3963. Provisional Order, Ex. 7 at 11.

B-406. The records supporting LCAs 3963 and 4296:1 describe these lands as cultivated in numerous lo‘i without referencing any other use. Kana WT 1/24/16, ¶¶ 7-13; Exs. 2313-KANA-1 to -4. The maps for LCA 3963 depict the four pō‘alima of the Kamāmalu grant, which are part of Parcel 18. Kana WT 1/24/16, ¶ 13; Exs. 2313-KANA-1 and -4.

B-407. Parcel 1 is 0.315 acre and Parcel 18 is 1.251 acres, for a total of 1.57 acres. Kana WT 1/24/16, ¶¶ 14-15. The Kanas estimate the water right appurtenant to Parcels 1 and 18 is 471,000 gpd (1.57 acre x 300,000 gad). *Id.* ¶¶ 15-17.

Permit Request

B-408. The Kanas currently receive water from a three-inch pipe in the “Waihe‘e Valley South” ‘auwai. *Id.* ¶ 18; SWUPA 2313 Attachments at 2; SWUPA 2314N Attachments at 2; Kana WT 10/26/07, ¶ 5 (MA06-01); Tr. 12/13/07 (Kana) at 23:20 to 24:1 (MA06-01). They used to have their own intake, but when Wailuku Agribusiness converted to macadamia nuts, it changed the intake so that the Kana ‘ohana now share a single three-inch pipe with the Cordell Chang ‘ohana. SWUPA 2313 Attachments at 2; SWUPA 2314N Attachments at 2; Kana WT 10/26/07, ¶ 4-5 (MA06-01).

B-409. The change to the three-inch pipe significantly limits the amount of water available to both ‘ohanas’ uses. SWUPA 2313 Attachments at 2; SWUPA 2314N Attachments at 2; Kana WT 10/26/07, ¶¶ 6-7 (MA06-01). Around 1991, the Kana ‘ohana was able to open 13 large lo‘i on about 1 acre. *Id.* ¶ 5. Because the WWC’s ditch operator shut off water regularly, the water supply became less and less reliable. *Id.* ¶ 6. Constant interruptions in flow caused their kalo to rot and substantially reduced the amount they were able to harvest and use. *Id.*; Tr. 12/13/07 (MA06-01) at 25:4-13 (Kana). Thus, the Kana ‘ohana’s existing use as of April 30, 2008 reflects a reduction in the amount of lo‘i kalo they used to grow due to the lack of sufficient

water availability. Kana WT 1/24/16, ¶ 20; SWUPA 2314N Attachments at 1; Kana WT 10/26/07, ¶¶ 5-7 (MA06-01); Tr. 12/13/07 (Kana) at 25:4-13, 19-21 (MA06-01).

B-410. The Kana ‘ohana was cultivating 0.084 acre of lo‘i as of April 30, 2008. SWUPA 2313 at 4. The Kanas estimate their existing use is 25,200 gpd (0.084 acre x 300,000). Kana WT 1/24/16, ¶ 19.

B-411. With sufficient water, the Kana ‘ohana intend to restore 1.06933 acres to lo‘i cultivation, and therefore request an additional 320,799 gpd (1.06933 acres x 300,000). Kana WT 1/24/16, ¶ 20; SWUPA 2314N at 3, Attachments at 1; Kana WT 10/26/07, ¶ 8 (MA06-01); Tr. 12/13/07 (Kana) at 25:22 to 26:7 (MA06-01). The Kanas request water for lo‘i totaling 1.153 acre (0.084 + 1.06933). They plan to take water directly from the ‘auwai, which runs past their land, at Parcel 18. SWUPA 2313 Attachments at 2; SWUPA 2314N Attachments at 2.

SWUPA 2294 – Bryan Sarasin, Sr.

B-412. Bryan Sarasin, Sr. filed a SWUPA for existing use on April 29, 2009, for a parcel in Waihe‘e, TMK No. (2) 3-2-007:016 (“Parcel 16”). SWUPA 2294 at 3. His son, Bryan Sarasin, Jr., testified at the contested case hearing. SWUPA 2294-SARASIN-1 to -11.

B-413. The Sarasins request recognition of appurtenant rights in the amount of 297,000 gpd and a permit for 1,035,040 gpd. 2294-SARASIN-11; SWUPA 2294 at 2-4, Addendum at 2.

Appurtenant Rights Claims

B-414. Parcel 16 is the entirety of LCA 4405O:1.⁶ 2294-SARASIN-1. The native and foreign testimonies supporting this award describe ‘āpana 1 as 42 lo‘i with five pō‘alima. 2294-SARASIN-5, -7. Parcel 16 is 0.99 acre. 2294-SARASIN-11; SWUPA 2294 at 4.

⁶ The Sarasins’ SWUPA referred to LCA 4005O, which they later discovered was in error.

Applying the upper end of Reppun’s water duty range for lo‘i kalo, the Sarasins estimate the water right appurtenant to Parcel 16 is 297,000 gpd (0.99 acre x 300,000 gad). 2294-SARASIN-11.

Permit Request

B-415. The Sarasins are the only freshwater aquaculturists on Maui who have been able to consistently supply food fish to markets for years. 2294-SARASIN-10. Thus, they mainly use kuleana water for aquaculture to provide the people of Maui with good tasting freshwater fish, and to support three generations, including Sarasin, Jr.’s young family. *Id.* They also use some water for kalo, watercress, gardening, fruit trees, and a nursery. *Id.*; SWUPA 2294 Addendum, Ex. B pp1-5, 8-15 (photos), 16 (diagram).

B-416. To maintain heavily stocked fishponds, the Sarasins require a good flow of water to oxygenate, cool, and cleanse the ponds. 2294-SARASIN-10. Without a significant flow of water, the risk of algae blooms—which affect the taste of the fish and at worst kill the entire fish pond—increases. *Id.* Based on their years of experience maintaining these ponds, the Sarasins know what stocking densities for their current water supply maximizes efficiency. *Id.*

B-417. Approximately 0.4 acre of the Sarasin land is used for aquaculture, another 0.4 acre is used for a nursery, 0.009 acre is in lo‘i kalo, and 0.1 acre is used for a garden. SWUPA 2294 at 4, Addendum.

B-418. Using the “Berkeley” formula for approximating water flow in pipes, the Sarasins estimate their aquaculture operation uses 1,031,040 gpd. SWUPA 2294 Addendum at 2, Ex. B pp6A & B; *see* Tr. 7/13/16 (Sarasin) at 17:7 to 19:23. The Sarasins estimate their existing use for lo‘i is 2,700 gpd (0.009 acre x 300,000 gad). SWUPA 2294 Addendum at 2. Applying the water duty for diversified agriculture the Commission used in the Waiāhole case,

the Sarasins estimate their existing use for their nursery is 1,000 gpd (0.4 acre x 2,500 gad). *Id.* Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, the Sarasins estimate their existing use for their non-commercial garden is 300 gpd (0.1 acre x 3,000 gad). *Id.*

SWUPA 2231 & 2232N – Diannah Lai Goo

B-419. On April 23, 2009, Diannah Lai Goo filed a SWUPA for existing use on six parcels in Waihe‘e, TMK Nos. (2) 3-2-011:006 (“Parcel 6”), (2) 3-2-011:019 (“Parcel 19”), (2) 3-2-011:065 (“Parcel 65”), (2) 3-2-011:066 (“Parcel 66”), (2) 3-2-011:067 (“Parcel 67”), and (2) 3-2-011:079 (“Parcel 79”), and a SWUPA for new use on two parcels, TMK Nos. (2) 3-2-011:078 (“Parcel 78”) and Parcel 79 (both formerly part of TMK No. (2) 3-2-011:007). Goo WT 1/11/16, ¶ 1; SWUPA 2231 at 5; SWUPA 2232N at 3. Collectively, these parcels are referred to as the “makai parcels,” as Goo also filed SWUPAs for other lands her ‘ohana owns mauka. Goo WT 1/11/16, ¶ 1; SWUPAs 2233, 2234N, and 2365N. The makai parcels have been in the Goo ‘ohana—Diannah’s husband’s side—for generations. Goo WT 1/11/16, ¶ 1; Goo WT 11/29/07, ¶ 5 (MA06-01).

B-420. The Goo ‘ohana requests recognition of appurtenant rights for the makai parcels in the amount of 435,000 gpd, and a permit for current and future uses on the makai parcels of 141,600 gpd, of which 3,600 gpd is the existing use as of April 30, 2008. Goo WT 1/11/16, ¶ 7; SWUPA 2231 at 2; SWUPA 2232N Attachment at 2.

Traditional and Customary Rights

B-421. The Goo ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Goo WT 1/11/16, ¶ 3.

B-422. The Goos grow lo‘i kalo in the mauka parcels and intend to grow lo‘i kalo in the makai parcels in the traditional manner, for subsistence and cultural purposes. *Id.* ¶¶ 44, 46; SWUPA 2232N Attachment at 1-3.

Appurtenant Rights Claims

B-423. The makai parcels all derive from LCA 8366:1 and 2, confirmed by RP 5327. Goo WT 1/11/16, ¶ 20; Goo WT 11/29/07, ¶ 6 (MA06-01); Ex. A-169 (11/29/07) (MA06-01). The foreign testimony supporting LCA 8366:1 and 2 describe each ‘āpana as a “section of kalo and kula land.” Goo WT 1/11/16, ¶ 23; Ex. 2231-GOO-1. ‘Āpana 1 contained two pō‘alima and ‘āpana 2 contained five pō‘alima. Goo WT 1/11/16, ¶ 23; Ex. 2231-GOO-1. Given the existence of the seven pō‘alima and the high concentration of lo‘i kalo in the Waihe‘e area generally, the Goos believe a majority of these ‘āpana were cultivated in wetland kalo at the time of the Māhele. Goo WT 1/11/16, ¶ 23.

B-424. In addition to the high number of pō‘alima within these ‘āpana, an ‘auwai runs across them (on Goo’s makai parcels), further supporting the Goos’ belief that most of LCA 8366:1 and 2 was in lo‘i kalo, as opposed to kula. Therefore a 90-10% split of kalo to kula should be applied. SWUPA 2231 Exs. B (map), C (photos). The Commission provisionally approved appurtenant rights for LCA 8366. Provisional Order, Ex. 7 at 8.

B-425. Parcel 6 is 0.27 acre, Parcel 19 is 0.15 acre, Parcel 65 is 0.28 acre, Parcel 66 is 0.22 acre, Parcel 67 is 0.07 acre, Parcel 78 is 0.23 acre, and Parcel 79 is 0.23 acre, for a total of 1.45 acres. Goo WT 1/11/16, ¶¶ 24, 25; SWUPA 2231 at 5; SWUPA 2232N at 3. Ninety percent of 1.45 acres is 1.305 acres.

Permit Request

B-426. The makai parcels receive water from the “Waihe‘e Valley South” ‘auwai, and the Goo ‘ohana is among the last kuleana water users on this ‘auwai. Goo WT 1/11/16, ¶ 37. The Goo ‘ohana declared their kuleana water use with the Commission in 1989. *Id.* ¶ 20; Goo WT 11/29/07, ¶ 7 (MA06-01).

B-427. As of April 30, 2008, six different households used kuleana water for domestic purposes—cultivating fruits and vegetables, such as mountain apple, banana, squash, papaya, and herbs, which feed the Goo ‘ohana, friends, and neighbors, and watering yards and tropical flowers. Goo WT 1/11/16, ¶ 38; SWUPA 2231 Attachment at 1-2. Applying the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes, the Goo ‘ohana estimate their existing domestic water use is 3,600 gpd (6 single-family households x 600 gpd). Goo WT 1/11/16, ¶ 39; SWUPA 2231 Attachment at 2.

B-428. Additionally, the Goo ‘ohana intends to open a total of 0.46 acre of lo‘i kalo on Parcels 78 and 79. Goo WT 1/11/16, ¶ 40; SWUPA 2232N Attachment at 2; Goo WT 11/29/07, ¶ 7. The Goos estimate they will need an additional 138,000 gpd to irrigate these lo‘i (0.46 acre x 300,000 gpd). Goo WT 1/11/16, ¶ 40; SWUPA 2232N Attachment at 2.

SWUPA 2361N – Kathleen De Hart

B-429. Kathleen De Hart filed a SWUPA for new use on April 23, 2009, for a parcel in Waihe‘e, TMK No. (2) 3-2-011:004 (“Parcel 4”). De Hart WT 1/20/16, ¶ 1; SWUPA 2361N at 4.

B-430. De Hart requests recognition of appurtenant rights in the amount of 150,000 gpd, and a permit for 7,350 gpd. De Hart WT 1/20/16, ¶ 4; SWUPA 2361N at 4, Addendum at 2.

Traditional and Customary Rights

B-431. The De Hart ‘ohana are tenants of the ahupua‘a of Waihe‘e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. De Hart WT 1/20/16, ¶ 2.

B-432. The De Harts intend to cultivate lo‘i on their land in the traditional manner, for subsistence and cultural purposes. *Id.* ¶ 20; SWUPA 2361N Addendum at 1-4.

Appurtenant Rights Claims

B-433. Parcel 4 is comprised of a portion of LCA 3887B, confirmed by RP 6150. De Hart WT 1/20/16, ¶ 5. The native register supporting this LCA describes the land as containing 33 lo‘i, one hala tree, and a pond. *Id.* ¶¶ 6, 8; 2361-DEHART-1. The high number of lo‘i, compared to a single hala tree, indicates this kuleana was lo‘i land at the time of the Māhele. The Commission provisionally approved appurtenant rights for LCA 3887B. Provisional Order, Ex. 7 at 14.

B-434. Parcel 4 is 0.5 acre. De Hart estimates the water right appurtenant to Parcel 4 is 150,000 gpd (0.5 acre x 300,000 gad). De Hart WT 1/20/16, ¶¶ 10-12.

Permit Request

B-435. De Hart’s ‘ohana historically accessed water from the “Waihe‘e Valley South” ‘auwai, but has not had any access since 1984, following a storm that broke the cement flume that brought water to their land, and which was completely destroyed during the widening of Kahekili Highway. *Id.* ¶ 13; SWUPA 2361N Addendum at 1. De Hart intends to access the water once again and plans to install a pipe in the ‘auwai before it crosses Kahekili Highway at Waihe‘e School, TMK No. (2) 3-2-007:012, to bring water to her land. *Id.*; SWUPA 2361N Addendum at 1.

B-436. Once her access to kuleana water is restored, De Hart intends to maintain approximately 30' x 30' of lo'i kalo, for which she estimates she will need 6,000 gpd (0.02 acre x 300,000). De Hart WT 1/20/16, ¶ 14; SWUPA 2361N Addendum at 2.

B-437. De Hart also plans to use kuleana water within the home for washing and other purposes, and outside the home on her yard and non-commercial garden, which includes foods for her 'ohana to eat, like star fruit, mango, banana, tomato, lettuce, eggplant, papaya, avocado, grapefruit, lemon, lime, squash, beets, string bean, bitter melon, and brussel sprouts. De Hart WT 1/20/16, ¶ 15; SWUPA 2361N Addendum at 2. Subtracting the square footage of her house and the area of her proposed lo'i, which total 0.05 acre, and applying the 2002 State of Hawai'i Water System Standard for Maui County domestic cultivation, De Hart estimates she will need 1,350 gpd for these domestic purposes. (0.45 acre x 3,000 gad). De Hart WT 1/20/16, ¶ 16; SWUPA 2361N Addendum at 2.

SWUPA 2250 & 2251N – Alfred Kailiehu, Jr. & Ina Kailiehu

B-438. Alfred Kailiehu, Jr. filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Waihe'e, TMK No. (2) 3-2-007:017 ("Parcel 17"). Kailiehu WT 12/23/15, ¶ 1; SWUPA 2250 at 4; SWUPA 2251N at 3.

B-439. Kailiehu requests recognition of appurtenant rights in the amount of 153,000 gpd, and a permit for 76,425 gpd, of which 1,425 gpd is the existing use as of April 30, 2008. Kailiehu WT 12/23/15, ¶ 4.

Traditional and Customary Rights

B-440. The Kailiehu 'ohana are tenants of the ahupua'a of Waihe'e who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 2; SWUPA 2250 Attachment A at 2, 4; SWUPA 2251N Attachment A at 2, 4.

B-441. The Kailiehus cultivate lo‘i kalo in the traditional manner for subsistence and cultural purposes. SWUPA 2250 Attachment A at 1-4; SWUPA 2251N Attachment A at 1-4.

Appurtenant Rights Claims

B-442. Parcel 17 has a gentle slope and ancient rock walls, indicating this was lo‘i land. Kailiehu WT 12/23/15, ¶ 8. The Kailiehus believe all of Parcel 17 was cultivated in lo‘i kalo at the time of the Māhele. *Id.* ¶ 9.

B-443. Parcel 17 is comprised of a portion of LCA 3299B, confirmed by RP 6206. *Id.* ¶ 5. The native testimony supporting LCA 3299B states this land was “kalo and kula land, and 3 poalima loi within.” *Id.* ¶ 8; Ex. 2250-KAILIEHU-1. The presence of three pō‘alima, in addition to the gentle slope of the land and existence of ancient lo‘i walls, support a finding that LCA 3299B was mainly cultivated in wetland kalo, and therefore a 90-10 % kalo to kula split should be applied. The Commission provisionally approved appurtenant rights for LCA 3299B. Provisional Order, Ex. 7 at 14.

B-444. Parcel 17 is 0.51 acre. Ninety percent of Parcel 17 is 0.459 acre.

Permit Request

B-445. The Kailiehus receive kuleana water from the “Field 4” ‘auwai and use a one and one-half inch pipe to feed their lo‘i kalo, and a three-quarter inch pipe attached to a water hose to water various plants on their land and to fill a 55-gallon tank for use in the home for non-potable purposes such as showering. Kailiehu WT 12/23/15, ¶ 13; SWUPA 2250 Attachment A at 1; SWUPA 2251N Attachment A at 1. They use garden hoses to irrigate a non-commercial garden of banana, mango, ulu, ‘ilima, green onion, rare ginger, cucumber, chili pepper, pumpkin, corn, and string beans, to water their lawn. Kailiehu WT 12/23/15, ¶¶ 7, 13; Ex. 2250-KAILIEHU-2; SWUPA 2250 Attachments A at 1, 4, C (map), D (photos).

B-446. The Kailiehu ‘ohana believe the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes of 600 gpd is sufficient for their domestic water uses, including use of water within the home and outside the home for watering their garden and yard. Kailiehu WT 12/23/15, ¶ 14; SWUPA 2250 Attachment A at 2.

B-447. The Kailiehus also have about 0.00275 acre in lo‘i kalo, which they estimate uses about 825 gpd (0.00275 acre x 300,000 gad). Kailiehu WT 12/23/15, ¶ 15; SWUPA 2250 Attachment A at 2.

B-448. With enough water, the Kailiehus intend to cultivate an additional 0.25 acre of lo‘i, which is the amount their ‘ohana historically cultivated on their land, and for which they request an additional 75,000 gpd (0.25 acre x 300,000 gpd). Kailiehu WT 12/23/15, ¶¶ 16-17; SWUPA 2251 Attachments C (map), D (photos). The Kailiehus request water for lo‘i totaling 0.253 acre (0.00275 + 0.25).

SWUPA 2318 & 2319N – Nolan Ideoka & Lester Nakama

B-449. Nolan and Merle Ideoka and Lester Nakama filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for a parcel in Waihe‘e, TMK No. (2) 3-2-007:018 (“Parcel 18”). Nakama WT 2/3/16, ¶ 31; SWUPA 2318 at 4; SWUPA 2319N at 3. The Ideoka ‘ohana have owned this parcel for more than 50 years. Nakama WT 2/3/16, ¶ 32.

B-450. Aloha Poi leases 0.55 acre of this land from the Ideoka ‘ohana to grow kalo in the traditional manner in ancient lo‘i. *Id.* ¶ 33; SWUPA 2318 at 4. The Ideoka ‘ohana also maintain a yard and home garden on approximately half the property. Nakama WT 2/3/16, ¶ 33; SWUPA 2318 at 4.

B-451. The Ideoka ‘ohana and Nakama request recognition of appurtenant rights in the amount of 300,000 gpd, and a permit for 231,000 gpd, of which 96,425 is the existing use as

of April 30, 2008. Nakama WT 2/3/16, ¶ 34; SWUPA 2318 Attachment 1 at 2; SWUPA 2319N Attachment at 1 at 2.

Appurtenant Rights Claims

B-452. Parcel 18 is the entirety of LCA 4284D, confirmed by RP 5984. Nakama WT 2/3/16, ¶ 35. The foreign testimony supporting LCA 4284D states this land was comprised of “34 lois and one small kula.” Nakama WT 2/3/16, ¶¶ 36, 38; Ex. 2318-IDEOKA-1. Ancient lo‘i walls still exist throughout Parcel 18 and therefore Nakama and the Ideokas believe a majority or at least one acre (of total 1.1 acres) was in lo‘i kalo cultivation at the time of the Māhele. Nakama WT 2/3/16, ¶¶ 38-39. The Commission provisionally approved appurtenant rights for LCA 4284D. Provisional Order, Ex. 7 at 14.

B-453. Nakama estimates the water right appurtenant to Parcel 18 is 300,000 gpd (1.0 acre x 300,000 gad). Nakama WT 2/3/16, ¶¶ 40-41.

Permit Request

B-454. Aloha Poi uses water from the “Field 4” ‘auwai for its lo‘i on Parcel 18. *Id.* ¶ 42; SWUPA 2318 Attachment 1 at 1; SWUPA 2319N Attachment 1 at 1. The “Field 4” ‘auwai empties water into a pond, and a three-inch pipe brings water from the pond to the Kailiehus’ Parcel 17. SWUPA 2318 Attachment 1 at 1; SWUPA 2319N Attachment 1 at 1. Some water flows in an open ditch to the lo‘i kalo Aloha Poi cultivates on Parcel 17, and some water flows in pipes for the Kailiehus. SWUPA 2318 Attachment 1 at 1, Exs. 2 (map), 3 (photos); SWUPA 2319N Attachment 1 at 1, Exs. 2 (map), 3 (photos). The outflow from Parcel 17 also travels into the lo‘i on the Ideokas’ Parcel 18. SWUPA 2318 Attachment 1 at 1, Exs. 2 (map), 3 (photos); SWUPA 2319N Attachment 1 at 1, Exs. 2 (map), 3 (photos).

B-455. Nakama estimates that as of April 30, 2008, they were using about 96,425 gpd of kuleana water to irrigate 0.55 acre of kalo in ancient lo‘i on Parcel 18. Nakama WT 2/3/16, ¶ 43; SWUPA 2318 Attachment 1 at 2, Exs. 2 (map), 3 (photos). After the water flows through the lo‘i kalo, some is used to irrigate 0.5 acre of the Ideoka ‘ohana’s yard and garden, which includes crops like banana, tī leaf, papaya, and eggplant. Nakama WT 2/3/16, ¶ 44.

B-456. The existing use amount, 96,425 gpd is not enough water to produce healthy kalo, and the lack of water causes problems like small corms, taro rot, and uncontrollable weeds. *Id.* ¶ 45; SWUPA 2318 Attachment 1 at 2.

B-457. Based on his 50 years of experience as a kalo farmer, Nakama believes 300,000 gad is necessary to keep temperatures cool enough to minimize crop diseases and grow healthy kalo. Nakama WT 2/3/16, ¶¶ 2, 46; SWUPA 2319N Attachment at 2.

B-458. With enough water Aloha Poi will expand current cultivation of 0.55 acre to 0.77 acre of lo‘i kalo, which Nakama estimates requires 231,000 gpd (0.77 acre x 300,000 gad). Nakama WT 2/3/16, ¶ 47; SWUPA 2318 at 4; SWUPA 2319N at 3. Some of this water will continue to be used on 0.5 acre of the Ideokas’ yard and garden. Nakama WT 2/3/16, ¶ 47.

G. WAIHE‘E: Spreckels Ditch – Reservoir 25 – WWC Line

SWUPA 2182 – Cecilia Chang

B-459. Cecilia Chang filed a SWUPA for existing use on April 21, 2009, for a parcel in Waiehu, TMK No. (2) 3-2-016:001 (“Parcel 1”). Chang WT 12/9/15, ¶ 1.

B-460. Chang requests recognition of appurtenant rights in the amount of 150,000 gpd, and a permit for 684 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 4.

Appurtenant Rights Claims

B-461. Parcel 1 is 0.683 acre. *Id.* ¶ 9. Parcel 1 is comprised of portions of LCA 3446, confirmed by RP 3938, and a konohiki award to Lunalilo, LCA 8559:20.1. *Id.* ¶ 5; 2182-

CHANG-2. Using basic math concepts, Chang estimates 91% of Parcel 1 (0.622 acre) falls under LCA 3446 and 9% (0.061 acre) falls under the Lunalilo grant. Chang WT 12/9/15, ¶ 9.

B-462. The records supporting LCA 3446 describe this kuleana as kalo and kula land with five pō‘alima within it, and containing as many as 16 lo‘i. *Id.* ¶ 10. Given the numerous references to wetland kalo in these records, Chang estimates 80% of her portion of LCA 3446 was lo‘i land, and the remaining 20% kula. *Id.*

B-463. The portion of Parcel 1 that derives from LCA 3446 is 0.622 acre. *Id.* ¶ 9. Eighty percent of 0.622 acre is 0.5 acre. *Id.* ¶ 11. Chang estimates the water right appurtenant to the LCA 3446 portion of Parcel 1 is 150,000 gpd (0.5 acre x 300,000 gad). *Id.* ¶¶ 12-13.

Permit Request

B-464. Chang uses water from the Waiehu Stream via Spreckels Ditch. She understands this ‘auwai receives water from Spreckels Ditch, south of Waiehu Stream. The Wailuku town ‘auwai receives water via a pipe in Spreckels Ditch and the water travels in pipes and ditches through Wailuku and eventually passes onto Parcel 1 on Malaihi Road. Chang accesses the water via a WWC pipe in the ‘auwai, which runs to her land. *Id.* ¶ 14.

B-465. Chang uses kuleana water to irrigate, on about half of her land (0.34 acre), a lawn and non-commercial garden of fig, mango, breadfruit, lychee, coconut, orange, lime, tangerine, avocado, kukui nut, kumquat, palm, squash, tomato, eggplant, plumeria, heleconia, bird of paradise, periwinkles, basil, green onions, tarragon, chives, and mint. *Id.*; Tr. 7/12/16 (Chang) at 74:9-12. According to meter readings, Chang believes she needs about 600 gpd. Chang WT 12/9/15, ¶ 15; Tr. 7/12/16 (Chang) at 74:1-8.

SWUPA 2593N – John Varel (Koolau Cattle Co.)

B-466. Koolau Cattle Co. (“KCC”) filed a SWUPA for new use on February 22, 2010, for a large 113-acre parcel, which was then designated as TMK No. (2) 3-2-009:001, and subsequently subdivided into five parcels—(2) 3-2-009:001 (“Parcel 1”), (2) 3-2-009:002 (“Parcel 2”), (2) 3-2-009:003 (“Parcel 3”), (2) 3-2-009:004 (“Parcel 4”), and (2) 3-2-009:005 (“Parcel 5”). SWUPA 2593N at 3; Varel WT 9/12/16, ¶ 76. In 2013 and 2015, John Varel purchased the five parcels. Varel WT 9/12/16, ¶¶ 74, 76.

B-467. Varel requests recognition of appurtenant rights in the amount of 1,451,200 gpd, and a permit for 551,477 gpd. Varel WT 9/12/16, ¶ 78.

Appurtenant Rights Claims

B-468. The deed to Parcels 1 and 5 contains a reservation of appurtenant rights. Varel WT 9/12/16, ¶ 77.

Permit Request

B-469. In his written testimony, Varel stated that KCC mistakenly filed a new use permit application although they were existing users already irrigating a 73-acre macadamia nut orchard and 20 acres of dryland kalo at the time of designation in 2008. Varel WT 9/12/16, ¶ 75.

B-470. Based on KCC’s testimony in the original IIFS proceeding, however, the Commission’s 2010 Decision found that KCC had “about eight acres of dryland taro on the 113-acre parcel, as well as 17 to 21 cattle. The 113-acre parcel also contains remnant macadamia nut trees from the former Wailuku plantation, none of which has been watered. KCC’s dryland taro uses ‘minimal water’ through a drip system. KCC stated its water use on its total 9.25 acres of dryland taro on both parcels [*i.e.*, the 113-acre parcel and another, separate 72-acre parcel] as 15,000 to 20,000 gpd [1,622 to 2,162 gad].” *Id.* at 64-65, FOF 408 (citations omitted).

B-471. In the original SWUPA 2593N, KCC requested for the not-yet-subdivided 113-acre parcel TMK No. (2) 3-2-009:001: 295,000 gpd for 26 acres of “vegetables macnut” (11,346 gad) and 21,135 gpd for 15 acres of “pasture” (1,409 gad). *Id.* at 2, 3.

B-472. Currently, Varel uses a combination of catchment water, water that he trucks in, and reliance on rain for his land uses on Parcels 1 through 5. Varel WT 9/12/16, ¶ 111.

B-473. Varel farms macadamia nuts on all 73.09 acres of Parcel 1. Varel WT 9/12/16, ¶¶ 112, 114. He requests 321,596 gpd for this use based on 4,400 gad. *Id.* ¶ 113, 115.

B-474. Varel has mixed agricultural uses on Parcel 2: 300 fruit trees on 3 acres; 4 acres of pasture, which he wishes to convert to fruit trees; an organic garden on 1 acre; 8 acres of macadamia nut trees; and farm houses for 7 workers on 4 acres. Varel WT 9/12/16, ¶ 116. He requests 17,500 gpd for 7 acres of fruit trees, based on 2,500 gad for diversified agriculture; 2,500 gpd for the organic garden, based on 2,500 gad for diversified agriculture, 35,200 gpd for 8 acres of macadamia nuts, based on 4,400 gad, and 4,200 for 7 houses, based on 600 gpd per house; or a total of 59,400. Varel WT 9/12/16, ¶¶ 117-28.

B-475. All 9.034 acres of Parcel 3 is pasture land. Varel WT 9/12/16, ¶ 129, 131. Varel requested 69,561 gpd for the 9.034 acres, based on a 7,700 gad figure for “feed and forage.” Varel WT 9/12/16, ¶¶ 130, 132. During the hearing, however, Varel agreed that the figure was “high” and “anomalous” and stated that, like other applicants who have cited the “feed and forage” figure, he does not irrigate the pasture on his land. Tr. 9/19/16 (Varel) at 147:25 to 150:7.

B-476. Varel is currently constructing 3 hydroponic greenhouses on Parcel 4 and intends to construct a total of 25 aquaponic greenhouses on this parcel. Varel WT 9/12/16, ¶ 133. The type of greenhouse he purchased requires 3,333 gpd to produce 80,000 pounds of

tomatoes annually. *Id.* ¶ 134. Any recycled water from the aquaponic greenhouses will be used to irrigate his garden and fruit trees. *Id.* In total, he requests 83,325 gpd for Parcel 4 (3,333 gpd x 25 greenhouses). *Id.* ¶ 135.

B-477. Parcel 5 is 5.103 acres. Varel WT 9/12/16, ¶ 137. Half is in macadamia nuts and Varel is transitioning the remaining half from pasture to fruit trees. *Id.* ¶ 136. Varel requests 11,200 gpd for 2.55 acres of macadamia nuts based on 4,400 gad; and 6,375 gpd for fruit trees based on 2,500 for diversified agriculture. *Id.* ¶¶ 138-39.

H. WAIEHU: North Waiehu Stream⁷

SWUPA 2342 – Paul Higashino

B-478. Paul and Jennifer Higashino filed a SWUPA for existing use on April 30, 2009, for a 5.75-acre parcel in Waiehu, TMK No. (2) 3-016:017 (“Parcel 17”). Higashino WT 2/3/16, ¶ 1. The Higashinos have lived on this land since they purchased it from Wailuku Agribusiness in 2000. *Id.*

B-479. The Higashinos request recognition of appurtenant rights in the amount of 390,192 gpd, and a permit for 692,700 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 6.

Traditional and Customary Rights

B-480. The Higashino ‘ohana are tenants of the ahupua‘a of Waiehu who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1, 3.

B-481. Paul’s grandparents’ kuleana is adjacent to Parcel 17, which they leased since the 1960s to cultivate lo‘i kalo. *Id.* ¶ 1. The Higashinos continue to use kuleana water to

⁷ Provisional Order Exhibit 7 categorizes the Higashinos under North Waiehu Stream, but according to Paul Higashino’s testimony, they access water from the kuleana ‘auwai that runs along Malaihi Road, which originates from the Waihe‘e Ditch. Higashino WT 2/3/16, ¶ 19; Tr. 7/28/16 at 187:1-8.

maintain lo‘i kalo in the traditional manner for cultural and subsistence purposes. *Id.* ¶ 28; SWUPA 2342 Attachment A at 1-3.

Appurtenant Rights Claims

B-482. The deed to the Higashinos’ land contains a reservation of appurtenant rights. Higashino WT 2/3/16, ¶ 2.

Permit Request

B-483. The Higashinos use water from the kuleana ‘auwai that runs along Malaihi Road. The ‘auwai receives water from Waihe‘e Ditch, which receives water from Waihe‘e River and North Waiehu Stream. Water from the Waihe‘e Ditch flows into a pipe and weir, then into an open ditch. The water continues makai in that ditch and pipes and used to flow along the ‘Īao side of Malaihi Road. Although that kuleana ‘auwai was capped by others along the lower portion of Malaihi Road, water continues to emerge from the same ditch in its lower reaches and flows toward Paul’s grandparents’ kuleana, which is adjacent to his kuleana. The Higashinos divert some water via pipes and ditches for their lo‘i kalo and bananas. Any unused water returns to Waiehu Stream on their land. Higashino WT 2/3/16, ¶ 19; SWUPA 2342 Attachments C (map) & D (photos).

B-484. The Higashinos have two existing water uses. They use kuleana water for domestic purposes, including watering a non-commercial garden (principally bananas) on approximately 0.5 acre, and to cultivate two acres of lo‘i kalo. Higashino WT 2/3/16, ¶ 20. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, the Higashinos estimate their garden requires 1,500 gpd (0.5 acre x 3,000 gad). *Id.* ¶¶ 21, 23. Using the “bucket method,” the Higashinos estimate their two acres of lo‘i use 691,200 gpd. *Id.* ¶ 22.

I. WAIEHU: North Waiehu ‘Auwai

B-485. WWC delivers water from the North Waiehu Ditch to the “North Waiehu” ‘auwai. Jeremiah Dec. 1/28/08, ¶ 16 (MA06-01).

B-486. A pipe in the North Waiehu Ditch, near where the North Waiehu Ditch drops into the Waihe‘e Ditch, brings water into the “North Waiehu” ‘auwai, which immediately runs under and then along a ditch maintenance road. *Id.*; Ho‘opi‘i WT 10/26/07, ¶ 15 (MA06-01); Tr. 12/4/07 (Ho‘opi‘i) at 201:8-14 (MA06-01).

B-487. The “North Waiehu” ‘auwai splits; some of the water travels north to the Ho‘opi‘i land, and some goes east. The outflow from the Ho‘opi‘i land flows south and meets up with the eastward-flowing branch of the ‘auwai. The combined ‘auwai formerly and/or currently proceeds through the Robinson’s, Singer’s, Nakama’s, and Lee’s lands, among others. Jeremiah Dec. 1/28/08, ¶ 16; *see* Ex. A-194B (MA06-01).

SWUPA 2326 & 2327N – Lester Nakama

B-488. Mary Ciacci and Lester Nakama filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for a parcel in Waiehu, TMK No. (2) 3-2-018:021 (“Parcel 21”).⁸ Nakama WT 2/3/16, ¶ 114. Nakama subsequently purchased Parcel 21 from Ciacci. *Id.* ¶ 115. Aloha Poi grows kalo in the traditional manner in ancient lo‘i on this land. *Id.* ¶ 117.

B-489. Nakama requests recognition of appurtenant rights in the amount of 300,000 gpd, and a permit for 330,000 gpd, of which 153,600 gpd is the existing use as of April 30, 2008. *Id.* ¶ 118.

Appurtenant Rights Claims

⁸ Nakama is no longer requesting water for TMK No. (2) 3-2-018:044. Nakama WT 2/3/16, ¶ 115.

B-490. Based on the distribution of ancient rock walls on Parcel 21, Nakama estimates at least 1.0 acre of the 1.101 acre parcel was in lo‘i cultivation at the time of the Māhele. *Id.* ¶¶ 122-23.

B-491. Parcel 21 is the entirety of LCA 3448:2, confirmed by RP 6124. *Id.* ¶ 119; 2326-CIACCI-2. The foreign testimony supporting LCA 3448 states this land was “one piece of kalo and kula land” with “4 poalima lois in it.” Nakama WT 2/3/16, ¶ 122; Ex. 2326-CIACCI-1. The Commission provisionally approved appurtenant rights for LCA 3448. Provisional Order, Ex. 7 at 16.

B-492. Nakama estimates the water right appurtenant to Parcel 21 is 300,000 gpd (1.0 acre x 300,000 gad). Nakama WT 2/3/16, ¶ 125.

Permit Request

B-493. Using the “bucket method,” Nakama estimates that as of April 30, 2008, he used 153,600 gpd from the “North Waiehu” ‘auwai, which flows in a pipe under a plantation road and splits in two directions. *Id.* ¶¶ 126-27. Some of the water flows east toward Parcel 21 and the rest flows through the Ho‘opi‘i ‘ohana’s land, eventually meeting up with the portion of water that flows toward Parcel 21. *Id.* ¶ 126. The combined water flows through an open ditch to irrigate 1.1 acres of lo‘i on Parcel 21. *Id.* ¶ 127.

B-494. Although Nakama tries to make do with the water that flows, it is not enough to produce a healthy crop of wetland kalo. The lack of water causes problems like small corms, taro rot, and uncontrollable weeds. *Id.* ¶ 128.

B-495. Based on Nakama’s over 50 years of experience cultivating lo‘i in Waihe‘e and Waiehu, he believes 300,000 gad is needed to keep temperatures cool enough to minimize

crop diseases and produce healthy wetland kalo. *Id.* ¶¶ 2, 129. Accordingly, he requests 330,000 gpd (1.1 acre x 300,000 gad). *Id.* ¶ 130.

SWUPA 2328 & 2329N – Lester Nakama

B-496. Lester Nakama filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for his parcel in Waiehu, TMK No. (2) 3-2-018:015 (“Parcel 15”). Nakama WT 2/3/16, ¶ 136. Aloha Poi grows kalo in the traditional manner in ancient lo‘i on this land. *Id.* ¶ 138. The poi made from the kalo on Parcel 15 provides the community with a nutritious and culturally significant food source. *Id.*

B-497. Nakama requests recognition of appurtenant rights for Parcel 15 in the amount of 210,000 gpd, and a permit for 210,000 gpd, of which 122,880 gpd is the existing use as of April 30, 2008. *Id.* ¶ 139.

Appurtenant Rights Claims

B-498. The entirety of Parcel 15 was a pō‘alima at the time of the Māhele. *Id.* ¶ 140; Ex. 2328-NAKAMA-1. The Commission provisionally approved appurtenant rights for this parcel. Provisional Order, Ex. 7 at 16.

B-499. Parcel 15 is 0.7 acre in size. Nakama WT 2/3/16, ¶ 143. Nakama estimates the water right appurtenant to Parcel 15 is 210,000 gpd (0.7 acre x 300,000 gad). *Id.* ¶¶ 144-45.

Permit Request

B-500. Nakama currently uses water from the “North Waiehu” ‘auwai that receives water from the North Waiehu Stream on Parcel 15. *Id.* ¶ 146. Almost all of the stream water used on Parcel 15 is for restored ancient lo‘i. *Id.* ¶ 147.

B-501. Using the “bucket method,” Nakama estimates that as of April 30, 2008, he uses 122,880 gpd to grow lo‘i kalo on 0.7 acres. *Id.* Although Nakama tries to make do with the

water that flows, it is not enough to produce a healthy crop of wetland kalo. The lack of water causes problems like small corms, taro rot, and uncontrollable weeds. *Id.* ¶ 148.

B-502. Based on Nakama’s over 50 years of experience cultivating lo‘i in Waihe‘e and Waiehu, he believes 300,000 gad is needed to keep temperatures cool enough to minimize crop diseases and produce healthy wetland kalo. *Id.* ¶¶ 2, 149. Accordingly, he requests 210,000 gpd (0.7 acre x 300,000 gad). *Id.* ¶ 150.

SWUPA 2330 & 2331N – Peter Lee & Lester Nakama

B-503. Peter Lee and Lester Nakama filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for a parcel in Waiehu, TMK No. (2) 3-2-018:040 (“Parcel 40”). Nakama WT 2/3/16, ¶ 156. Aloha Poi leases this land to grow kalo in the traditional manner in ancient lo‘i. *Id.* ¶ 158.

B-504. Nakama requests recognition of appurtenant rights for Parcel 40 in the amount of 319,800 gpd, and a permit for 319,800 gpd, of which 62,000 gpd is the existing use as of April 30, 2008. *Id.* ¶ 159.

Appurtenant Rights Claims

B-505. Nakama estimates ancient lo‘i walls exist on approximately half of Parcel 40. *Id.* ¶ 168.

B-506. Parcel 40 is mainly comprised of three LCAs: (1) all but a sliver of LCA 11256, confirmed by RP 7248; (2) a portion of LCA 2475:4, confirmed by RP 6528; and (3) a portion of the konohiki award to Lunalilo, LCA 8559:20.2, including a pō‘alima. *Id.* ¶ 160. The records supporting LCA 11256 describe this kuleana as “aina kalo” and the records supporting LCA 2475:4 note the presence of “13 lo‘i,” all without reference to any other use. *Id.* ¶¶ 164-66; Ex. 2330-LEE-1, -2. The map for LCA 2475:4 also depicts the adjacent pō‘alima that also falls

within Parcel 40. Nakama WT 2/3/16, ¶ 166; Ex. 2330-LEE-3 (map). The Commission provisionally approved appurtenant rights for LCAs 11256. Provisional Order, Ex. 7 at 16.

B-507. The exclusive references to kalo in LCAs 11256 and 2475:4, the presence of a pō‘alima within Parcel 40, and the presence of ancient lo‘i support a finding that the remaining portion of Parcel 40 falling under the Lunalilo grant was also lo‘i land.

B-508. Parcel 40 is 2.132 acres. Nakama WT 2/3/16, ¶ 167.

Permit Request

B-509. Traditionally, this property has received water from two sources: (1) a kuleana ‘auwai fed by North Waiehu Stream water that flows in a pipe under a plantation road to serve several kuleana users downstream; and (2) a kuleana ‘auwai along Malaihi Road that receives water from the Waihe‘e Ditch, after the Waihe‘e Ditch receives water from the Waihe‘e River and North Waiehu Stream. When Nakama filed this SWUPA, however, the North Waiehu kuleana ‘auwai was in disrepair, and therefore Parcel 40 only received water from the kuleana ‘auwai along Malaihi Road. *Id.* ¶ 170.

B-510. Using the “bucket method,” Nakama estimates that as of April 30, 2008, he used 62,000 gpd to irrigate 1.066 acres of lo‘i kalo on Parcel 40. Nakama WT 2/3/16, ¶ 171. Although Nakama tries to make do with this amount, it is not enough to produce a healthy crop of wetland kalo. The lack of water causes problems like small corms, taro rot, and uncontrollable weeds. *Id.* ¶ 172.

B-511. Based on Nakama’s over 50 years of experience cultivating lo‘i in Waihe‘e and Waiehu, he believes 300,000 gad is needed to keep temperatures cool enough to minimize crop diseases and produce healthy wetland kalo. *Id.* ¶¶ 2, 173. Accordingly, he requests 319,800 gpd (1.066 acres x 300,000 gad). *Id.* ¶ 174.

J. WAIEHU: South Waiehu Stream

SWUPA 2369N – Jeff & Ramona Lei Smith

B-512. Jeff and Ramona Lei Waiwaiole Smith filed a SWUPA for new use on April 23, 2009, for a parcel in Waiehu, TMK No. (2) 3-2-017:033. They purchased the land in 2001 and have lived there since August 2007. Smith WT 12/14/15, ¶ 1.

B-513. The Smiths request recognition of appurtenant rights in the amount of 558,000 gpd, and a permit for future use of 153,050 gpd. *Id.* ¶ 5.

Traditional and Customary Rights

B-514. The Smiths are tenants of the ahupua‘a of Waiehu who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 3.

B-515. The Smiths intend to restore lo‘i and grow kalo in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 3, 16; SWUPA 2369N Attachments at 2-3.

Appurtenant Rights Claims

B-516. The deed to the Smiths’ land contains a reservation of appurtenant rights. Smith WT 12/14/15, ¶ 2.

Permit Request

B-517. The Smiths seek to use water directly from the stream for 0.5 acre of lo‘i kalo, a small aquaculture pond, and to supplement rain catchment water for domestic purposes including watering their yard and non-commercial garden. *Id.* ¶ 15. The Smiths estimate they will need 150,000 gpd for the lo‘i and small aquaculture pond (0.5 acre x 300,000). Applying the water duty for diversified agriculture used in the Waiāhole case, the Smiths request an additional 3,050 gpd for their domestic uses (1.22 acre x 2,500 gad). *Id.* ¶ 16.

SWUPA 2266 & 2267N – Isabelle Rivera

B-518. Isabelle Rivera filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Waiehu, TMK No. (2) 3-2-017:012 (“Parcel 12”), where she has lived since 1991 after acquiring it from her mother, Christabell Kanoa. Rivera WT 12/17/16, ¶ 1.

B-519. Rivera requests recognition of appurtenant rights in the amount of 765,000 gpd, and a permit for current and future uses of 726,600 gpd, of which 600 gpd is the existing use as of April 30, 2008. *Id.* ¶ 4.

Traditional and Customary Rights

B-520. Rivera is a tenant of the ahupua‘a of Waiehu who is a descendant of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 2.

B-521. Rivera intends to restore lo‘i to grow kalo in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 2, 15; SWUPA 2267 Attachment A at 1-3.

Appurtenant Rights Claims

B-522. Parcel 12 is the entirety of LCA 3443:1 & 2, confirmed by RP 6283. Rivera WT 12/17/16, ¶ 5; Exs. 2266-RIVERA-1, -2. The documents supporting LCA 3443 confirm ‘āpana 1 and 2 contained 17 lo‘i kalo, including two pō‘alima, without referencing any other land use. Rivera WT 12/17/16, ¶ 5; Exs. 2266-RIVERA-1. The Commission provisionally approved appurtenant rights for LCA 3443:1. Provisional Order, Ex. 7 at 17.

B-523. Parcel 12 is 2.55 acres. Rivera estimates the water right appurtenant to Parcel 12 is 765,000 gpd (2.55 acres x 300,000 gad). Rivera WT 12/17/16, ¶¶ 9-11.

Permit Request

B-524. Rivera’s ‘ohana filed a Declaration of Water Use with the Commission on May 22, 1989. *Id.* ¶ 16. Rivera diverts water from a kuleana ‘auwai that runs along the Waihe‘e

side of the South Waiehu Stream for all her water needs, including domestic uses such as washing dishes and bathing, as well as to water her non-commercial banana patch. *Id.* ¶ 12. She estimates she was using 600 gpd (the 2002 State of Hawai‘i Water System Standard for Maui County single family homes) on April 30, 2008, and this amount is sufficient for these domestic uses. *Id.* ¶¶ 13-14.

B-525. Rivera intends to restore ancient lo‘i on 2.42 acres of Parcel 12, for which she requests an additional 726,000 gpd (2.42 acres x 300,000 gad). *Id.* ¶ 15.

SWUPA 2219 & 2220N – Regino Cabacungan & Kathy Alves

B-526. Regino Cabacungan filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Waiehu, TMK No. (2) 3-2-017:023 (“Parcel 23”), which is a combination of two parcels formerly identified as TMK Nos. (2) 3-2-017:023 (“old Parcel 23”) and (2) 3-2-017:027 (“Parcel 27”). Cabacungan/Alves WT 1/6/16, ¶2; Ex. 2219-CABACUNGAN-2.

B-527. Cabacungan requests the permits be issued in both his name and his daughter Kathy Alves’ name. Cabacungan/Alves WT 1/6/16, ¶ 1.

B-528. The Cabacungan ‘ohana request recognition of appurtenant rights for Parcel 23 in the amount of 102,000 gpd, and a permit for 66,600 gpd, of which 600 gpd is the existing use on April 30, 2008. *Id.* ¶ 6.

Traditional and Customary Rights

B-529. The Cabacungan ‘ohana are tenants of the ahupua‘a of Waiehu who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1, 4.

B-530. The Cabacungan ‘ohana intend to restore ancient lo‘i and grow kalo in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 4, 19; SWUPA 2220N Attachment A at 1-3.

Appurtenant Rights Claims

B-531. The deed to Parcel 23 contains a reservation of appurtenant rights for old Parcel 23, and not Parcel 27. Cabacungan/Alves WT 1/6/16, ¶ 3.

B-532. The presence of lo‘i on Parcel 27, the parcel’s close proximity to the ‘auwai, and the discovery of a pōhaku ku‘i ‘ai on the land evidence Parcel 27 was cultivated in lo‘i kalo at the time of the Māhele. *Id.* ¶ 12; Ex. 2219-CABACUNGAN-3.

B-533. Old Parcel 23 and Parcel 27 were both part of the konohiki award to Lunalilo, LCA 8559B:20. Cabacungan/Alves WT 1/6/16, ¶ 7; Ex. 2219-CABACUNGAN-1. The documents supporting a kuleana adjacent to the Parcel 27 portion of the Lunalilo grant—LCA 2625:5—indicates Parcel 27 was a pō‘alima. Cabacungan/Alves WT 1/6/16, ¶ 12; Ex. 2219-CABACUNGAN-4.

B-534. Parcel 27 is 0.21 acre. Cabacungan/Alves WT 1/6/16, ¶ 11.

Permit Request

B-535. The Cabacungan ‘ohana use a modest amount of water from a kuleana ‘auwai that runs along the Waihe‘e side of the South Waiehu Stream to irrigate various garden crops including banana, papaya, tī, and flowering trees such as plumeria and puakenikeni. A small Honda pump takes water from the ‘auwai into a hose to these garden crops. *Id.* ¶ 16. Applying the 2002 State of Hawai‘i Water System Standard for Maui County single family homes, the Cabacungan ‘ohana estimate they were using 600 gpd on April 30, 2008, and request this amount for their domestic uses. *Id.* ¶¶ 17-18.

B-536. The Cabacungan ‘ohana intend to restore ancient lo‘i on 0.22 acre, for which they request an additional 66,000 gpd (0.22 acre x 300,000 gad). *Id.* ¶ 19.

SWUPA 2307 & 2308N – Francisco Cerizo

B-537. Francisco Cerizo filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for a parcel in Waiehu, TMK No. (2) 3-3-002:012 (“Parcel 12”). His family purchased it on August 3, 1951, and it was given to the family Modesta F. Cerizo Trust on February 3, 1993, of which he is trustee. Cerizo WT 12/15/15, ¶ 1.

B-538. Cerizo requests recognition of appurtenant rights in the amount of 360,000 gpd, and a permit for 139,850 gpd, of which 20,850 is the existing use as of April 30, 2008. *Id.* ¶ 3.

Appurtenant Rights Claims

B-539. Parcel 12 is comprised of a portion of the konohiki award to Lunalilo, LCA 8559:20.1, and abuts the ‘Īao or south side of the South Waiehu Stream. *Id.* ¶¶ 4, 15; Exs. 2307-CERIZO-2, -3, -4 (maps). Parcel 12’s proximity to the stream, the existence of eight terraced lo‘i fed by the traditional ‘auwai system, and discovery of artifacts on the land, including at least six pōhaku ku‘i ‘ai, evidence this was lo‘i land at the time of the Māhele.⁹ Cerizo WT 12/15/15, ¶¶ 10-11; Ex. 3207-CERIZO-4.

B-540. Records supporting two neighboring LCAs—LCA 4149:1, confirmed by RP 5279 and LCA 3275H, confirmed by RP 3228—provide further support that Parcel 12 was likely cultivated in lo‘i kalo. Cerizo WT 12/15/15, ¶ 9; Exs. 2307-CERIZO-1, -4.

⁹ The Commission “denied without prejudice” provisional recognition of appurtenant rights, *see* Provisional Order, Ex. 7 at 17, but granted Cerizo an extension to submit supplemental appurtenant rights documentation. *See* Tr. 7/13/16 at 90:8-17, 96:14-24.

B-541. Parcel 12 is 1.2 acres. Cerizo WT 12/15/15, ¶ 12. Cerizo estimates the water right appurtenant to Parcel 12 is 360,000 gpd (1.2 acres x 300,000 gad). Cerizo WT 12/15/15, ¶ 14.

Permit Request

B-542. Cerizo uses water from the a kuleana ‘auwai that runs along the ‘Īao or south side of the South Waiehu Stream for all his domestic water uses, as well as lo‘i kalo and other crops such as banana, lemon, avocado, and jabong. *Id.* Cerizo is the only user on this part of the kuleana ‘auwai and he maintains the ditch and intake himself. *Id.* ¶ 15. After flowing through his lo‘i, the water returns directly to South Waiehu Stream via a flume. *Id.*

B-543. Using the upper end of the Reppun water duty range for lo‘i kalo and the water duty for diversified agriculture applied in the Waiāhole case, Cerizo estimates he was using 20,850 gpd as of April 30, 2008 (18,000 gpd (0.06 acre of lo‘i x 300,000 gad) + 2,850 gpd (1.14 acres of domestic uses/diversified agriculture x 2,500 gad)). *Id.* ¶¶ 3, 16.

B-544. Cerizo intends to restore a 0.4-acre portion of the non-commercial garden back to lo‘i kalo. This would reduce the water use for the garden by 1,000 gpd (0.4 acre x 2,500 gad), and increase the amount needed for lo‘i by 120,000 gpd (0.4 acre x 300,000 gad) for a net new use of 119,000 gpd. Cerizo estimates his existing use is 20,850 and his new use is 119,000 gpd, for a total water request of 139,850 gpd. *Id.* ¶ 17. He requests water for lo‘i totaling 0.46 acre lo‘i (0.06 + 0.4).

K. WAIEHU: South Waiehu ‘Auwai

SWUPA 2171 – Renee Molina

B-545. Renee Molina filed a SWUPA for existing use on April 29, 2009, for a parcel in Waiehu, TMK No. (2) 3-3-002:009 (“Parcel 9”). Molina WT 11/15/15, ¶ 1. For over thirty years, Molina’s ‘ohana has owned this land in a hui with the Smith, Alexander, and Miyahira

‘ohana. *Id.* Molina’s request is limited to water use for her ‘ohana’s lo‘i and non-commercial garden on the 1.3 acre portion of Parcel 9 (3.38 acres) referred to as “Lot B,” which they utilize along with the Smith and Alexander ‘ohana. *Id.*; Ex. 2171-MOLINA-3. The Miyahiras filed their own application, SWUPA 2258, for the remaining 2.08 acres.

B-546. Molina requests recognition of appurtenant rights in the amount of 390,000 gpd, and a permit for 38,250 gpd, of which 20,000 gpd is the existing use as of April 30, 2008. Molina WT 11/15/15, ¶ 3.

Traditional and Customary Rights

B-547. The Molina ‘ohana are tenants of the ahupua‘a of Waiehu who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Molina WT 11/15/15, ¶ 2.

B-548. The Molina ‘ohana cultivate lo‘i kalo in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 2, 13, 23; Tr. 7/11/16 (Molina) at 175:4-19.

Appurtenant Rights Claims

B-549. The existence of ancient lo‘i walls throughout Parcel 9 evidence this was lo‘i land. Molina WT 11/15/15, ¶ 10.

B-550. Parcel 9 is the entirety of LCA 2572:1, confirmed by RP 8051. Molina WT 11/15/15, ¶ 4. The native register supporting LCA 2572 describes ‘āpana 1 as consisting of 33 lo‘i. Molina WT 11/15/15, ¶ 8; Ex. 2171-MOLINA-1. The Commission provisionally approved appurtenant rights for LCA 2572:1. Provisional Order, Ex. 7 at 18.

B-551. Lot B is 1.3 acres in size. Molina estimates the water right appurtenant to the Lot B portion of Parcel 9 is 390,000 gpd (1.3 acres x 300,000 gad). Molina WT 11/15/15, ¶¶ 11-12.

Permit Request

B-552. Using the “bucket method,” Molina estimates her ‘ohana used 20,000 gpd from the “South Waiehu” ‘auwai as of April 30, 2009 to irrigate 0.125 acre of lo‘i and 0.25 acre of a non-commercial garden. *Id.* ¶ 13. This amount, however, is insufficient to produce healthy wetland kalo. *Id.* ¶ 14. Although the Molinas try to make do with this amount, the lack of sufficient water causes problems like small corms, taro rot, and uncontrollable weeds. *Id.*

B-553. Applying the upper end of the Reppun water duty range for lo‘i kalo, which Molina believes would keep temperatures cool and minimize crop diseases, she requests 37,500 gpd (0.125 acre x 300,000 gad). *Id.* ¶¶ 15-16.

B-554. Molina requests an additional amount for their 0.25-acre garden and yard, consisting of sweet potato, banana, papaya, lettuce, cucumber, tomato, watermelon, mango, avocado, achiote, tī leaf, and lei flowers. *Id.* ¶ 17. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, Molina believes 750 gpd is sufficient for this purpose (0.25 acre x 3,000 gad). *Id.* ¶ 18.

SWUPA 2258 – Jason Miyahira

B-555. Lawrence and his son Jason Miyahira filed a SWUPA for existing use on April 23, 2009, for three parcels in Waiehu, TMK No. (2) 3-3-002:009 (“Parcel 9”), (2) 3-3-002:021 (“Parcel 21”), and (2) 3-3-002:010 (“Parcel 10”). Miyahira WT 12/6/15, ¶ 1.

B-556. The Miyahira ‘ohana have lived on Parcel 9 for about 90 years, and for the past 30 years, they have owned Parcel 9 in a hui with the Smith, Alexander, and Molina ‘ohana. *Id.* This SWUPA is limited to the 2.08-acre portion of Parcel 9, referred to as “Lot A,” on which the Miyahiras live and grow lo‘i kalo and a non-commercial garden since 1977. *Id.* In 1999, they purchased the smaller Parcels 21 and 10. *Id.*

B-557. The Miyahira ‘ohana request recognition of appurtenant rights for Lot A in the amount of 624,000 gpd, and a permit for Lot A and Parcels 21 and 10 in the amount of 154,020 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 4.

Appurtenant Rights Claims

B-558. The deed to Parcels 21 and 10 contains a reservation of appurtenant rights. Miyahira WT 12/6/15, ¶ 2.

B-559. As discussed in the findings concerning Molina’s SWUPA 2171, Parcel 9, including the 2.08-acre Lot A, is the entirety of LCA 2572:1, which was cultivated exclusively in lo‘i kalo at the time of the Māhele. *Id.* ¶ 9; Exs. 2258-MIYAHIRA-1, -3. The Commission provisionally approved appurtenant rights for LCA 2572:1. Provisional Order, Ex. 7 at 18.

B-560. The Miyahiras estimate the water right appurtenant to Lot A is 624,000 gpd (2.08 acres x 300,000 gad). Miyahira WT 12/6/15, ¶¶ 11-14.

Permit Request

B-561. The Miyahira ‘ohana use water from the “South Waiehu” ‘auwai that runs along the ‘Īao side of South Waiehu Stream to water their lo‘i kalo on 0.5 acre and non-commercial garden and yard on 1.34 acres (1.2 acres on Lot A + all 0.06 acre of Parcel 21 + all 0.08 acre of Parcel 10). *Id.* ¶¶ 15-16; SWUPA 2258 Ex. 2B (map). After these uses, the water flows back into the ‘auwai and into neighboring lands before returning to South Waiehu Stream, above the confluence of North and South Waiehu. *Id.* ¶ 15.

B-562. The Miyahiras estimate their existing use for lo‘i is 150,000 gpd (0.5 acre x 300,000 gad). *Id.* ¶¶ 4, 16. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, they estimate their existing use for their garden and yard is 4,020 gpd (1.34 acre x 3,000 gad). *Id.* ¶¶ 4, 16.

L. WAIEHU: Waiehu Stream

SWUPA 2363 – Natalie Hashimoto & Carl Hashimoto

B-563. Natalie Hashimoto and her aunt Yoshie Suehiro filed a SWUPA for new use on April 23, 2009, for a parcel in Waiehu, TMK No. (2) 3-2-016:021 (“Parcel 21”). Hashimoto WT 12/15/15, ¶ 1. Suehiro no longer lives on the parcel. Hashimoto and her brother Carl are the current owners, and they ask that the permit be issued in both their names. *Id.*

B-564. The Hashimotos request recognition of appurtenant rights in the amount of 60,000 gpd, and a permit for future use of 600 gpd. *Id.* ¶ 3.

Appurtenant Rights Claims

B-565. Parcel 21 is a part of LCA 3434, confirmed by RP 6166. *Id.* ¶ 4; Ex. 2363-HASHIMOTO-1, -2. The records supporting LCA 3434 describe this kuleana as kalo and kula land that encompasses three pō‘alima. Hashimoto WT 12/15/15, ¶ 7; Ex. 2363-HASHIMOTO-1. Hashimoto estimates that because the records indicate a “kalo” section along with three pō‘alima, and the survey boundary show the kula section to be located on the other side of the LCA, the lo‘i and pō‘alima were likely located on a majority of the LCA, including her Parcel 21. Hashimoto WT 12/15/15, ¶ 7. Thus, she estimates her entire parcel of 0.2 acres was cultivated in lo‘i. *Id.* ¶ 8.

B-566. The presence of three pō‘alima, Hashimoto’s estimation that most of LCA 3434 was in lo‘i, as well as the fact that LCA 3434 abuts the stream, and that the old ‘auwai runs through the kuleana (on Hashimoto’s Parcel 21) all support a finding that most of LCA 3434 was cultivated in lo‘i, and therefore a 90-10% split of kalo to kula should be applied. Hashimoto WT 12/15/15, ¶ 7; Ex. 2363-HASHIMOTO-1, -2; Tr. 7/18/16 (Hashimoto) at 17:11 to 18:7, 19:4-10. The Commission provisionally approved appurtenant rights for LCA 3434. Provisional Order, Ex. 7 at 18.

B-567. Parcel 21 is 0.2 acre. Ninety percent of Parcel 21 is 0.18 acre.

Permit Request

B-568. For years, as riparian landowners, the Hashimoto ‘ohana pumped water from Waiehu Stream to their land for domestic and agricultural purposes. Hashimoto WT 12/15/15, ¶ 12. Their pump broke in April 2008, which is why they filed a SWUPA for new use. *Id.* The Hashimotos intend to fix the pump and draw water again for their domestic, agricultural, and other needs. *Id.* They will use the water to irrigate their non-commercial garden of banana, tī leaf, star fruit, citrus, guava, avocado, liliko‘i, and tropical flowers. *Id.* They believe the 2002 State of Hawai‘i Water System Standard for Maui County of 600 gpd per single-family home is sufficient for these domestic water uses. *Id.*

M. WAILUKU: ‘Īao-Maniania Ditch – Pu‘uohala Kuleana Pipe

B-569. The ‘ohana in Pu‘uohala traditionally accessed kuleana water from an open ditch ‘auwai, until Wailuku Agribusiness sold surrounding land to Wailuku Country Estates. Brito WT 8/26/16, ¶ 14. Now these ‘ohana receive kuleana water from Wailuku Country Estates’ irrigation system, which receives water from the Waihe‘e Ditch. *Id.* The water in the Waihe‘e Ditch at that point is a mixture of water from the Waihe‘e River, North Waiehu Stream, and the Wailuku River. *Id.* Wailuku Country Estates Irrigation Company meters the kuleana water it provides to the Brito, Haleakalā, and Mendoza ‘ohana. *Id.*

SWUPA 2215 & 2216N – Gary & Evelyn Brito

B-570. Gary and Evelyn Brito filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Wailuku, TMK No. (2) 3-3-002:029 (“Parcel 29”). Brito WT 8/26/16, ¶ 1.

B-571. The Brito ‘ohana request recognition of appurtenant rights in the amount of 74,400 gpd, and a permit for 15,196 gpd, of which 8,490 gpd is the existing use as of April 30, 2008. *Id.* ¶¶ 3, 23.

Traditional and Customary Rights

B-572. The Brito ‘ohana are tenants of the ahupua‘a of Wailuku who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1-2.

B-573. The Brito ‘ohana use kuleana water for domestic purposes and cultivate lo‘i kalo in the traditional manner, for subsistence and cultural purposes. *Id.* ¶¶ 15, 17; SWUPA 2215 Addendum.

Appurtenant Rights Claims

B-574. Parcel 29 is comprised of LCA 3387, confirmed by RP 6065, as well as a portion of a pō‘alima. Brito WT 8/26/16, ¶¶ 4, 9; Ex. 2215-BRITO-3. The native register supporting LCA 3387 mentions only lo‘i kalo cultivation. Brito WT 8/26/16, ¶ 8; Ex. 2215-BRITO-2. The Commission approved appurtenant rights for LCA 3387. Provisional Order, Ex. 7 at 34.

B-575. Parcel 29 is 0.248 acre. Brito WT 8/26/16, ¶ 10. The Britos estimate the water right appurtenant to Parcel 29 is 74,400 gpd (0.248 acre x 300,000 gad). *Id.* ¶¶ 12-13.

Permit Request

B-576. The Britos use water from the Pu‘uohala ‘auwai for domestic purposes, to water lo‘i kalo, a non-commercial garden, and yard. *Id.* ¶ 14.

B-577. According to metering by Wailuku Country Estates Irrigation Company, the Brito ‘ohana use an average of 7,890 gpd to irrigate 0.022 acre of lo‘i. *Id.* ¶ 15. Due to the slope and shape of their lo‘i and the way they are “terraced down,” along with their experience

growing kalo here for many years, they believe their kalo require slightly more water than the standard water duty, to keep temperatures cool and minimize crop diseases. *Id.*; Tr. 9/19/16 (Brito) at 28:21 to 29:5. The Britos need that amount of water especially to avoid warmer temperatures in the bottom lo‘i. Tr. 9/19/16 (Brito) at 37:4-20, 39:4-25. Using less water would lead to small corms, taro rot, and uncontrollable weeds. Brito WT 8/26/16, ¶ 15.

B-578. If they had enough water, the Britos would expand current lo‘i cultivation to 0.037 acre, which they estimate would require 14,596 gpd (0.037 acre x 394,500 gad¹⁰). *Id.* ¶ 16.

B-579. The Britos also request water to irrigate their yard and non-commercial garden on 0.197 acre, consisting of vegetables, herbs, sweet potato, and dryland kalo. *Id.* ¶ 17. Applying the 2002 State of Hawai‘i Water System Standard for Maui County single family homes, they believe 600 gpd would be sufficient for these domestic uses. *Id.*

SWUPA 2256 & 2257N – Kenneth Mendoza

B-580. Kenneth Mendoza filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Wailuku, TMK No. (2) 3-3-002:025 (“Parcel 25”). Mendoza WT 2/3/16, ¶ 1. Gerald Mendoza has lived on this land since birth and testified in support of the applications. *Id.*

B-581. The Mendoza ‘ohana request recognition of appurtenant rights in the amount of 33,000 gpd, and a permit for 1,784 gpd, of which 600 gpd is the existing use as of April 30, 2008. *Id.* ¶ 3.

Appurtenant Rights Claims

B-582. Parcel 25 is comprised of portions of two LCAs—LCA 2533:1, confirmed by RP 6529, and LCA 3387, confirmed by RP 6065—and a portion of a pō‘alima awarded under

¹⁰ The Britos apparently rounded the acreage of 0.22 to 0.2 to achieve the 394,500 gad.

LCA 3324 to Claus Spreckels. *Id.* ¶¶ 4, 11; Exs. 2256-MENDOZA-3 to -5. Records supporting LCAs 2533:1 and 3387 describe these lands as kalo land and note nine lo‘i, without referencing any other use. Mendoza WT 2/3/16, ¶¶ 12-13; Exs. 2256-MENDOZA-1, -2. Their adjacency to the pō‘alima of LCA 3324 further substantiates these kuleana were lo‘i lands. Mendoza WT 2/3/16, ¶ 15; Ex. 2256-MENDOZA-5. The Commission provisionally approved appurtenant rights for LCA 3387. Provisional Order, Ex. 7 at 34.

B-583. Parcel 25 is 0.11 acre. Mendoza WT 2/3/16, ¶ 15. The Mendozas estimate the water right appurtenant to Parcel 25 is 33,000 gpd (0.11 acre x 300,000 gad). *Id.* ¶¶ 16-18.

Permit Request

B-584. The Mendoza ‘ohana currently use water from the Pu‘uohala ‘auwai to irrigate their non-commercial garden of banana, tī leaf, and heliconia and their lawn. *Id.* ¶ 19. They believe the 2002 State of Hawai‘i Water System Standard for Maui County of 600 gpd per single-family home is sufficient for these domestic uses. *Id.* ¶ 20.

B-585. Gerald Mendoza intends to cultivate lo‘i kalo on 0.003 acre. Applying the water duty employed by his neighbors, the Britos, who have experience cultivating lo‘i in this area under similar conditions, Mendoza estimates his lo‘i would require an additional 1,184 gpd (0.003 acre x 394,500 gad). *Id.* ¶¶ 21-22; *see* Brito WT 8/26/16, ¶¶ 15-16.

N. WAILUKU: Wailuku River

SWUPA 2243 & 2244N - Ho‘oululāhui, LLC

B-586. Ho‘oululāhui, LLC (John and Rose Marie Duey) filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Wailuku, TMK No. (2) 3-5-003:018 (“Parcel 18”). Duey WT 2/3/16, ¶ 1. The Dueys filed these applications to continue to restore and maintain the ancient lo‘i on this land in kalo cultivation, as Rose Marie’s ancestors did at the time of the Māhele. *Id.*

B-587. The Dueys request recognition of appurtenant rights in the amount of at least 1,451,700 gpd, and a permit for 836,600 gpd, of which 26,600 gpd is the existing use as of April 30, 2008. *Id.* ¶¶ 7, 31.

Traditional and Customary Rights

B-588. The Duey ‘ohana are tenants of the ahupua‘a of Wailuku who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 3.

B-589. The Duey ‘ohana grow lo‘i kalo and other native plants in the traditional manner for subsistence and cultural purposes. *Id.* ¶ 20; SWUPA 2243 Attachment.

Appurtenant Rights Claims

B-590. The deed to Parcel 18 contains a reservation of appurtenant rights. *Id.* ¶ 2.

Permit Request

B-591. The Dueys currently use kuleana water for two agricultural purposes: (1) to irrigate (using traditional methods) two of the fifteen ancient lo‘i kalo they have restored; and (2) to irrigate their domestic, non-commercial plants including crops such as ‘awa, mango, heliconia, tī, and ‘ulu. *Id.* ¶ 20. Based on John’s 35-year experience owning and operating an irrigation business and use of a 1.5-inch valve to control irrigation flow, the Dueys estimate they used approximately 21,600 gpd for two lo‘i on approximately 0.08 acre, and 5,000 gpd for domestic gardening on 3 acres, for a total existing use on April 30, 2008 of 26,600 gpd. *Id.* ¶ 21.

B-592. The Dueys intend to restore the remaining lo‘i on their land, approximately 3 acres, but the amount of ‘auwai water available is enough for only two lo‘i. *Id.* ¶ 22. Based on their site-specific experience with the two lo‘i, they estimate 270,000 gad would be sufficient to restore the additional lo‘i and request an additional 810,000 gpd. *Id.* ¶¶ 23-24, 31.

SWUPA 2370N – Francis Ornellas

B-593. Francis Allan Ornellas filed a SWUPA for new use on April 30, 2009, for four parcels in Wailuku, TMK Nos. (2) 3-5-001:002 (“Parcel 2”), (2) 3-5-001:003 (“Parcel 3”) , (2) 3-5-001:004 (“Parcel 4”), and (2) 3-5-001:005 (“Parcel 5”). Ornellas WT 2/3/16, ¶ 1.

B-594. Ornellas requests recognition of appurtenant rights in the amount of 227,280 gpd, and a permit for 426,567 gpd. *Id.* ¶ 6.

Traditional and Customary Rights

B-595. The Ornellas ‘ohana are tenants of the ahupua‘a of Wailuku who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 2.

B-596. Ornellas intends to restore lo‘i on 1.42 acres of his kuleana lands to raise kalo in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 15-16; SWUPA 2370N Attachment A; Tr. 7/18/16 (Ornellas) at 41:21-24.

Appurtenant Rights Claims

B-597. The deed to Parcels 3, 4, and 5—which are three pō‘alima—as well as a one-third interest in Parcel 2 contains a reservation of appurtenant rights. Ornellas WT 2/3/16, ¶ 5. Parcels 3, 4, and 5 are located within Parcel 2. Ex. 2370-ORNELLAS-1; Tr. 7/18/16 (Ornellas) at 43:23 to 44:3.

B-598. Parcel 2 is the entirety of LCA 2414, confirmed by RP 6863. Ornellas WT 2/3/16, ¶ 7; Ex. 2370-ORNELLAS-1, -2. The native register supporting LCA 2414 confirms the presence of 23 lo‘i kalo, a wauke field, and a house lot. Ornellas WT 2/3/16, ¶ 8; Ex. 2370-ORNELLAS-3. The Commission provisionally approved appurtenant rights for LCA 2414. Provisional Order, Ex. 7 at 19.

B-599. Based on the Ornellas ‘ohana’s knowledge of the land, a majority of Parcel 2/LCA 2414 was used for lo‘i kalo at the time of the Māhele. Ornellas WT 2/3/16, ¶ 9. Ornellas provided photographs depicting the ancient ‘auwai and lo‘i features still visible on his lands. *Id.* ¶¶ 9-10; Ex. 2370-ORNELLAS-4; SWUPA 2370N at Attachment C. The map in LCA 2414 also shows that the river used to flow right through this kuleana. Ex. 2370-ORNELLAS-3. These facts, in addition to the presence of pō‘alima within the kuleana and information passed down from ‘ohana elders, confirm Parcel 2 was cultivated mainly in lo‘i kalo. Ornellas WT 2/3/16, ¶ 9.

B-600. Accordingly, applying the upper end of the Reppun water duty range for lo‘i kalo and the 2002 State of Hawai‘i Water System Standard for Maui County domestic use, Ornellas estimates the water right appurtenant to Parcel 2 is 155,280 gpd, broken down as follows:

- 750 gpd for pāhale (0.25 acre x 3,000 gad)
- 153,000 gpd for lo‘i kalo (0.51 acre x 300,000gad)
- 1,530 gpd for wauke (0.51 acre x 3,000 gad).

Id. ¶¶ 11-14.

B-601. Considering the appurtenant rights reservation on the one-third interest of Parcel 2, the appurtenant water right should be reduced by one-third to 103,572 gpd.

Permit Request

B-602. The Ornellas ‘ohana puts 0.089 acre of Parcel 2 to domestic use purposes, including their home and non-commercial gardening. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, they estimate they use 267 gpd for domestic purposes (0.089 acre x 3,000 gad). Ornellas WT 2/3/16, ¶¶ 15-16.

B-603. Ornellas also intends to restore the remaining lands to lo‘i kalo, for which he estimates he will need 426,300 gpd (1.421 acres (1.181 acres of Parcel 2, 0.18 acre of Parcel 3, 0.03 acre of Parcel 4, and 0.03 acre of Parcel 5) x 300,000 gad). *Id.* ¶ 16.

SWUPA 2371N – Kimberly Lozano

B-604. Kimberly Pauahi Lozano filed a SWUPA for new use on April 30, 2009,¹¹ for two parcels in ‘Īao, TMK Nos. (2) 3-4-036:001 (“Parcel 1”) and (2) 3-4-036:010 (“Parcel 10”), which she received from her parents in 2000. Lozano WT 12/14/15, ¶ 1.

B-605. Lozano requests recognition of appurtenant rights for Parcels 1 and 10 in the amount of 402,000 gpd, and a permit for 57,218 gpd. *Id.* ¶¶ 5, 24.

Traditional and Customary Rights

B-606. Lozano is a tenant of the ahupua‘a of Wailuku who descends from Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶3; SWUPA 2371 Attachment A; Lozano WT 1/7/14, ¶¶ 1-2 (MA06-01 Remand).

B-607. Lozano intends to grow lo‘i kalo in the traditional manner for subsistence and cultural purposes, and traditional medicinal herbs, to practice the cultural practice of lā‘au lapa‘au. Lozano WT 12/14/15, ¶¶ 15, 17, 20; Lozano WT 1/7/14, ¶¶ 7-9 (MA06-01 Remand).

Appurtenant Rights Claims

B-608. The deed to Parcels 1 and 10 contains a reservation of appurtenant rights. Lozano WT 12/14/15, ¶ 2.

Permit Request

¹¹ Lozano testified her use was existing at the time she filed the SWUPA for new use. When the Hearings Officer queried why she applied for a new use instead of an existing use, she responded, “I don’t know. I wasn’t sure what the process was.” Tr. 7/18/16 (Lozano) at 135:23 to 136:4.

B-609. Lozano wishes to use water from the ‘auwai that runs adjacent to Parcel 1. Lozano WT 12/14/15, ¶ 15. The source of this water is a spring. The water flows out of the spring through an open ditch toward Wailuku River. *Id.* The water enters and crosses Parcel 10 and then flows into a culvert connected to underground tunnels under neighboring land before returning to Wailuku River. *Id.* Lozano plans to transport water from the ‘auwai to Parcel 1 with pipes and culverts. *Id.* The outflow from Lozano’s lo‘i will return to the ‘auwai and eventually back into Wailuku River. *Id.*

B-610. Lozano lives on Parcel 1 and requests water for domestic uses—on 0.855 acre of this parcel—to water her yard and non-commercial garden of dryland kalo, banana, coffee, papaya, kale, other tropical flowers, fruits, vegetables, and traditional medicinal herbs used by her Tūtū Naka‘ahiki and Tūtū Thomas, such as pōpolo, ‘uhaloa, and ‘ōlena. *Id.* ¶¶ 16, 20. Applying the water duty the Commission allocated to diversified agriculture in the Waiāhole case, Lozano estimates she will need 2,138 gpd (0.855 acre x 2,500 gad) for these domestic uses. *Id.* ¶ 16.

B-611. Lozano also requests water to restore lo‘i kalo on 0.1836 acre of Parcel 10, which she estimates would require 55,080 gpd (0.1836 acre x 300,000 gad). *Id.* ¶ 17.

SWUPA 3626N – Noelani & Allan Almeida & Gordon Almeida

B-612. Noelani and Allan Almeida and Gordon Almeida filed a SWUPA for new use on July 16, 2012, for two parcels in Paukūkalo, TMK Nos. (2) 3-3-001:022 (“Parcel 22”) and (2) 3-3-001:023 (“Parcel 23”). Almeida WT 8/28/16, ¶ 1. Noelani and Allan own Parcel 23 and their cousin Gordon owns the adjacent Parcel 22. *Id.* The Almeidas manage the parcels together as an ‘ohana. *Id.*

B-613. The Almeida ‘ohana request recognition of appurtenant rights for Parcels 22 and 23 in the amount of 709,500 gpd, and a permit for these two parcels of 3,273 gpd. *Id.* ¶ 3.

Traditional and Customary Rights

B-614. The Almeidas are tenants of the ahupua‘a of Wailuku who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1-2.

B-615. The Almeidas cultivate dryland kalo and other food crops in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 15-16, 24.

Appurtenant Rights Claims

B-616. Both Parcels 22 and 23 fall within LCA 3234C:2, confirmed by RP 4256. *Id.* ¶ 4. The native testimony supporting LCA 3234C describes this kuleana as kalo land with two ponds, without referencing any other use. *Id.* ¶ 8; Ex. 3623-ALMEIDA-1. The Parcel 23 portion of the LCA also contains a pō‘alima, further substantiating these lands were kalo lands. *Id.* ¶ 9; Ex. 3623-ALMEIDA-2 (map). The Commission provisionally approved appurtenant rights for LCA 3234C:2. Provisional Order, Ex. 7 at 19.

B-617. Parcel 22 is 1.92 acres and Parcel 23 is 0.445 acre, for a combined 2.365 acres. Almeida WT 8/28/16, ¶ 10. The Almeidas estimate the water right appurtenant to these parcels is 709,500 gpd (2.365 acres x 300,000 gad). *Id.* ¶ 12.

Permit Request

B-618. At the time they filed their SWUPA, the Almeidas intended to grow lo‘i kalo. They subsequently decided to grow dryland kalo in addition to other crops in their non-commercial garden. They request to amend their SWUPA accordingly. *Id.* ¶ 13.

B-619. The Almeidas' lands contain springs that are fed by the Wailuku River and hence depend on consistent river flows. *Id.* ¶ 14. They request a permit to use water from the spring that formerly supplied the water for their lo'i. *Id.*

B-620. The Almeida 'ohana use spring water on about 1.08 acres of Parcel 22 and 0.011 acre of Parcel 23 (total of 1.091 acres) for subsistence crops, such as dryland kalo, banana, papaya, vegetables, and herbs, and to water their yard. *Id.* ¶¶ 15-16. Applying the 2002 State of Hawai'i Water System Standard for Maui County domestic cultivation, they believe 3,273 gpd (1.091 acres x 3,000 gad) would be sufficient for their yard and garden. *Id.* ¶¶ 17-19.

SWUPA 2275 – Duke & Jean Sevilla, Christina Smith & County of Maui

B-621. Duke and Jean Sevilla and Christina Smith (Duke's sister) filed a SWUPA for existing use on April 23, 2009, for three parcels in Paukūkalo, Wailuku, including TMK Nos. (2) 3-3-001:041 ("Parcel 41"), (2) 3-3-001:054 ("Parcel 54"), and (2) 3-3-001:001 ("Parcel 1"). Sevilla WT 3/18/16, ¶ 1.

B-622. The Sevilla 'ohana has lived on and used Parcels 41 and 54, which is home to Waiola Spring, since Duke and Christina's father bought the land in 1953. *Id.* ¶ 2. Duke and Jean own Parcel 41 and Christina and her husband Lorin own Parcel 54. *Id.* The 'ohana manage these parcels collectively. *Id.* The Sevilla 'ohana request recognition of appurtenant rights for Parcels 41 and 54 in the amount of 414,300 gpd, and a permit for 101,200 gpd, of which 1,200 gpd is the existing use as of April 30 2008. *Id.* ¶¶ 18-21, 27.

B-623. Parcel 1 is a 64-acre parcel owned by the County and stewarded by a non-profit, Ke Ao I Ka Makani Ho'eha'ili, which Duke Sevilla ("Sevilla") helps to manage. *Id.* ¶¶ 1, 28. The County is a co-applicant for Parcel 1. Parsons WT 5/31/16, ¶ 6; Tr. 7/18/16 (Sevilla) at 75:11-16, 103:8-12. Sevilla and the County request recognition of appurtenant rights for Parcel

1 in the amount of 1,771,680 gpd, and a permit for 6,000,000 gpd. Sevilla WT 3/18/16, ¶¶ 39, 58, 60, 64. At the hearing, Sevilla noted: “if you allocate any water for [“Parcel 1”] from Wailuku River, we’re fine with making that subject to the County’s Water Use Permit [(SWUPAs 2178 & 2179N)] from Wailuku River as well.” Tr. 7/18/16 at 76:16-19; *see also id.* at 103:13-24 (“3.2 million gallons for water treatment plant . . . I believe is really important to the community We got to balance ourselves out. We got to take care of the people, so water treatment plant makes sense to take care of the community. . . . That’s a sensible use of our water.”).

Sevilla ‘Ohana Land: Parcels 41 and 54

Traditional and Customary Rights

B-624. The Sevilla ‘ohana are tenants of the ahupua‘a of Wailuku who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. Sevilla WT 3/18/16, ¶¶ 2-3; Sevilla WT 9/11/07, ¶¶ 1, 3, 9 (MA06-01).

B-625. The Sevilla ‘ohana maintain lo‘i kalo in ancient terraces for subsistence and cultural purposes, in the traditional manner, including using the water from the culturally significant Waiola Spring. Sevilla WT 3/18/16, ¶¶ 5, 19; SWUPA 2275 Attachments.

Appurtenant Rights Claims

B-626. Parcels 41 and 54 contain ancient lo‘i kalo terraces that are still visible today. Sevilla WT 3/18/16, ¶ 14; Exs. 2275-SEVILLA-4, -8; Tr. 7/18/16 (Sevilla) at 92:14-20. Terraced lo‘i were built in and around Waiola Spring and its natural drainage course to the ocean. Sevilla WT 3/18/16, ¶ 14. These historic rock walls created several pools that flow into Ka‘ehu Bay. *Id.* Numerous historical and other texts document this spring and the Native Hawaiian cultural uses associated with it. *Id.* Those who lived in the area for years and years,

including kupuna Uncle Charlie Keau told Sevilla this was lo‘i kalo land, and that Waiola Spring was a sacred spring that fed lo‘i kalo and loko i‘a. Tr. 7/18/16 (Sevilla) at 84:14-18, 91:16 to 92:20.

B-627. Parcels 41 and 54 comprise a portion of RP Grant 3343 to Claus Spreckels. Sevilla WT 3/18/16, ¶ 8. The Grant itself does not describe the land use at the time of the Māhele, but Sevilla submitted numerous exhibits to confirm these lands were cultivated in lo‘i kalo at the time of the Māhele. *See* Exs. 2275-SEVILLA-3 to -8.

B-628. Consistent with the physical evidence establishing lo‘i kalo cultivation, neighboring LCAs surrounding Parcels 41 and 54 describe the areas in the vicinity of these parcels as pō‘alima. Sevilla WT 3/18/16, ¶ 10; Ex. 2275-SEVILLA-4.

B-629. An excerpt from Ka Lahui Hawaii (Hawaiian language newspaper) dated 1876 recounts the extensive lo‘i kalo cultivated throughout the area where Parcels 41 and 54 are located, and an Archaeological Inventory Survey prepared for the adjacent Parcel 1 concludes the entire alluvial fan area within which Parcels 41 and 54 are located was used for lo‘i kalo and loko i‘a, supported by stream water. Sevilla WT 3/18/16, ¶¶ 9, 11; Exs. 2275-SEVILLA-3, -5.

B-630. A wetland determination for the adjacent Parcel 1 confirms the presence of hydric soils (soil permanently or seasonally saturated with water), which is the type of soil that supported lo‘i kalo. Sevilla WT 3/17/16, ¶ 12; 2275-SEVILLA-6.

B-631. Parcel 41 is 0.933 acre and Parcel 54 is 0.448 acre, for a total of 1.381 acres. Sevilla estimates the water right appurtenant to Parcels 41 and 54 is 414,300 gpd (1.381 acres x 300,000 gad). Sevilla WT 3/18/16, ¶¶ 16-18.

Permit Request

B-632. The Sevilla ‘ohana have always used water from Waiola Spring to irrigate crops for their basic livelihood. They use ancient terraces to grow kalo, ung choi, watercress, and other crops, and also maintain tī, coconut, papaya, banana, and other fruit and flower trees on their land, which they irrigate with spring water. They have also raised fish in pools fed by the spring. The Sevillas declared these uses with the Commission in 1989. Sevilla WT 3/18/16, ¶ 19. They currently grow kalo in ancient terraces in and around their parcels, and raise other crops, including banana. *Id.*

B-633. Applying the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes, the Sevilla ‘ohana believe 1,200 gpd is sufficient for their existing domestic water uses (2 homes x 600 gpd). *Id.* ¶ 20.

B-634. Now that flow has been returned to Wailuku River, the Sevilla ‘ohana intend to restore one-third of an acre of lo‘i kalo on Parcels 41 and 54, for which they request an additional 100,000 gpd (0.33 acre x 300,000). *Id.* ¶ 21.

County of Maui & Ke Ao I Ka Makani Ho‘eha‘ili: Parcel 1

B-635. Parcel 1 encompasses almost 64 acres of undeveloped land along the coast between Wailuku River and Waiehu Stream. Invaluable cultural resources are located throughout this ‘āina, including dozens of fresh water springs and traditional ‘auwai. *Id.* ¶ 28.

B-636. In May 2012, the County of Maui acquired title to Parcel 1, which was facilitated by the Trust for Public Land (“TPL”), a national non-profit that helps communities raise funds and obtain property for public use. *Id.* ¶ 30. Given the simultaneous demand and limited resources available for land acquisition and preservation, the fact that TPL’s Hawai‘i office elected to work to secure this parcel for the people of Maui highlights Parcel 1’s tremendous ecological and cultural significance. It is a kīpuka in the heart of Wailuku. *Id.* ¶ 33.

B-637. To obtain funds to help purchase Parcel 1, TPL applied to the Legacy Land Conservation Program. TPL’s application summarizes several reports, which document the parcel’s historical, cultural, and environmental significance. The application confirms that there are “springs and wetlands throughout the property . . . [though] much of the wetlands that were once pristine fishponds and lo‘i are overgrown with introduced plants.” In traditional times, this property was a key part of the largest contiguous area of wetland lo‘i kalo (taro terraces) in all of the Hawaiian Islands; it was also culturally significant because it was blessed with spring-fed fishponds and lo‘i. Sevilla WT 3/18/16, ¶ 31; 2275-SEVILLA-10.

B-638. Sevilla is the President of the Board of Directors of Ke Ao I Ka Makani Ho‘eha‘ili (“Ke Ao”), a community-minded non-profit in Waiehu, which secured a right of entry for Parcel 1 on February 4, 2016. Sevilla WT 3/18/16, ¶ 29.

B-639. Ke Ao’s mission is to restore the land and perpetuate traditional Native Hawaiian culture using a community-based, inclusive, family-oriented approach. A critical aspect of this restoration includes raising food, especially kalo and i‘a, for the community, including residents of nearby Hawaiian Homes, being a model of sustainability, and providing a space for children to learn about their environment and cultures. Sevilla WT 3/18/16, ¶ 34; Tr. 7/18/16 (Sevilla) at 95:21 to 96:8. Ke Ao seeks to reestablish the flow of water from Waiehu Stream, Wailuku River, and fresh water springs to grow wetland kalo and raise fish throughout the parcel. Sevilla WT 3/18/16, ¶ 32.

B-640. In Sevilla’s current role on Ke Ao’s board and in previous capacities, he has been involved in and continues to lead all aspects of ecological restoration work on the land and related community engagement. He has spent countless hours on this land, living on the adjacent

Parcels 41 and 54 his entire life. While growing up, Parcel 1 was his playground, and he believes he now has the kuleana to return Parcel 1 to its former glory. *Id.* ¶ 34.

B-641. As a priority, Ke Ao plans to restore lo‘i kalo and loko kalo i‘a – the ancient Hawaiian use of the land as a fishery and lo‘i kalo in a traditional manner, jointly propagating stream and nearshore resources – and removing invasive species to support native habitats, thereby bringing back traditional agricultural and cultural practices to this land. There is a direct and proportional connection between the amount of water in the streams and the amount of water in the springs. Restoring water to the ancient ‘auwai, Waiehu Stream, Wailuku River, and the wetlands, has in turn allowed the fresh water springs to come alive once more and fill with water. *Id.* ¶ 35.

Traditional and Customary Rights

B-642. Ke Ao’s Board includes individuals who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 37.

B-643. Native Hawaiian descendants and tenants of the area are helping Ke Ao restore the lo‘i kalo and loko kalo i‘a on these lands, to grow wetland kalo and raise fish in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 35, 63, 67; Tr. 7/18/16 (Sevilla) at 95:21 to 96:8, 100:17 to 101:5.

Appurtenant Rights Claims

B-644. The deed to Parcel 1 contains a reservation of appurtenant rights. Sevilla WT 3/18/16, ¶ 40.

Permit Request

B-645. Through previous efforts with the Neighborhood Place of Wailuku, Sevilla restored one acre of kalo on Parcel 1 in about 2006. On the date of designation, he was

cultivating that kalo in a dryland fashion because there was insufficient flow in the Wailuku River. Ke Ao would now like to convert that to wetland kalo. Additionally, on the date of designation, Wes Wong was cultivating, and Ke Ao currently maintains, two acres of spring-fed lo'i kalo on Parcel 1. Ke Ao seeks a water use permit sufficient to restore and maintain a total of 20 acres of lo'i kalo on this parcel as detailed below. *Id.* ¶ 61.

B-646. Sevilla believes the upper end of Reppun's water duty range for lo'i kalo should be sufficient for both the cultivation of wetland kalo and raising fish in a traditional manner. Sevilla estimates the existing legal use on Parcel 1 is 600,000 gpd (2 acres x 300,000 gad). For Ke Ao's future uses, he estimates he will need a total of 6,000,000 gpd (20 acres x 300,000 gad) to restore 20 acres of wetland kalo on Parcel 1 (this total includes the 3 acres of existing legal uses of lo'i on the date of designation). Approximately eight of these 20 acres will be spring-fed lo'i, and about 12 acres will need water from Wailuku River and/or Waiehu Stream. *Id.* ¶ 62.

O. WAILUKU: 'Īao-Waikapū Ditch – Reservoir 10

B-647. Kuleana users north of Waikapū Stream, including the Vida and Pinto 'ohana, presently use water from WWC's Reservoir 10, which derives water from the Wailuku River. Tr. 2/22/08 (Santiago) at 145:20-23 (MA06-01); Vida WT 1/2/16, ¶ 22; Ex. A-194D (MA06-01).

B-648. Historically, the Vida 'ohana used water from the Waikapū Stream, via a traditional 'auwai. L. Vida WT 1/2/16, ¶ 19. Wailuku Sugar then changed the system to a drip system, piping water to their cane fields, and eventually stopping the water flow in the 'auwai that ran alongside the Vida 'ohana kuleana lands. *Id.* ¶ 21.

B-649. Within the past 10 years, WWC diverted all water from Waikapū Stream, and now pipes water to the Vida ‘ohana kuleana from the ‘Īao-Waikapū Ditch System, which is fed by Wailuku River. *Id.* ¶ 22.

SWUPA 2188 – Leslie Vida, Jr.

B-650. Leslie Vida, Jr. filed a SWUPA for existing use on April 9, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-004:091 (“Parcel 91”). L. Vida WT 1/2/16, ¶ 1. This land has been in the Vida ‘ohana for generations since the time of the Māhele, Vida has lived here his entire life, and now owns it with his wife Michele. *Id.* ¶¶ 4, 9.

B-651. The Vidas request recognition of appurtenant rights in the amount of 108,000 gpd, and a permit for 11,725 gpd. *Id.* ¶ 5.

Traditional and Customary Rights

B-652. The Vida ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 2, 4.

B-653. The Vidas grow lo‘i kalo and medicinal plants in the traditional manner for cultural and subsistence purposes. *Id.* ¶¶ 2, 23, 25. They also use kuleana water for domestic purposes, such as washing hands before preparing their imu for kalua pig and kalo. *Id.* ¶ 25.

Appurtenant Rights Claims

B-654. Parcel 91 is a portion of LCA 76 to William Shaw, confirmed by RP 7694. *Id.* ¶ 6. This kuleana was a 10.34-acre farm called Auwailimunui and Waiolimu. *Id.* ¶ 10.

B-655. Today, Shaw’s descendants, including the Vida ‘ohana, reside on separate parcels following subdivision. Vida’s Parcel 91 is situated at the top of the LCA 76 Vida Subdivision. Vida’s aunt and uncle, Claire and Robert Pinto, own another parcel to the south (SWUPA 2303), Vida’s sister Donna Vida owns two parcels in the middle of the subdivision

(SWUPAs 2292 & 2293N) and Vida’s brother Michael owns a parcel to the east. The Waiolani Pikake Subdivision is on the south side of the Vida Subdivision. The Yamaoka family owns land to the west, where they have lived since the early 1900’s. The bottom portion of the 10.34 acres is the portion where the Waiolani Subdivision and roadway exist. *Id.* ¶ 11; D. Vida WT 2/27/16, ¶ 11; Pinto WT 1/29/16, ¶ 11.

B-656. The records supporting LCA 76 describe the kuleana as a “farm” and refer to lo‘i kalo terracing down along to Pilipili, a house, and a stone wall. *Id.* ¶ 13; Ex. 2188-VIDA-2; D. Vida WT 2/27/16, ¶ 13; Ex. 2292-VIDA-2; Pinto WT 1/29/16, ¶ 13; Ex. 2303-PINTO-2. The records include a survey and map of the 3.43-acre portion near the stream named Haaua, and the “water run” that brought kuleana water to this land. The map shows how the water ran freely. L. Vida WT 1/2/16, ¶ 14; Ex. 2188-VIDA-2; D. Vida WT 2/27/16, ¶ 14; Ex. 2292-VIDA-2; Pinto WT 1/29/16, ¶ 14; Ex. 2303-PINTO-2.

B-657. Given LCA 76’s close proximity to the stream and ‘auwai, the slope of the land, and the lo‘i terracing that still exists, the Vida ‘ohana estimate that a “majority” of the 10.34 acres was cultivated in lo‘i kalo at the time of the Mahele. L. Vida WT 1/2/16, ¶ 15; D. Vida WT 2/27/16, ¶ 14; Pinto WT 1/29/16, ¶ 15. Therefore, 75% of the LCA should be deemed to have been so cultivated. The Commission provisionally approved appurtenant rights for LCA 76. Provisional Order, Ex. 7 at 35.

B-658. Parcel 91 is 0.36 acre. L. Vida WT 1/2/16, ¶ 16. Seventy-five percent of 0.36 is 0.27 acre.

Permit Request

B-659. Vida has fond memories, as a young boy growing up in Waikapū, of kuleana water coming from the Waikapū Stream and running in an ‘auwai alongside his ‘ohana’s kuleana

lands. *Id.* ¶ 20. His ‘ohana even had a luawai (reservoir) where Parcel 91 exists from water that ran off onto the land. *Id.* He recalls his ‘ohana making ditches to water their kalo, other crops, and animals on their kuleana lands. *Id.*

B-660. Although the source of their kuleana water has changed from Waikapū Stream to Wailuku River, the Vida ‘ohana has always been existing kuleana users. *Id.* ¶ 22. Vida currently uses kuleana water on Parcel 91 to irrigate lo‘i kalo, domestic plants including fruit trees and Native Hawaiian medicinal plants, and landscaping. *Id.* ¶ 23.

B-661. Vida currently grows lo‘i kalo on approximately 0.025 acre, and intends to restore another 0.0115 acre. *Id.* Applying the upper end of Reppun’s water duty range for lo‘i kalo, the Vidas request 7,500 gpd for their current lo‘i (0.025 acre x 300,000 gad), which was the amount in use as of April 30, 2008, and an additional 3,450 gpd for their future lo‘i (0.0115 acre x 300,000 gad). *Id.* ¶ 24. Lo‘i lands total 0.0365 acre.

B-662. Vida also estimates he uses kuleana water on 0.31 acre of Parcel 91 for crops and medicinal plants for consumption, which he shares with ‘ohana and the community. *Id.* ¶ 25. At times the Vida ‘ohana also use some kuleana water for domestic purposes, such as washing hands for preparation of their imu. *Id.* Applying the water duty for diversified agriculture used in the Waiāhole case, Vida believes 775 gpd is sufficient for these existing uses (0.31 x 2,500 gad). *Id.* ¶ 26.

SWUPA 2292 & 2293N – Donna Vida

B-663. Leslie Vida, Sr. filed a SWUPA for existing use and a SWUPA for new use on April 29, 2009, for two parcels in Waikapū, TMK Nos. (2) 3-5-004:045 (“Parcel 45”) and (2) 3-5-004:056 (“Parcel 56”). D. Vida WT 2/27/16, ¶ 1. Leslie Vida, Sr. has since passed away, so his daughter Donna Vida, who inherited these parcels, testified in support of the applications. *Id.*

¶ 4. For most of her life, Donna Vida has lived on these kuleana lands, which have been passed down through her ‘ohana since the time of the Māhele. *Id.*

B-664. Donna Vida requests recognition of appurtenant rights for Parcels 45 and 56 in the amount of 270,600 gpd, and a permit for Parcel 45 in the amount of 175 gpd and for Parcel 56 in the amount of 2,225 gpd. *Id.* ¶ 5.

Traditional and Customary Rights

B-665. The Vida ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 2, 4.

B-666. The Vidas grow medicinal and food plants, raise livestock, and maintain an ‘ohana cemetery (Parcel 45) in the traditional manner for cultural purposes. *Id.* ¶¶ 16, 30. They have a 25 by 21 square-foot imu on Parcel 56 that allows them to practice traditional cooking of kalua pig and kalo. *Id.* ¶¶ 23, 30.

Appurtenant Rights Claims

B-667. Parcels 45 and 56 are situated in the middle of the LCA 76 Vida Subdivision. D. Vida WT 2/27/16, ¶ 11; Ex. 2292-VIDA-1.

B-668. Parcels 45 and 56 are portions of LCA 76 to William Shaw, confirmed by RP 7694. D. Vida WT 2/27/16, ¶ 6. As discussed in the findings for SWUPA 2188 (Leslie Vida, Jr.), LCA 76 was a 10.34-acre farm primarily cultivated in lo‘i kalo at the time of the Māhele, and therefore 75% of the LCA should be deemed to have been cultivated in lo‘i kalo. D. Vida WT 2/27/16, ¶¶ 12-14; Ex. 2292-VIDA-2.

B-669. Parcel 56 is 0.9 acre. D. Vida WT 2/27/16, ¶ 14. Seventy-five percent of Parcel 56 is 0.675 acre. Parcel 45 is 0.07 acre. *Id.* ¶ 16. Seventy-five percent of Parcel 45 is 0.053 acre. The lo‘i lands total 0.728.

Permit Request

B-670. As a young girl growing up in Waikapū, Donna Vida recalls the kuleana water coming from the Waikapū Stream and running in an ‘auwai alongside her ‘ohana’s kuleana lands. *Id.* ¶ 20. Her ‘ohana even had a luawai (reservoir) for water that ran off onto the land. *Id.* She recalls her ‘ohana making ditches to water their kalo, other crops, and animals on their kuleana lands. *Id.*

B-671. Although the source of their kuleana water has changed from Waikapū Stream to Wailuku River, the Vida ‘ohana have always been existing kuleana users. *Id.* ¶ 22. At present, Donna Vida uses kuleana water for her yard, including fruit and medicinal trees and plants such as dryland kalo, tī, kukui, noni, aloe, banana, and papaya, and livestock such as ducks, chickens, pigs, and goats on 0.89 acre of Parcel 56. *Id.* ¶¶ 23-24. She also uses kuleana water for cemetery landscaping on 0.07 acre of Parcel 45. *Id.*

B-672. Applying the water duty for diversified agriculture used in the Waiāhole case, Donna Vida requests 2,225 gpd for Parcel 56 (0.89 acre x 2,500 gad) and 175 gpd for the Parcel 45 cemetery (0.07 acre x 2,500 gad), and believes these were the amounts being used as of April 30, 2008. *Id.* ¶ 25.

SWUPA 2303 – Claire Pinto

B-673. Robert and Claire Pinto filed a SWUPA for existing use on April 9, 2009, for two parcels in Waikapū, TMK Nos. (2) 3-5-004:041 (“Parcel 41”) and (2) 3-5-004:051 (“Parcel 51”). Pinto WT 1/29/16, ¶ 1. Claire Pinto has lived on this kuleana land her entire life, and she and her husband Robert (who has since passed away) inherited the land, which has been passed down through her ‘ohana for generations since the Māhele. *Id.* ¶¶ 4, 9; Tr. 7/18/16 (Pinto) at 32:13.

B-674. The Pintos request recognition of appurtenant rights for Parcels 41 and 51 in the amount of 342,000 gpd, and a permit for 2,750 gpd. Pinto WT 1/29/16, ¶ 5.

Traditional and Customary Rights

B-675. The Pinto ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 2, 4.

B-676. The Pinto ‘ohana use kuleana water for traditional and customary domestic purposes, such as to cultivate medicinal plants, fruit trees, and animals, and for washing. *Id.* ¶¶ 2, 23.

Appurtenant Rights Claims

B-677. Parcels 41 and 51 are situated at the top of the LCA 76 Vida Subdivision. *Id.* ¶ 11; Ex. 2303-PINTO-1.

B-678. Parcels 41 and 51 are portions of LCA 76 to William Shaw, confirmed by RP 7694. Pinto 1/29/16, ¶ 6. As discussed in the findings for SWUPA 2188 (Leslie Vida, Jr.), LCA 76 was a 10.34-acre farm primarily cultivated in lo‘i kalo at the time of the Māhele, and therefore 75% of the LCA should be deemed to have been cultivated in lo‘i. *Id.* ¶¶ 13-15; Ex. 2303-PINTO-2.

B-679. Parcel 41 is 0.48 acre and Parcel 51 is 0.66 acre, for a total of 1.14 acres. Pinto WT 1/29/16, ¶ 16. Seventy-five percent of Parcels 41 and 52 is 0.855 acre.

Permit Request

B-680. As a young woman growing up in Waikapū, Pinto recalls the kuleana water coming from the Waikapū Stream and running in an ‘auwai alongside her ‘ohana’s kuleana lands. *Id.* ¶ 20. Her ‘ohana even had a luawai (reservoir) for water that ran off onto the land. *Id.* She recalls her ‘ohana making ditches to water their kalo, other crops, and animals on their

kuleana lands. *Id.* The home she lives in was once the caretaker's home. He would help with cleaning and cultivation of the lo'i kalo. *Id.*

B-681. Although the source of their kuleana water has changed from Waikapū Stream to Wailuku River, the Pinto 'ohana have always been existing kuleana users. *Id.* ¶ 22. Presently, the Pintos use kuleana water on about 1.1 acres of Parcels 41 and 51 for domestic purposes, such as washing, landscaping, and watering fruit trees (coconut, papaya, citrus), Native Hawaiian/medicinal plants, and animals. *Id.* ¶ 24.

B-682. Applying the water duty for diversified agriculture used in the Waiāhole case, the Pintos request 2,750 gpd (1.1 acres x 2,500 gad), which they estimate is the existing use as of April 30, 2008. *Id.* ¶¶ 25-26.

P. WAIKAPŪ: Waikapū Stream/Kuleana 'Auwai (Waikō Road)

B-683. An ancient 'auwai that receives water directly from Waikapū Stream supplies water to kuleana users on the north side of the stream ("North Waikapū 'Auwai"). Pellegrino WT 9/14/107, ¶ 16 (MA06-01); *see* Ex. A-194D (MA06-01). Stream water passes through a traditional po'owai just mauka of Ione Shimizu's land and flows makai in pipes and ditches. Shimizu WT 2/3/16, ¶ 12; Pellegrino WT 2/1/16, ¶ 21. At the Pellegrino 'ohana's land, the 'auwai begins to follow Waikō Road. Pellegrino WT 9/14/07, ¶ 16 (MA06-01); Tr. 12/6/07 (Pellegrino) at 263:7-13 (MA06-01); Tr. 12/7/07 (Gushi) at 21:6-9 (MA06-01); Ex. A-194D (MA06-01).

B-684. The 'auwai brings water to numerous kuleana, including the lands belonging to the following 'ohana: Shimizu, Riyu, Yamanoue, Soong, Pellegrino, Harders, Gushi, Birnie, Bell, Miyamoto, Dodd, Federcell, and Rogers. Ex. A-194D (MA06-01); Dickson WT 1/28/16 (Yamanoue SWUPA 2338), ¶ 16; Birnie WT 1/27/16, ¶ 19; Bell WT 1/26/16, ¶ 14; Dodd WT 2/3/16, ¶ 16; Dodd WT 2/3/16 (Federcell SWUPA 2230), ¶ 15; Rogers WT 1/28/16, ¶ 18.

B-685. Any water remaining in the ‘auwai on the north side of Waikapū Stream returns to the stream. Tr. 12/7/07 (Gushi) at 17:6-11; Ex. A-194D.

SWUPA 2276 – Ione Shimizu

B-686. Ione Shimizu filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:031 (“Parcel 31”). Shimizu WT 2/3/16, ¶ 1. Shimizu requests recognition of appurtenant rights in the amount of 159,000 gpd, and a permit for 11,052 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 4.

Appurtenant Rights Claims

B-687. Parcel 31 contains remnants of an extensive lo‘i kalo complex with stone terracing (at least ten distinct lo‘i in various sizes) and an ‘auwai running through the south side of the parcel. *Id.* ¶¶ 7-8; Ex. 2276-SHIMIZU-2; Tr. 7/18/16 (Shimizu) at 72:3-16.

B-688. Parcel 31 is comprised of a portion of LCA 205, confirmed by RP 7660. Shimizu WT 2/3/16, ¶ 6. LCA 205 refers to “kalo patches of this land” and “coffee ground,” but is unclear about what proportion of the kuleana was attributed to each use. *Id.*; Ex. 2276-SHIMIZU-1.

B-689. Absent additional information on LCA 205, a 50-50% split between kalo and coffee should be applied. Parcel 31 is 0.53 acre. Shimizu WT 2/3/16, ¶ 9. Half of Parcel 31 is 0.265 acre.

Permit Request

B-690. Shimizu uses water from the North Waikapū ‘Auwai through a pipe and water hoses to irrigate lo‘i kalo on 0.032 acre and a non-commercial garden of sweet potato, eggplant, papaya, banana, herbs, coconut, passion fruit, breadfruit, mango, corn, beans, lettuce, other vegetables, and sunflowers on 0.484 acre. *Id.* ¶ 12.

B-691. Applying the upper end of Reppun’s water duty range for lo‘i kalo, Shimizu requests 9,600 gpd (0.032 acre x 300,000 gad) for lo‘i. *Id.* ¶ 13. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, Shimizu requests 1,452 gpd for her garden (0.484 acre x 3,000 gad). *Id.*

SWUPA 2268 – Katherine Riyu

B-692. Katherine Riyu filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:28 (“Parcel 28”). Dickson WT 1/28/16 (SWUPA 2268), ¶ 1. Riyu’s neighbors, Pamela Dickson and her son Dustin Vegas, care for Riyu’s garden and cultivate lo‘i kalo on part of the land. *Id.* With Riyu’s permission, Dickson testified on Riyu’s behalf. *Id.*

B-693. Dickson requests recognition of appurtenant rights in the amount of 183,000 gpd, and a permit for 92,100 gpd. *Id.* ¶ 5.

Traditional and Customary Rights

B-694. Dickson and Vegas are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 4.

B-695. Vegas cultivates lo‘i kalo in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 1, 4, 17, 20; Dickson WT 1/28/16 (SWUPA 2338), ¶ 26.

Appurtenant Rights Claims

B-696. The deed to Parcel 28 contains a reservation of appurtenant rights. Dickson WT 1/28/16 (SWUPA 2268), ¶ 2.

Permit Request

B-697. Dickson and Vegas use water from the North Waikapū ‘Auwai through PVC pipes and ditches to irrigate a non-commercial garden of banana, lettuce, daikon, string bean,

green onion, tī leaf, radish, and lychee, and a lawn. They believe the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes of 600 gpd is sufficient for this existing domestic water use. *Id.* ¶ 15-16.

B-698. Vegas also uses some of the kuleana water to cultivate 11 lo‘i kalo on about half or 0.305 acre of Parcel 28, for which he requests 91,500 gpd (0.305 acre x 300,000 gad). *Id.* ¶ 17; Ex. 2268-RIYU-4.

SWUPA 2338 – Judith Yamanoue

B-699. Melvin Riyu and Judith Yamanoue filed a SWUPA for existing use on April 30, 2009, for two parcels in Waikapū, TMK No. (2) 3-5-012:027 (“Parcel 27”) and (2) 3-5-012:041 (“Parcel 41”), on which Pamela Dickson and her son Dustin Vegas live, and on which their ‘ohana has lived for 23 years. Dickson WT 1/28/16 (SWUPA 2338), ¶ 1; Tr. 7/18/16 (Dickson) at 6:6-8. Yamanoue gave Dickson permission to testify on Yamanoue’s behalf. Dickson WT 1/28/16 (SWUPA 2338), ¶ 1.

B-700. Yamanoue and Dickson request recognition of appurtenant rights in the amount of 300,000 gpd, and a permit for 150,600 gpd. *Id.* ¶ 4.

Traditional and Customary Rights

B-701. Dickson and Vegas are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 3; Tr. 7/18/16 at 6:6-8.

B-702. Vegas cultivates lo‘i kalo in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 1, 20, 24, 26.

Appurtenant Rights Claims

B-703. Stone terraces of an extensive and complex lo‘i kalo system still exist on Parcels 27 and 41, evidencing these lands were cultivated in lo‘i kalo at the time of the Māhele. *Id.* ¶¶ 11, 16; Ex. 2338-RIYU-6.

B-704. Parcels 27 and 41 are comprised of the following: (1) portions of two kuleana—LCA 434:1, confirmed by RP 495, and LCA 2199, confirmed by RP 3129; (2) Government Grant 1673:3 to John Richardson; and (3) a pō‘alima. Dickson WT 1/28/16 (SWUPA 2338), ¶ 5; Ex. 2338-RIYU-4. The records supporting the LCAs and Government Grant describe these lands as “‘āina kalo,” including a pō‘alima and lo‘i pa‘ahao, and reference a number of lo‘i. Dickson WT 1/28/16 (SWUPA 2338), ¶¶ 12-14; Exs. 2338-RIYU-1 to -3.

B-705. Parcel 27 is 0.71 acre and Parcel 41 is 0.29 acre, for a total of 1.0 acre. Dickson WT 1/28/16 (SWUPA 2338), ¶ 15. Dickson estimates the water right appurtenant to Parcels 27 and 41 is 300,000 gpd (1.0 acre x 300,000 gad). *Id.* ¶¶ 17-18.

Permit Request

B-706. Dickson and Vegas use water from the North Waikapū ‘Auwai through PVC pipes from the neighboring, mauka Riyu land (Parcel 28) to irrigate a non-commercial garden of banana, carrot, lettuce, daikon, onion, and citrus, and a lawn. *Id.* ¶¶ 19, 21. They believe the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes of 600 gpd is sufficient for this existing domestic water use. *Id.* ¶ 21.

B-707. Vegas also uses some of the kuleana water to cultivate 11 lo‘i kalo on about 0.5 acre, for which he requests 150,000 gpd (0.5 acre x 300,000 gad). *Id.* ¶ 20.

SWUPA 2277 – Warren Soong

B-708. Warren Soong filed a SWUPA for existing use on April 23, 2009, for a 1.52-acre parcel in Waikapū, then identified as TMK No. (2) 3-5-012:026. Soong WT 1/30/16, ¶¶ 1-

2. This parcel was subsequently subdivided into two parcels—TMK Nos. (2) 3-5-012:047 (“Parcel 47”) (0.85 acre), which Soong still owns and on which he lives, and (2) 3-5-012:026 (“Parcel 26”) (0.67 acre), which was sold to the Pellegrino ‘ohana. *Id.* ¶ 2; Pellegrino WT 2/1/16, ¶ 2. Parcel 26, therefore, is addressed with the Pellegrinos’ applications, SWUPAs 2332 and 2333N.

B-709. Soong requests recognition of appurtenant rights for Parcel 47 in the amount of 255,000 gpd, and a permit for 600 gpd. Soong WT 1/30/16, ¶ 4.

Appurtenant Rights Claims

B-710. Parcel 47 is comprised of a portion of LCA 2199, confirmed by RP 3129. *Id.* ¶ 5; Ex. 2277-SOONG-2. The records supporting LCA 2199 describe this land as “kalo land” with a pō‘alima within it. *Id.* ¶ 10; Ex. 2277-SOONG-1. The Commission provisionally approved appurtenant rights for LCA 2199. Provisional Order, Ex. 7 at 40.

B-711. Parcel 47 is 0.85 acre. Soong estimates the water right appurtenant to Parcel 47 is 255,000 gpd (0.85 acre x 300,000 gad). Soong WT 1/30/16, ¶¶ 12-13.

Permit Request

B-712. At the time Soong filed his SWUPA, he was using approximately 4,476 gpd to water a non-commercial garden and lawn on 1.492 acres. SWUPA 2277 Attachment A at 1-2. Due to the higher elevation of the portion he still owns (Parcel 47), he is not accessing water from the North Waikapū ‘Auwai at this time. Soong WT 1/30/16, ¶ 14.

B-713. Soong intends to install a pump to transport water to his land so that he can water his lawn and home garden of yam, cassava, mango, and papaya. *Id.* He believes the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes of 600 gpd is sufficient for this domestic water use. *Id.*

SWUPA 2332 & 2333N – Hōkūao & Alana Pellegrino

B-714. Victor and Walette Pellegrino filed a SWUPA for existing use and a SWUPA for new use on April 30, 2009, for two parcels in Waikapū, TMK Nos. (2) 3-5-012:020 (“Parcel 20”) and (2) 3-5-012:023 (“Parcel 23”). Pellegrino WT 2/1/16, ¶ 3. The Pellegrinos own and live on Parcel 20, and their son and his wife, Hōkūao and Alana Pellegrino, own Parcel 23, on which they live and operate Noho‘ana Farm, LLC, cultivating lo‘i kalo for subsistence, cultural, and educational purposes. *Id.*

B-715. Hōkūao Pellegrino (“Pellegrino”) testified on behalf of his parents, wife, and himself in support of his parents’ SWUPAs, as well as the part of Soong’s SWUPA 2277 pertaining to what is now identified as TMK No. (2) 3-5-012:026 (“Parcel 26”), a 0.671-acre parcel the Pellegrino ‘ohana purchased from Soong. *Id.* ¶¶ 2, 4; Soong WT 1/30/16, ¶ 2. The Pellegrino ‘ohana asks that water use permits for Parcels 20, 23, and 26 be issued to Hōkūao and Alana Pellegrino, as they are the caretakers of all three parcels. Pellegrino WT 2/1/16, ¶¶ 3-4.

B-716. The Pellegrino ‘ohana request recognition of appurtenant rights for Parcel 20 of 52,500 gpd, Parcel 23 of 640,200 gpd, and Parcel 26 of 201,300 gpd. *Id.* ¶ 8. They also request a permit for 600 gpd on Parcel 20, 61,800 gpd on Parcel 23, and 187,800 gpd on Parcel 26. *Id.*

Traditional and Customary Rights

B-717. The Pellegrino ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 3, 5.

B-718. The Pellegrinos cultivate lo‘i kalo in the traditional manner for subsistence, cultural, and educational purposes. *Id.* ¶¶ 3, 5, 27; *see* Tr. 7/18/16 (Pellegrino) at 121:1 to 124:23; SWUPA 2332 Attachment. The purpose of Noho‘ana Farm is to grow food, teach the

next generation to grow food, and share Hawaiian culture. Pellegrino WT 2/1/16, ¶ 3; Tr. 7/18/16 at 122:23 to 123:1

Appurtenant Rights Claims

B-719. The deed to Parcel 20 contains a reservation of appurtenant rights. Pellegrino WT 2/1/16, ¶ 9 n. 1.

B-720. Remnants of an extensive lo‘i kalo complex with stone terracing, including at least 12 lo‘i ranging in size from 300 square feet to 6,000 square feet still exist on Parcel 23, evidencing this land was used for lo‘i cultivation at the time of the Māhele. *Id.* ¶ 15. This parcel’s adjacency to the Waikapū Stream is also an indicator this was lo‘i land. *Id.*

B-721. Parcel 23 is comprised of two kuleana: LCA 3340:1, confirmed by RP 3115, and LCA 3110:1, confirmed by RP 3152. *Id.* ¶ 12. The records supporting LCAs 3340:1 and 3110:1 describe these ‘āpana as “kuleana taro patches,” a “section of loi in Nohoana,” including a pō‘alima. *Id.* ¶¶ 13-14; Exs. 2332-PELLEGRINO-2, -3.

B-722. Like Parcel 23, Parcel 26 has remnants of an extensive lo‘i kalo system, with a number of intact lo‘i throughout the parcel. Pellegrino WT 2/1/16, ¶ 17.

B-723. Parcel 26 is comprised of a portion of LCA 2199, confirmed by RP 3129. *Id.* ¶ 16; Ex. 2277-SOONG-2. The records supporting LCA 2199 describe this kuleana as kalo land that included a pō‘alima. Pellegrino WT 2/1/16, ¶ 16; Exs. 2332-PELLEGRINO-4; 2277-SOONG-2.

B-724. The Commission provisionally approved appurtenant rights for LCAs 3110:1, 3340:1, and 2199. Provisional Order, Ex. 7 at 40.

B-725. Parcel 23 is 2.134 acres and Parcel 26 is 0.671 acre, for a total of 2.805 acres. The Pellegrinos estimate the water right appurtenant to Parcel 23 is 640,200 gpd (2.134 acres x

300,000 gad) and the water right appurtenant to Parcel 26 is 201,300 gpd (0.671 acre x 300,000 gad), for a total of 841,500 gpd. Pellegrino WT 2/1/16, ¶¶ 19-20.

Permit Request

B-726. Currently, on Parcels 20 and 23, the Pellegrino ‘ohana use water from the North Waikapū ‘Auwai as it travels makai from the po‘owai near the Shimizu land in pipes and ditches through Parcel 23 (Noho‘ana Farm), and then piped to Parcel 20 (Victor and Walette’s home). *Id.* ¶ 21. On Parcel 20, kuleana water is used to irrigate a 0.9-acre home garden of fruit trees (mai‘a, mountain apple, fig, kukui), herbs, vegetables, tī, and numerous native plants. *Id.* ¶ 21a. The Pellegrinos believe the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes of 600 gpd is sufficient for this domestic use on Parcel 20. *Id.* ¶ 23a.

B-727. On Parcel 23, kuleana water is used to irrigate five organic lo‘i kalo on approximately 0.2 acre, and diversified agricultural crops, including ‘ulu, mai‘a, ‘uala, kō, tī, niu, mountain apple, guava, avocado, mango, kamani, papaya, vegetables, herbs, and citrus trees, on approximately 0.6 acre. *Id.* ¶ 21b. Applying the upper end of Reppun’s water duty range for lo‘i kalo and the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, the Pellegrinos request 60,000 gpd (0.2 acre x 300,000 gad) to irrigate the lo‘i, and 1,800 gpd (0.6 acre x 3,000 gad) for the diversified agriculture, for a total of 61,800 gpd for Parcel 23. *Id.* ¶ 23b.

B-728. Pellegrino is also using kuleana water to irrigate a non-commercial garden on approximately 0.5 acre of Parcel 26 (formerly Soong land), including mai‘a, ‘ulu, mango, and tī. *Id.* ¶ 22. Pellegrino intends to return this land to its original state by restoring lo‘i kalo on approximately 0.621 acre, and he has already begun the process of opening up the lo‘i. *Id.* Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic

cultivation and the upper end of Reppun's water duty range for lo'i kalo, the Pellegrinos request 1,500 gpd (0.5 acre x 3,000 gad) for the garden, and 186,300 gpd (0.621 acre x 300,000 gad) for the lo'i, for a total of 187,800 gpd for Parcel 26. *Id.* ¶ 23c.

B-729. The Pellegrinos request water for lo'i totaling 0.821 acre (0.2 + 0.621).

SWUPA 2237 – Karl & Lee Ann Harders

B-730. Karl & Lee Ann Harders filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:013 ("Parcel 13"). Harders WT 1/26/16 (SWUPA 2237), ¶ 1. Their 'ohana have lived on this land for generations. *Id.*

B-731. Nicholas Harders testified on behalf of the Harders 'ohana, in support of this SWUPA, as well as five others: SWUPAs 2238, 2239, 2240 and 3467N, and 2311. Tr. 7/18/16 (Harders) at 59:10-14.

B-732. The Harders request recognition of appurtenant rights in the amount of 72,000 gpd, and a permit for 600 gpd. Harders WT 1/26/16 (SWUPA 2237), ¶ 5.

Traditional and Customary Rights

B-733. The Harders 'ohana are tenants of the ahupua'a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1, 3.

B-734. The Harders use stream water on Parcel 13 to cultivate agricultural crops for subsistence purposes. SWUPA 2237 Attachment.

Appurtenant Rights Claims

B-735. The deed to Parcel 13 contains a reservation of appurtenant rights. Harders WT 1/26/16 (SWUPA 2237), ¶ 2.

Permit Request

B-736. The Harders use water from the North Waikapū ‘Auwai via a garden hose to irrigate a lawn and non-commercial home garden of fruit trees and flowers. *Id.* ¶ 16; SWUPA 2237 Attachment. They believe the 2002 State of Hawai‘i Water System Standard for Maui County single-family homes of 600 gpd is sufficient for this existing domestic water use. Harders WT 1/26/16 (SWUPA 2237), ¶ 17.

SWUPA 2238 – Theodore & Zelig Harders Family Limited Partnership

B-737. The Theodore & Zelig Harders Family Limited Partnership filed a SWUPA for existing use on April 23, 2009, for two parcels in Waikapū, TMK Nos. (2) 3-5-012:006 (“Parcel 6”) and (2) 3-5-012:007 (“Parcel 7”). Harders WT 1/26/16 (SWUPA 2238), ¶ 1. The Harders ‘ohana has lived on these parcels for generations. *Id.*

B-738. The Harders request recognition of appurtenant rights for Parcels 6 and 7 in the amount of 204,000 gpd, and a permit for 1,800 gpd. *Id.* ¶ 5.

Traditional and Customary Rights

3. The Harders ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1, 3.

B-739. The Harders use stream water on Parcels 6 and 7 to cultivate agricultural crops for subsistence purposes. SWUPA 2238 Attachment.

Appurtenant Rights Claims

B-740. The deed to Parcels 6 and 7 contain a reservation of appurtenant rights. Harders WT 1/26/16 (SWUPA 2238), ¶ 2.

Permit Request

B-741. The Harders use water from the North Waikapū ‘Auwai via three garden hoses to irrigate the lawns and non-commercial gardens of fruit trees and flowers that surround

three family homes. *Id.* ¶ 20; SWUPA 2238 Attachment. Applying the 2002 State of Hawai‘i Water System Standard for Maui single-family homes, the Harders believe 1,800 gpd is sufficient for their existing domestic uses on Parcels 6 and 7 (3 homes x 600 gpd). Harders WT 1/26/16 (SWUPA 2238), ¶ 21.

SWUPA 2239 – Theodore & Zelig Harders

B-742. Theodore and Zelig Harders filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:016 (“Parcel 16”). Harders WT 1/26/16 (SWUPA 2239), ¶ 1. The Harders ‘ohana has lived on this land for generations. *Id.*

B-743. The Harders request recognition of appurtenant rights in the amount of 96,420 gpd, and a permit for 600 gpd. *Id.* ¶ 5.

Traditional and Customary Rights

B-744. The Harders ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1, 3.

B-745. The Harders ‘ohana use stream water on Parcel 16 to cultivate agricultural crops for subsistence purposes. SWUPA 2239 Attachment.

Appurtenant Rights Claims

B-746. The deed to Parcel 16 contains a reservation of appurtenant rights. Harders WT 1/26/16 (SWUPA 2239), ¶ 2.

Permit Request

B-747. The Harders use water from the North Waikapū ‘Auwai via two garden hoses and two half-inch pipes to irrigate a non-commercial lawn and garden, including papaya, banana, lilikoi, avocado, ascerola, tangerine, lemon, lime, and herbs (oregano and basil). *Id.* ¶ 16. They

believe the 2002 State of Hawai‘i Water System Standard for single-family homes of 600 gpd is sufficient for these existing domestic uses. *Id.* ¶ 17.

SWUPA 2240 & 3467N – T&Z Harders Family Limited

B-748. T&Z Harders Family Limited filed a SWUPA for existing use on April 23, 2009 and a SWUPA for new use on February 6, 2012, for a parcel in Waikapū, TMK No. (2) 3-5-004:028 (“Parcel 28”). Harders WT 1/26/16 (SWUPA 2240 & 3467N), ¶ 1. Nicholas Harders (Theodore and Zelig Harders’ grandson) cultivates lo‘i kalo on Parcel 28, and testified in support of the application. *Id.*

B-749. The Harders request recognition of appurtenant rights for Parcel 28 in the amount of 3,374,100 gpd, and a permit for current and future uses of 1,507,500 gpd. *Id.* ¶ 4.

Traditional and Customary Rights

B-750. The Harders ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1, 2.

B-751. The Harders ‘ohana cultivate lo‘i kalo and other crops in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 2, 26; SWUPA 3467N Attachment. Nicholas’ grandmother entrusted him with the pōhaku ku‘i ‘ai that has been in their ‘ohana for generations, and he bears the kuleana to perpetuate their traditional and customary cultural practice of making poi. Tr. 7/18/16 (Harders) at 58:20 to 59:5.

Appurtenant Rights Claims

B-752. Ancient lo‘i kalo terracing still exists throughout Parcel 28, indicating the parcel was mainly cultivated in lo‘i kalo. Harders WT 1/26/16 (SWUPA 2240 & 3467N), ¶¶ 13, 17; Ex. 2240-T&Z-8 (photos).

B-753. Parcel 28 is 11.247 acres. *Id.* ¶ 17. The parcel is comprised of the entirety or portion of four kuleana and one government grant:

- Approximately one-half of LCA 460:1, confirmed by RP 2165;
- The entirety of LCA 8808:1, 2 & 4, confirmed by RP 2164;
- Approximately one-third of LCA 3296, confirmed by RP 3147;
- Approximately one-half of LCA 6041:3, confirmed by RP 2813; and
- Government Grant 3042 to Adam Pupuhi.

Id. ¶¶ 5, 11; Ex. 2240-T&Z-6 (map).

B-754. The records supporting LCA 460:1 and LCA 8808:1, 2 & 4 describe these kuleana as lo‘i kalo lands that also contained kula. Harders WT 1/26/16 (SWUPA 2240 & 3467N), ¶¶ 13 and 16; Exs. 2240-T&Z-1, -4.

LCA 460:1

B-755. The prevalence of ancient lo‘i on the Harders’ one-half portion of LCA 460:1, Harders WT 1/26/16 (SWUPA 2240 & 3467N), ¶ 13, and on another portion of LCA 460:1 owned by applicant Federcell (SWUPA 2230), *see* Dodd (Federcell) WT 2/3/16, ¶ 11; Ex. 2230-FEDERCELL-4, as well as the ‘āpana’s adjacency to both the Waikapū Stream, Exs. 2240-HARDERS-6 & 2240-T&Z-7 (maps), and a traditional ‘auwai (along border with LCA 8808:1, 2 & 4), all support a finding that LCA 460:1 was mainly cultivated in lo‘i as opposed to kula, and therefore a 90-10% ratio of kalo to kula should be applied. The Commission provisionally approved appurtenant rights for LCA 460:1. Provisional Order, Ex. 7 at 40.

B-756. Approximately one half or 3.71 acre of LCA 460:1’s total 7.41 acres falls within the Harders’ Parcel 28. *See* Exs. 2240-T&Z-1, -6. Ninety percent of 3.71 acres is 3.34 acres.

LCA 8808:1, 2 &4

B-757. The native testimony for LCA 8808 describes ‘āpana 1 and 2 each as a section of lo‘i kalo, and the native register states all ‘āpana contained 57 lo‘i kalo as well as a kula. Harders WT 1/26/16 (SWUPA 2240 & 3467N), ¶ 16; Ex. 2240-T&Z-4. The high number of lo‘i identified, that two out of three ‘āpana were sections of lo‘i without reference to other uses, in addition to a traditional ‘auwai running near along the southern border (LCA 460:1), *see* Ex. 2240-T&Z-7 (map), support a finding that LCA 8808:1, 2 &4 were almost entirely cultivated in lo‘i kalo as opposed to kula, and therefore a 90-10% ratio of kalo to kula should be applied.

B-758. The entirety or 5.5 acres of LCA 8808:1, 2 &4 falls within Parcel 28. *See* Exs. 2240-T&Z-4 & 2240-HARDERS-6. Ninety percent of 5.5 acres is 4.95 acres.

LCAs 3296 and 6041:3, and Government Grant 3042

B-759. As for the remainder of Parcel 28, the records supporting LCAs 3296 and 6041:3 describe these kuleana as being cultivated in lo‘i kalo without reference to any other crop. Harders WT 1/26/16 (SWUPA 2240 & 3467N), ¶¶ 14-15; Exs. 2240-T&Z-2, -3. Government Grant 3042 does not state what was cultivated, but the visible lo‘i kalo terracing on this land, as well as the traditional ‘auwai running through it, evidence this was historically cultivated in wetland kalo. Harders WT 1/26/16 (SWUPA 2240 & 3467N), ¶ 17; Ex. 2240-T&Z-7 (map). The portion of Parcel 28 covered by LCAs 3296 and 6041:3 and Government Grant 3042 totals 2.04 acres (11.247 acres total for Parcel 28 – 9.21 acres of LCAs 460:1 and 8808:1, 2 & 4).

B-760. In sum, the water right appurtenant to Parcel 28 is the amount necessary to cultivate lo‘i on a total of 10.33 acres:

- LCA 460:1 – 3.34 acre;
- LCA 8801:1, 2 & 4 – 4.95 acre;

- LCAs 3296 and 6041:3, and Government Grant 3042 – 2.04 acres.

Permit Request

B-761. Currently, the Harders use water from the North Waikapū ‘Auwai that flows into two small reservoirs or holding ponds. From there, the water goes through numerous PVC pipes, which then feed into over 15 lo‘i kalo, which Nicholas cultivates to feed their ‘ohana. These lo‘i occupy approximately one acre, but if they had sufficient water, the Harders would open four more acres of lo‘i. Applying the upper end of Reppun’s water duty range for lo‘i kalo, the Harders request 1.5 mgd for lo‘i kalo (5 acres x 300,000 gad). Harders WT 1/26/16 (SWUPA 2240 & 3467N), ¶ 21.

B-762. The Harders also use ‘auwai water to irrigate a large non-commercial garden (once a commercial nursery) on approximately three acres, including dryland kalo, breadfruit, tī leaf, ‘awa, fruit trees (mango, orange, star fruit, lemon, avocado, lime, etc.), flowers, and vegetables. Applying the water duty for mixed agricultural uses applied in the Waiāhole case, the Harders request 7,500 gpd for the non-commercial garden (3 acres x 2,500 gad). *Id.* ¶ 22.

SWUPA 2311 – Theodore & Zelig Harders

B-763. Theodore and Zelig Harders filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:039 (“Parcel 39”). Harders WT 1/26/16 (SWUPA 2311), ¶ 1. The Harders ‘ohana has lived on this land for generations. *Id.*

B-764. The Harders request recognition of appurtenant rights for Parcel 39 in the amount of 120,900 gpd, and a permit for 600 gpd. *Id.* ¶ 4.

Traditional and Customary Rights

B-765. The Harders ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1, 2.

B-766. The Harders ‘ohana use stream water on Parcel 39 to cultivate agricultural crops for subsistence purposes. SWUPA 2311 Attachment.

Appurtenant Rights Claims

B-767. Parcel 39 is comprised of portions of three kuleana awards: LCA 3296, confirmed by RP 3147; LCA 6041:3, confirmed by RP 2813; and LCA 460:1, confirmed by RP 2165. Harders WT 1/26/16 (SWUPA 2311), ¶¶ 5, 9; Ex. 2311-HARDERS-4. The records supporting LCA 3296:1 describe this ‘āpana as a “section of kalo land,” and the records supporting LCA 6041:3 state this ‘āpana contained two lo‘i kalo, without referencing any other uses. Harders WT 1/26/16 (SWUPA 2311), ¶¶ 12-13; Exs. 2311-HARDERS-2, -3. For the reasons stated in previous findings regarding LCA 460:1 (SWUPAs 2240 and 3467 filed by T&Z Harders Family Limited), a 90-10% ratio of kalo to kula should be applied to this portion of Parcel 39. The Commission provisionally approved appurtenant rights for LCA 3296. Provisional Order, Ex. 7 at 40.

B-768. Parcel 39 is 0.403 acre. Harders WT 1/26/16 (SWUPA 2311), ¶ 14. Approximately 1/15 of Parcel 39 falls under LCA 460:1. Ex. 2311-HARDERS-4 (map). One-fifteenth of Parcel 39 is 0.027 acre. 90% of 0.027 acres, or 0.02 acre, is lo‘i land. Adding the 0.02 acre to the remainder of Parcel 39 (LCAs 3296 and 6041:3), which is all lo‘i land (0.376 acre) equals the total amount of land in lo‘i cultivation on what is now Parcel 39, or 0.396 acre.

Permit Request

B-769. The Harder ‘ohana use water from the North Waikapū ‘Auwai via garden hoses to irrigate a non-commercial garden of avocado, coconut, macadamia nuts, and herbs, and to water their lawn. Harders WT 1/26/16 (SWUPA 2311), ¶ 17. They believe the 2002 State of

Hawai‘i Water System Standard for single-family homes of 600 gpd is sufficient for these existing domestic uses. *Id.* ¶ 18.

SWUPA 2235 – Russel Gushi

B-770. Russel Gushi filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:015 (“Parcel 15”), on which he has lived since purchase in 1992. Gushi WT 12/22/15, ¶ 1.

B-771. Gushi requests recognition of appurtenant rights in the amount of 95,700 gpd, and a permit for 600 gpd, which was the existing use as of April 30, 2008. *Id.* ¶ 4.

Appurtenant Rights Claims

B-772. The deed to Parcel 15 contains a reservation of appurtenant rights. *Id.* ¶ 2.

Permit Request

B-773. Gushi currently uses water from the North Waikapū ‘Auwai via several 5/8-inch garden hoses and one 2-inch PVC pipe to irrigate dryland kalo, banana, landscaping, a vegetable garden, and fruit trees. *Id.* ¶ 16. He believes the 2002 State of Hawai‘i Water System Standard for single-family homes of 600 gpd is sufficient for these existing domestic uses. *Id.* ¶ 17.

SWUPA 2213 & 2214N – Alan Birnie¹²

B-774. Alan Birnie filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:010 (“Parcel 10”). Birnie WT 1/27/16, ¶ 1. He requests recognition of appurtenant rights in the amount of 69,000 gpd, and a permit for 1,950 gpd. *Id.* ¶ 5.

Traditional and Customary Rights

¹² The hearing transcript incorrectly labels Birnie’s testimony as that of Lester Nakama. Tr. 9/19/16 at 63:3.

B-775. The Birnie ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 3, 22.

B-776. The Birnies grow lo‘i kalo in the traditional manner for cultural and subsistence purposes. *Id.* ¶¶ 22, 24.

Appurtenant Rights Claims

B-777. The deed to Parcel 19 contains a reservation of appurtenant rights. *Id.* ¶ 2.

Permit Request

B-778. Birnie uses water from the North Waikapū ‘Auwai as it passes through Parcel 10, via three 5/8-inch garden hoses to irrigate two restored lo‘i kalo, a non-commercial garden, including tī, vegetables, herbs, fruit trees, and tropical flowers, and lawn. *Id.* ¶ 19.

B-779. Birnie’s lo‘i kalo is 0.0045 acre. Applying the upper end of Reppun’s water duty range for lo‘i kalo, he requests 1,350 gpd for this purpose. *Id.* ¶ 20. Birnie believes the 2002 State of Hawai‘i Water System Standard for single-family homes of 600 gpd is sufficient for his other existing domestic uses. *Id.*

SWUPA 2212 – Douglas Bell

B-780. Douglas Bell filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:008 (“Parcel 8”). Bell WT 1/26/16, ¶ 1. Bell requests recognition of appurtenant rights in the amount of 102,000 gpd, and a permit for 2,160 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 4.

Traditional and Customary Rights

B-781. The Bell ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 3.

B-782. The Bell ‘ohana cultivate dryland kalo and other food crops in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 14, 17-18; SWUPA 2212 Attachment.

Appurtenant Rights Claims

B-783. Bell did not initially claim an appurtenant right for his water use. SWUPA 2212 at 1. During his oral testimony, he expressed confusion about the language in his deed, and upon presenting it to the Hearings Officer, the Hearings Officer reviewed it and stated for the record that there was no reservation in the deed. *See* Tr. 7/18/16 at 51:2 to 52:10, 82:7-10.

B-784. Parcel 8 is comprised of a portion of LCA 3108:1, confirmed by RP 2314. The records supporting this LCA refer to this land as “aina kalo” with “2 mookalo,” without referencing any other use. Bell WT 1/26/16, ¶ 9; Ex. 2212-BELL-1, -2.

B-785. Parcel 8 is 0.34 acre. Bell estimates the water right appurtenant to Parcel 8 is 102,000 gpd (0.34 acre x 300,000 gad). Bell WT 1/26/16, ¶¶ 10-13.

Permit Request

B-786. Bell uses water from the North Waikapū ‘Auwai via two 5/8-inch garden hoses to irrigate a non-commercial garden of dryland kalo, 65 papaya trees, banana, and tropical flowers, and his lawn, on approximately 0.25 acre of Parcel 8. *Id.* ¶ 14. By utilizing the “bucket method,” he estimates his water use at 2,160 gpd (180 gallons x 12 hours). *Id.* ¶ 15.

SWUPA 2259 – Jerri Young

B-787. Elsie Miyamoto filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:009 (“Parcel 9”). Young WT 9/13/16, ¶ 1. Miyamoto has since passed away, so her daughter and current landowner, Jerri Young, submitted testimony and asks that her name replace her mother’s on the SWUPA. *Id.*

B-788. Young requests recognition of appurtenant rights in the amount of 57,000 gpd, and a permit for 600 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 20; SWUPA 2259 at 2.

Appurtenant Rights Claims

B-789. The deed to Parcel 9 contains a reservation of appurtenant rights. Young WT 9/13/16, ¶ 2.

Permit Request

B-790. As of April 30, 2008, Miyamoto was using water from the North Waikapū ‘Auwai that runs alongside Parcel 9 via four 5/8-inch garden hoses and one hand-dug ditch to irrigate her non-commercial garden of banana, tī leaf, ginger, citrus, heliconia, croton, and monstera, and to water her lawn. SWUPA 2259 Attachment at 2; Young WT 9/13/16, ¶ 15; Ex. 2259-MIYAMOTO-4. Since Miyamoto passed, her neighbor Nicholas Harders has cared for her garden and lawn, using the same amount of water for the same uses. Young WT 9/13/16, ¶ 15. Young believes the 2002 State of Hawai‘i Water System Standard for single-family homes of 600 gpd is sufficient for these existing domestic uses. *Id.*

SWUPA 2224 – James Dodd

B-791. James Dodd filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:005 (“Parcel 5”), where he has lived since purchase in around 1977. Dodd WT 2/3/16, ¶ 1. Dodd requests recognition of appurtenant rights in the amount of 96,000 gpd, and a permit for 4,113 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 5.

Appurtenant Rights Claims

B-792. The deed to Parcel 5 contains a reservation of “water rights” to Wailuku Sugar in 1967. *Id.* ¶ 2.

Permit Request

B-793. Dodd uses water from the North Waikapū ‘Auwai by placing a five-gallon bucket in the ‘auwai, along with several water hoses, to irrigate fruit trees, tī leaf, dryland kalo, herbs, vegetables, and his lawn, on about 0.26 acre. *Id.* ¶ 16; Ex. 2224-DODD-4; SWUPA 2224 at 4. Dodd used a modified “bucket method” to measure flow rate from his two hoses. Based on these figures, he estimates he uses 4,113 gpd for these existing domestic uses. *Id.* ¶ 17.

SWUPA 2230 – Patricia Federcell

B-794. Patricia Federcell filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:001 (“Parcel 1”). Dodd (Federcell) WT 2/3/16, ¶ 1. Federcell’s neighbor, James Dodd, cares for her home garden, and she gave him permission to testify on her behalf. Dodd (Federcell) *Id.*

B-795. Federcell and Dodd request recognition of appurtenant rights for Parcel 1 in the amount of 593,400 gpd, and a permit for 4,133 gpd. *Id.* ¶ 4.

Appurtenant Rights Claims

B-796. Parcel 1 is comprised of a portion of LCA 460:1, confirmed by RP 2165. *Id.* ¶ 5; Ex. 2230-FEDERCELL-2. For the reasons stated in previous findings regarding LCA 460:1 (SWUPAs 2240 and 3467 filed by T&Z Harders Family Limited), a 90-10% ratio of kalo to kula should be applied. Dodd (Federcell) WT 2/3/16, ¶ 10; Ex. 2230-FEDERCELL-1. The Commission provisionally approved appurtenant rights for LCA 460:1. Provisional Order, Ex. 7 at 39.

B-797. Parcel 1 is 1.978 acres. Dodd (Federcell) WT 2/3/16, ¶ 12. Ninety percent of Parcel 1 is 1.78 acres.

Permit Request

B-798. Parcel 1 is the last parcel to use water from the North Waikapū ‘Auwai. *Id.* ¶ 15. Dodd uses water from this ‘auwai via two 5/8-inch hoses to irrigate Federcell’s garden of dryland kalo, tī, banana, ‘awa, lemongrass, hō‘i‘o fern, māmaki, herbs, jackfruit, ‘ulu, and flowers on approximately 0.25 acre. *Id.*; SWUPA 2230 at 4.

B-799. Using a modified “bucket method,” Dodd estimates he uses 4,113 gpd for Federcell’s existing domestic purposes. Dodd (Federcell) WT 2/3/16, ¶ 16.

SWUPA 2271 – Waldemar & Darlene Rogers

B-800. Waldemar and Darlene Rogers filed a SWUPA for existing use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-5-012:012 (“Parcel 12”). Rogers WT 1/28/16, ¶ 1. The Rogers ‘ohana request recognition of appurtenant rights in the amount of 87,000 gpd, and a permit for 600 gpd, which is the existing use as of April 30, 2008. *Id.* ¶ 4.

Appurtenant Rights Claims

B-801. The deed to Parcel 12 contains a reservation of appurtenant rights. *Id.* ¶ 2.

Permit Request

B-802. The Rogers ‘ohana use water from the North Waikapū ‘Auwai (as it passes Waldemar’s sister Zelig Rogers Harders’ land) via a garden hose to irrigate their lawn and home garden, which includes tangerine, papaya, avocado, and puakenikeni. *Id.* ¶¶ 18, 21. They believe the 2002 State of Hawai‘i Water System Standard for single-family homes of 600 gpd is sufficient for these existing domestic uses. *Id.* ¶ 19.

Q. WAIKAPŪ: South Waikapū Ditch – Reservoir 1 – Kuleana ‘Auwai

B-803. Historically, an ancient ‘auwai took water directly from Waikapū Stream to kuleana users on the south side of the stream. Tr. 12/7/07 (Santiago) at 103:3-6 (MA06-01).

B-804. WWC now delivers water from Reservoir 1 to the “Reservoir 1” ‘Auwai. Reservoir 1 receives water from the South Waikapū Ditch, which in turn comes from Waikapū

Stream. The ‘auwai is an open ditch that services or serviced kuleana users on the south side of Waikapū Stream, including the Alves (Miyashiro Trust), John Minamina Brown Trust, Kamasaki, and Higa lands. Jeremiah Dec. 1/28/08, ¶ 21 (MA06-01); Tr. 12/7/07 (Santiago) at 101:12-17 (MA06-01); Ex. A-194D (MA06-01); SWUPA 2366 (Higa) Addenda at 1.

SWUPA 2260 & 2261N - Ho‘okahi Alves

B-805. The Jinsei Miyashiro Trust filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for a parcel in Waikapū, TMK No. (2) 3-6-006:027 (“Parcel 27”). Alves WT 1/29/16, ¶ 1; SWUPA 2260 at 1, 3; SWUPA 2261 at 1, 2. Ho‘okahi Alves and his ‘ohana purchased this land in October 2014, and have been living there since then. Alves WT 1/29/16, ¶ 1.

B-806. Alves requests recognition of appurtenant rights in the amount of 213,600 gpd, and a permit for 150,600 gpd. *Id.* ¶ 5.

Traditional and Customary Rights

B-807. The Alves ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶¶ 1-2.

B-808. The Alves ‘ohana cultivate lo‘i kalo in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 2, 17, 22.

Appurtenant Rights Claims

B-809. Parcel 27 is comprised of portions of two LCAs—LCA 10481:5, confirmed by RP 3131, and LCA 5280:1-3, confirmed by RP 6699—and Government Grant 1678:2. *Id.* ¶ 6; Ex. 2260-ALVES-4. The records supporting the two LCAs describe LCA 10481:5 as “paukukalo” and LCA 5280:1-3 as containing a “section” or a number of lo‘i, including a pō‘alima within, which is the land eventually awarded under Government Grant 1678:2. Alves

WT 1/29/16, ¶¶ 11-12; Ex. 2260-ALVES-1, -2. The Commission provisionally approved appurtenant rights for LCAs 10481:5 and 5280:1-3. Provisional Order, Ex. 7 at 42.

B-810. Parcel 27 is 0.712 acre. Alves WT 1/29/16, ¶ 13. The Alves ‘ohana estimate the water right appurtenant to Parcel 27 is 213,600 gpd (0.712 acre x 300,000 gad). *Id.* ¶¶ 15-16.

Permit Request

B-811. The Alves ‘ohana currently use water from the “Reservoir 1” ‘Auwai where it meets the mauka corner of Parcel 27 to irrigate their lo‘i kalo and other crops such as papaya, sweet potato, and guava. *Id.* ¶ 17. The Alves have restored three lo‘i and would like to open more lo‘i on up to 0.5 acre of their land, but they currently do not have sufficient water to do so. *Id.*

B-812. Applying the upper end of Reppun’s water duty range for lo‘i kalo, the Alves ‘ohana request 150,000 for their lo‘i (0.5 acre x 300,000 gad). *Id.* ¶ 18. They believe the 2002 State of Hawai‘i Water System Standard for single-family homes of 600 gpd is sufficient for their remaining domestic uses. *Id.*

SWUPA 2217 & 2218 – John Minamina Brown Trust/Crystal Smythe, Trustee

B-813. The John Minamina Brown Trust, through its sole trustee Crystal Smythe (formerly Crystal Alboro), filed a SWUPA for existing use and a SWUPA for new use on April 23, 2009, for two parcels in Waikapū, TMK Nos. (2) 3-6-006:025 (“Parcel 25”) and (2) 3-6-006:029 (“Parcel 29”). Smythe WT 2/5/16, ¶ 1; Tr. 7/19/16 at 6:2-6. Smythe requests recognition of appurtenant rights for Parcels 25 and 29 in the amount of 375,000 gpd, and a permit for 300,600 gpd. Smythe WT 2/5/16, ¶ 5.

Traditional and Customary Rights

B-814. The John Minamina Brown ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. *Id.* ¶ 2.

B-815. The John Minamina Brown ‘ohana cultivate lo‘i kalo in the traditional manner for subsistence, cultural, and educational purposes. *Id.* ¶¶ 19-20, 25.

B-816. For the last 19 years, Smythe has served as site coordinator for Kukulu Kumuhana o Maui Summer Hawaiian Immersion Youth Program. *Id.* ¶ 17. Through this educational and cultural program, which is based in Waikapū, she assists in bringing the Native Hawaiian language and culture to local students, ages 8 to 18, through first-hand experience with different parts of the Hawaiian Islands. *Id.*

B-817. In the summer of 1996, and every summer since then, students from Kukulu Kumuhana have come to Smythe’s ‘ohana land in Waikapū for at least a week to spend time learning about sustainable resource management through work in the lo‘i kalo and practicing the Hawaiian language. *Id.* ¶¶ 18-19.

Appurtenant Rights Claims

B-818. Waikapū Stream crosses Smythe’s land and an ancient ‘auwai works its way through the land before returning to the Stream. *Id.* ¶ 16.

B-819. Parcel 25 is comprised of a portion of LCA 2577:1, confirmed by RP 4948, and Parcel 29 is the entirety of LCA 3277, confirmed by RP 3119. *Id.* ¶ 6; Ex. 2217-BROWN-3. The records supporting LCA 2577:1 state this ‘āpana contained 11 lo‘i as well as a pō‘alima, and the records supporting LCA 3277 state this kuleana contained lo‘i kalo, without referencing any other uses. Smythe WT 2/5/16, ¶¶ 11-12; Exs. 2217-BROWN-1, -2. The Commission

provisionally approved appurtenant rights for LCAs 2577:1 and 3277. Provisional Order, Ex. 7 at 42.

B-820. Parcel 25 is 0.62 acre and Parcel 29 is 0.63 acre, for a combined 1.25 acres. Smythe WT 2/5/16, ¶ 13. Smythe estimates the water right appurtenant to Parcels 25 and 29 is 375,000 gpd (1.25 acres x 300,000 gad). *Id.* ¶¶ 14-15.

Permit Request

B-821. In 1990, Smythe’s ‘ohana filed a Declaration of Water Use with the Commission. *Id.* ¶ 16.

B-822. The Smythe ‘ohana intend to plant the land in kalo to the maximum extent possible—what Smythe estimated as one acre in her written testimony. *Id.* ¶ 20. At the time she filed the SWUPAs, her ‘ohana was cultivating three terraced lo‘i kalo on approximately 0.3 acre, and she requested water to open up an additional 0.85 acre (0.43 on Parcel 25 and 0.42 on Parcel 29). *Id.* ¶ 20; SWUPA 2218N at 3. At the hearing, she confirmed this latter figure, and therefore she requests water for a total of 1.15 acre lo‘i kalo (0.3 existing + 0.85 new). Tr. 7/19/16 at 11:22 to 12:12.

B-823. Smythe also maintains a garden of papayas. She believes the 2002 State of Hawai‘i Water System Standard for Maui County of 600 gpd for single-family homes is sufficient for this existing domestic use. *Id.* ¶ 21.

SWUPA 2368 – Evelyn Kamasaki

B-824. Teruo and Evelyn Kamasaki filed a SWUPA for existing use on April 23, 2009,¹³ for a parcel in Waikapū, TMK No. (2) 3-6-007:010 (“Parcel 10”). McCarthy WT 2/1/16,

¹³ The Kamasakis mistakenly filled out a “new use” form, but as Commission staff acknowledged at the hearing, the Kamasakis’ use existed on the date of designation, and they

¶ 1. The Kamasaki ‘ohana has lived on this land since 1919. McCarthy WT 2/1/16, ¶ 1. The Kamasakis’ daughter, Cynthia McCarthy, testified on the ‘ohana’s behalf, since her father passed away after filing the SWUPA. *Id.*

B-825. The Kamasaki ‘ohana request recognition of appurtenant rights in the amount of 213,000 gpd, and a permit for 2,010 gpd. *Id.* ¶ 20.

Appurtenant Rights Claims

B-826. Parcel 10 is comprised of a portion of LCA 432, confirmed by RP 102. *Id.* ¶ 4; Ex. 2368-KAMASAKI-2. The records supporting LCA 432 state this kuleana was farmed in “numerous” lo‘i kalo at the time of the Māhele. McCarthy WT 2/1/16, ¶ 8; Ex. 2368-KAMASAKI-1. The Commission provisionally approved appurtenant rights for LCA 432. Provisional Order, Ex. 7 at 44.

B-827. Parcel 10 is 0.71 acre. McCarthy WT 2/1/16, ¶ 9. McCarthy estimates the water right appurtenant to Parcel 10 is 213,000 gpd (0.71 acre x 300,000 gad). *Id.* ¶¶ 11-12.

Permit Request

B-828. Historically, the Kamasakis accessed kuleana water from the open ‘auwai that took water directly from Waikapū Stream. The Kamasakis used the water to grow fruit, vegetables, and flowers for their family to eat and sell. Up until the late 1940s, all of the neighboring lands were planted in wetland taro that were fed by this ‘auwai. Kamasaki WT 9/14/07, ¶¶ 3-4 (MA06-01).

B-829. Over time, the plantation changed the ancient ‘auwai system by putting water from its reservoir system into the ‘auwai, instead of allowing the ‘auwai to access water from the stream, and by replacing the dirt ‘auwai with a concrete channel in some stretches. *Id.* ¶ 3

filed the SWUPA before the April 30, 2009 deadline. Tr. 7/13/16 (McCarthy) at 102:2-14, 105:18 to 106:1.

(MA06-01). WWC most recently provided water to the Kamasaki land through the “Reservoir 1” ‘Auwai. Tr. 12/7/07 (Santiago) at 106:9-14 (MA06-01); Tr. 12/14/07 (Suzuki) at 87:15-17 (MA06-01); Exs. A-134 (MA06-01), A-194D (MA06-01).

B-830. In the mid-1980s, the Kamasakis ran a pipe in the open ‘auwai to their land because the pipe was easier to maintain and reduced problems with silt and trash. The pipe ran in a culvert under an unnamed, unimproved plantation road on Wailuku Agribusiness’s land, then ran inside the open ‘auwai to the Kamasaki land. Kamasaki WT 9/14/07, ¶ 6 (MA06-01); Kamasaki WT 11/16/07, ¶ 4 (MA06-01).

B-831. Until 2004, the Kamasakis used their kuleana water to both grow fruits and vegetables that the family ate or donated to charity, and to water their yard. The Kamasakis declared their water usage from the ‘auwai to this Commission in 1989. Kamasaki WT 9/14/07, ¶¶ 5-6 (MA06-01); Kamasaki WT 11/16/07, ¶ 3 (MA06-01).

B-832. In July 2004, during construction to widen and level the plantation road, Wailuku Agribusiness destroyed the culvert and the concrete flume on both sides of the road. The Kamasaki family’s pipe system was destroyed in the process, cutting off their kuleana water. Kamasaki WT 9/14/07, ¶ 7 (MA06-01); Kamasaki WT 11/16/07, ¶¶ 4-5 (MA06-01); Tr. 12/4/07 (Kamasaki) at 222:15 to 223:17, 225:19-22 (MA06-01); Ex. A-58 (MA06-01).

B-833. WWC admitted that the removal of Mr. Kamasaki’s culvert was not done for his benefit, but “for Wailuku’s purposes.” Tr. 1/16/08 (Chumbley) at 142:16 to 143:20 (MA06-01).

B-834. Teruo Kamasaki repeatedly approached Clayton Suzuki, a representative of Wailuku Agribusiness and later WWC, about the destruction of his pipe and the loss of his family’s kuleana water. Kuleana water has not been restored to the Kamasaki’s land. Kamasaki

WT 9/14/07, ¶ 7 (MA06-01); Kamasaki WT 11/16/07, ¶ 6 (MA06-01); Tr. 12/4/07 (Kamasaki) at 222:15-20, 225:19-22 (MA06-01).

B-835. Since the water stopped flowing to the Kamasaki's land, their fruits and vegetables have withered and died. Kamasaki WT 9/14/07, ¶ 8 (MA06-01); Exs. A-59 (MA06-01), A-60 (MA06-01).

B-836. WWC claims to have replaced Teruo Kamasaki's one-inch pipe under the road and installed a four- or six-inch culvert; and that Mr. Kamasaki still has access to kuleana water. WWC admits, however, that Kamasaki's pipe continues to be vandalized and is broken. Tr. 12/14/07 (Suzuki) at 87:14-23, 155:9-21 (MA06-01); Tr. 1/16/08 (Chumbley) at 144:1-2 (MA06-01).

B-837. Although her 'ohana have been cut off from water, McCarthy would like to see the pipe reinstalled and would use the kuleana water on approximately 0.67 acre to irrigate a non-commercial garden of togan melon, daikon, and corn, like her father used to have, and to water their lawn. *Id.* Applying the 2002 State of Hawai'i Water System Standard for Maui County domestic cultivation, she estimates she would need 2,010 gpd for these domestic uses (0.67 acre x 3,000 gad). *Id.* ¶ 14.

SWUPA 2366N – George & Yoneko Higa

B-838. George and Yoneko Higa filed a SWUPA for new use on April 23, 2009, for four parcels in Waikapū, TMK Nos. (2) 3-6-006:003 ("Parcel 3"), (2) 3-6-006:004 ("Parcel 4"), (2) 3-6-006:005 ("Parcel 5"), and (2) 3-6-006:016 ("Parcel 16"). Higa WT 2/3/16, ¶ 1. The Higas request recognition of appurtenant rights for all four parcels in the amount of 416,100 gpd, and a permit for 3,000 gpd. *Id.* ¶ 4.

Appurtenant Rights Claims

B-839. Yoneko Higa recalls seeing, firsthand as a child, lo‘i stone walls and terracing before they were bulldozed on Parcel 3. *Id.* ¶ 9.

B-840. Parcel 3 is comprised of: the entirety of LCA 3397:1 & 2, confirmed by RP 4122; at least half of LCA 3523:1, confirmed by RP 3141, and LCA 236I:1, confirmed by RP 498. *Id.* ¶ 6; Ex. 2366-HIGA-1 (map).

B-841. The deed to Parcel 3 contains a reservation of water rights appertaining to the small (0.024 acre) portion that is LCA 236I:1. Higa WT 2/3/16, ¶ 2; Ex. 2366-HIGA-1; SWUPA 2366 Addenda at 2.

B-842. The records supporting LCA 3397 describe ‘āpana 1 as a “paukukalo” and ‘āpana 2 as a “pahale.” Higa WT 2/3/16, ¶ 7; Ex. 2366-HIGA-2. LCA 3397:1 & 2 together make up 0.84 acre. Ex. 2366-HIGA-2. Presuming the pāhale of ‘āpana 2 was 0.25 acre (at most), the “paukukalo” of ‘āpana 1 approximates 0.59 acre (0.84 acre – 0.25 acre). The Commission provisionally approved appurtenant rights for LCA 3397:1 & 2. Provisional Order, Ex. 7 at 43.

B-843. The records supporting LCA 3523 describe ‘āpana 1 as “a section of lois” without referencing any other use. Higa WT 2/3/16, ¶ 8; Ex. 2366-HIGA-3. The Commission provisionally approved appurtenant rights for LCA 3523:1. Provisional Order, Ex. 7 at 44.

B-844. Parcel 3 is 1.093 acres. Ex. 2366-HIGA-1. Subtracting the 0.024-acre portion of Parcel 3 that is LCA 236I:1 (reservation) and the 0.25 acre portion that is presumed to be LCA 3397:2 (houselot), the remaining 0.819 acre were lo‘i lands at the time of the Māhele.

B-845. Parcel 4 is comprised of about 90% of LCA 3224:3, confirmed by RP 4115. Higa WT 2/3/16, ¶ 11. The foreign testimony supporting LCA 3224 describes ‘āpana 3 as a

“section of lois.” *Id.*; Ex. 2366-HIGA-5. The Commission provisionally approved appurtenant rights for LCA 3224:3.¹⁴ Provisional Order, Ex. 7 at 44.

B-846. Parcel 4 is 0.222 acre. Higa WT 2/3/16, ¶ 11. Higa estimates the water right appurtenant to Parcel 4 is 66,600 gpd. *Id.* ¶¶ 14-15, 17.

B-847. Parcel 5 is comprised of a portion of a government grant, confirmed by RP 1713. The grant does not provide the land use at the time of its issuance. *Id.* ¶ 12; Ex. 2366-HIGA-6. However, given Parcel 5’s location between the lo‘i kalo lands of LCAs 3523:1 and 3224:3, it is likely this parcel was also cultivated in lo‘i kalo. Higa WT 2/3/16, ¶ 12; Exs. 2366-HIGA-1, -3, -5.

B-848. Parcel 5 is 0.16 acre. Higa WT 2/3/16, ¶ 12. Higa estimates the water right appurtenant to Parcel 5 is 48,000 gpd (0.16 acre x 300,000 gad). *Id.* ¶¶ 14-15, 17.

B-849. Parcel 16 is comprised of three government grants, confirmed by RPs 1710, 1520, and 1701. *Id.* ¶ 13. These government grants do not indicate the land use at the time of their issuance. *Id.* However, given Parcel 16’s adjacency to the lo‘i kalo lands of LCA 3397:1, it is likely this parcel was also cultivated in lo‘i kalo. *Id.*; Ex. 2366-HIGA-1, -2.

B-850. Parcel 16 is 0.16 acre. Higa WT 2/3/16, ¶ 13. Higa estimates the water right appurtenant to Parcel 16 is 48,000 gpd (0.16 acre x 300,000 gad). *Id.* ¶¶ 14-15, 17.

Permit Request

B-851. The Higas are not using stream water because their access to the Waikapū Stream has been severely limited by upstream uses and alterations to the traditional ‘auwai. *Id.* ¶ 19. For as long as Yoneko Higa can remember, before the ‘auwai mauka of her land was destroyed, their family had always used ‘auwai water for non-commercial gardening, and as

¹⁴ The Provisional Order’s reference to “3324,” as opposed to “3224,” appears to be a typographical error.

recently as 1989, for kalo. *Id.* ¶ 24. The Higas would like to restore this practice and therefore request a permit to grow vegetables and other garden crops on approximately one acre (0.46 acre of Parcel 3, all 0.22 acre of Parcel 4, all 0.16 acre of Parcel 5, and all 0.16 acre of Parcel 16). *Id.* ¶ 19. Applying the 2002 State of Hawai‘i Water System Standard for Maui County domestic cultivation, the Higas estimate they will need 3,000 gpd (1 acre x 3,000 gad). *Id.*

R. Miscellaneous

1. Waihe‘e

SWUPA 2153 – Robert Hanusa

Appurtenant Rights Claims

B-852. Mr. Hanusa did not recall whether he had participated in the provisional recognition proceedings and did not submit any evidence regarding quantification. Tr. 9/19/16 (Hanusa) at 42:18-20, 43:7-10.

Permit Request

B-853. Mr. Hanusa filed SWUPA 2153 on March 13, 2009 seeking a permit for his existing use of 905 gpd on his 0.5-acre residential lot for landscape irrigation and fruit trees.

SWUPA 2348 – Michael Bailie

B-854. Mr. Bailie submitted SWUPA 2348 on April 30, 2009 seeking a permit for his existing use of 1840 gpd on his 5.2-acre parcel, for 2 acres of landscape irrigation, 1 acre of macadamia nuts, and 2.3 acres of bamboo.

2. Waiehu

SWUPA 3905N – Murray & Carol Smith

B-855. On January 22, 2014, Murray and Carol Smith filed an application for new use, SWUPA 3905N, for a parcel in Waiehu, TMK No. (2) 3-2-017:041 (“Parcel 41”), which

they purchased in October 2013. Smith WT 2/5/16 at 8¹⁵; SWUPA 3905N Addendum at 1. Parcel 41 was formerly part of a larger parcel, TMK No. 3-2-017:018, for which Waiehu Aina, LLC (David Singer) filed SWUPA 2290N on April 27, 2009. *Id.* SWUPA 3905N partially amends SWUPA 2290N and only concerns Parcel 41. *Id.*; Tr. 9/19/16 (Smith) at 58:4-15, 60:3-8.

Appurtenant Rights Claims

B-856. Smith requests recognition of appurtenant rights for Parcel 41, which is the entirety of LCA 3431, in the amount of 540,000 gpd. Smith WT 2/5/16 at 2; SWUPA 3905N Addendum at 1. The quitclaim deed that conveyed Parcel 18 (which then included Parcel 41/LCA 3431) to Waiehu Aina, however, reserved all water rights to WACI. Smith WT 2/5/16 at 5; Ex. SMITH-2290-03.

Permit Request

B-857. After the Smiths purchased Parcel 41 in October 2013, they removed cane grass and trees, provided an all-weather surface over the existing roadway, and ran a private water line—approximately one-quarter of a mile long—to transport treated County water to their property. Smith WT 2/5/16 at 8. After making these improvements, the Smiths leased the land to Hafoka, whom Smith estimates has planted approximately 90% of 1.84 acres in “irrigated row crops”: 70% dryland kalo, 25% sweet potato, and 5% “other,” with banana and papaya “interspersed therein.” *Id.*; Exs. SMITH-2290-10, -19.

B-858. Smith claims the “economy of growing crops with domestic water for irrigation is a hardship on Hafoka” and that the “amount of water he currently uses is barely enough to maintain a decent crop.” *Id.* Applying standards from the O‘ahu water requirements

¹⁵ Smith’s written testimony does not include page numbers, so these findings refer to the page number of the pdf file posted on the Commission’s website.

forecast for selected crops and the Planning Division’s domestic water consumption standards, *see* Ex. SMITH-2290-20, Smith requests a total of 16,700 gpd: 12,000 gpd for irrigated row crops (1.84 acre x 6,500), 2,200 gpd for a macadamia orchard (0.5 acre x 4,400), and 1,500 gpd for “ohana.” *Id.* He notes, “Request for Ohana based on oversized parcel.” *Id.*

B-859. At the hearing, Smith testified “we’re using the minimum of water to keep the crops watered, but it’s not sufficient really to grow them the way they should be, and the cost to do so would be prohibitive. So we are using water currently, treated water from the County.” Tr. 9/19/16 at 48:22 to 49:1.

B-860. Smith admitted, however, he did not know Hafoka’s actual use: “as that bill is being paid by [Hafoka], I cannot answer that. Those records would be available, but I don’t have them handy.” *Id.* at 53:22 to 54:2. He also admitted that he did not know how much WWC charges its customers for water: “I have not done—no, an analysis of it, but we are paying for water that is probably the same water that we would be receiving from the water company, but it’s been treated, then turned around and pumped back. They’ve got administrative costs, certainly. I wouldn’t expect that it would be anywhere close to the amount that the County would charge.” *Id.* at 49:15 to 51:11. He also stated he asked WWC “what their charges would be and they indicated that they couldn’t serve us water until this problem that’s before us is solved. So I have no idea what their rates would be.” *Id.* at 51:15-19.

SWUPA 2355 – Fred Coffey

B-861. Fred Coffey filed an existing use application for a parcel in Waiehu on which he resides, TMK No. (2) 3-2-018:003. Coffey WT 2/8/16, ¶¶ 1-2. He requests recognition of appurtenant rights in the amount of 165,000 gpd, and a permit for 600 gpd. *Id.* ¶ 17.

Appurtenant Rights Claims

B-862. In his SWUPA, Coffey did not claim appurtenant rights and stated, “a deed transferring the property reserved the water rights.” *See* SWUPA 2355 at 1, Attachments. At the hearing, however, Coffey stated, “No reservation for the water. Everything is entirely good to go, no problems that way.” Tr. 7/13/16 (Coffey) at 98:20-22. The discrepancy between these statements was never clarified.

Permit Request

B-863. Coffey requests water for a yard and non-commercial garden of a two-family household. Coffey WT 2/8/16, ¶¶ 11, 13. According to his SWUPA, Coffey calculated his existing average daily use at 641.5 gallons. *Id.* ¶ 10; SWUPA 2355 at 2. He believes the 2002 State of Hawai‘i Water System Standard for Maui County of 600 gpd per single-family home is adequate for his uses. Coffey WT 2/8/16, ¶ 11.

3. Wailuku

SWUPA 2287 – Michele Haller¹⁶

Appurtenant Rights Claims

B-864. Ms. Haller is one of the owners of a 46.97-acre parcel in Wailuku, Maui identified as TMK No. (2) 3-4-031:001. Tr. 9/19/16 (Haller) at 23:23 to 24:8; Ex. OHA-46. The property description includes reference to 29 LCAs, or portions thereof, some of which have multiple apana. *Id.*, Ex. A thereto.

B-865. Ms. Haller seeks recognition and quantification of the appurtenant rights associated with 32 LCAs and 15 poalima based on Māhele records submitted for the first time as an exhibit to the Testimony of Steve Haller filed on March 21, 2016. Tr. 9/19/16 at 17:21-23.

¹⁶ Michele Haller’s late husband Steve Haller was a co-owner of the property, the applicant for SWUPA 2287E, and the proponent of written testimony filed on March 21, 2016. Ms. Haller is misidentified in the transcript as “Michelle Baillie.” Tr. 9/19/16 at 3 (Index of Witnesses), 12.

B-866. The Hallers did not participate in the first step of the process approved on September 27, 2011 for determining appurtenant rights in Nā Wai ‘Ehā and, consequently, the appurtenant rights Ms. Haller seeks to have quantified have not been provisionally recognized. Tr. 9/19/16 (Haller) at 17:5-20; Provisional Order at 1-2 (describing two-step process) and Ex. 7 thereto (table identifying recognized appurtenant rights).

B-867. Some of the LCAs for which the Hallers claimed appurtenant rights were only partially in kalo at the time of the Māhele, *see, e.g.*, Tr. 9/19/16 (Haller) at 16:12-24, and some were only partially within the TMK parcel, *see id.* at 20:3-10; Ex. OHA-46, Ex. A thereto, at 7-8. The Hallers did not attempt to identify the number of acres of their land that were actually in kalo at the time of the Māhele.

Permit Request

B-868. SWUPA 2287E was filed on April 24, 2009, seeking water for an existing use of 19,519 gpd, of which 17,567 gpd is “to irrigate field crops” and 1,952 gpd is “to maintain plant growth.” SWUPA 2287E at Table 1, Table 2. The field crops are grown on approximately 25 acres, and there are 6 acres of ornamental and nursery plants. *Id.*, Table 3. *See also* Tr. 9/19/16 (Haller) at 19:1-6 (estimating 70% of the land being cultivated).

Steve Haller entered a water delivery agreement with WWC in November 2006, with an “applicable rate” of \$0.85/1,000 gallons. Ex. D-69 (MA06-01) at 2.

SWUPA 2191 & 2192N – Charles Dando, Sr.

B-869. Charles Dando, Sr. et al request existing use permits for two separate properties, TMK Nos. (2) 3-5-030:116 (“Parcel 116”) and (2) 3-4-033:014 (“Parcel 14”), for the purpose of home landscape irrigation. Mr. Dando claims uses of 1,743 gpd on 0.1 acres on Parcel 116 (17,430 gad), and 1,705 gpd on .5 acres (3,410 gad) on Parcel 14. SWUPA 2191 at

3-4; SWUPA 2192 at 3-4. Regarding the 17,430 gad figure, Mr. Dando admitted that the use “should be way down from that.” Tr. 7/29/16 (Dando) at 97:4-16.

B-870. The photographs attached to the SWUPAs indicate, and Mr. Dando agreed, that the claimed water uses are for the yards on the parcels. Tr. 7/29/16 (Dando) at 95:7-10, 97:17-24. The photographs for Parcel 116, for example, show a yard around the house, between the house and fence. *Id.* at 97:21-24. Mr. Dando’s parcels also receive county water for the houses. *Id.* at 95:11-13.

SWUPA 2204 – Luke McLean

B-871. Glenn McLean filed an existing use application for a parcel in Waikapū, TMK No. (2) 3-5-004:057 (“Parcel 57”). McLean WT 3/21/16, ¶ 1; SWUPA 2204 at 1. His son Luke McLean testified on his behalf, with the understanding that any water use permit be issued to Luke. *Id.* ¶ 2.

B-872. The McLeans request recognition of appurtenant rights in the amount of 342,000 gpd, and a permit for 300,000 gpd, of which Glenn claimed 500 gpd as the existing use when he filed the SWUPA. *Id.* ¶ 6; SWUPA 2204 at 2. At the hearing, Luke testified that when his father completed the SWUPA, they “never had a meter gaging our actual use” and that his father “just made a humble assumption that that was all we were using.” Tr. 7/18/16 at 108:4-9, 18. Luke testified their “current existing use” is now 16,000 gpd. *Id.* at 109:2-4.

Traditional and Customary Rights

B-873. The McLean ‘ohana are tenants of the ahupua‘a of Waikapū who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778. McLean WT 3/21/16, ¶1. They grow lo‘i kalo and other Hawaiian food crops in the traditional manner for subsistence and cultural purposes. *Id.* ¶¶ 4, 13-14, 19.

Appurtenant Rights Claims

B-874. Historical lo‘i still exist on Parcel 57. *Id.* ¶ 14; Ex. 2204-MCLEAN-2. An ‘auwai originating from Waikapū Stream was the historical source of water for the McLean’s land. *Id.* ¶ 4.

B-875. Parcel 57 is a portion of LCA 2225:1-4, confirmed by RP 3116. McLean WT 3/21/16, ¶ 7; Ex. 2204-MCLEAN-1. The records supporting LCA 2225 describe ‘āpana 1 through 3 as “sections of taro patches” and ‘āpana 4 as “land used for growing wauke.” McLean WT 3/21/16, ¶ 9; Ex. 2204-MCLEAN-1. In his written testimony, Luke estimated the water right appurtenant to Parcel 57 is 342,000 gpd by applying 300,000 gad to the parcel’s 1.14 acres. McLean WT 3/21/16, ¶ 12. At the hearing, however, Luke testified that “three-quarters of the property was farmed in lo‘i kalo, one quarter in wauke.” Tr. 7/18/16 at 112:1-3. Three-quarters of 1.14 acres is 0.855 acre. The Commission provisionally approved appurtenant rights for LCA 2225. Provisional Order, Ex. 7 at 35.

Permit Request

B-876. The traditional ‘auwai that brought water to the McLeans’ land was destroyed by Wailuku Sugar Co. McLean WT 3/21/16, ¶ 4. Luke now relies solely on WWC’s delivery system for water which derives from Wailuku River via the ‘Īao-Waikapū diversion intake and a one-inch PVC water line from the ‘Īao-Waikapū reservoir and ditch system. *Id.* Currently, he uses all of the kuleana water coming from the pipe—an estimated 16,000 gpd—to irrigate lo‘i kalo, other Hawaiian food crops such as ‘ulu, ‘uala, and mai‘a, a large vegetable garden, a diverse fruit orchard, and an extensive collection of Waikapū native plants. *Id.* ¶¶ 13-14.

B-877. Luke intends to open one acre of lo‘i, which he estimates would require 300,000 gpd, and requests a permit in that amount. *Id.* 14. The water provided by WWC via the one-inch PVC line is insufficient to support Luke’s restoration of historical lo‘i. *Id.*

4. Waikapū

SWUPA 2155 – Clayton Suzuki

Appurtenant Rights Claims

B-878. Mr. Suzuki and his wife, through their respective trusts, are the owners of two contiguous parcels of land in Waikapū, Maui, identified as TMK Nos. (2) 3-6-006:009, and :013, and own a ten percent undivided interest in a third parcel identified as TMK No. (2) 3-6-006:022; the three parcels comprise a total of 4.433 acres. Suzuki WT 2/4/16 at 8.

Mr. Suzuki purchased the land from WACI by quitclaim deed recorded on May 1, 2003 as Document No. 2003-081213. *See* Attachment to Hui o Nā Wai ‘Ehā’s and Maui Tomorrow Foundation, Inc.’s and the Office of Hawaiian Affairs’ Objections to Appurtenant Rights Claims of Clayton Suzuki dated [filed?] 9/9/12. WACI conveyed its interest in the property “EXCEPTING AND RESERVING, HOWEVER, unto Grantor, its successors and assigns, all water and water rights (surface and ground water) within or appurtenant to the Property[.]” *Id.* at 2 (upper case in original). *See also* Tr. 7/18/16 (Suzuki) at 140:1-2 (acknowledging reservation). Mr. Suzuki worked for WACI for many years; he did not ask WACI to convey the property without the reservation of appurtenant rights. Tr. 7/18/16 (Suzuki) at 144:22 to 146:6.

Permit Request

B-879. Mr. Suzuki filed SWUPA 2155 on April 20, 2009, seeking a permit for his existing use of 17,379 gpd on a total of either 4.36 acres, *id.* Table 2, or 4.34 acres, *id.*, Table 3, on the three TMK parcels. The existing use was for 2.02 acres of pasture, 1.0 acres of landscaping, 0.72 acres of bitter melon, 0.5 acres of dryland taro, and 0.1 acres of fruit trees. *Id.*

Mr. Suzuki's existing use of 17,379 gpd on 4.36 or 4.34 acres amounts to 3,986 to 4,004 gad. Mr. Suzuki's use has increased to 21,371 gpd, over the same acreage, Tr. 7/18/16 (Suzuki) at 140:9-11; 148:25 to 149:6, which amounts to 4,902 or 4,924 gad. Mr. Suzuki did not file a SWUPA for his new use of 3,992gpd. *Id.* at 150:13-15.

SWUPA 2156 – Nadao Makimoto

Appurtenant Rights Claims

B-880. Mr. Makimoto did not introduce any additional evidence, beyond what he submitted in the provisional recognition phase, to quantify his claimed appurtenant rights.

Permit Request

B-881. Mr. Makimoto filed SWUPA 2156 on April 20, 2009 seeking a permit for his existing use of 10,400 gpd on his 0.585-acre parcel to irrigate 0.30 acres of vegetables, 0.10 acres of fruit trees, and 0.185 acres of landscaping.

B-882. Mr. Makimoto's use amounts to 17,778 gad, which is more than necessary for efficient and economic utilization.

VII. RIGHTS TO KULEANA WATER COURSES OR ACCESS

B-883. In this proceeding, as in the previous proceeding, kuleana rightholders who rely on the Companies' ditch system to access Nā Wai 'Ehā stream water raised complaints about their water flow being impaired or cut off and asked the Commission to address and remedy the situation. *See, e.g.*, Tr. 9/19/16 (Nakama) at 115:4 to 121:16; Tr. 7/12/16 (Ciotti) at 33:15 to 41:4; Tr. 7/12/16 (Velez) at 79:22 to 82:23; Tr. 7/13/16 (McCarthy/Kamasaki) at 104:23 to 105:13; Tr. 7/11/16 (Molina) at 173:3 to 174:18, 176:5 to 177:4. The Hearings Officer invited the parties to brief the issues and provide recommendations. Tr. 7/12/16 at 37:7-17, 41:1-4. The following discussion in these FOFs reviews the historical and factual background of the

Companies' control and modification of the 'auwai system in Nā Wai Ehā and their documentation of the "obligations" to kuleana; COLs below discuss the Commission's legal mandate to comprehensively determine, administer, and protect water rights—including both the "water" itself, and "water course" or "means" of access and use—and address the protection of "water course" rights in this case.

B-884. As historical background, when some of the earliest plantation diversions in Hawai'i began in Nā Wai 'Ehā, it was in this area—and in a case involving WWC's predecessor—where the plantations were advised that their diversions were "subject to the rights of tenants," including "taro patches and the water necessary for their cultivation." *Peck*, 8 Haw. at 661-62. *Peck* documents that, by 1867, the plantations had already taken over the "Kamaauwai" and "Kalaniauwai," which were two main traditional 'auwai in Nā Wai 'Ehā, *see* Ex. C-2 (Tengan report) at 10, 15 (MA06-01), and were using the 'auwai for their plantation uses. *See Peck*, 8 Haw at 659-60.

B-885. As detailed below, the uniform and uncontroverted testimony throughout these Nā Wai 'Ehā proceedings establish the history and practice in which the Companies exercised consolidated control over the flow of water among themselves and to others, including tenant rightholders, and in so doing, replaced, rerouted, and modified the traditional 'auwai at their discretion. *See, e.g.*, Tr. 12/14/07 (Suzuki) at 89:10-18 (MA06-01) (explaining how Wailuku Sugar supplied many of the kuleana through the 'auwai that fed the sugar fields, then replaced the 'auwai with pipes when the plantation converted to drip irrigation); Tr. 1/16/08 (Chumbley) at 142:16 to 143:20 (MA06-01) (confirming that WWC removed a culvert through which a kuleana accessed water not for the kuleana owner's benefit, but "for Wailuku's purposes").

B-886. As one example, the “Waihe‘e Valley North” ‘auwai historically received water directly from Waihe‘e River, but in the late 1970s or early 1980s, WWC augmented its upstream diversions, leaving insufficient instream flow for the ‘auwai, then blocked the ‘auwai intake and connected it to WWC’s ditch system. Faustino WT 9/14/07, ¶¶ 3-4; Tr. 12/13/07 at 13:17-20, 16: 8-15; Freitas WT 10/26/07, ¶¶ 4-5; Exs. A-34, -35 (MA06-01).

B-887. Similarly, kuleana in Waikapū historically up until the late 1940s received water through an ‘auwai system directly connected to Waikapū Stream, but the plantation eventually redirected the ‘auwai system to connect to the plantation’s reservoir system instead. Kamasaki WT 9/14/07, ¶ 3 (MA06-01).

B-888. In Waiehu, kuleana on Malaihi Road historically received water from an ancient ‘auwai that formed a pool in which ali‘i were known to bathe, but when WWC switched from sugar to macadamia nuts, it moved the intake of the ‘auwai, which also reduced the flow of water. Ho‘opi‘i WT 10/26/07, ¶¶ 9 (MA06-01). WWC later made additional changes to the ‘auwai intake, which further reduced the flow. *Id.* ¶¶ 10-14.

B-889. WWC would also supply other Waiehu kuleana from the North Waiehu Ditch, *id.* ¶ 15, but since WWC abandoned that diversion, those kuleana have been cut off from water. Tr. 9/19/16 (Nakama) at 115:4-23. In the 2014 Order, which adopted the Parties’ mediated agreement, the Commission ordered that WWC provide water to kuleana property that was previously provided water from the North Waiehu Ditch and continue to service the Waiehu kuleana users from the Waihe‘e Ditch. *Id.* at 26. WWC, however” has not complied because it claims it still needs an engineering plan “to be able to determine if [it] can take water out of Waihee Ditch at that point.” Tr. 10/14/16 (Chumbley) at 132:19 to 133:16.

B-890. In other areas, such as the “Piihana/Mill,” “Piihana-Field 49,” and “Puuohala” ‘auwai located in more urbanized areas of Nā Wai Ehā around Wailuku, WWC replaced the traditional ‘auwai with other conduits through plantation ditches and pipes, much of which it laid underground. *See, e.g.*, Tr. 12/7/07 (Santiago) at 116:18 to 118:16; Cockett WT 10/26/07, ¶¶ 4-5; Tr. 12/7/07 (Brito) at 33:4-18 (MA06-01). For the “Wailuku Town” ‘auwai, a few years before the original IIFS proceeding, WWC stopped the historical consistent flow of water and now provides water for only a couple of hours, two or three times a week. Bal WT 10/26/07, ¶¶ 4-5 (MA06-01); Tr. 7/12/16 (Velez) at 79:24-25.

B-891. In some cases, like the “Waihe’e Valley North” ‘auwai, kuleana rightholders are able to restore, and seek to restore, their direct connection to the stream with the restoration of downstream flow. *See, e.g.*, Faustino WT 9/14/07, ¶ 9 (MA06-01); Ellis WT 2/18/14, ¶ 9 (MA06-01 Remand). In many other cases, such as the others described above, the plantations’ historical modifications have made it logistically prohibitive for kuleana rightholders to reestablish a direct connection to the stream and have thus made those kuleana rightholders dependent on the Companies’ ditch system to access stream water.

B-892. In addition to the uncontroverted testimony, the Companies have expressly and uniformly acknowledged and documented their obligations to satisfy kuleana rights in numerous written water agreements dating back almost a century. In the Companies’ original 1924 agreement dividing Nā Wai ‘Ehā’s stream flows, they expressly acknowledged that their diversions were “subject to existing water rights of third parties therein,” including “for all kuleana of such third parties.” Ex. D-52 at 33, 38-39 (MA06-01). To satisfy the rights of kuleana in Waihe’e, for example, the Companies agreed that kuleana “rights shall as far as practicable . . . be supplied from the water flowing in [Waihe’e River] . . . , and any deficiency

for such kuleana shall be supplied by the [Companies] from the waters flowing in the New Waihee Ditch.” *Id.* at 38-39.

B-893. In their 1994 “Temporary Water Agreement” modifying the Companies’ water allocations in connection with HC&S’s lease of the ‘Īao-Waikapū fields, the Companies continued to acknowledge that “Kuleana water has priority over any other uses,” and that the Companies’ uses were limited to the amount of water “remaining after fulfilling Kuleana water users’ rights.” Ex. C-64 at 2-3. *See also* Tr. 1/24/08 (Chumbley) at 25:12-20 (confirming that kuleana rights are treated the same under the 1924 agreement as the 1994 temporary agreement).

B-894. In its 2003 “white paper” proposing the sale of its “watershed lands and associated water system improvements” to the County, WWC documented the priority of “Kuleana Usage” and the “remaining capacity” of water available “after system losses and kuleana water obligations (combined total of approximately 11.4 [mgd]).” Ex. C-24 at 3 (MA06-01).

B-895. In a 2005 letter to its shareholders, WWC reported that “the Company provides water to several kuleana users free of charge (a kuleana is a parcel of land that was growing taro at the time of the Great Mahele in 1848 and is entitled to water as an appurtenant right).” Ex. B-5 at 3 (MA06-01).

B-896. WWC’s contracts with its customers also confirm the same:

- expressly subjecting any water use to “priority use by Wailuku’s kuleana obligations.” *See, e.g.*, Ex. C-71 at 4; Ex. C-72 at 4; Ex. D-86 at 4; Ex. D-87 at iii; Ex. D-90 at 4; Ex. D-92 at 3 (MA06-01).
- recognizing the priority of WWC’s “preexisting delivery commitments,” *see, e.g.*, Ex. C-69A at 5-6; Ex. D-89 at 3; Ex. D-59 at 1 (MA06-01), which include “Existing Consumptive Uses for . . . downstream kuleanas,” Ex. C-69A, Ex. B thereto (MA06-01).

- making clear that during times of low streamflow, WWC will ration water among its end users with “priority given to kuleana users.” *See, e.g.*, Ex. C-71 at 4; Ex. C-72 at 4; Ex. D-58 at 2-3; Ex. D-60 at 2; Ex. D-61 at 2; Ex. D-62 at 2; Ex. D-63 at 2; Ex. D-64 at 2; Ex. D-65 at 2; Ex. D-66 at 2; Ex. D-67 at 2; Ex. D-68 at 2; Ex. D-69 at 2; Ex. D-70 at 2; Ex. D-71 at 2; Ex. D-72 at 2; Ex. D-73 at 2; Ex. D-75 at 2; Ex. D-76 at 2; Ex. D-77 at 2; Ex. D-78 at 2; Ex. D-80 at 2; Ex. D-81 at 2; Ex. D-82 at 2; Ex. D-83 at 2; Ex. D-84 at 2; Ex. D-85 at 2; Ex. D-86 at 3; Ex. D-87 at iii; Ex. D-90 at 4; Ex. D-92 at 4 (MA06-01).

B-897. The understanding of the Companies’ obligations to kuleana established in these documents was further confirmed in the testimony of Teruo Kamasaki, who worked for Wailuku Sugar for 42 years and served as the “water luna or water supervisor”: “It’s historically known that kuleana have preference over sugar,” so the plantation “insured that they got that water.” Tr. 12/4/07 at 219:7 to 220:5 (MA06-01). *See also id.* at 221:4 to 222:2 (management recognized “we have that obligation to supply them water,” which he took “very seriously,” responding to any concerns about inadequate water for kuleana “immediately”).

VIII. COMMERCIAL USERS AND OTHER WWC CUSTOMERS

C-1. The 2010 Decision included a detailed overview of the Companies' ditch system, including its physical layout, historical background, and various diagrams, which are incorporated herein by reference.

C-2. For historical background and reference, during the sugar plantation era, an average of about 67 mgd was diverted from Nā Wai 'Ehā streams: 40 mgd from Waihe'e River; 3 mgd from North Waiehu Stream; 3 mgd from South Waiehu Stream; 18 mgd from 'Īao Stream, and 3 mgd from Waikapū Stream. USGS Streamflow Report at 2, 11 (citing Yamanaga & Huxel (1970)).

C-3. In the original IIFS proceeding, WWC testified that, in 1987, prior to Wailuku Sugar Company's closure in 1988, about 53 percent of water diverted by the "Wailuku Ditch system" (not including HC&S's diversions) was used by Wailuku Sugar, 35 percent by HC&S, 10 percent by small private users, and 2 percent by Maui County. Chumbley WT 9/12/07 at 3:1-3, 6:20 to 7:2 (MA06-01); *see also* USGS Streamflow Report at 3 (citing Chumbley). However, the Temporary Water Agreement between HC&S and Wailuku Agribusiness ("WAB" or "WACI"), by which the Companies reallocated the Wailuku Ditch system flows in connection with the lease of the 'Īao-Waikapū Fields, calculated the "WAB Share" of ditch flow at 77% (42.2 mgd of 55 mgd). *See* Ex. C-64, Ex. A thereto (MA06-01). Likewise, WWC's "white paper" on the Wailuku Ditch system calculated the "HC&S allocated share" of water at around 23% (14.81 mgd of 63.24 mgd). *See* Ex. C-24 at 2 (MA06-01).

C-4. In contrast to the allocation of water before Wailuku Sugar's closure, WWC testified that in 2005, about 79 percent of the water diverted by the Wailuku Ditch system was used by HC&S, 10 percent by small private users, 4 percent by Maui County, and 7 percent by various users with water delivery agreements with WWC. Chumbley WT 9/12/07 at 7:3-6

(MA06-01). Now, with the closure of HC&S's sugar operations in 2016, the allocation of diverted streamflows is continuing to shift.

A. HC&S (SWUPA 2205).¹

1. Closure of Sugar Operations

C-5. On January 6, 2016, Alexander & Baldwin ("A&B") issued a press release announcing the closure of HC&S by the end of the year. *See* Ex. Nā Wai-18. In a powerpoint presentation to government officials, HC&S cited the reasons for the closure as "[p]oor operational performance and outlook for continued losses," "myriad challenges with harvesting and milling processes," and "low sugar prices"; availability or lack of water was not cited as a reason. Tr. 7/29/16 (Volner) at 168:24 to 170:22.

C-6. A&B stated it would eventually "transition to diversified agriculture," but that it is "looking for," "evaluating," "assessing the potential of," and "exploring" potential crops and has "several test projects underway to further assess these opportunities." Ex. Nā Wai-18.

Through the course of this proceeding, HC&S was still uncertain on basic aspects of its potential future agricultural operations. As A&B's CEO announced at an April 20, 2016 media event, its "[p]lans are very premature. . . . It's hard to say exactly how much [water] we need." Ex.

OHA-4. HC&S speculated, for example, that "under the diversified agricultural model, HC&S may farm some of the lands itself, but may also lease some of its lands to other farmers and/or partner with others on different agricultural pursuits." HC&S's Open. Br. (SWUPA 2205) at 2.

¹ As used herein, and previously in these proceedings, "SWUPA 2205" refers to the SWUPA HC&S filed for its Waihee-Hopoi Fields, and "SWUPA 2206" refers to the SWUPA HC&S originally filed for its Iao-Waikapu Fields, for which Waikapu Properties, LLC substituted as the "Applicant" after HC&S gave up its lease for those fields. *See* HC&S's Correction of SWUPA Numbers, filed on February 3, 2017.

C-7. HC&S stated that its “Diversified Agriculture Plan calls for the cultivation of bioenergy crops” on all the acres of the Waihe‘e-Hopoi and ‘Īao-Waikapū fields. HC&S’s Open. Br. (SWUPA 2205); HC&S’s Open. Br. (SWUPA 2206) at 2, 5. At the Community Groups request, the Hearings Officer issued a subpoena for the “Diversified Agriculture Plan” and “Diversified Agriculture Model” that HC&S cited in its submissions, but HC&S did not produce any such specific documents. Tr. 7/29/16 (Volner) at 162:23 to 164:8. Rather, it produced a field map and two presentations: a bullet-point “outline presentation” for A&B employees, and a powerpoint for government officials that “outlines the concepts of the plans that we have going forward for our agricultural lands.” *Id.* at 165:7 to 170:22. HC&S referred to a “diversified ag plan model concept” and acknowledged “a lot of it is at the concept stage.” *Id.* at 168:10-23.

C-8. In referring to bioenergy crops in its Opening Briefs, HC&S did not propose any specific crop, but rather recited a list of “a variety of crops that can support biogas or biofuel production, including but not limited to fuel for jets, marine and land vehicles, and to generate electricity,” which “may include, but are not limited to, annual seed crops, such as soybean, safflower, sunflower and canola; perennial oil bearing trees, such as jatropha, kukui and pongamia, and tropical grasses, such as energy canes, banagrass, sorghum, hemp and new hybridized perennial tropical grasses.” HC&S’s Open. Br. (SWUPA 2205) at 2-3. It stated that “[t]he plan is to have a mix of bioenergy crops” and “[i]t is anticipated . . . that the primary focus . . . will be on tropical grasses,” without offering concrete details. *Id.* at 3.

C-9. HC&S indicated it still had not determined the specifics of any bioenergy crop operations. It referred to a five-year research project on biofuels (“DoD Study”) in which “HC&S was included,” HC&S’s Open. Br. (SWUPA 2205) at 3, but it did not produce any documents related to that study under subpoena and later clarified that HC&S served only as a

“host site” and “contractor” for the study and “ha[s] not been consulted on that study.” Tr. 7/29/16 (Volner) at 171:18 to 173:12. Thus, after five years, HC&S still only “has some preliminary experience with the requirements, including water requirements and irrigation practices, for growing some of these bioenergy crops.” HC&S’s Open. Br. (SWUPA 2205) at 3.

C-10. HC&S made clear that “further research and testing is necessary for growing these crops on a large scale in Central Maui.” HC&S’s Open. Br. (SWUPA 2205) at 3. It is “capturing cost data, testing farming methods at scale, and refining the economic model” starting with a 50-acre trial field and, “[l]ater this year,” will plant an additional 500 acres “to validate bioenergy crop density, irrigation layout, per-acre yield in different soil types, water demand, and field-scale costs.” *Id.* at 3-4. “Results will be critical to analyzing the economic viability of cultivating different energy crops on HC&S lands.” *Id.* at 4.

C-11. HC&S also does not know “whether [it] will be involved in the processing of biofuels or whether biofuel stock grown by HC&S will be sold to a processor, and whether the processing will occur on HC&S land or elsewhere.” HC&S’s Open. Br. (SWUPA 2205) at 11.

C-12. Ultimately, HC&S makes clear it is still “refining the economic model for bioenergy crops and has yet to determine its economic viability on a large scale.” HC&S’s Open. Br. (SWUPA 2205) at 14.

2. Water Needs for Diversified Agricultural Operations

C-13. HC&S acknowledges the “significant differences between the sugar cane and diversified agriculture models, including, but not limited to, water duties.” HC&S’s Open. Br. (No. 2205) at 2. Specifically, “the amount of irrigation water required will be less than what was required and used for sugar cane cultivation.” *Id.* at 4. HC&S states that that its “circumstances are very similar” to the transition to diversified agriculture in the *Waiāhole* case. *Id.* at 4, n.3.

C-14. The transition to from sugar cane to diversified agriculture will result in significant reductions in water needs, as seen in the history of sugar plantation closures in Hawai‘i. The *Waiāhole* case, for example, emphasized the significant differences between the 2,500 gallon per acre per day (“gad”) allocation for diversified agriculture and the 7,500 to 10,000 gad figures for sugar. *See* 94 Hawai‘i at 163, 9 P.3d at 475. In the *Nā Wai ‘Ehā* case, WWC indicated that the closure of the Wailuku Sugar plantation resulted in a reduction in water use from 45 mgd for Wailuku Sugar to 6 to 8 mgd for Wailuku Agribusiness’s cultivation of pineapple and macadamia nuts. *See* Chumbley WT 9/14/07 at 4 (MA06-01).

C-15. In its pre-hearing briefing in this case, HC&S requested 19.48 mgd for the 3,650 acres of the Waihe‘e-Hopoi fields, including 2.15 mgd of system losses; and 4.84 mgd for the 1,120 acres of the ‘Īao-Waikapū fields—or a total of 24.32 mgd. HC&S’s Open. Br. (SWUPA 2205) at 1; HC&S’s Open. Br. (SWUPA 2206) at 1. HC&S also seeks to exclude any practicable alternatives including Well 7. HC&S’s Open. Br. (SWUPA 2205) at 12-14.

C-16. In contrast, the 2010 Decision stated HC&S’s total “net use” (“reasonable use” minus “practical alternatives”) for its sugarcane operations was 20.31 mgd. *Id.* at 216. The 2010 Decision stated HC&S’s “reasonable use” was 27.81 mgd, or 21.75 mgd for the 3,650 acres of the Waihe‘e-Hopoi Fields and 6.06 mgd for the 1,120 acres of the ‘Īao-Waikapū Fields. *See id.* at 216. This included 300 acres of Fields 921 and 922, as well as 2 mgd of system losses, which allocations the Hawai‘i Supreme Court vacated. *See Nā Wai Ehā*, 128 Hawai‘i at 255- 58, 287 P.3d at 156-59. The 2010 Decision also stated HC&S’s “practical alternative” from Well 7 was only 9.5 mgd, which the Court also vacated. *See* 2010 Decision at 216; *Nā Wai Ehā*, 128 Hawai‘i at 258-59, 287 P.3d at 159-163.

C-17. By the time this proceeding began, HC&S's lease of the 'Āo-Waikapū fields had already been amended in 2013 to reduce to the total leased acreage to 952.3 acres in that year, and to 661.3 acres by 2017. Ex. OHA-6, ¶¶ 1(b) & (c), 3. On July 25, 2016, on the week HC&S's witnesses were scheduled to testify in this proceeding, HC&S filed a "Notice Regarding SWUPA 2206" stating that "it will not pursue a permit for the Iao-Waikapu fields" because it "has decided that it will not continue to lease these lands"; instead, the landowner Waikapu Properties, LLC would continue to pursue SWUPA 2206 in HC&S's place.

C-18. In the *Waiāhole* case, in light of "a lack of data on actual uses for diversified agriculture," the Commission determined that 2,500 gad is a reasonable water duty for diversified agriculture, subject to being "evaluated periodically or upon request, based on the best available data and field experience." *Waiāhole I*, 94 Hawai'i at 162, 9 P.3d at 474. In this case, HC&S proposes a water duty of 4,776 gad for the Waihe'e-Hopoi fields, almost twice as much as the allocation in the *Waiāhole* case.

C-19. HC&S based its proposed water duties on "a preliminary assessment arising out of the DoD Study [that] estimated water requirements for bioenergy tropical grasses, such as energycanes and banagrass, are approximately 80% to 85% of the water requirement for conventional, biannually-harvested sugarcane." HC&S's Open. Br. (SWUPA 2205) at 6. HC&S provided no indication that it would in fact be cultivating such bioenergy tropical grasses, and no data, studies, or other supporting information for its claimed figures. As a "host site" or "contractor" for the DoD study, HC&S was "basically instructed to irrigate at a certain interval" and based their information on whatever they were instructed for the study. Tr. 7/29/16 (Volner) at 174:18 to 175:7. HC&S did not produce any documents from the study and did not know

when any results would be published, or if even preliminary results of the study had been published. *Id.* at 171:18 to 173:23.

C-20. In its pre-hearing Reply Brief, HC&S sought to distinguish the 2,500 gad allocation for diversified agriculture. It then revealed that the “bioenergy crop most likely to initially replace sugar cane in the Waihe‘e-Hopoi Fields is sorghum,” HC&S’s Reply Brief (SWUPA 2006) at 5, which it explained “will be one of the anchor crops,” Tr. 7/29/16 (Volner) at 191:2-4. HC&S asserted that a water duty of 80% of that of sugar cane is “reasonable” based on purported “similarities between sorghum and sugar cane and how they are cultivated.” HC&S’s Reply Brief (SWUPA 2006) at 6. HC&S, however, stated that it has “not been able to accurately determine the actual water duty for sorghum,” Tr. 7/29/16 (Volner) at 191:6-9, and again provided no data, studies, or other supporting information for the water duty of sorghum.

C-21. The Community Groups, however, provided figures and references documenting that water requirements of sorghum are a third or less than those of sugarcane, and that sorghum is a drought-resistant crop. *See, e.g.*, Ex. Nā Wai-38 at 3-5 (documenting total water requirements of sorghum of 12,000 m³/hectare/year, versus 36,000 m³ for sugarcane); Ex. Ex. Nā Wai-39 at 5 (explaining sorghum’s advantages over sugarcane, including that its water requirements are “4 times lower than those of sugarcane”).

C-22. The Community Groups also provided the example of the Mahinahina project on Maui, which would grow sorghum and convert the convert the crop into biogas to produce power. *See* Exs. Nā Wai-36, 37. HC&S confirmed that its contemplated sorghum operation is “the same” concept. Tr. 7/29/16 (Volner) at 193:5-21. Descriptions of the project explain that the proposed energy crop “is able to withstand high salinity and chlorides” and use recycled water from county wastewater treatment facilities. Ex. Nā Wai-36 at 2-3. The project would use

about 2.5 mgd of recycled water to farm up to 1,800 acres, which amounts to 1,389 gad. Ex. Nā Wai-37 at 015-017; Ex. Nā Wai-38 at 2.

3. Well 7

C-23. Well 7 was historically the largest capacity well in Hawai‘i and HC&S’s primary source for its Waihe‘e-Hopoi Fields, supplying a long-term average of 21 mgd from Well 7, including years in which it used more than 30 mgd over an entire year. Ex. A-143 at 127; Ex. A-148 at 1-2 (MA06-01); 2010 Decision, FOFs 494-95. After the Hawai‘i Supreme Court vacated the 2010 Decision’s determination that only a maximum of 9.5 mgd of Well 7 was a practicable alternative to Nā Wai ‘Ehā diversions, HC&S on remand acknowledged that it could practicably use, and was actually using, a maximum of up to 18.5 mgd from Well 7. 2014 Order FOF 50, COL 14.

C-24. In this case, HC&S asserts that using 18.5 mgd from Well 7 “on a sustained basis” for its diversified agricultural plans “would make farming the Waihee-Hopoi Fields uneconomical,” that “[d]uring the research and testing phase, when no income is derived from the crops, the cost of pumping 18.5 mgd or 9.5 mgd would be prohibitive,” and that Well 7 “cannot be viewed as a practicable alternative source of irrigation water during the period of transition from sugar to diversified agriculture.” HC&S’s Open. Br. (SWUPA 2205) at 13-14. HC&S, however, does not provide any supporting analysis regarding what is economical or practicable, but simply stands on these blanket, all-or-nothing statements. Tr. 7/29/16 (Volner) at 182:7 to 185:6.

C-25. HC&S states that “[i]deally, HC&S will be to utilize some of the biofuel stock that it grows to generate electricity for its own use,” as is its current practice. HC&S’s Open. Br. (SWUPA 2205) at 14. “Until such time, HC&S will rely on its two hydroelectric power plants and MECO to supply electric power” to run its wells, including Well 7. *Id.* Based on utility

electric rates, HC&S estimates it will cost \$178 to pump 1 million gallons of water from Well 7 to HC&S's Waihe'e Ditch, or \$1.2 million to pump 18.5 mgd for a year. HC&S's Open. Br. (SWUPA 2205) at 14.

C-26. Initially, the \$1.2 million figure assumes the pumping of the full 18.5 mgd over the entire year. This translates to more than 5,000 gad over all 3,650 acres of the Waihe'e-Hopoi fields, which exceeds even HC&S's own claimed water duties. Of further note, HC&S can supply 800 acres of the Waihe'e-Hopoi fields from the ground level of Well 7, without additional booster pumping up to HC&S's Waihe'e Ditch. *See* 2010 Decision, FOF 496. Thus, if these some or all of these 800 acres are irrigated with Well 7 water, the cost will be lower than the \$178 per 1 mgd figure HC&S quoted.

C-27. The Hawai'i Supreme Court has criticized bare cost figures for alternatives "without evidence and analysis of the actual per-unit breakdown of those costs relative to the cost of . . . other alternatives." *Waiāhole I*, 94 Hawai'i at 165, 9 P.3d at 477. The per-unit breakdown of HC&S's estimated costs amounts to 17.8 cents/1,000 gallons.

C-28. Initially, this 17.8 cents/1,000 gallons cost is practically identical to the "cost"—in the form of foregone revenues from electricity sales—that HC&S asserted during the original IIFS proceeding. *See* Volner Dec. 11/16/07, ¶ 4 (MA06-01) (quoting a cost of \$2,400 of lost electricity sales per day to pump 14 mgd from Well 7, or 17.1 cents/1,000 gallons). HC&S does not explain why such a cost is practicable for HC&S's previous and potential future operations where HC&S uses self-generated electricity at the cost of foregone revenues, yet not practicable if HC&S simply purchases the electricity.

C-29. Moreover, 17.8 cents/1,000 gallons is well below what other farmers, and the Commission, have deemed practicable. In comparison, Maui County charges 75 cents/1,000

gallons for non-potable water, *see* Ex. OHA-9; and Waiāhole Ditch users in 2000 were paying 35 cents/1,000 gallons, while other farmers using municipal water were paying 60 cents to \$2.47/1,000 gallons. *Waiāhole I*, 94 Hawai‘i at 165, 9 P.3d at 477. Most WWC customers pay 85 cents /1,000 gallons. Ex. D-96 (MA06-01). As HC&S previously acknowledged, the cost of water is one of the smallest factors in the overall cost of farming, even for those who have to pay for water. Tr. 1/31/08 (Holaday) at 80:12-17 (MA06-01).

C-30. Indeed, HC&S makes clear that it is still refining its “economic model for bioenergy crops, and that “until more data is collected to populate the economic model, HC&S would not know what water costs can be borne.” HC&S’s Open. Br. (SWUPA 2205) at 14. It thus has not provided such analysis for any longer-term, larger-scale bioenergy crop operations. Tr. 7/29/16 (Volner) at 187:6 to 188:3.

C-31. In the original *Nā Wai ‘Ehā* IIFS proceeding, the Hawai‘i Supreme Court rejected the 2010 Decision’s rationale for restricting Well 7 pumping based on impacts to the Kahului aquifer, which failed to consider contrary evidence including HC&S’s own insistence that its wells “have been in place and operated for many decades without any long term deterioration in water quality.” 128 Hawai‘i at 260-61, 287 P.3d at 162-63. HC&S has also emphasized the regional “down gradient ground water movement” into the isthmus that “contributes to the recharge of the Kahului Aquifer,” Ex. C-90 at 2 (MA06-01), which USGS has indicated “improves in quality toward west Maui, where there apparently is significant underflow of good quality water from west Maui,” Ex. A-145 at 3-4 (MA06-01).

C-32. In this case, HC&S has been using up to 18.5 mgd from Well 7 since 2010. HC&S reports that “[t]o date, well data shows no significant adverse impact to the aquifer.” HC&S’s Open. Br. (SWUPA 2205) at 15. HC&S states that “it is reasonable to anticipate that

optimal withdrawal amounts from Well No. 7 will decrease,” *id.*, but it provides no data or analysis of any such decrease. Thus, “[w]ithout data available at this time to determine what the optimal amount would be, HC&S is relying primarily on economic factors in its analysis of the practicability of using Well No. 7 as an alternative source to Na Wai Eha surface water.” *Id.*

4. System Losses

C-33. In the original *Nā Wai Ehā* IIFS proceeding, recognized the Commission’s requirement that HC&S line the Waiale Reservoir as “commendable,” but vacated the 2010 Decision’s “assumed” allocation of 2 mgd for HC&S’s remaining system losses without any basis. *Nā Wai ‘Ehā*, 128 Hawai‘i at 257-58, 287 P.3d at 158-59.

C-34. In the remand proceeding, HC&S asserted that a “reasonable allowance” for its remaining system losses apart from Waiale Reservoir would be 4 mgd. HC&S’s Rebuttal Br. (MA06-01 Remand) at 6. As its support, HC&S calculated 2.15 to 4.20 mgd of system losses (amounting to percentage losses of 9% to 17.7%) based on general figures for seepage and evaporation losses in a handbook excerpt. *Id.* at 5-6.

C-35. In this proceeding, HC&S now requests 2.15 mgd of system losses based on its same calculations and handbook excerpt. HC&S’s Open. Br. (SWUPA 2205) at 8. As for Waiale Reservoir, HC&S has determined that bypassing the reservoir is the most cost-effective option. *Id.* at 9.

C-36. HC&S assumes its proposed figures for system losses based on paper calculations using general figures from a handbook. HC&S’s Open. Br. (No. 2205) at 7-9. HC&S did not actually measure or study its system losses, although the handbook it cited provides methods to measure system efficiencies. Tr. 7/29/16 (Heu) at 120:19 to 121:16. HC&S also provided no data or analysis of the feasibility of mitigating such losses. *Id.* at 121:17-21.

C-37. HC&S's system loss figure assumes a fixed amount of losses of 2.15 mgd, unrelated to any volume of water deliveries. Tr. 7/29/16 (Heu) at 116:23 to 118:9, 119:18 to 120:4. Thus, for example, based on the 21.75 mgd that the 2010 Decision determined was reasonable for sugar cane on the Waihe'e-Hopoi fields, *see id.* at 216, HC&S's 2.15 mgd would amount to losses of about 10%. As another example, if the water requirements for diversified agriculture crops were one-half or one-third the amounts for sugar cane, then HC&S's figure would assume the percentage losses would increase by two or three times, to 20 to 30 percent. Tr. 7/29/16 (Heu) at 117:23 to 118:9. And if 2.15 mgd or less is diverted, HC&S's figure would assume the loss of the entire amount, or 100%.

C-38. In contrast, based on an actual study of its system and implantation of specific measures to reduce losses, WWC has proposed system losses of 4.97%, which would be applied to the actual amount of water deliveries. *See infra* Part VIII.H.

C-39. The handbook cited by HC&S indicates that a carefully managed, manually operated irrigation system should have system losses of 10% percent or less. Chumbley WT 1/7/14 at 4:9-12 (MA06-01 Remand); Tr. 7/29/16 (Heu) at 120:5-18.

C-40. HC&S proposes to add its claimed system losses to the 5% claimed by WWC. Thus, for water that passes through both WWC's and HC&S's portions of the ditch system, the cumulative percentage of losses for HC&S would include WWC's 5%, plus whatever percentage losses (*e.g.*, 10%, 20%, or more) result from HC&S's proposed fixed amount of losses of 2.15 mgd. Tr. 7/29/16 (Heu) at 119:18 to 120:4.

C-41. In order to determine the percentage of system losses, the amount of actual uses or deliveries must be determined. In this case, HC&S has not provided concrete details and

support regarding its actual needs, including what crops it will grow and how much water is required. This makes determining the percentage of system losses elusive and premature.

B. Waikapu Properties, LLC, (SWUPAs 2297N, 2356, 3417N, 3472N & 2206²) and Maui Tropical Plantation (SWUPA 2203).

C-42. Michael Atherton is the Managing General Partner of Waikapu Properties, LLC (“WP”) and MTP Operating Company LLC, dba Maui Tropical Plantation (“MTP” and together with WP, the “Atherton Entities”). Tr. 7/29/16 (Atherton) at 4:23 to 5:6. Mr. Atherton is also a Managing General Partner of Makani Olu Partners LLC (“Makani Olu” or “Makani Olu Ranch”).³ *Id.*

C-43. WP owns three (3) parcels in Waikapū, Maui, identified as TMK No. (2) 3-6-004-003 (“Parcel 3”), TMK No. (2) 3-6-004-006 (“Parcel 6”), and TMK No. (2) 3-6-006-036 (“Parcel 36”). Ex. 2356-Waikapu-3 (pdf 31-54⁴) (Deed to Parcels 3 and 6); Ex. 3472-Waikapu-2 (pdf 31-54) (Deed to Parcel 36). Another affiliated entity, Waiale 905 Partners, LLC (“Waiale 905”) owns adjoining parcels identified as TMK Nos. (2) 3-6-002:001 and (2) 3-6-002:003. See Exs. OHA-6, 35.

² As used herein, and previously in these proceedings, “SWUPA 2206” refers to the SWUPA HC&S originally filed for its Iao-Waikapu Fields, for which WP substituted as the “Applicant” after HC&S gave up its lease for those fields. See Hawaiian Commercial & Sugar Company’s Correction of SWUPA Numbers, filed on February 3, 2017.

³ Makani Olu Ranch is also referred to in the hearing transcript, mistakenly, as “Kaneohe Ranch” and “Kanono‘ulu Ranch.” Tr. 7/29/16 (Atherton) at 4:24, 5:8.

The transcript also indicates that, when Mr. Atherton testified on July 29, 2016 and September 20, 2016, he was doing so as a witness on behalf of MTP. That was not the parties’ understanding. Mr Atherton submitted written testimony on behalf of both MTP and WP; Mr. Horovitz appeared, and Mr. Atherton orally testified, on behalf of both entities.

⁴ Exhibit 2356-Waikapu-3 contains more than 200 unnumbered pages, and other WP exhibits are similar. The parenthetical references are to the “pdf” pages where the cited document can be located in the 650-page electronic file labeled “Exhibits” on the Commission’s website under each of the WP SWUPAs.

1. WP's Appurtenant Rights Claims

C-44. Parcel 36 was conveyed to WP “subject to” “the terms and provisions in Special Warranty Deed dated September 24, 2003, recorded in said Bureau of Conveyances as Document No. 2003-268504,” which terms and conditions include “matters relating to water reservation.” Ex. 3472-Waikapu-2 (pdf 598-604) (Deed to Parcel 36 at 5, ¶ 3). The referenced Special Warranty Deed “except[ed] and reserve[ed] in favor of Grantor and his successors and assigns . . . all water and water rights within or appurtenant to the Property.” Ex. OHA-13 at 2.

C-45. WP asserted claims for appurtenant rights on Parcel 3, Parcel 6, and Parcel 36. See Exs. 2356-Waikapu-3 (pdf 26-28) (Parcel 3), 3471-Waikapu-2 (pdf 436-437) (Parcel 6) and 3472-Waikapu-2 (pdf 597) (Parcel 36).

C-46. WP is proceeding with plans and approvals to develop “Waikapū Country Town,” a 500-acre mixed use residential development, on the TMK parcels belonging to WP, MTP, and Waiale 905. See Ex. OHA-7 (excerpts of Draft Environmental Impact Statement dated January 2016 (“DEIS”)) and figures 3a-3d thereto. See also Final Environmental Impact Statement dated December, 2016 (“FEIS”⁵), at I-5, Table 4 (“WTC Land Ownership”).

C-47. Mr. Atherton understands that community support is important in obtaining governmental approval for a project like Waikapū Country Town, and has succeeded in generating such support by engaging with the Waikapū community and appearing at a number of community meetings. Tr. 7/29/16 (Atherton) at 23:7-18. Part of Mr. Atherton’s presentation at these meetings includes his plan to “get off” Waikapū Stream water – “My proposals have always been to try to be as protective as I possibly can to the Waikapu Stream, because the daily

⁵http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Maui/2010s/2017-01-08-MA-5E-FEIS-Waikapu-Country-Town.pdf.

stream yield is not very much. So my intent was to relieve the Waikapu Stream as much as I possibly could.” *Id.* at 23:19-25, 25:18-22.

C-48. Mr. Atherton recognized that the Atherton Entities’ appurtenant rights claims totaling more than one million gpd were inconsistent with his presentations to community groups and with his desire to protect Waikapū Stream because water to satisfy appurtenant rights on LCAs within WPs and MTP’s land would come from Waikapū Stream. Tr. 7/29/16 (Atherton) at 27:6-19. Thus, by the time of his oral testimony, the Atherton Entities had narrowed their appurtenant rights claims to a subset of nine LCAs. *Id.* at 27:24 to 28:2, 37:5 to 38:19; see also Exs. 2356-Waikapu-28/2203-MTP-26, OHA-41.

C-49. Mr. Atherton also acknowledged mistakes regarding several of the remaining nine LCAs for which WP still sought quantification of claimed appurtenant rights. Tr. 7/29/16 (Atherton) at 37:5-53:23; Exs. 2356-Waikapu-28/2203-MTP-26, OHA-41.

C-50. Based on further discussions between Mr. Atherton and Waikapū community members, and between counsel, WP decided to not to pursue the bulk of its appurtenant rights claims and to revise its SWUPAs so its requested use of water from Waikapū Stream would ultimately be limited to the amount necessary to provide drinking water for cattle grazing on fields above Waihe‘e Ditch. Tr. 9/20/16 (Atherton) at 38-44; Waikapu Properties, LLC’s Notice with Regard to SWUPA 2206, 2356, 2297N and 3472N, filed on September 19, 2016 (“9/19/16 Notice”).

2. MTP’s Appurtenant Rights Claims

C-51. MTP leases the MTP Parcel on which it and/or its lessees farm and operate a restaurant, retail store, and commercial tourist attraction. Atherton WT 2/5/16 at 2, ¶ 6; Tr. 7/29/16 (Atherton) at 11:4-14.

C-52. By Limited Warranty Deed recorded on January 27, 2006 as Document No. 2006-017392, The Hawaii Tropical Plantation, as Grantor, conveyed the MTP Parcel to a group of several individuals and entities, including an entity controlled by Mr. Atherton, as Grantee. Ex. OHA-16; Tr. 7/29/16 (Atherton) at 86:15-87:1.

C-53. The property description attached to the 2006 deed indicated that the conveyance was subject to “[r]eservations in favor of Wailuku Sugar Company, a Hawaii corporation, as set forth in or disclosed by the Deed recorded March 24, 1983 in the said Bureau of Conveyances in Book 16933 on Page 469,” Ex. OHA-16, Ex. “A” thereto at 16, ¶ 6, which included a reservation “excepting from this Deed, all surface waters and ground waters and water rights including any applicable riparian or other appurtenant or prescriptive rights as may now or hereafter exist with respect to the property or any part hereof,” with the exception that the Grantee was permitted to drill a well as described, Ex. OHA-16 at 17, ¶ 6.6. *See also* Ex. OHA-15, Ex. “A” thereto at 7, ¶ 6 (Deed recorded on March 24, 1983 at Book 16933, Page 469, excepting and reserving onto Grantor, its successors and assigns “all surface waters and ground waters and water rights including any applicable riparian or other appurtenant or prescriptive rights as may now or hereafter exist with respect to the property or any part thereof.”); Ex. OHA-17, Ex. “A” thereto at 13-14, ¶ 6.6 (Warranty Deed recorded November 13, 2012 as Doc. No. A-47000152, conveying MTP Parcel to MTP Land Partners, LLC, and containing identical reservation of water rights).

C-54. MTP is also a party to the March 24, 1983 Water Agreement by and between Wailuku Sugar, as “Seller” and The Hawaii Tropical Plantation, as “Buyer,” pursuant to which Wailuku Sugar agreed to sell up to 500,000 gpd of water to The Hawaii Tropical Plantation. Exs. D-88, D-96 (MA06-01). Section 2.04 of the Water Agreement provides, in part, that

“assessment or payment of the Buyer’s Water and Facilities Charges shall not confer on buyer or any other person or entity any surface or ground water rights on the Property, (*all of which have been retained by Seller*).” Ex. D-88 at 13-14 (MA06-01) (emphasis added).

C-55. Mr. Atherton was aware when he purchased the MTP Parcel that the water rights had been reserved, and he understood what the reservation meant—“that it had a deed restriction on the property for water rights on that particular parcel.” Tr. 7/29/16 (Atherton) at 88:18-89:5. In light of the reservation of water rights with respect to the MTP Parcel, Mr. Atherton negotiated with Mr. Chumbley for groundwater rights on land above the MTP Parcel so he could drill wells. *Id.* at 89:6-13.

C-56. According to MTP’s SWUPA, which was signed on April 22, 2009 by Avery B. Chumbley, MTP did not claim appurtenant rights. Ex. 2203-MTP-1 (SWUPA) at 1. In 2009, Mr. Chumbley was General Manager of MTP and Mr. Atherton agreed Mr. Chumbley “would probably know” if MTP had appurtenant rights claims. Tr. 7/29/16 (Atherton) at 85:20 to 86:9.

C-57. Notwithstanding the express reservation in its deed, and the statement in its SWUPA that it did not claim appurtenant rights, by letter dated February 6, 2012, MTP informed the Commission staff that it “wished to assert appurtenant and riparian rights with respect to the MTP Property.” Ex. 2203-MTP-2 at 1. MTP claimed appurtenant rights with respect to twenty LCAs and Grants, many including multiple ‘āpana. Ex. 2203-MTP-2 (Table).

C-58. When the Atherton Entities narrowed their appurtenant rights claims to nine identified LCAs, none were within the MTP Parcel. Ex. 2356-Waikapu-28/2203-MTP-26; Ex. OHA-41. Mr. Atherton initially testified that these nine LCAs represented all of the parcels for which the Atherton Entities claimed appurtenant rights. Tr. 7/29/16 (Atherton) at 37:5-38:23. He later stated that he “didn’t know” whether MTP would continue to assert claims for

appurtenant rights, *id.* at 86:11-14, 89:14-20, but was “sure” that if it did, MTP would “do what the right thing is to do” about correcting the errors pointed out in OHA’s Responsive Brief (at 17-20), *id.* at 89:25 to 90:6.

C-59. On September 20, 2016, Mr. Atherton testified that his entities were no longer asserting claims for appurtenant rights, except as necessary to secure drinking water for cattle grazing above the Waihe‘e Ditch. Tr. 9/20/16 (Atherton) at 43:1-8.

3. WP’s Permit Requests and Water Needs

C-60. In April 2009, HC&S filed SWUPA 2206 for an existing use on a large portion of Parcel 3, and WP filed SWUPA 2356 for an existing use, and SWUPA 2297N for a new use, on different portions of Parcel 3. In 2012, WP filed SWUPA 3471N and SWUPA 3472N for new uses on Parcels 6 and 36, respectively. Analysis of WP’s SWUPAs is complicated by the fact that some are for TMK parcels that include portions of several fields, and some are for fields that include portions of several TMK parcels, which results in overlaps in the areas covered by some of the SWUPAs.

C-61. Ultimately, WP has amended its SWUPAs so that all of its uses are covered by SWUPA 2206 and SWUPA 2297N, as amended.⁶ *See* Waikapu Properties, LLC’s First Amendment to SWUPA 2206 (“SWUPA 2206 Amendment”) and Waikapu Properties, LLC’s

⁶ The only use that is not included in either SWUPA 2206 or SWUPA 2297N, as amended, is SWUPA 3472N, which seeks 5,544 gpd from Waikapū Stream for a proposed new use on the 0.72 acre Parcel 36—using sprinklers and “large guns” to spray water for “feed and forage for livestock production.” Ex. 3472-Waikapu-1, Tables 1 & 2. WP has apparently abandoned SWUPA 3472N, which is inconsistent with its intent to use Waikapū Stream water only for drinking water for cattle.

First Amendment to SWUPA Nos. 2356, 2297N, 3471N, and 3472N (“SWUPA 2279N Amendment”⁷), both filed November 30, 2016.

SWUPA 2297N

C-62. As originally filed, SWUPA 2297N sought 1.34 mgd from Waikapū Stream for use on the approximately 200-acre mauka section of Parcel 3 for feed and forage (100 acres), coffee (30 acres) and reforestation (70 acres). Ex. 2356-Waikapu-2 (SWUPA 2297N).

C-63. WP no longer plans to grow coffee, and the 30-acre area identified on the map attached to SWUPA 2297N as “coffee” will be developed as rural lots in the Waikapū Country Town development. Tr. 7/29/16 (Atherton) at 68:10-20; Ex. OHA-7, figure 24. Reforestation was “just an idea,” that “wasn’t site specific” and is not reflected on the Waikapū Country Town Conceptual Agricultural Master Plan. Tr. 7/29/16 (Atherton) at 72:10-16; Ex. OHA-7, figure 24.

C-64. The mauka portion of Parcel 3 is currently used to graze cattle; Makani Olu grazes about 70 head on 86.5 acres on the northern half of the mauka section, closer to Waikapū Stream, on Field 731. Tr. 7/29/16 (Atherton) at 62:8 to 63:14; 9/19/16 Notice, Exs. A (field map) and B (table). William Jacintho, through Na‘alae Beef Company and/or Beef and Blooms,⁸ leases about 100 acres from WP on the southern half of the mauka section, on a portion of Field 733; the 50-head herd he grazes on 92.5 acres there is “pretty much” what the land can support. Tr. 7/28/16 (Jacintho) at 193:5 to 194:3; 197:22 to 198:14; 9/19/16 Notice, Exs. A (field map) and B (table).

⁷ Although the SWUPA 2279N Amendment, by its title, purports to amend SWUPAs 2356, 3471N and 3472N as well as SWUPA 2297N, it actually addresses only the land on which WP seeks to use water pursuant to SWUPA 2297N.

⁸ Both companies belong to Mr Jacintho, who testified that it is Na‘alae Beef Company that currently grazes cattle on land leased from WP. Tr. 7/28/16 (Jacintho) at 202:5-14, 203:24 to 204:5. Apparently, in the future, it will be Beef and Blooms. See 9/19/16 Notice, Ex. B thereto. Hereafter, “Mr. Jacintho” refers to whichever entity is appropriate.

C-65. Mr. Jacintho grazes a total of 140 to 150 head of cattle on 1,000 acres of land on Maui, and none of his pastures are irrigated. Tr. 7/28/16 (Jacintho) at 201:8-10, 202:5-14; 203:3-13. Mr. Jacintho uses water only for his cattle to drink, and the cost of the water is included in Mr. Jacintho's lease with WP. *Id.* at 199:14-15.

C-66. Kumu Farms also leased approximately 34 acres in Field 733, a portion of which is in Parcel 6. Ex. OHA-37 at WP00051-WP00053 (aerial photos of leased areas); Ex. OHA-38; Ex. A to 9/19/16 Notice (field map); Tr. 7/29/16 (Atherton) at 7:17 to 8:9; Ex. 2356-Waikapu 17.2203 MTP-17; Ex. 3471-Waikapu-1 (SWUPA 3471N for Parcel 6). Kumu Farms will continue to use 18 acres of Field 733 to grow organic crops, because it will take two to three years for substitute fields, recently vacated by HC&S, to be certified as organic. *See* 9/19/16 Notice at 2, ¶ 3.b.

C-67. On November 30, 2016, WP filed its SWUPA 2279N Amendment. With respect to the land on which WP seeks to use water from Waikapū Stream pursuant to SWUPA 2297N, WP has reduced its requested amount from 1.34 mgd to 81,794 gallons/day: 250 gad on 86.5 acres of Field 731 for drinking water for Makani Olu's cattle; 2,058 gad for the 18 acres of Field 733 that Kumu Farms will continue to use for two to three years; and 250 gad on 92.5 acres of Field 733 for drinking water for Mr. Jacintho's cattle. SWUPA 2279 Amendment, Ex. A thereto.

SWUPA 3471N

C-68. SWUPA 3471N was filed on February 6, 2012, and seeks a new use of 109,048 [sic-109,033?] gpd (2,058 gad x 52.98 acres) for cultivation of herbs on Parcel 6. Ex. 3471-Waikapu-1 (SWUPA 3471N for Parcel 6), Tables 1 & 2.

C-69. Parcel 6 is a roughly L-shaped parcel, with the long arm running along the West (mauka) side of the MTP Parcel, above Waihe‘e Ditch, and the short arm running along the South (Mā‘alaea) side of the MTP Parcel, below Waihe‘e Ditch. See OHA’s Responsive Br. at 27 (satellite image dated 7/7/14); Ex. 3471-Waikapu-1 (attachment with Parcel 6 outlined).

C-70. The portion of Parcel 6 that is mauka of the MTP Parcel is within Field 733. 9/19/16 Notice, Ex. A thereto (field map).

C-71. The “elbow” portion of Parcel 6, above Waihe‘e Ditch, is a portion of Field 735. See OHA’s Responsive Br. at 27 (satellite image dated 7/7/14); 9/19/16 Notice, Ex. A thereto (field map).

C-72. The portion of Parcel 6 below Waihe‘e Ditch was previously cultivated by HC&S as part of Field 737 until the term of the HC&S Lease ended as to that field in 2013. See 9/19/16 Notice, Ex. A thereto (field map); Ex. OHA-6 (Third Amendment to [HC&S] Lease), Ex. A thereto (table of leased fields).

C-73. All three sections of Parcel 6 are now included in other SWUPAs. By its SWUPA 2297N Amendment, WP has amended its request for water for use on Field 733 (*see* Section “SWUPA 2297N,” above); by its SWUPA 2206 Amendment, WP has amended its request for water for use on Fields 735 and 737 (*see* Section “SWUPA 2206,” below).

SWUPA 2356

C-74. SWUPA 2356 is for an “existing use” of 516,714 gpd for coffee on the 61.6-acre Field 735, Ex. 2356-Waikapu-1, a field that is partially within Parcel 3 and partially within Parcel 6 and will be developed with rural lots as part of Waikapū Country Town, see Ex. OHA-7, figure 24 thereto.

C-75. There was no coffee planted in Field 735 as of the effective date of designation, or ever; HC&S was growing sugarcane there in 2007 and 2008. Tr. 7/29/16 (Atherton) at 58:21-59:9.

C-76. Hoaloha Farms, apparently then known as Hawaii Taro Farm LLC, began farming dryland taro on Field 735 in 2010 and, in 2012, entered a license agreement with WP to cultivate Field 735; Mr. Pahia, Hoaloha Farms' principal, also allowed other farmers to use some of the land for bananas, sweet potato, and vegetables. Pahia WT 5/31/16 at 1, ¶ 3; Ex. OHA-40; Tr. 7/28/16 (Pahia) at 227:13-19; 228:5-19.

C-77. Field 735 is above Waihe'e Ditch; the water source is Waikapū Stream, via Reservoir 1. Tr. 7/28/16 (Pahia) at 235:13-21.

C-78. By its SWUPA 2206 Amendment filed on November 30, 2016, WP has amended its request for water for use on Field 735 (*see* Section "SWUPA 2206," below).

SWUPA 2206

C-79. On July 25, 2016, HC&S filed its "Notice Regarding SWUPA 2206," giving notice that it would not pursue SWUPA 2206 because it had decided not to continue to lease the land, and that WP would pursue SWUPA 2206 in place of HC&S and take an assignment of the SWUPA to the extent allowed. WP filed its "Response to Hawaiian Commercial & Sugar Company's Notice Regarding SWUPA 2206" on July 26, 2016, requesting that it be permitted to pursue SWUPA 2206 in place of HC&S and identifying, generally, its anticipated uses.

C-80. On November 30, 2016, consistent with its stated intention to reduce its use of Waikapū Stream water by relocating its tenant farmers to fields below Waihe'e Ditch and using the fields above Waihe'e Ditch only for cattle grazing, WP filed its SWUPA 2206 Amendment to amend the allocations HC&S had requested for Fields 735, 737, 747, 749, 751, 753, 757, 761,

763, 765 and 767, which were fields HC&S was using as of the effective date of the designation. *See id.* Ex. A; SWUPA 2206 (Table titled “Iao Waikapu Fields”).

C-81. Exhibit A to the SWUPA 2206 Amendment is a table showing, by field number of the field formerly cultivated by HC&S: the acreage, user, use, gad requested, gpd requested, and water source for each field. *Id.* The three identified uses/users are “Cattle” by Beef & Blooms, “Row Crop” by Kumu Farms, and “Taro/Row Crop” by Hoaloha Farms. *Id.*

C-82. By the SWUPA 2206 Amendment, WP seeks water for an existing use on 1,089.4 acres of what were once the Iao-Waikapū Fields: 250 gad for 346.9 acres for cattle (Fields 735, 737 (por.), 763, 765 and 767 (por.)); 3,000 gad for 317.8 acres of Kumu Farms’ row crops (Fields 737 (por), 747, 749 and 761); and 5,400 gad for 424.7 acres of Hoaloha Farm’s dryland taro and row crops (Fields 751, 753, 757 and 767 (por.)). Ex. A to SWUPA 2206 Amendment.

WP’s Acreage

C-83. The acreage claimed for cattle grazing in the SWUPA 2206 Amendment is overstated. Field 737 is a total of 77.3 acres. *See* Ex. OHA-5, Ex. 1-A thereto, and Ex. OHA-6 at 1, ¶1(c) & Ex. A thereto (HC&S Leases, describing Field 737 A and 737 B as containing 46.0 acres and 31.3 acres, respectively, for total of 77.3 acres). If Kumu Farms is currently using 66.5 acres of Field 737, as shown on Exhibit A to, and by the cross-hatching on Exhibit B to, the SWUPA 2206 Amendment, then there are only 10.8 acres of that field available for cattle grazing (not 77.3 acres as shown on Exhibit A to the SWUPA 2206 Amendment). Accordingly, the total acreage for cattle grazing under the SWUPA 2206 Amendment is 280.4 acres, not 346.9 acres.

C-84. The acreage identified for Kumu Farms' row crops is also overstated. Field 747 is no longer 91.8 acres as stated on Exhibit A to the SWUPA 2206 Amendment. Although Field 747 was 91.8 acres as of late 2011, *see* Ex. OHA-5, Ex. 1-A thereto (acreages of leased fields as of November 2011), prior to the 2013 execution of the Third Amendment to Lease between HC&S and WP, *et al.*, portions of Fields 741, 743, 734, 747 and 749 were withdrawn from the Lease and transferred to the County, and the available acreage of each field was reduced by 20 acres. Ex. OHA-6, ¶ 1 (b); *see also* Exs. A and B thereto (identifying available acres in Field 747 as 71.8 and depicting excluded area); Ex. OHA-7, Figures 4 & 24 (depicting location of "Future County Baseyard" or "County Government Complex"). Since Field 747 is now 71.8 acres, the total acreage of the fields allocated to Kumu Farms under the SWUPA 2206 Amendment is 297.8 acres rather than the 317.8-acre total on Exhibit A to 2206 SWUPA Amendment.

C-85. Thus, the total area on which WP seeks to use water pursuant to the SWUPA 2206 Amendment is 1,003 acres: 280.4 acres for cattle grazing, and 722.5 acres for crop cultivation (297.8 acres for Kumu Farms and 424.7 acres for Hoaloha Farms).

C-86. Combined, SWUPA 2206 and SWUPA 2297N, as amended, seek permits for water use covering 1,200 acres (of which 18 acres is a temporary use): 459.4 acres for cattle grazing and 740.5 acres for crop cultivation (315.8 acres (18 acres temporary) for Kumu Farms and 424.7 acres for Hoaloha Farms).

WP's Water Requirements

Cattle Grazing

C-87. WP claims it needs 250 gad to provide drinking water for cattle grazed on land above Waihe'e Ditch. *See, e.g.*, Ex. A to SWUPA 2206 Amendment, Ex. A to SWUPA

2297N Amendment. Over 459.4 acres (86.5 acres Makani Olu and 372.9 acres Beef & Blooms), that would amount to a total of 114,850 gpd.

C-88. An average mature cow, weighing about 1,000 pounds, drinks at least ten gallons per day, and up to twenty gallons/day in hotter weather. Tr. 7/28/16 (Jacintho) at 205:1-7. *See also* Tr. 7/29/16 (Atherton) at 28:9-17 (“I would like to ask for, you know, probably 15 gallons per head per day”).

C-89. Mr Jacintho currently grazes about 50 head on 92.5 acres of WP land. Tr. 7/28/16 (Jacintho) at 193:5-13; Ex. A to SWUPA 2297N Amendment. Assuming 15 gpd/head, Mr. Jacintho currently uses approximately 750 gallons/day (50 head x 15 gpd/head) over 92.5 acres, or 8.1 gad, on Field 733. That is more water than he uses on Wahi Ho‘omaluku’s land, where he grazes cattle on about 283 acres. Tr. 7/19/16 (Russell) at 139:19 to 140:4; *see also* Ex. OHA-23 (referring to 283 acres taxed as “pasture”). Since October 2014, WWC has delivered 10,000 gallons per month (or roughly 333 gpd), to Wahi Ho‘omaluku, Ex. OHA-49, which is used only to fill the water troughs for Mr. Jacintho’s cattle, Tr. 7/19/16 (Russell) at 131:6-14. Mr. Jacintho’s water use on Wahi Ho‘omaluku’s land is thus 1.4 gad (333 gpd/283 acres).

C-90. At 15 gpd/head, Makani Olu uses approximately 1,050 gpd (70 head x 15 gpd/head) over 86.5 acres, or 12.1 gad, to provide drinking water for its herd.

C-91. The water required to provide drinking water for cattle does not depend on the number of acres, but rather on the number of animals. On the land that is the subject of SWUPA 2297N, in Field 733, Mr. Jacintho grazes his cattle at a density of 0.54 head/acre (over all the acreage on which he grazes cattle on Maui, Mr. Jacintho grazes his cattle at a density of 0.15 head/acre). In Field 731, Makani Olu grazes its cattle at a density of 0.81 head/acre.

C-92. At the current density, Beef & Blooms would require 3,020 gpd (372.9 acres x 0.54 head/acre x 15 gpd/head) and Makani Olu would continue to require 1,050 gpd, for a total of 4,070 gpd. Ten percent of the 250 gad WP claims is necessary, over the 459.4 acres allocated for cattle grazing, would be 11,485 gpd, still more than double what Mr. Jacintho and Makani Olu would need at their current grazing densities.

Crop Cultivation

C-93. The evidence in the record regarding WP's actual water needs is inconsistent and, in some instances, contradictory.

C-94. In its opening submissions, WP affirmatively asserted that 2,000 gad would be sufficient for WP's future agricultural water needs. Atherton WT 2/5/16 at 3, ¶ 9 ("I expect in excess of 1,000 acres to be cultivated by Kumu Farms and Hoaloha Farms and will need approximately 2 million gallons a day in water to satisfy such need").

C-95. WP's "Summary of Current, Future Water Usage," sponsored by Mr. Atherton, *see* Atherton WT 2/5/16 at 2, ¶ 8, "Atherton Exhibit 1" ("Use Summary Chart"), appeared to contain contradictory assertions, and Mr. Atherton admitted the Use Summary Chart was, in material respects, "wrong," *see, e.g.*, Tr. 7/29/16 (Atherton) at 83:7 to 84:11.

C-96. Hoaloha Farms began growing taro on the MTP Parcel in 2010, Tr. 7/28/16 at 234: 19-22, Pahia WT 5/31/16 at 1, ¶ 3, and entered a license agreement with WP for Field 735 in June 2012, Ex. OHA-40. Among other things, the license agreement provided that the licensee would pay \$0.50/1,000 gallons for water, which would be separately metered. *Id.* at cover, § B.5.

C-97. Kumu Farms began farming in Waikapū in 2011, Schule WT 5/31/16 at 1, ¶ 2, and in December 2011 entered a 10-year lease with WP for sixty acres, some of which was

within the MTP Parcel, Ex. OHA-36. The Kumu Farms lease provided, among other things, that Tenant would pay for water “based on reliable meter readings.” *Id.* ¶ 7. The Kumu Farms lease was amended in 2013 to increase the acreage to 85.5 acres, in part because of Kumu Farms’ desire to expand. Ex. OHA-37; Tr. 7/28/16 (Schule) at 217:3-11.

C-98. Mr. Schule and Mr. Pahia submitted written testimony with WP’s May 31, 2016 submissions, but neither testified as to their water use, or their actual need for water. See Pahia WT 5/31/16; Schule WT 5/31/16. No evidence at all was presented in connection with WP’s May 31, 2016 submissions regarding its water use, or actual need.

C-99. A portion of the land leased by Kumu Farms was in Field 733, mauka of the MTP Parcel, in Parcel 3 and Parcel 6. *See* Ex. OHA 37, attachments (satellite images with leased land marked); Ex. OHA-38 (similar satellite image, differently oriented); Ex. B to SWUPA 2297N Amendment (Field Map). That portion of Field 733 is 34 acres, 10 acres of which was added by the 2013 amendment to the Kumu Farms lease. Tr. 7/28/16 (Schule) at 218:3-18; Ex. OHA 37 at WP00050-51. SWUPA 3471N requested 2,058 gad for Kumu Farms to grow herbs on that land. Ex. 3471-Waikapu-1, Table 1.

C-100. In its opening submissions, WP claimed that Kumu Farms’ “current use” on Parcel 6 was 530,000 gpd for rotating row crops, and its “future use” on that parcel would be 69,906 gpd (which equates to 2,058 gad over 34 acres). Atherton Exhibit 1 (Use Summary Chart). Questioned about the source of the 530,000 gpd figure, Mr. Atherton testified that 530,000 gpd was actually an average of the total water use of Kumu Farms and Hoaloha Farms over their combined 140 acres. Tr. 7/29/16 (Atherton) at 82:22 to 83:6. Mr. Atherton later testified that the “actual metered gallons” WP uses as the “average daily consumption” for Kumu Farms and Hoaloha Farms is 535,000 gpd, *id.* at 154:9-13, and, on another occasion, that its

request was “based on the last four years of meter readings and averages. . . . We farmed with [Hoaloha Farms] and Kumu [Farms] 140 acres and used about 540,000 gallons a day.” Tr. 9/20/16 (Atherton) at 41:12-18.

C-101. The “140 acres” is roughly the total of Kumu Farms’ 80 acres and Hoaloha Farms’ assumed 61 acres in Field 735. The acreage of Field 735 and the area cultivated by Hoaloha Farms, however, are not clear. SWUPA 2356 and Hoaloha Farms’ license agreement both recite the acreage of Field 735 as 61.6 acres and/or 61.1 acres, *see* Ex. 2356-Waikapu-1 at Table 2 (61.1 acres) & TMK Map (61.6 acres), and Ex. OHA-40 (license agreement) at 1 (both 61.6 acres and 61.1 acres), but the SWUPA 2206 Amendment states that Field 735 is 73.5 acres, *id.* Ex. A, as does the 1994 lease between HC&S and WACI, Ex. C-65 (MA06-01), Ex. A thereto. The area cultivated by both Hoaloha Farms and HC&S on Field 735 was larger than the area depicted on Hoaloha Farms’ license agreement. Compare Ex. OHA-38 (satellite image dated 8/10/14) and OHA Responsive Br. at 23 (satellite image dated 3/9/11) with Ex. OHA-40 at WP00064 (Ex. A to license agreement). It appears Hoaloha Farms may have actually cultivated 73.5 acres.

C-102. Aside from the discrepancy in acreage, the summary produced by WWC of its water deliveries to various customers since 2008 does not show any month in the last four years in which 530,000 gpd or more was delivered to WP; the largest delivery to WP reflected on WWC’s summary was 15.81 million gallons, or 527,000 gpd, in April 2016. Ex. OHA-49.

C-103. WP now appears to suggest that April 2016 may have been the first month since entering their leases in 2012 that Kumu Farms and Hoaloha Farms were able to cultivate their entire combined 140 acres (or 153.5 acres, if Hoaloha Farms actually cultivated 73.5 acres of Field 735). *See* WP’s February 9, 2017 “Statement Related to [OHA], Hui o Nā Wai ‘Ehā and

Maui Tomorrow Foundation, Inc.’s Motion for Leave to Supplement the Record” at 2 (observing that Exhibit OHA-49 does not show the acreage under active cultivation at the times of delivery).

C-104. If April 2016 was the first month in which Kumu Farms and Hoaloha Farms were able to make full use of their leased acreage, the 540,000 gpd on which WP based its claimed need for 3,860 gad (extrapolating “current usage” of 540,000 gpd/140 acres to 2,935,530 gpd over 760.5 acres, *see* Ex. B to 9/19/16 Notice)—or 3,518 gad (if, as appears the case, Hoaloha Farms actually cultivated 73.5 acres)—is not based on the “last four years of meter readings and averages.” Tr. 9/20/16 (Atherton) at 41:12-13. Rather, it is based on WP’s inaccurate recollection of its average daily use for a single month—April 2016.

C-105. The very next month, May 2016, WP’s water delivery was 11.43 million gallons, Ex. OHA-49, or 368,710 gpd. Over the 140 or 153.5 acres that Kumu Farms and Hoaloha Farms conceivably were only able to fully use in April 2016, their combined consumption in May 2016 was 2,634 gad or 2,402 gad.

C-106. There is little other evidence in the record regarding Kumu Farms’ and Hoaloha Farms’ actual water use. Mr. Schule testified that that Kumu Farms uses approximately 250,000 gpd over the 80 acres it was currently leasing. Tr. 7/28/16 (Schule) at 222:13-223:1.

C-107. Kumu Farms’ water use is not separately metered; WWC invoices WP, and then Kumu Farms and Hoaloha Farms reimburse WP at the \$0.50/1,000 gallons rate invoiced by WWC and share the cost “about half and half.” Tr. 7/28/16 (Schule) at 213:16-19, 214:17-19; Tr. 7/29/16 (Atherton) at 154:5-13.

C-108. Mr. Schule described his farming as typical of diversified agriculture: “certain fields are fallow, certain fields are very young, require very little water, certain fields are orchards, require long-term deep water, so again, [his water use estimate is] a composite.” Tr.

7/28/16 (Schule) at 223:1-9. Kumu Farms' cultivation in Field 733 appears typical of diversified agriculture, with small sections of different crops and a substantial percentage of the fields fallow. See OHA's Responsive Br. at 27 (satellite image 7/17/14).

C-109. In written testimony submitted after his oral testimony, Mr. Schule testified that Kumu Farms had an "immediate need" to expand onto additional land, and that when it expands its acreage onto additional fields vacated by HC&S, Kumu Farms "will require water in the same approximate levels per acre as our current crops"; Mr. Schule asserted that amount was 2,058 gad for Kumu Farms' row crops, based on actual consumption on the adjacent MTP Parcel. Schule WT 8/23/16, ¶¶ 5, 6 (table). "Row Crop" is the only use identified for Kumu Farms on Ex. A to the SWUPA 2206 Amendment.

C-110. Mr. Pahia did not testify, in either his initial written testimony or his oral testimony at the hearing, regarding how much water Hoaloha Farms actually uses, or needs. Pahia WT 5/31/16; Tr. 7/28/16 (Pahia) at 227-245. Mr. Pahia submitted a First Supplemental Declaration dated August 23, 2016, in which he testified that Hoaloha Farms would need water "in the same approximate levels per acre as for our current crops," which levels he identified for the first time as 5,400 gad for taro and 6,700 gad for taro and row crops. Pahia WT 8/23/16, ¶¶ 5, 6 (table).

C-111. Mr. Pahia's estimate of Hoaloha Farms' water need was not based on current use, or any actual use, but on "Table 4. HDOA Irrigation Water Use Guidelines" from the Hawai'i Department of Agriculture's Agricultural Water Use and Development Plan (Rev. 2004). Pahia WT 8/23/16, ¶ 6.

C-112. Such guidelines do not take into account regional climatic variability and other factors that determine water use, and typically overestimate irrigation requirements. See

supra Part V. In this case, MTP’s actual water use on the property adjacent to WP’s property, which is only half of what the HDOA guidelines would suggest, illustrates why the Commission does not rely on such guidelines as authoritative. *See* MTP’s Opening Br. at 7 (table); *see also id.* at 6 (current uses by MTP “are only one-half of the amount of water recognized by the HDOA as generally required for these specific uses”).

4. MTP’s Permit Request and Water Needs

C-113. When it purchased the MTP Parcel, MTP became a party to the March 24, 1983 Water Agreement. Exs. D-88, D-96 (MA06-01). MTP currently pays \$0.30/1,000 gallons under the Water Agreement, which will expire by its terms in 2033. *Id.*

C-114. For the period 2001 through 2007, MTP used an average of 114,313 gpd on the 59-acre MTP Parcel. 2010 FOFs 253, 390.

C-115. MTP filed SWUPA 2203 on April 23, 2009, to continue its existing use of water on the MTP Parcel for agricultural crops, landscape irrigation, and ornamental & nursery plant irrigation. Ex. 2203-MTP-1. MTP’s water use for the period May 2007 through April 2008 averaged 124,532 gallons/day. *Id.* Table 1.

C-116. When the Waikapū Country Town is developed, a portion of the MTP Parcel will become the “village center” that will incorporate the existing buildings on the MTP Parcel, and will include commercial use, “Country Town Mixed Use,” and park/open space land. Ex. OHA-7 at I-21 and Figure 11B. The village center will be surrounded by residential uses on the remaining portion of what is now the MTP Parcel. *See* Ex. 2356-Waikapu-28/2203-MTP-26.

C-117. Once Waikapū Country Town is developed, there will not be any more agricultural use on the MTP Parcel. Tr. 7/29/16 (Atherton) at 90:10-16.

C-118. The village center and about half of the surrounding residential area on the MTP Parcel is included in “Phase I” of the Waikapū Country Town development, which is scheduled for 2017 to 2021. Ex. OHA-7, App. H at 1-2. See also FEIS at III-50 and Figure 27.

5. Alternatives

C-119. WP has drilled three potable wells, two agricultural wells, and one monitoring well on its property mauka of the MTP Parcel, for use in the Waikapū Country Town development project. Ex. OHA-43; Tr. 7/19/16 (Atherton) at 17:18 to 18:2, 90:25-92:5.

C-120. The two non-potable wells, identified by WP as Waikapū Country Town Well Nos. 4 and 5, have capacities of 500 gpm and 650 gpm, respectively, and had low salinity levels during the initial pump tests. Ex. OHA-7, App. H at 24.

C-121. The two non-potable wells are located adjacent to Waihe‘e Ditch, Ex. OHA-43, and, according to WP, “[w]ater pumped from the non-potable wells will be discharged into the Waihe‘e Ditch or lined onsite reservoirs and used for irrigation purposes for the residential lots, agricultural farming, parks and open areas,” Ex. OHA-7 at V-87; Tr. 7/29/16 (Atherton) at 26:6-18.

C-122. WP plans an agricultural park and/or agricultural preserve in connection with Waikapū Country Town that, according to WP, “would be serviced by irrigation water that would be supplied from on-site agricultural wells. The water would be stored in agricultural reservoirs and distributed to the Park as demand warrants and at rates to support profitable farming operations. It is expected that Kumu Farms and Hawai‘ian Taro LLC [n/k/a Hoaloha Farms], both existing farmers on WCT lands, will relocate their operations to the agricultural park.” Ex. OHA-7 at III-35.

C-123. Kumu Farms’ lease provides that, “[i]f, at some point Tenant determines that the cost of water from [WWC] becomes unaffordable, Tenant has the right to pump water from

Waikapu Well No. 4, either in cooperation with MTP and Waikapau [sic], or solely for the use by Tenant in its production on the Farming Parcels.” Ex. OHA-36 at WP00034.

C-124. The non-potable wells were drilled at lower ground elevations than the potable wells, so the pumping costs for those wells should be less than for the potable wells. Ex. OHA-7, App. H at 24 (describing elevations of the wells); Tr. 7/29/16 (Atherton) at 20:6-23, 21:10 (describing pumping costs as “the cost of getting the water from underground to the surface” and observing the alluvial, or non-potable, wells are “a lot shallower” than the potable wells).

C-125. The non-potable wells do not yet have pumps; WP testified it was waiting for the results of the 10-day pump test, which it needed to determine how to size the pumps. Tr. 7/29/16 (Atherton) at 140:6-24.

C-126. The three potable, or domestic, wells, Well Nos. 5030-001 (WCT 1), 5131-002 (WCT 2), and 5130-004 (WCT 3), are fully permitted and usable. Tr. 7/29/16 (Atherton) at 18:12-19; Exs. OHA-44, OHA-45. At the time of the hearing, WP was waiting for the results of the 10-day pump test to determine “what the sustainable yield of those wells are.” Tr. 7/29/16 (Atherton) at 151:17-19. The 10-day pump test demonstrated that the sustainable pumping capacity of the potable wells is 1.4 mgd and 1.0 mgd, respectively, for WCT 1 and WCT 2; WCT 3 will require further testing and, based on an increase in chlorides, may be less than 700 gpm. FEIS, at V-108-109 & App. I.

C-127. The potable wells can be, and at times are, simply turned on and pumped, and there is existing infrastructure to deliver the water to the MTP Parcel. Tr. 7/29/16 (Atherton) at 93:4-21.

C-128. WP pointed out in the FEIS that “[t]he maximum daily potable water demand [calculated as “1.5 times the average daily demand”] for the entire [Waikapū Country Town] Project, not including urban open space and agricultural lands, is estimated to be 968,363 gallons per day (gpd), whereas the Waikapū Aquifer has a sustainable yield of 3 million gpd.” *Id.* at V-111.

C-129. The only impediment to using the water from the potable wells for agricultural use in the interim period before Waikapū Country Town is developed is developed is the pumping cost, which Mr. Atherton estimates at approximately \$1.10/1,000 gallons, depending on the price of diesel fuel. Tr. 7/19/16 (Atherton) at 140:25-141:21, 20:1-12. WP recognizes that WWC could raise its rates to \$0.84/thousand gallons under the Water Delivery Agreement with WP, and has proposed raising its rates \$0.90/1,000 gallons, but did know whether \$0.84 would be affordable for his tenant farmers, and has not done any analysis to determine the cost of water that is feasible for agricultural operations on its land. *Id.* at 144:12 to 146:14.

C-130. Another alternative source of irrigation water is the reclaimed water that will be generated by Waikapū Country Town’s wastewater reclamation facility. According to WP, that facility is expected to generate approximately 650,000 gpd of R-1 quality recycled water. FEIS at V-113 & App. K (“Water Reclamation and Reuse Report”).

C. Makani Olu Partners, LLC; Avery & Mary Chumbley (SWUPAs 2207/2208N).

C-131. Makani Olu and Avery and Mary Chumbley (the Chumbleys) seek to quantify appurtenant rights with respect to numerous LCAs within TMK Nos. (2) 3-5-004:014 and :018 (“Parcel 14” and “Parcel 18”). In addition to an existing use permit (SWUPA 2207), Makani Olu, in which Avery Chumbley and Michael Atherton are principals, see Chumbley WT 2/5/16 at 1, Tr. 7/29/16 (Atherton) at 4:23 to 5:19, seek a new use permit for 0.454 mgd to exercise

appurtenant rights on Parcel 18 by irrigating almost 60 acres of pasture land to graze cattle (SWUPA 2208N).

Appurtenant Rights Claims

C-132. Makani Olu claimed in its Opening Brief that “100% of the claimed appurtenant rights for each of the LCAw’s are under 100% land ownership of the Applicant, therefore there are no proportional shares of the appurtenant rights to any of the LCAw’s.” *Id.* at 4. As Mr. Chumbley acknowledged in his oral testimony, however, that statement was “inaccurate”; when he looked in more detail, he saw that some of the LCAs were shared with other TMK parcels. Tr. 7/19/16 (Chumbley) at 194:3-22. Mr. Chumbley was surprised, but did not dispute, that more than 60% of the claimed LCAs on Parcel 18 were “proportional.” *Id.* at 194:16-22; Ex. OHA-32.

Permit Request: SWUPA 2207

C-133. The Chumbleys were “Licensees” under a February, 2002 Agricultural Water Use License with WACI as “Licensor,” which permitted them to draw water for use on Parcel 14 and Parcel 18. Ex. D-59 (MA06-01). The Chumbleys were charged \$0.20/1,000 gallons for the water, and the maximum amount they were entitled to draw was 3.5 million gallons per month. *Id.* ¶¶ 9, 11.

C-134. WWC reported that as of September 14, 2007, when the Parties filed their opening submissions in the IIFS Contested Case, the Chumbleys’ highest water use under the license was 15,380 gpd. Ex. D-3 at 1 (MA06-01).

C-135. SWUPA 2207, filed on April 23, 2009 by the Chumbleys and Makani Olu, claims an existing use on Parcels 14 and 18 that averaged, on a daily basis over the period May

2007 through April 2008, 17,948 gpd—an amount higher than the highest average daily use reported by WWC from February 2002 through September 2007.

C-136. Almost half of the claimed existing use—8,345 gpd—was for “livestock consumption & feed, forage pasture” on Parcel 18, in which water was sprayed with “large guns” over 4 acres of pasture land. SWUPA 2207, Table 2 (cont.), Table 3. *See also* Tr. 7/19/16 (Chumbley) at 188:25 to 189:4. The Chumbleys also estimated they used 1,000 gpd, or 5,000 gad, irrigating the landscaping for a 0.20-acre cemetery that does not appear to have any landscaping, 2,500 gpd irrigating the landscaping around a 1-acre home site, and a total of 6,100 gpd, or 4,066 gad, for irrigation of various crops, trees and nursery plants on an additional 1.5 acres. SWUPA 2207, Table 2 and attached photographs. *See also* Tr. 7/19/16 (Chumbley) at 191:14 to 192:15.

C-137. According to SWUPA 2207, the Chumbleys and/or Makani Olu irrigated a total of 6.7 acres on Parcels 14 and 18.

Permit Request: SWUPA 2208N

C-138. At the same time they filed their “existing use” SWUPA, the Chumbleys and Makani Olu filed SWUPA 2208 for a “new use” on Parcel 18 – 453,530 gpd for “feed & forage pastures for livestock” on 58.9 acres. *Id.* Table 1. This new use would expand the existing irrigation of 4 acres of livestock pasture by 58.9 acres. Tr. 7/19/16 (Chumbley) at 188:13-19, 189:5-11.

C-139. Mr. Chumbley acknowledged that the 7,700 gad he and Makani Olu requested for livestock pasture irrigation on an additional 58.9 acres was more than three times the 2,081 gad (8,325 gpd/4 acres) claimed as an existing use on 4 acres, but did not explain why he would

require more than three times as much water on the additional 58.9 acres of Parcel 18. Tr. 7/19/16 (Chumbley) at 189:12-23.

C-140. Mr. Chumbley cited Table 4.4 to justify the 7,700 gad “water duty” for pasture irrigation, Ex. 2207-Makani-3, which he recognized was substantially higher than the water duty established for sugar cane on the nearby ‘Īao-Waikapū Fields, Tr. 7/19/16 (Chumbley) at 189:18 to 190:3. The experience of other ranchers in Waikapū, and Makani Olu itself, is to the contrary and demonstrates the problems the Commission staff has pointed out with use of such guidelines. See *supra* Part V.

C-141. Makani Olu currently grazes about 70 head of Texas Long-Horned Cattle on Waikapu Properties’ Field 731, which is directly across Waikapu Stream from Parcel 18. Tr. 7/29/16 (Atherton) at 5:7-23, 62:8 to 63:14; see Ex. 2207-Makani Olu-4 at 1 (map showing proximity). According to Mr. Atherton, a partner in Makani Olu, the only water Makani Olu needs for grazing cattle on Field 731 is 15 gallons per head per day for the cattle to drink. See Tr. 7/29/16 (Atherton) at 28:9-17, 65:17 to 66:7. Waikapu Properties therefore withdrew its request for 7,700 gad for all of the Waikapu Properties’ fields that will be used for grazing cattle, including the area used by Makani Olu. Tr. 9/20/16 (Atherton) at 42:20-24; 9/19/16 Notice at 2, ¶ 2.

C-142. William Jacintho currently grazes cattle on Waikapu Properties’ Field 733, which is adjacent to and south of Field 731; through his company Beef & Blooms he will also expand his cattle grazing to Waikapu Properties’ Fields 735, 663, 765, 767 (Por.), and 737 (Por.). 9/19/16 Notice, Exs. A and B thereto. Mr. Jacintho currently grazes cattle on a total of approximately 1,000 acres on Maui, and none of the land on which he grazes cattle is irrigated. Tr. 7/28/16 (Jacintho) at 203:3-13.

C-143. At the time of the original IIFS proceeding, Maui Cattle Company grazed cattle on 240 acres in Mā‘alaea that was then owned by Mr. Atherton and his associates. *See* Tr. 7/29/16 (Atherton) at 66:8-13; 2010 Decision, FOF 244. Although Maui Cattle Company had a Water License with WACI that allowed it to use up to 0.750 mgd, Ex. D-96, it testified that if it were to lease the property again, it would “simply graze it on a seasonal basis without major irrigation.” 2010 Decision, FOFs 379, 380, 381.

D. MMK Maui, LP (SWUPA 2186)

1. Permit Request and Water Needs

C-144. MMK Maui, LP (“MMK”), the owner of the Kahili and King Kamehameha golf courses in Waikapū, requests a permit for 1.25 mgd.

C-145. In the original IIFS proceeding, MMK claimed water needs of 1.6 to 2.2 mgd. 2010 Decision, FOFs 391-92. MMK’s records from 2006, which was the first year of irrigation on all 36 holes, showed that it used 1.2 mgd that year; but that figure overstated its actual needs because it was still “throwing a lot of water down, more than normal, growing in [both golf courses].” *Id.* FOF 393-94 (internal quotation marks omitted). “Moreover, MMK has installed a new irrigation and monitoring system, resulting in ‘greater efficiency in the use of water’ and lower use rates than before.” *Id.* FOF 395. Thus, at that time, the Commission found that “reasonable” use for the golf courses was “1.2 mgd or less.” *Id.* COL 64.

C-146. In this proceeding, MMK confirms that its water usage in fact decreased from the 2006 level to around 1.0 mgd per year by 2009, then further decreased to around 0.7 mgd in 2014 and 2015. *See* MMK’s Open. Br. at 16; Ex. 2186-MMK-4 (MMK’s water use records). It attributes the initial decrease “at least in part, to the improved irrigation and other water saving measures instituted by MMK over time in an effort to conserve water. After implementing such

water-saving measures, water usage generally stayed at the decreased level for that period.”

MMK’s Open. Br. at 16. But MMK believes that the further reductions were due to increased rainfall in 2014 and 2015. *Id.* at 16-17.

C-147. MMK reports an average use 1.037 mgd over the 9.5-years from 2006 to 2015 during which it has operated both courses. Excluding the years of higher usage from 2006 to 2008 before MMK’s conservation measures, this average decreases to 0.934 mgd. *See* MMK’s Open. Br. at 17; Ex. 2186-MMK-4.

C-148. MMK requests 1.25 mgd, which includes a “20 percent cushion” to account for drier months. MMK’s Open. Br. at 18-20. In explaining this figure, MMK calculates the average of the peak usage month for each year over the past 10 years, which is 1.53 mgd. It then proposes a cushion of 20% more than 1.037 mgd, which it notes is “approximately half-way” between 1.037 and 1.53 mgd. *Id.* at 18.

C-149. On cross-examination, MMK explained that it derived the 1.53 mgd figure not by calculating the month with the highest average usage over the 10 years (*e.g.*, August), but rather by picking the single highest usage month in each year over 10 years and averaging those different months. Tr. 7/22/16 (Bechert) at 53:1 to 54:1. It further explained that it derived its proposed 1.25 mgd figure by halving the difference between 1.5 mgd and 1.0 mgd, which “turned out to be 20 percent” above 1.0 mgd. *Id.* at 54:2-23.

2. Alternatives

C-150. Although MMK argues against using well water, its own supporting exhibit from “Turf Management for Golf Courses,” states: “Underground water sources usually prove excellent for turfgrass irrigation purposes. A common source of water for golf course irrigation is from one or more wells.” Ex. 2186-MMK-3 at 384. Also, “[w]ells usually have the advantages of being in close proximity to where the water is used and having less variability in

yield than most surface sources.” *Id.* at 385. In contrast, “[s]urface water from perennial flowing rivers and streams is an acceptable source if the rate and permanence of flow are reliable and approved by the appropriate governing agencies. . . . A permit usually is required for use of water from streams and rivers, especially in states where riparian rights prevail To secure a permit, evidence must be shown that adequate water flow will continue for downstream users. Typically, it has become increasingly difficult to obtain the required permits to pump water from a river or stream.” *Id.* at 386.

C-151. MMK states that it met with Mr. Atherton in January 2016 about using water from the wells he has developed and is “unclear” how much water is available from him. MMK’s Open. Br. at 21. It also states that installing its own well “did not look promising” based on the sustainable yield and “others who have received permits to consumer [sic] such water” (notwithstanding that water use permits are not at issue because the aquifer is not designated). *Id.* MMK’s inquiry regarding well water was limited to speaking to Mr. Atherton “a couple times” and “one phone call” with the Commission’s Deputy Director in January 2016. Tr. 7/22/16 (Bechert) at 70:22 to 72:25.

C-152. MMK stated that “[m]aybe at some time down the line” well water could be a feasible option, but that “at this time it didn’t look” feasible because although it asked Mr. Atherton regarding the “possibility to use some of his water on the golf courses,” he “could not commit to there being enough water.” Tr. 7/22/16 (Bechert) at 73:2-21.

C-153. In raising these issues about the availability of well water, MMK has not considered or addressed the option of installing its own well, and how its status as a landowner overlying the ground water source would affect its ability to use the water in relation to other

potential users, including those seeking to export the water to other lands. *See Waiāhole*, 94 Hawai‘i at 178, 9 P.3d at 490 (explaining the correlative rights rule for ground water).

C-154. MMK did not claim that use of well water is economically unfeasible, nor does it provide any figures or analysis of the costs of using well water relative to other sources. MMK does acknowledge, however, that although its predecessor-in-interest purportedly “prepaid” for “perpetual delivery” of water from WWC, “it remains unclear whether the Water Delivery Agreement and pre-payment for water will continue to be honored” once the state Public Utilities Commission begins regulating WWC’s rates. MMK’s Open. Br. at 23. The Commission has found that, as of eight years ago, WWC proposed to charge customers \$.90 per 1000 gallons, and that “[t]he PUC-approved rate would negate pre-existing rate contracts.” 2010 Decision FOFs 515-17, COL 131. This may make other alternatives for MMK more economical or even critical to cover part or all of its water needs.

C-155. MMK repeats its incorrect testimony from the original IIFS proceeding that reclaimed water is “not feasible for irrigation of golf courses,” Dooge WT 2/5/16 at 7, ¶ 30, which the Commission has already found contradicts “many years of reclaimed water use on golf courses on Maui and throughout the state, from both public and private plants,” 2010 Decision FOF 396. Indeed, MMK’s supporting exhibit on turf management states: “A water source that is being used increasingly for the irrigation of golf courses is reclaimed effluent water. . . . [T]urfgrass irrigation offers one of the best approaches to disposing of certain types of reclaimed effluent water.” Ex. 2186-MMK-3 at 387.

C-156. MMK states that “there are no existing distribution lines” for recycled water, MMK’s Open. Br. at 21, but the Hawai‘i Supreme Court has already rejected such a justification “based solely on the current lack of infrastructure.” *Nā Wai ‘Ehā*, 128 Hawai‘i at 262, 287 P.3d

at 163 (2012). MMK further claims that constructing distribution lines is not feasible, but provides no support and does not consider opportunities to share costs with other parties like HC&S and WWC, and to use already existing infrastructure such as the pipeline to Kahului.

C-157. MMK indicates that it has invested millions in its business, including in excess of \$10 million to improve the fairways, bunkers, and irrigation system, in excess of \$4 million to reconstruct the irrigation systems, and \$7.3 million to improve the clubhouses and equipment, fixtures, and furniture. MMK's Open. Br. at 14-15. MMK provides no analysis of the feasibility of similar investments in alternative water sources.

E. Wailuku Country Estates (SWUPAs 2189, 2190N, 2195)

1. Appurtenant Rights Claims

C-158. By the Limited Warranty Deed recorded in the Bureau of Conveyances on August 21, 2002 as Document No. 2002-146581, CGM, LLC, the developer of the Wailuku Country Estates ("WCE") subdivision, bought the land from WACI: "subject, however, to all encumbrances noted on said Exhibit 'A'" to the deed. Community Groups' and OHA's Objections to Appurtenant Rights Claims of [WCE] ("Objections"), filed on September 19, 2012, Ex. 1 at 2. Exhibit "A" to the deed, at page 61, expressly subjects the conveyance to the Declaration of Covenants, Conditions, Easements, Reservations And Restrictions ("CCRs") dated August 21, 2002 and recorded as Document No. 2002-146579. The CCRs include a "Water Reservation" that states: "there shall be reserved unto [WACI], its successors and assigns all water and water rights (surface and ground water) within or appurtenant to the Property." Objections, Ex. 2 at 5, art. II(d). The parties to the transaction agreed that the CCRs "shall be placed upon the use and development of the Property by Purchaser and Purchaser's assigns," that "[WACI] agreed to convey the Property to Purchaser on the basis of Purchaser's agreement in compliance with such [CCRs]," and that the CCRs "shall be recorded prior to any

other lien or encumbrance arising out of such conveyance.” *Id.* at 2, recitals D-F. The CCRs “shall run and pass with each and every portion of the Property and shall be binding upon Purchaser, its successive owners and assigns whether or not any reference to this Declaration is contained in the instrument by which such person or entity acquired an interest in the Property.” *Id.* at 11, art. X(a).

C-159. The Water Reservation also repeatedly appears in numerous other documents in the record, including: the Public Offering Statement dated April 3, 2002 notifying potential buyers of the sale of subdivision lots, *see* Ex. 2189 WCEIC-228 at 4; the Property Report dated May 3, 2002 issued by the developer to buyers of lots, which states at the top of the first page in large capital letters, “READ THIS PROPERTY REPORT BEFORE SIGNING ANYTHING,” *see* Ex. 2189 WCEIC-229 at 9; and the Declaration of Covenants, Conditions, And Restrictions for Wailuku Country Estates recorded on February 27, 2003 as Document No. 2003-036607, *see* Ex 2189 WCEIC-234 at 49.

C-160. WCE, in fact, cites and relies on the reservation in the CCRs in maintaining that the CCRs preclude WCE from using alternative water sources such as groundwater, in lieu of Nā Wai ‘Ehā stream water from WWC. Tr. 7/28/16 (Blackburn) at 161:22 to 163:14; Ex. 2189 WCEIC-476 (Blackburn Dec.), ¶ 85; Ex. 2189 WCEIC-270 (Nance report) at 7.

C-161. In its prehearing filings, WCE claimed appurtenant water rights, but did not provide any quantification of such rights. *See, e.g.*, WCE’s Open. Br. at 13-16. Instead, WCE presented tables of figures purporting to list what percentage of each WCE lot comprised LCA lands, and what percentage of each LCA was included in WCE lots. *See* Exs. 2189 WCEIC-243a, b, b-1. WCE did not provide analysis quantifying appurtenant rights by showing, *for each individual WCE lot or TMK*, what portion(s) of which LCA(s) were located in the TMK and

where they were located, the quantity of water entitled to each portion of an LCA, and the total amount of water entitled to each TMK. *See* Minute Order No. 2 at 1-2 (requiring a showing of “what parts of the TMK were using water, and an estimate of the acreage using water at that time [of the Māhele], and the purpose(s) of those uses”). Other parties, therefore, did not have an opportunity to review and respond to specific appurtenant rights claims in relation to any individual TMKs.

C-162. As an example, WCE did not provide any maps or diagrams of individual TMKs showing the location of the portion(s) of LCA(s) on each TMK, but instead provided a map of the entire subdivision outlining where the LCAs lie throughout the subdivision. *See* Ex. 2189 WCEIC-245. The subdivision map, however, indicates that portions of many LCAs overlap with roads in the subdivision. *See id.* Without a review by individual TMKs, it is unclear whether these road areas were included in WCE’s claimed acreages of land with appurtenant rights.

C-163. As part of its overall lack of proof by individual TMKs, WCE also failed to connect claims of appurtenant rights for individual TMKs to actual reasonable-beneficial uses on those specific TMKs.

- The Community Groups pointed out, for example, that on Lot 113, which WCE claims contains a portion of an LCA of around 1,247 square feet (equivalent to about 35’x35’), the LCA land overlaps with a driveway and thus is not connected to any water use. Tr. 7/28/2017 (Blackburn) at 147:1 to 148:14; Exs. Nā Wai-31, 32.

- On Lot 174, WCE claims a portion of an LCA of only 364 square feet (around 19'x19' or .008 acre) but does not indicate how, if at all, this piece of land relates to current or prospective water use on the lot.
- Likewise, for lots that WCE claims predominantly or entirely comprise LCA land, WCE again does not connect appurtenant rights to reasonable-beneficial use for each TMK. Lot 153, for example, purportedly comprises 100% LCA land, yet WCE indicated the lot is vacant and is not irrigated. Tr. 7/28/2017 (Blackburn) at 149:15 to 150:13.

Such lack of detail on individual lots precludes the verification of whether and to what extent claimed appurtenant rights will be exercised for actual reasonable-beneficial use.

C-164. In contrast to WCE, other individual community member applicants provided documentation *for each TMK* showing: each LCA (or portion thereof) within the TMK, maps and diagrams showing the location of the LCA(s) on the TMK, and calculations of the acreages and water uses for each LCA and the TMK in total. These other applicants also tied their exercise of appurtenant rights to specific reasonable-beneficial uses on each TMK, in order to justify the issuance of water use permits.

C-165. Indeed, WCE's average claimed water use per lot is in the order of several thousand gallons per day, whereas an appurtenant rights claim for a lot that comprises all kalo land would range in the hundreds of thousands of gallons per day based on the water duty for kalo. Yet, instead of requesting only a small fraction of the hundreds of thousands of gallons per day in claimed appurtenant rights to supply specific uses on the individual lots that contain the LCA land, WCE apparently intends to claim the entire amount of appurtenant rights for use by the entire subdivision.

C-166. WCE made clear its intention to claim appurtenant rights in the aggregate for its entire subdivision, rather than for the specific TMKs containing LCA land. It notified the lot owners that “*even if you have an individual [appurtenant rights] claim, the water will be distributed by [WCE] based on the allocation to the whole subdivision and providing the same allotment of water to owners as it is doing today subject to the Water Commission’s second step process to determine the amount of water associated with the subdivision.*” Ex. Nā Wai-33 at WCE-000020 (emphasis added). At an annual owners meeting, WCE’s managing agent reported on the Nā Wai ‘Ehā proceeding, stating that “[t]he Board continues its pursuit to keep the Association’s irrigation water. The latest pursuit is the kuleana water rights Funds were expended to transcribe deeds to do research which gives the Association a stronger position to keep its half million gallons of water per day received from [WWC].” Ex. Nā Wai-34 at WCE-000064 (emphasis added).

C-167. Despite these documented intentions, WCE asserted during the hearing that it would ensure that it would allocate water entitled by appurtenant rights to the specific lots that were entitled to the water, but this contradicts its representation to the Commission at the very outset that “[i]t would be very difficult for [WCE] to allocate different amounts of water to each of the 184 homeowners within the subdivision. Each of the 184 lots has a non-potable meter to monitor use; the meter does not regulate use. If [WCE] had to provide different amounts of water to each homeowner, the accounting and billing process would be extremely cumbersome.” Ex. 2189 WCEIC-3 at 2. Thus WCE “asks that the [Commission] allocate a total amount of gallons per day of Non-Potable [sic] for [WCE].” *Id.* As stated above, as of time of the evidentiary hearing, WCE had not even attempted to quantify the appurtenant rights for each

individual lot, much less show how it would monitor and enforce restrictions on the allocations of water to specific lots.

2. Permit Request and Water Needs

C-168. The Commission examined and made findings on WCE's water uses in the original IIFS proceeding. As the Commission has already observed, "farm plans" for WCE do not require any agriculture, but rather allow "conservation," which involves "landscaping activities like planting trees and grass." 2010 Decision FOF 397.

C-169. The County of Maui "has accommodated agricultural development lots with 600 to 1,200 gpd, but limits further allocations so as not to provide excessive amounts of water to developments not engaged in bona fide agriculture." 2010 Decision FOF 402. This contrasts with 400 to 600 gpd of combined indoor *and* outdoor use for an "average typical residential customer" and the extreme of 1,500 to 2,000 gpd for customers irrigating "lush tropical landscape treatment" on Maui's most arid areas like Maui Meadows or Kihei. Tr. 12/13/07 (Eng) at 191:7 to 192:5; Tr. 12/14/07 (Eng) at 4:9 to 5:17 (MA06-01).

C-170. WCE currently receives 540 gpd per customer from the municipal system. 2010 Decision FOFs 248. The Nā Wai 'Ehā stream water WCE receives from WWC is in addition to the water from the municipal system. *Id.* FOF 401.

C-171. In the original IIFS proceeding, it was established that "WCE limits each lot owner to a daily average of 2,200 gallons ("gpd")," which WCE stated was "adequate." 2010 Decision FOF 400. WCE "penalizes lot owners who exceed their allotment by imposing an extra charge for any excess over the allowable use." *Id.* FOFs 247, 400 (internal brackets omitted).

C-172. In this proceeding, WCE indicates that the limit now is 2,666 gpd (80,000 gallons per month). WCE's Open. Br. at 5. Adding 2,666 gpd to 540 gpd would total 3,206 gpd

for each lot, which is around 3 to 5 times the County's allocation for agricultural developments and up to 8 times more than average residential customers.

C-173. WCE claims 210,980 gpd of existing uses and 511,700 of new uses for 184 lots, or a total of 722,590 gpd. WCE's Open. Br. at 21-23. WCE additionally claims 158,768 gpd of existing use for its common areas, for an overall total request of 881,358 gpd. *Id.* at 22.

C-174. WCE's own consultant report, however, indicates a seven-year average from January 2009 to December 2015 of only "about 0.3 mgd." Ex. 2189 WCEIC-270 at 1. Moreover, WCE indicated that its agreement with WWC provides for a minimum charge for up to 500,000 gpd, beyond which "we would get an excess water charge." Tr. 7/28/16 (Blackburn) at 39:13-25; Ex. D-92 at 2 (MA06-01); 2189 WCEIC-232.

C-175. As for the usage on the lots, 722,590 gpd amounts to 3,927 gpd for each lot, which exceeds WCE's current stated per lot limit of 2,666 by almost 50%. Adding the 540 gpd from the municipal system to the 3,927 gpd totals 4,500 gpd. That amount is around 3.75 to 7.5 times the amount of the County's allocation for agricultural developments and up to 11.25 times more than average residential customers.

C-176. In contrast to the 3,927 gpd total that WCE currently claims, its existing, actually metered use of 210,980 over 120 lots translates to only 1,758 gpd per lot. Tr. 7/28/16 (Blackburn) at 117:23 to 118:23. WCE thus seeks more than a 223% increase in water use per lot.

C-177. As support for its claimed 722,590 gpd of existing and new uses on the lots, WCE submitted two spreadsheets in which it calculated existing and new uses per lot, Exs. 2189 WCEIC-265, 267, and also declarations from lot owners. In calculating new uses, WCE stated that "[t]here was some owners we could talk to, and other than that, we just calculated what we

thought would work for people in the subdivision as far as new ag use.” Tr. 7/28/16 (Blackburn) at 48:4-11. For example, for lots that had no existing use, WCE simply inputted a new use for “macadamia nuts,” even though the macadamia nut trees already existed on the lots with no irrigation. *Id.* at 110:15 to 111:16.

C-178. The spreadsheets also contain discrepancies in the water duties for various categories of crops. For macadamia nuts, for example, the existing use spreadsheet listed 1,445 gpd on .25 acres for Lot 111 (5,780 gad), and 196 gpd on .25 acres for Lot 101 (784 gad); the new use spreadsheet listed 850 gpd on .75 acres for Lot 78 (1,133 gad), and 4,000 gpd for one acre on Lot 49. Tr. 7/28/16 (Blackburn) at 113:12 to 115:17; Exs. 2189 WCEIC-265, 267. For landscaping, some examples of the variation included 6,257 gpd on 1.5 acres for Lot 171 (4,171 gad), 18 gpd on .25 acres for Lot 4 (72 gad), and 450 on 0.5 acres for Lot 19 (900 gad). *Id.* at 115:18 to 116:17; Ex. 2189 WCEIC-265. *See also* Ex. 2189 WCEIC-267 (listing varying “new use” figures for “papaya,” including 800, 1150, 950, 1800 gpd, all for .5 acres).

C-179. The declarations from lot owners that WCE submitted were for the most part “boilerplate declarations,” by which lot owners purported to verify the existing and new use figures in WCE’s spreadsheets. Tr. 7/28/16 (Blackburn) at 96:1 to 97:20; *see* Exs. 2189 WCEIC-285 to 464. The declarations do not provide any specific information, except as a lot owner may have provided in an attached “addendum.” As of the time that WCE testified at the evidentiary hearing, 12 lot owners had not submitted any declaration, and over 50 (or about 30%) had provided no addendums. Tr. 7/28/16 (Blackburn) at 98:8 to 99:12.

C-180. Most of the addendums provide limited, often only single-line descriptions of the uses: *e.g.*, “Various plants”; “I have some and have some more”; “Nothing now, in future”; “My roosters.” Tr. 7/28/16 (Blackburn) at 101:16 to 102:21. Most of the descriptions do not

match the crops and water uses WCE lists in the spreadsheets that it used to calculate its water claims: *e.g.*, “This is vacant land. We are planning to built a retirement residence,” in contrast to the use stated in the spreadsheets of “Mac nuts.” *Id.* at 107:7 to 109:20. When asked whether the addendums would be more accurate than the spreadsheet information, WCE stated: “It depends what they wrote.” *Id.* at 99:23 to 100:2.

C-181. As for WCE’s “common area” water uses, WCE’s claims that the 158,768 gpd figure applies to 32.5 total acres, including a park of 2.26 acres (Lot 185), 20 acres of roadside setbacks, 9 acres of lot drainage swales, and 1 acre of retention basins. Blackburn Dec. 2/5/16 (Ex. 2189 WCEIC-476), ¶ 54. In another document, however, WCE lists a different breakdown of “common and other areas,” which includes: “Park Site” (2.262 acres); “Waihee Ditch” (6.726 acres); “Access off Maika Place for owners/John Russell” (.224 acres); “County of Maui Tank Site” (.758 acres); and “Roads and Shoulders” (23.028 acres); for a total of around 33 acres. Ex. 2189 WCEIC-261. As another reference for comparison, in the original IIFS proceeding, WCE claimed to irrigate a total of 29 acres (25.5 acres of roadside setbacks and the 2.5-acre park). Irani Supplemental Dec. 11/16/07, ¶ 5 (MA06-01).

C-182. WCE’s 158,768 gpd figure is not based on any metering of actual uses. Rather, WCE derived the figure by subtracting the metered lot uses from the total water deliveries from WWC. *See* Tr. 7/28/16 (Blackburn) at 51:4-8; Ex. WCEIC-476 (Blackburn Dec.), ¶¶ 59-60.

C-183. Assuming the currently claimed 32.5 acres of common areas are irrigated in their entirety (including, *e.g.*, the drainage swales and retention basins), 158,768 gpd amounts to 4,885 gad. This water duty figure approaches the 5,150 gad the Commission found reasonable for sugarcane on the ‘Īao-Waikapū Fields.

C-184. WCE admitted that the 158,768 gpd figure is “**high** as [WCE] has had problems with faulty owner meter readings (meters broken and do not record use properly) and a couple of irrigation line breaks that makes the common area daily use number higher than actual use.” Ex. 2189 WCEIC-1 at 1.

C-185. In the original IIFS proceeding, WCE claimed a maximum of 0.1 mgd for common area uses. Irani Dec. 9/14/07, ¶ 7; 2010 Decision FOF 249. The Commission found, based on WCE’s admissions, that “actual use was ‘a lot less,’ not ‘even half as much,’ because of the use of drought tolerant grass.” 2010 Decision FOF 404.

C-186. WCE claims that its drainage swale system requires “continued” and “regular” irrigation, but it produced no documentation indicating such a requirement or plans for its system. At the Community Groups’ request, the Hearings Officer on June 24, 2016 issued a subpoena for the “detailed storm drainage plan” referenced in WCE’s engineer witness’s testimony. WCE produced a drainage report and construction documents that supposedly embodied WCE’s storm drainage plan. Tr. 10/14/16 (Unemori) at 30:10 to 32:2. None of the documents indicated any plans or requirements or plans for irrigation of the common areas. *Id.* at 32:3 to 33:24. Instead, WCE’s engineer witness indicated that there may be another document containing such information, but no such document was produced in this case under the subpoena. *Id.* at 35:4 to 36:11.

C-187. WCE also did not show that continued and regular irrigation is a standard or best practice for such drainage systems. On the contrary, such a system typically requires irrigation at the outset (3 to 6 months) to grow in the vegetation, after which continued, regular irrigation should not be required for maintenance. Hood Responsive Test. 4/29/16, ¶ 8. Necessary “maintenance” usually involves trimming the vegetation, not continual irrigation to

further propagate the vegetation, which seems counterproductive as well as an imprudent use of water. *Id.*

C-188. Andrew Hood, a hydrologist with expertise in erosion and stormwater runoff control, *see* Ex Nā Wai-28, repeatedly maintained that he was “not familiar with continuous irrigation of storm water swales,” Tr. 10/14/16 (Hood) at 50:21 to 51:14, 56:16-20, 59:15-23, and that the manufacturer of the turf reinforcement mats that WCE used was also “not familiar,” “not aware of installations that have permanent irrigation.” *id.* at 50:14-20, 59:22 to 61:4. Mr. Hood indicated that there were grasses for which the amount rainfall in area of WCE would be sufficient. *Id.* at 53:4 to 54:8. WCE’s engineer witness, in contrast, repeatedly maintained that he was not an expert on water requirements or irrigation needs for ground cover and “really can’t say how much is enough.” Tr. 10/14/16 (Unemori) at 39:8-18, 43:24 to 44:4, 44:21 to 45:3.

3. Alternatives.

C-189. In its report asserting a lack of practicable alternatives, WCE claims that the municipal water supply “is simply not a viable alternative” because the irrigation supply is “three times greater than the potable supply MDWS is committed to providing.” Ex. 2189 WCEIC-270 at 10. Setting aside whether WCE should receive three times the amount from the county, both WCE and the Commission have already recognized that the municipal system is an “alternative source of water for WCE irrigation purposes,” and that “[s]ince the County of Maui allows other agricultural property in central Maui to use [county] water, it is unlikely the County would deny such a petition” to use municipal water. 2010 Decision FOF 405 (quoting WCE). The Commission thus determined that WCE and other such WWC customers had practicable alternatives to Nā Wai ‘Ehā stream flows. *Id.* COLs 101, 226.

C-190. In its association newsletter, WCE explained “[w]hat would happen without our Association or Irrigation Company,” highlighting that “our irrigation water is much cheaper

then [sic] the Agricultural rate for the County of Maui,” and that “based on County Agricultural rates you would be paying \$130.00 dollars a month for our allotted 80,000 gallons of water.”

Ex. Nā Wai-40 at WCE-000008. *See also* Ex. Nā Wai-41 at WCE-000013 (informing lot owners that it is “very important to show that we are using our irrigation water” and reminding them that “[y]our rates are lower than if you had County of Maui agricultural water”). At that time, WCE evidently saw a benefit in Nā Wai ‘Ehā stream water being supposedly cheaper than municipal water, but it does not assert that municipal water use is not practicable for this subdivision because it is more expensive.

C-191. In an annual owners’ meeting, WCE discussed this proceeding and anticipated that “[s]hould [WWC] reduce the amount of water to residents, the Association may run short of water in the summer months. It is suggested that owners obtain water storage systems for these months.” Ex. Nā Wai-29 at WCE-000053. WCE stated that “we were trying to think ahead a little bit” about “[c]onservation.” Tr. 7/28/16 (Blackburn) at 170:20 to 171:2. In its water use request, WCE did not address the practicability of such storage by the subdivision and/or owners and other conservation measures such as catchment systems and gray water reuse, in order to reduce reliance on diverted Nā Wai ‘Ehā stream water.

F. Waikapu Ranch Owners.

1. Background

C-192. By Limited Warranty Deed recorded on May 27, 2004 as Document No. 2004-107165, WACI, as Grantor, conveyed to Makena Real Estate Corporation, as Grantee, that certain parcel of land, then designated as TMK No. (2) 3-5-004-023, described in Exhibit A to said deed, containing approximately 46.1 acres (the “Waikapu Ranch Parcel”). Ex. OHA-29.

C-193. In the Limited Warranty Deed to Makena Real Estate Corporation, WACI expressly “RESERV[ED] and GRANT[ED], HOWEVER, unto Grantor, its successors and assigns, all water and water rights (surface and ground water) within or appurtenant to the Property.” Ex. OHA-29 at 2.

C-194. Makena Real Estate Corporation conveyed the Waikapu Ranch Parcel to Waikapu Ranch, LLC by Limited Warranty Deed recorded on December 13, 2004 as Document No. 2004-250684, and the Waikapu Ranch Inc. Subdivision was then created by subdividing the Waikapu Ranch Parcel into Lots 1 through 8 and Roadway Lots 9 and 10. Exs. OTA-1; OHA-26.

C-195. Waikapu Ranch, LLC entered a Water Delivery Agreement with WWC dated September 1, 2006, pursuant to which Waikapu Ranch, LLC agreed to pay WWC for water based on the “County Rate” (then \$0.85/1,000 gallons) and, whether or not water was delivered, agreed to pay WWC a Minimum Quarterly Charge of \$4,896.00 (assuming County Rate of \$0.85/1,000 gallons). Exs. D-90; D-3 at 6; D-96 at 5 (MA06-01). The individual lot owners at Waikapu Ranch Inc. Subdivision now pay WWC for water delivery. *See* Tr. 7/19/16 (Ota) at 87:3-18, 96:25 to 97:12; Tr. 7/19/16 (Takitani) at 105:10-14; Tr. 7/22/16 (Sloan) at 119:16-18.

C-196. Owners of six of the eight subdivided lots in the Waikapu Ranch Inc. Subdivision (collectively, the “Participating Owners”) asserted claims for appurtenant rights in this proceeding. *See* Ex. OHA-27 (identifying lots of Participating Owners). None of the Participating Owners timely filed a SWUPA for an existing use. “Waikapu Ranch Co.” apparently filed an incomplete SWUPA-E that was not accepted. Provisional Order, Ex. 7 at 37. One of the Participating Owners, Kitagawa Motors, Inc., subsequently withdrew its application during the course of the hearing, Tr. 9/19/16 at 4:21-11, and another, Shane P. Victorino,

Investment Trustee of the SPV Trust dated February 2, 2011, was permitted to stand on the written testimonies of Shane Victorino and Michael Victorino, *id.* at 4:25 to 5:21.⁹

2. Ken Ota (SWUPA 3665N)

Appurtenant Rights Claims

C-197. Ken S. Ota and Saedene K. Ota purchased Lot 3 in the Waikapu Ranch Inc. Subdivision by Warranty Deed recorded on April 29, 2008 as Document No. 2008-066726. Ex. OTA-15. The property description attached as Exhibit “A” to the Warranty Deed provides that the Property was being conveyed “subject to,” among other things, “Water or water rights as reserved in Limited Warranty Deed dated May 21, 2004, recorded May 27, 2004 in the Bureau of Conveyances of the State of Hawaii as Document No. 2004-107165.” Ex. “A” to Ex. OTA 15 at 16, ¶ 6.

C-198. Mr. Ota filed SWUPA 3665N on September 27, 2012 for a new use of 25,600 gpd. Although Mr. Ota checked the box claiming he had an appurtenant right for his use, he did not participate in the provisional recognition process, and did not submit any documentation in support of his claimed appurtenant rights until he filed his testimony and exhibits herein on February 29, 2016, three weeks past the deadline for opening submissions. Tr. 7/19/16 (Ota) at 87:24 to 89:6.

C-199. According to the property description in the Otas’ deed, Lot 3 of the Waikapu Ranch Ind. Subdivision derives from “a portion of Grant 2007, Apana 3 to John Richardson.” Ex. “A” to Ex. OTA-15, at 5. See also Exs. OHA-26, 30.

⁹ On page 5 of the transcript dated September 20, 2016, the speaker identified as “Mr. Kang” was actually Mr. Takitani, attorney for the Waikapu Ranch Participating Owners. Mr. Takatani made an appearance, *id.* at 4:10-12, but his appearance was not reflected on the list of appearances, *id.* at 2.

C-200. Grant 2007, ‘Āpana 3 to John Richardson is a grant rather than an LCA, and the documentation submitted does not refer to or establish water use on the parcel at the time of the Māhele in any event. Ex. OTA-14. Mr. Ota was unable to identify any evidence he submitted that established water use on his parcel, Lot 3 of the Waikapu Ranch Inc. Subdivision, at the time of the Māhele. Tr. 7/19/16 (Ota) at 96:4-7.

Permit Request

C-201. An amended SWUPA 3665N was filed on July 5, 2016, more than four months after Mr. Ota he submitted his written testimony and just weeks before he testified orally. Ex. OTA-16. As amended, SWUPA 3665N is for a new use of 5,666.7 gpd, which coincides with the 170,000 gallons/month Mr. Ota claims as the appurtenant rights on Lot 3. OTA WT 2/29/16 at 1, ¶ 3. Mr. Ota uses the water for his commercial landscape nursery and non-commercial plantings of fruit trees. Ex. OTA-16, Tables 1 & 2; OTA WT 2/29/16 at 3, ¶ 17.

C-202. The Otas have a 5/8-inch water meter from the Board of Water Supply. Tr. 7/19/16 (Ota) at 72:19-25; see also *id.* at 73:9-11. Mr. Ota apparently assumes that “[w]ater for non-potable uses is not available from the County Department of Water Supply,” SWUPA 3665N, Table 3, but submitted no evidence to substantiate that assumption. Mr. Ota also rejected ground water as an alternative because “[p]umping of ground water in the Iao Aquifer [sic] is under a CWRM regulation and capacity is limited.” SWUPA 3665N, Table 3. However, the Otas’ property overlies the Waikapū Aquifer.

3. Anthony Takatani (SWUPA 4444N)

Appurtenant Rights Claims

C-203. Anthony P. Takitani and Audrey S. Takitani purchased Lot 7 in the Waikapu Ranch Inc. Subdivision by Warranty Deed recorded on May 13, 2008 as Document No. 2008-076248. Ex. TAKITANI-1. The property description attached as Exhibit “A” to the Warranty

Deed provides that the Property was being conveyed “subject to,” among other things, “Water or water rights as reserved in Limited Warranty Deed dated May 21, 2004, recorded May 27, 2004 in the Bureau of Conveyances of the State of Hawaii as Document No. 2004-107165.” Ex. “A” to Ex. TAKITANI-1 at 14, ¶ 6.

C-204. Mr. Takitani did not participate in the provisional recognition process, *see* Provisional Order, Ex. 7 thereto, and did not submit any documentation in support of his claimed appurtenant rights until he filed his testimony and exhibits herein on February 29, 2016, three weeks past the deadline for opening submissions.

C-205. According to the property description in the Takitanis’ deed, Lot 7 of the Waikapu Ranch Inc. Subdivision derives from “a portion of Grant 2007, Apana 3 to John Richardson, Royal Patent 6338, Land Commission Award to 3702 to David Malo, Royal Patent 3116, Land Commission Award 2225 to Kuamu and Royal Patent 497, Land Commission Award 443 to John Richardson.” Ex. “A” to Ex. TAKITANI-1, at 5. See also Exs. OHA-26, 30.

C-206. Of the LCAs and Grants referenced, the documentation submitted by the Participating Owners includes evidence of water use at the time of the Māhele only for LCA 3702 to David Malo, which includes “Kalo, Kula, & Pahale,” Ex. OTA-8, and for LCA 2225 to Kuamu, which includes “Kalo & Kula,” Ex. OTA-12. Mr. Takitani did not provide any evidence quantifying the water use on LCA 3702 or LCA2225 at the time of the Māhele, and apparently made no attempt to determine what portion of either LCA was within Lot 7.

Permit Request

C-207. SWUPA 4444N, on which Mr. Takatani was the applicant, was filed on July 5, 2016, more than four months after Mr. Takitani submitted his written testimony and just two weeks before he testified orally. Ex. TAKITANI-2. SWUPA 4444N is for a new use of 2,833.3

gpd, which coincides with the 85,000 gallons/month Mr. Takatani claims as the appurtenant rights on Lot 7. Takitani WT 2/29/16 at 1, ¶ 3. Mr. Takitani uses the water to irrigate pasture for goats, ornamental landscaping, and fruit trees. Ex. TAKITANI-2, Tables 1 & 2; Takitani WT 2/29/16 at 3, ¶ 17.

C-208. Mr. Takitani admitted that the amount of water requested in SWUPA 4444N is “actually maybe not what I need now, but for potential future ag use.” Tr. 7/19/16 (Takitani) at 106:6-9.

C-209. The Takitanis have two homes on Lot 7, Ex. OHA-31, and reside there; Mr. Takitani admitted that he is “not farming, per se, basically grazing goats.” Tr. 7/19/16 (Takitani) at 113:15-21.

C-210. Mr. Takitani apparently assumes that “[w]ater for non-potable uses is not available from the County Department of Water Supply,” SWUPA 4444N, Table 3, but submitted no evidence to substantiate that assumption. Mr. Takitani also rejected ground water as an alternative because “[p]umping of ground water in the Iao Aquifer [sic] is under a CWRM regulation and capacity is limited.” SWUPA 4444N, Table 3. However, the Takitanis’ property overlies the Waikapu Aquifer.

4. Kurt Sloan (SWUPA 3671N)

Appurtenant Rights Claims

C-211. Kurt E. Sloan and Elizabeth V. Sloan purchased Lot 5 in the Waikapu Ranch Inc. Subdivision by Warranty Deed recorded on April 25, 2008 as Document No. 2008-06513. Ex. SLOAN-1. The property description attached as Exhibit “A” to the Warranty Deed provides that the Property was conveyed “subject to,” among other things, “Water or water rights as reserved” in the Limited Warranty Deed dated May 21, 2004, recorded May 27, 2004 in the

Bureau of Conveyances of the State of Hawaii as Document No. 2004-107165. Ex. "A" to Ex. SLOAN-1 at 12, ¶ 6.

C-212. Mr. Sloan understands that land can be sold by private contract without water rights, and does not "see what the big deal is about water rights" given that "this island has so much water it could support the people in San Francisco." Tr. 7/22/16 (Sloan) at 125:1-10, 127:4-13.

C-213. Mr. Sloan filed SWUPA 3671N on October 9, 2012 for a new use of 25,600 gpd. Although Mr. Sloan checked the box claiming he had an appurtenant right for his use, he did not participate in the provisional recognition process, see Provisional Order, Ex. 7 thereto, and did not submit any documentation in support of his claimed appurtenant rights until he filed his testimony and exhibits herein on February 29, 2016, three weeks past the deadline for opening submissions.

C-214. According to the property description in the Sloans' deed, Lot 5 of the Waikapu Ranch Inc. Subdivision derives from "all of Royal Patent 3132, Land Commission Award 2203 to Nahema, also being a portion of Royal Patent 2004, Land Commission Award 9202 [sic-920?], Apana 2 to John Richardson & Co., Royal Patent 5926, Land Commission Award 8875 to Kanaina, Grant 2007, Apana 3 to John Richardson, Royal Patent 6338, Land Commission Award to 3702 to David Malo, and Royal Patent 497, Land Commission Award 443 to John Richardson." Ex. "A" to Ex. SLOAN-1, at 6. See also Exs. OHA-26, 30.

C-215. Of the LCAs and Grants referenced in the property description, the documentation submitted by the Participating Owners includes evidence of water use at the time of the Māhele only for LCA 2203 to Nahema, which was entirely within what is now Lot 3, and LCA 3702 to David Malo, which includes "Kalo, Kula, & Pahale." Ex. OTA-8. With respect to

the other LCAs and Grants referenced, the documents produced indicate that LCA 920, ‘Āpana 2 to John Richardson & Co. was kula land, Ex. OTA-5, and LCA 8875 to Kanaina was a Pāhale, or houselot. Ex. OTA-6. The documents submitted concerning Grant 2007, ‘Āpana 3 to John Richardson and LCA 443 to John Richardson do not refer to or establish water use on those parcels at the time of the Māhele. See Exs. OTA-14 (re Grant 2007), OTA-2, 3 (re LCA 443).

C-216. Mr. Sloan did not provide any evidence quantifying the water use on LCA 3702 at the time of the Māhele. In supplemental testimony submitted more than three weeks after he testified, Mr. Sloan estimated that approximately 25% of LCA 3702 was within Lot 5. Sloan Supp. WT 8/16/16 at 2, ¶ 6.

Permit Request

C-217. An amended SWUPA 3671N was filed on July 5, 2016, more than four months after Mr. Sloan submitted his written testimony and just weeks before he testified orally. Ex. SLOAN -2. As amended, SWUPA 3671N is for a new use of 2,166.7 gpd, which coincides with the 65,000 gallons/month Mr. Sloan claims as the appurtenant rights on Lot 5, Sloan WT 2/29/16 at 1, ¶ 3. Mr. Sloan uses the water to irrigate fruit trees. Ex. SLOAN-2, Tables 1 & 2; Sloan WT 2/29/16 at 3, ¶ 17.

C-218. Mr. Sloan apparently assumes that “[w]ater for non-potable uses is not available from the County Department of Water Supply,” SWUPA 3671N, Table 3, but submitted no evidence to substantiate that assumption. Mr. Sloan also rejected ground water as an alternative because “[p]umping of ground water in the Iao Aquifer [sic] is under a CWRM regulation and capacity is limited.” SWUPA 3671N, Table 3. However, the Sloans’ property overlies the Waikapū Aquifer.

5. Gerald Lau Hee (SWUPA 4442N)

Appurtenant Rights Claims

C-219. Gerald Wayne Lau Hee, Janice Michie Lau Hee and Kaeo Akira Joseph Lau Hee purchased Lot 1 in the Waikapu Ranch Inc. Subdivision by Warranty Deed recorded on September 29, 2015 as Document No. A57500084. Ex. LAU HEE-1. The property description attached as Exhibit “A” to the Warranty Deed provides that the Property was being conveyed “subject to,” among other things, “Water or water rights as reserved in the Limited Warranty Deed dated May 21, 2004, recorded in the Bureau of Conveyances of the State of Hawaii as Document No. 2004-107165.” Ex. “A” to Ex. LAU HEE-1 at 10, ¶ 8.

C-220. Mr. Lau Hee did not participate in the provisional recognition process, see Provisional Order, Ex. 7 thereto, and did not submit any documentation in support of his claimed appurtenant rights until he filed his testimony and exhibits herein on February 29, 2016, three weeks past the deadline for opening submissions.

C-221. According to the property description in the Lau Hees’ deed, Lot 1 of the Waikapu Ranch Inc. Subdivision derives from “a portion of Grant 2007, Apana 3 to John Richardson, Grant 1714, Apana 2 to Francis Silva, Royal Patent 6483, Land Commission Award 8672, Apana 1 to Kaluau and Royal Patent 3116, Land Commission Award 2225 to Kuamu.” Ex. “A” to Ex. LAU HEE-1, at 4. See also Exs. OHA-26, 30.

C-222. Of the LCAs and Grants referenced in the property description, the documentation submitted by the Participating Owners includes does not refer to or establish water use at the time of the Māhele on Grant 2007, ‘Āpana 3 to John Richardson, Ex. OTA-14, and the Lau Hees did not submit any documentation for either Grant 1714, ‘Āpana 2 to Francis Silva or LCA 8671, ‘Āpana 1 to Kaluau. Tr. 9/19/16 (Kaeo Lau Hee) at 83:13 to 84:3; 87:3-9.

If any portion of LCA 2225 to Kuamu (which includes “Kalo & Kula,” Ex. OTA-12) was within Lot 1, it was “negligible.” Tr. 9/19/16 (Kaeo Lau Hee) at 84:4 to 85:7, 87:10-13.

Permit Request

C-223. SWUPA 4442, with Mr. Lau Hee as the applicant, was filed on July 5, 2016, more than four months after Mr. Lau Hee submitted his written testimony. Ex. LAU HEE-2. SWUPA 4442N is for a new use of 1,166.7 gpd, which is less than either the 50,000 gallons/month Mr. Lau Hee claims as the appurtenant rights on Lot 1, Lau Hee WT 2/29/16 at 1, ¶ 3, or the 80,000 gallons/month referred to elsewhere in his written testimony, *id.* at 3, ¶ 16. Mr. Lau Hee plans to use water to irrigate trees on Lot 1. Ex. LAU HEE-2, Tables 1 & 2.

C-224. Mr. Lau Hee apparently assumes that “[w]ater for non-potable uses is not available from the County Department of Water Supply,” SWUPA 4442N, Table 3, but submitted no evidence to substantiate that assumption. Mr. Lau Hee also rejected ground water as an alternative because “[p]umping of ground water in the Iao Aquifer [sic] is under a CWRM regulation and capacity is limited.” SWUPA 4442N, Table 3. However, the Lau Hees’ property overlies the Waikapu Aquifer.

6. Shane Victorino (SWUPA 4445N)

Appurtenant Rights Claims

C-225. Shane P. Victorino, Investment Trustee of the SPV Trust dated February 2, 2011 (“SPV”), purchased Lot 6 in the Waikapu Ranch Ind. Subdivision by Warranty Deed recorded on February 10, 2014 as Document No. A-51540010. Ex. SPV-1. The property description attached as Exhibit “A” to the Warranty Deed provides that the Property was being conveyed “subject to,” among other things, “Water or water rights as reserved in the instrument entitled Limited Warranty Deed dated May 21, 2004, recorded in the Bureau of Conveyances of the State of Hawaii as Document No. 2004-107165.” Ex. “A” to Ex. SPV-1 at 9, ¶ 8.

C-226. SPV did not participate in the provisional recognition process, see Provisional Order, Ex. 7 thereto, and did not submit any documentation in support of its claimed appurtenant rights until it filed its testimony and exhibits herein on February 29, 2016, three weeks past the deadline for opening submissions.

C-227. According to the property description in SPV's deed, Lot 6 of the Waikapu Ranch Inc. Subdivision derives from "a portion of Royal Patent Grant Number 2004, Land Commission Award 9202 [sic-920?], Apana 2 to John Richardson & Co., Royal Patent Grant Number 6338, Land Commission Award 3702 to David Malo, and Royal Patent Grant Number 497, Land Commission Award 443 to John Richardson." Ex. SPV-1. *See also* Exs. OHA-26, 30.

C-228. According to the property description in SPV's deed, Lot 6 of the Waikapu Ranch Inc. Subdivision derives from "a portion of Royal Patent Grant Number 2004, Land Commission Award 9202 [sic-920?], Apana 2 to John Richardson & Co., Royal Patent Grant Number 6338, Land Commission Award 3702 to David Malo, and Royal Patent Grant Number 497, Land Commission Award 443 to John Richardson." Ex. SPV-1. *See also* Exs. OHA-26, 30.

C-229. Of the LCAs and Grants referenced in the property description, the documentation submitted by the Participating Owners includes evidence of water use at the time of the Māhele only for LCA 3702 to David Malo, which includes "Kalo, Kula, & Pahale." Ex. OTA-8. With respect to the other LCAs and Grants referenced, the documents produced indicate that LCA 920:2 to John Richardson & Co. was kula land. Ex. OTA-5. The documents submitted concerning LCA 443 to John Richardson do not refer to or establish water use on the parcel at the time of the Māhele. *See* Exs. OTA-2 & 3.

C-230. SPV did not provide any evidence quantifying the water use on LCA 3702 at the time of the Māhele, and apparently made no attempt to determine what portion of LCA 3702 is within Lot 6. It appears that the only portion of Lot 6 derived from a portion of LCA 3702 is the “flagpole” driveway to Lot 6, which bisects LCA 3702. See Ex. OHA-30.

Permit Request

C-231. Michael Victorino, for Shane Victorino, filed SWUPA 4445N on July 5, 2016, more than four months after SPV submitted written testimony, for a new use of 1,166.7 gpd. Ex. SPV-2. SPV’s attorney orally “corrected” SWUPA 4445N to seek 1,667 gpd, Tr. 9/20/16 at 5:4-9, which coincides with the 50,000 gallons/month SPV claims as the appurtenant rights on Lot 6, Victorino WT 2/29/16 at 1, ¶ 3. SPV plans to use the water for ornamental and fruit trees to be planted, Ex. SPV-2, Table 1.

C-232. Mr. Victorino apparently assumes that “[w]ater for non-potable uses is not available from the County Department of Water Supply,” SWUPA 4445N, Table 3, but submitted no evidence to substantiate that assumption. Mr. Victorino also rejected ground water as an alternative because “[p]umping of ground water in the Iao Aquifer [sic] is under a CWRM regulation and capacity is limited.” SWUPA 4445N, Table 3. However, SPV’s property overlies the Waikapū Aquifer.

G. Wahi Ho‘omalū (SWUPA 2351N).

1. Background

C-233. By Quitclaim Deed executed and recorded on November 26, 2003 as Document No. 2003-259898, WACI, as Grantor, conveyed to Wahi Ho‘omalū Limited Partnership (“Wahi Ho‘omalū”), as Grantee, WACI’s interest in an 834.016-acre parcel

identified as TMK No. (2) 3-3-002-001 (“Parcel 1”), which included an interest in several Land Commission Awards. Ex. WAHI-15 (Quitclaim Deed re TMK (2) 3-3-002-001).

C-234. Also in November 2003, Wahi Ho‘omalu entered a Water Delivery Agreement with WACI (n/k/a WWC), pursuant to which Wahi Ho‘omalu agreed to pay WACI for water for use on Parcel 1 based on the “County Rate” (then \$0.76/1,000 gallons) and, whether or not water was delivered, agreed to pay Minimum Charge of \$1,140.00 per month (assuming County Rate of \$0.76/1,000 gallons). Ex. OHA-24.

C-235. Wahi Ho‘omalu purchased Parcel 1 because its general partner, John Russell, wanted to farm. Tr. 7/19/16 (Russell) at 130:24 to 131:1. Of the approximately 834 acres in Parcel 1, about 500 acres are in the conservation district, and a little over 300 acres is zoned for agriculture. Tr. 7/19/16 (Russell) at 120:4-10; Ex. OHA-22. The agricultural portion of Parcel 1 had previously been in sugar cane, and in the early 1980s, 168 acres were planted in macadamia nuts. SWUPA 2351, Addendum.

C-236. By Quitclaim Deed executed and recorded on May 5, 2004 as Document No. 2004-090433, WACI, as Grantor, conveyed to Wahi Ho‘omalu, as Grantee, WACI’s interest in a parcel identified as TMK No. (2) 3-3-002-026 (“Parcel 26”), which was described on the attached property description as “all of L. C. Aw. 3456:4, containing an area of 0.750 acres, more or less.” Ex. OHA-21. The Quitclaim Deed expressly “EXCEPT[S], RESERV[ES] and GRANT[S], HOWEVER, onto Grantor, its successors and assigns, all water and water rights (surface and ground water) within or appurtenant to the Property.” *Id.* at 2.

2. Appurtenant Rights Claims

C-237. Wahi Ho‘omalu indicated on SWUPA 2351 that it claimed an appurtenant right for its use, and that the appurtenant right had been established by the courts or the Commission. SWUPA 2351, at 1. In the Addendum to SWUPA 2351, Wahi Ho‘omalu asserted

that “[t]his TMK 3-3-02-01 includes about 19 Land Commission Awards along the South Fork of the Waiehu Stream including TMK 3-3-02-26, and includes several Land Commission Awards along the Iao Stream, and parcel -01 itself borders on these Streams, and thus these lands have appurtenant and riparian water rights.” SWUPA 2351, Addendum at 1.

C-238. Mr. Russell became interested in growing taro when he learned he could get a water use permit. Tr. 7/19/16 (Russell) at 130:17-23, 174:18-23; Tr. 9/20/16 (Russell) at 86:2-10. On May 9, 2011, Wahi Ho‘omalulu filed with the Commission a Petition Requesting a Contested Case Hearing (“CCH Petition”), and on May 17, 2011 it submitted its Supplement to the CCH Petition to provide documentation in support of provisional recognition of appurtenant rights on seventeen kuleana parcels on Parcel 1 and one kuleana parcel on Parcel 26. Russell WT 2/5/16 at 2, ¶¶ 6, 7; Tr. 7/19/16 (Russell) at 121:22 to 122:12. The kuleana parcels are on the south side of South Waiehu Stream above the Spreckels Ditch, which delineates the eastern boundary of Parcel 1. Ex. Wahi-15, TMK Map.

C-239. The Commission provisionally recognized appurtenant rights on twelve LCAs on Parcel 1; provisional recognition was denied without prejudice for one LCA because Wahi Ho‘omalulu did not provide any documentation of appurtenant rights. Ex.7 to Provisional Order, at 33-34.

C-240. In the quantification phase, Wahi Ho‘omalulu sought 150,000 gallons for 37.316 acres of kalo cultivation, which it calculated by adding up the entire acreage of all eighteen kuleana parcels, including those that had not been provisionally approved. Russell WT 2/5/16 at 3-5, ¶¶ 8-15. Mr. Russell attested that he intended to cultivate kalo on all 37 acres, *id.* at 5, ¶ 16, although he had never cultivated wetland kalo before and apparently intended just to work out a “relationship” with “whoever can . . . grow kalo,” Tr. 9/20/16 (Russell) at 86:11-16.

C-241. Through Mr. Russell's testimony on July 19, 2016, Wahi Ho'omalū withdrew its claims for appurtenant rights on LCA 1806:3 because Mr. Russell was not sure how much of that parcel he owned. Tr. 7/19/16 (Russell) at 124:9 to 125:9. LCA 1806:3 was listed on the title report for Parcel 1, but Wahi Ho'omalū was unable to quiet title to that parcel. *Id.* at 124:25 to 125:2; Ex. WAHI-13, schedule C at 33, *compare id.* at 35.

C-242. Wahi Ho'omalū also withdrew its claim for appurtenant rights on LCA 3275-E4, Tr. 7/19/16 (Russell) at 128:2-6,¹⁰ another kuleana listed on its title report for which it was not able to quiet title, Ex. WAHI-13, schedule C at 33, *compare id.* at 35, and a portion of which is now identified as TMK No. (2) 3-3-02:013 and owned by others, *see* OHA OB at 31; Ex. OHA-19.

C-243. Finally, Wahi Ho'omalū withdrew its claim for appurtenant rights on a portion of LCA 2468-1. Tr. 7/19/16 (Russell) at 125:17 to 128:1. LCA 2468:1 to Keau was originally 2.49 acres. See Exs. WAHI-1A (LCA 2468); WAHI-3. At some point, a 1.245-acre section of LCA 2468:1 was designated as TMK No. (2) 3-3-002-014, and it is now owned by Thomas Cerizo, whose appurtenant rights on that kuleana were provisionally recognized, Ex. 7 to Provisional Order at 17, and who has sought quantification of those rights in these proceedings, Tr. 7/18/16 (T. Cerizo) at 137-139.

C-244. As demonstrated by a survey commissioned by Wahi Ho'omalū, another 0.886-acre section of LCA 2468:1, which includes the same land that was also awarded as LCA

¹⁰ The reference to this parcel in the transcript contains a typographical error; it is 3275-E4, not "327524."

3456:4 to Keliinui, has now been designated as TMK No. (2) 3-3-002-026, i.e., Wahi Ho‘omalū’s Parcel 26. See Valera Map (Rev. 8/7/08) included in Ex. WAHI-15.¹¹

C-245. With the 1.245-acre section now designated as TMK No. (2) 3-3-002-014, and the 0.886-acre section now designated as TMK No. (2) 3-3-002-026, the only portion of LCA 2468:1 that remains in Parcel 1 is a 0.433-acre section, which is the section for which Wahi Ho‘omalū seeks appurtenant rights. See Valera Map (Rev. 8/7/08) included in Ex. WAHI-15; Tr. 7/19/16 (Russell) at 127:22 to 126:8; 148:15-20.

C-246. In addition to withdrawing its appurtenant rights claims for LCA 1806:3, LCA 3275-E4, and all but the 0.433-acre section of LCA 2468:1 remaining in Parcel 1, Wahi Ho‘omalū appeared to recognize that in some instances, such as when a kuleana parcel included a house lot, the entire acreage of the parcel would not have been using water at the time of the Māhele. Tr. 7/19/16 (Russell) at 152:11-20; 155:22-156:2.

C-247. On July 28, 2016, Wahi Ho‘omalū served the Supplemental Declaration of John Russell (“Russell WT 7/28/16”) which, among other things, reduced from 37.316 to 30.991 the acres based on which Wahi Ho‘omalū sought quantification of its appurtenant rights, and reduced from 37.316 to 3.096 the acres on which it seeks a Surface Water Use Permit to exercise those rights. Russell WT 7/28/16 at 3, ¶¶ 12-13; 4, ¶ 15; 5, ¶ 18. Mr. Russell now recognizes that kalo cultivation is going to be “a lot of work” and he reduced his request “to be practical.” Tr. 9/20/16 (Russell) at 52:22-25.

¹¹ Contrary to Mr. Valera’s depiction, however, the dimensions of LCA 3456:4 are not identical to those of the 0.886-acre portion of LCA 2468:1. The translation of LCA 3456 states that ‘Āpana 4 “[c]ontain[s] an area of ¾ acre”, Ex. WAHI-12, and the property description attached to the Parcel 26 Quitclaim Deed provides that Parcel 26 is “all of L. C. Aw. 3456:4, containing an area of 0.750 acres, more or less,” Ex. OHA-21. Apparently based on Mr. Valera’s analysis, the title report for Parcel 26 indicates it is 0.886 acres. Ex. WAHI-14 (Schedule B).

C-248. Wahi Ho‘omalū’s revised table continues to contain discrepancies; some were resolved on the record when Mr. Russell testified on September 20, 2016, and others were not. The discrepancies are as follows, using the numbering on Wahi Ho‘omalū’s revised table (Russell WT 7/28/26, ¶ 15):

- a. #3: For LCA 2468:1, Wahi Ho‘omalū is appropriately seeking quantification of its appurtenant rights only for the 0.433-acre portion that remains in Parcel 1, but its revised chart does not account for the Foreign Testimony describing LCA 2468:1 as “a kalo and kula land.” Ex. WAHI-30. Since there is no evidence of how much of the original 2.49 acres was in kalo, and because the three sections of what was LCA 2468:1 are no longer all in common ownership, each of the three sections should be presumed to have been half kalo and half kula. In that case, this 0.433-acre section would be presumed to have had .217 acres in kalo (and the 0.886-acre section in Parcel 26 (#17) would be presumed to have had 0.443 acres in kalo). Mr. Russell testified, however, that based on his inspection of this 0.433-acre section and the 0.886-acre section in Parcel 26 (#17), the latter parcel appeared more suited for kalo cultivation. Tr. 9/20/16 (Russell) at 88:24 to 89:8, 90:1-24. Wahi Ho‘omalū owns both sections, and has apparently elected to have the total 0.66 acres presumed to have been in kalo attributed to the 0.886-acre section in Parcel 26, in which case there was presumably no kalo cultivation on this 0.433-acre section.
- b. #4: Wahi Ho‘omalū’s revised table mistakenly states that LCA 2468:2 is 2.94 acres, but that is the total acreage of LCA 2468, which includes both ‘Āpana 1,

which was 2.49 acres, and ‘Āpana 2, which was 0.45 acres. Exs. WAHI-1A (LCA 2468); WAHI-3.¹²

c. #8: According to the Foreign Testimony, LCA 3275D:1 is “kalo & kula,” Ex. WAHI-33. Wahi Ho‘omalū agrees that, absent evidence to the contrary, it is presumed that half of the acreage was in kalo and half was kula. Tr. 9/20/16 (Russell) at 76:17-24, 83:8-12.

d. ## 9, 10, 12: The acreage as shown on LCA 3275-E for these three ‘āpana is: 3275-E:2 (#9) – 1.12 acres; 3275-E:3 (#10) – 6.62 acres; and 3275-E:6 (#12) – 3.39 acres, or a total of 11.13 acres for the three ‘āpana. Exs. WAHI-1A (LCA 3275-E), WAHI-7; *see also* Tr. 9/20/16 (Russell) at 63:15 to 64:5, 81:14-21, 83:2-7.

e.#13: Wahi Ho‘omalū appropriately recognized on its revised table that LCA 3275-W is a house lot; it therefore reduced the acreage on which it seeks appurtenant rights from 0.49 acres to 0.24 acres. There is no evidence in the record of any water use on this parcel at the time of the Māhele to support recognizing appurtenant rights for other than domestic use. Wahi Ho‘omalū submitted the Native Testimony, in which Kaleo testified that “[h]e has seen one houselot in Honuhonuiki Ili in Waiehu. The land is from Eleele in the time of Kam. II. No objections.” Ex. WAHI-26. The LCA, likewise, does not contain any reference to water use, nor does it support an inference that there was any irrigated cultivation on the parcel; it describes the LCA as being bounded on three sides by “kula” or

¹² The translation of LCA 2468, Ex. WAHI-3, includes an erroneous space in the acreage of ‘Āpana 2 (“4 5/100”) which conceivably could be interpreted as “4.05” acres. However, that is inconsistent with both the figures on the actual LCA and the relative sizes of the two ‘āpana as shown on the survey drawings on the actual LCA.

pasture, and on the fourth side by “pali” or cliff. Exs. WAHI-1A (LCA 3275-W); WAHI-8.

f. #14: LCA 3451 is described in the Foreign Testimony as being “one piece of kalo and kula land.” Ex. WAHI-35. Given the absence of evidence to the contrary, it is presumed that half of the acreage was in kalo and half was kula. *See* Tr. 9/20/16 (Russell) at 83:8-12.

g. #15: According to the Foreign Testimony, LCA 11222:1 is “a piece of kalo and kula.” Ex. WAHI-36. Given the absence of evidence to the contrary, it is presumed that half of the acreage was in kalo and half was kula. *See* Tr. 9/20/16 (Russell) at 83:8-12.

h. #17: With respect to LCA 3456:4, which is the same land as a portion of LCA 2468:1 and is now TMK (2) 3-3-002-026 (i.e., Parcel 26), the Quitclaim Deed from WACI to Wahi Ho‘omalua reserves these rights to WACI. The reservation aside, the only evidence in the record from which water use at the time of the Māhele could be inferred is that it is bounded in part by the stream and in part by the “chief’s taro plantation,” or pō‘alima. Ex. WAHI-12. Neither the Native Testimony nor the Foreign Testimony cited by Wahi Ho‘omalua in its revised table refer to ‘Āpana 4. *See* Exs. WAHI-37, WAHI-38. There is nothing in the record contrary to the Foreign Testimony describing LCA 2468:1, which includes the same land, as “a kalo and kula land.” Ex. WAHI-30. Given the absence of evidence to the contrary, and Wahi Ho‘omalua’s election described in subsection b, above, the maximum area of this kuleana that could be presumed to have been in kalo at the time of the Māhele is 0.66 acres.

C-249. Based on the foregoing, the acreage figures in Wahi Ho‘omalū’s revised table (excluding the withdrawn appurtenant rights claims, and the claim for appurtenant rights on LCA 3456:4 in Parcel 26 that have been extinguished) should be further revised as follows:

	LCA	Prov. Rec.?	Total Acres	Acres in Kalo
2.	2461:2	Y	0.45	0.45
3.	2468:1	N	0.433	0.00
4.	2468:2	Y	0.45	0.45
5.	2554:1	Y	0.50	0.50
6.	2554:2	Y	1.38	1.38
7.	3259	Y	4.83	4.83
8.	3275D	Y	2.06	1.03
9.	3275E2	N	1.12	1.12
10.	3275E3	Y	6.62	6.62
12.	3275E6	Y	3.39	3.39
13.	3275W	Y	0.49	0.00
14.	3451	Y	1.53	0.77
15.	11222:1	Y	1.58	0.79
16.	1806:2	Y	0.49	0.21
TOTAL			25.323	21.54

3. Permit Request and Water Needs.

C-250. On April 30, 2009, Wahi Ho‘omalū filed SWUPA 2351. The SWUPA sought a total of 924,516 gpd for new uses: 739,200 gpd for the 168 acres of macadamia nuts; 5,316 gpd to grow 0.886 acres of taro on Parcel 26, and 180,000 gpd to produce 108,000 gpd of potable water for domestic use on 40 potential lots. SWUPA 2351, table 1 and Addendum.

C-251. Wahi Ho‘omalū filed a new use permit because, as of the effective date of designation, it had no existing use on either Parcel 1 or Parcel 26. Tr. 7/19/16 (Russell) at 136:10-18. Wahi Ho‘omalū had access to water through its Water Delivery Agreement with WWC, but had stopped irrigating the macadamia nut trees on Parcel 1 by 2008 and has not irrigated them since. Tr. 7/19/16 (Russell) at 138:21 to 139:10.

C-252. Wahi Ho‘omalua also had no existing use on Parcel 26, and sought a new use of 5,316 gpd on the 0.886 acres of Parcel 26, or 6,000 gad, to grow kalo; Mr. Russell has never cultivated kalo before and did not recognize that 6,000 gad would only be enough for dryland kalo. Tr. 7/19/16 (Russell) at 160:17 to 161:8.

C-253. The July 28, 2016 Supplemental Declaration of John Russell, in addition to amending Wahi Ho‘omalua’s estimate of the size of the kuleana parcels using water at the time of the Māhele, also amended its permit request for water for kalo cultivation. Wahi Ho‘omalua now seeks 464,400 gpd to grow kalo on approximately three acres. Russell WT 7/28/16 at 3, ¶ 13, 5-7, ¶ 15 (revised table). This is revised downward from Wahi Ho‘omalua’s opening submissions, which sought 5,607,900 gpd to grow about 37 acres of kalo, Russell WT 2/5/16 at 5, ¶¶ 14-16, and revised upward from Wahi Ho‘omalua’s original SWUPA, which sought 5,316 gpd for 0.886 acres of kalo.

C-254. In addition to its addressing and revising its quantification of, and permit request for, appurtenant rights, Wahi Ho‘omalua’s opening submissions repeated its SWUPA request for 739,200 gpd to irrigate its macadamia nuts, and increased its request for additional water for development to 240,000 gpd to produce 144,000 gpd of potable water for domestic use for the 40 future potential lots. Russell WT 2/5/16 at 6, ¶¶ 19, 20. Mr. Russell made clear these were all separate requests; Wahi Ho‘omalua sought 5,607,900 gpd to exercise its appurtenant rights on the kuleana land, 739,200 gpd to irrigate 168 acres of macadamia nuts, and 240,000 gpd to provide domestic water for future development, for a total of 6,587,100 gpd. See Tr. 7/19/16 (Russell) at 166:5-17.

C-255. Wahi Ho‘omalū now seeks a permit for water to grow kalo on only six kuleana parcels: LCA 2554:2 (0.50 acres); LCA 1806:2 (0.21 acres); LCA 3259 (0.50 acres); LCA 3451 (0.5 acres), LCA 11222 (0.50 acres), and LCA 3456:4 (0.886 acres).

C-256. Mr. Russell now recognizes that kalo cultivation is going to be “a lot of work” and he reduced his request “to be practical.” Tr. 9/20/16 (Russell) at 52:22-25. Mr. Russell does not intend to open the taro patches himself; he will work with other farmers who he will identify by “looking to the community and talking to my friends,” and will “pull together the resources” “once [he] know[s] what [he’s] working with.” Tr. 9/20/16 (Russell) at 71:9 to 72:4. Mr. Russell has never farmed wetland kalo and could not say whether his taro farm was going to be a commercial operation, only that he would “talk to whoever can fulfill that, you know, can grow kalo” and “probably would work out a business, you know, relationship with them,” which he had not yet done. Tr. 9/20/16 (Russell) at 86:11-18.

C-257. Wahi Ho‘omalū did not specify, and apparently has not yet considered, the details of how it would obtain and transport water for wetland kalo to the kuleana parcels, which border South Waiehu Stream, but its attorney represented that it “wants to preserve its opportunity to access the water directly from the stream.” Tr. 7/19/16 (Hall) at 118:7-11.

C-258. Wahi Ho‘omalū did not amend its request for 739,200 to irrigate 168 acres of macadamia nut trees. The macadamia nut trees, which have not been irrigated since before 2008, are currently productive, but Wahi Ho‘omalū does not harvest them because Mr. Russell is “waiting to see what resources I have in the end, and then I’ll make a determination.” Tr. 9/20/16 (Russell) at 50:23 to 51:7. Wahi Ho‘omalū could harvest the macadamia nut trees now, but is waiting to see if it gets more water, “to understand fully what resources [it has] to move ahead with.” Tr. 9/20/16 (Russell) at 71:2-8.

C-259. Wahi Ho‘omaluku had and has no actual plans to develop Parcel 1 into agricultural lots in the future; it asked for water from which it could produce potable water for domestic use because Mr. Russell was “thinking ahead” and “[i]f it does take place, it’s way in the future. There is no plans. I don’t have anything I’m working on or any details of any type. I haven’t talked to anyone about it.” Tr. 7/19/16 (Russell) at 161:12 to 162:14; *see also id.* at 165:7-17.

C-260. Wahi Ho‘omaluku has thus withdrawn its request for 240,000 gpd to produce domestic water for future development. Russell WT 7/28/16 at 7, ¶ 22.

H. Wailuku Water Company (SWUPA 2157).

C-261. WWC filed SWUPA 2157 initially requesting authorization of 3.174 mgd of system losses, which was about 7.34% of its average total diversions from May 2007 to April 2008. WWC’s Open. Br. at 1. In its prehearing filings, WWC modified and reduced its request, seeking authorization of 4.97% system losses, to be applied to water diverted for delivery to authorized users. *Id.* at 7.

C-262. WWC had previously commissioned a study of its system losses, which indicated losses of 11.6% of all diversions. Based on the study, WWC implemented repairs that reduced the losses to 7.34% by 2007. Chumbley WT 1/7/14 at 2:3-13 (MA06-01 Remand).

C-263. After the 2010 Decision ordered the Companies to “aggressively address” system losses, *id.* at 187, WWC conducted further repairs and modifications to reduce losses. These included repairing ditch and intake structures, as well as closing reservoirs and the North Waiehu ditch. Chumbley WT 1/7/14 at 2:15 to 3:22 (MA06-01 Remand); *compare* Santiago WT 10/26/07, ¶ 19.b; Tr. 2/22/08 (Santiago) at 134:11 to 137:13 (MA06-01) (explaining that water was being wasted by keeping reservoirs filled).

C-264. WWC has also minimized “flow-through” losses resulting from unused water reaching the end of the ditch system. Chumbley WT 1/7/14 at 5:6 to 3:13 (MA06-01 Remand); *compare* Duey WT 10/26/07, ¶¶ 3-5, Ex. A-87 (MA06-01); Ex. C-R12 at 3-13 (MA06-01 Remand) (documenting overflows from the end of the ditch system).

WWC’s further improvements and modifications based on the 2010 Decision have reduced its system losses to 4.97 percent. Chumbley WT 1/7/14 at 3:19-22 (MA06-01 Remand). WWC indicates that only relatively minor further reductions in losses can be achieved by enclosing or lining the ditch system. *Id.* at 5-9.

I. Miscellaneous Applicants.

SWUPA 2178 & 2179N – County of Maui, Department of Water Supply

C-265. The County of Maui, Department of Water Supply (“MDWS”) seeks permits for existing and new uses totaling 3.2 mgd from Wailuku River, for MDWS’s ‘Īao Water Treatment Plant. This is the maximum amount available to MDWS under its agreement with WWC. *See* Ex. 2178 County-5 at 1. The Community Groups and OHA have no objection to MDWS’s request.

SWUPA 2151¹³ – Pohakulepo Recycling, LLC

C-266. Pohakulepo Recycling, LLC (“PR”) requests an existing use permit for 8,555 gpd for dust control in its quarry operations. The dust control is required by its land use and air permits. Tr. 10/14/16 (Gomes) at 15:5-17. The actual amount varies depending on the amount of production and business, but the applicant states that it is a reasonable average over the course of the year. Tr. 10/14/16 (Gomes) at 13:7 to 15:1.

¹³ In its written testimony, Pohakulepo mistakenly refers to SWUPA 2187.

C-267. PR stated that “there is no County DWS water meter nor service line to the property,” but did not indicate whether it inquired with the county about installing such a service line. Jacintho WT 7/22/16 at 2.

SWUPA 2183 – Kihei Gardens & Landscaping Co., LLP

C-268. Kihei Gardens & Landscaping Co., LLP (“KGL”) requests an existing use permit for 33,261 gpd for its landscaping nursery operations. According to its SWUPA it used 33,261 gpd over 15 net irrigated acres, or 2217 gad. *Id.* at 3-4.

C-269. The 2010 Decision found that KGL has never considered or looked into using county water because it thought it buys water at a lower rate than county water, but in fact the rate it pays WWC is the same as the county rate. *Id.* COL 410. In this case, KGL claimed that it was told by MDWS that MDWS can only supply a single 3/4 inch meter, which is not large enough to support its nursery operation. Okamura WT 7/26/16 at 1. Even if this supposed restriction is true, KGL did not explain how the supply would be insufficient, particularly if coordinated with water storage.

SWUPA 2181 – Kaanapali Kai, Inc.

C-270. Kaanapali Kai, Inc. (“KK”) requests an existing use permit for 4,595 gpd for landscape irrigation on 5 acres of its approximately 6 acre property, which is mostly lawn. SWUPA 2181 at 3-4; Tr. 9/20/16 (Suzuki) at 32:3 to 33:7.

C-271. KK does not pay for the water it receives from WWC. Tr. 9/20/16 (Suzuki) at 36:3-7. Its contract with WWC states that the water charge is: “None, included in the purchase price.” Ex. D-96 at 4 (MA06-01).

C-272. KK also receives water from the county water supply for the dwelling area, which includes a main house, cottage, garage, tennis court, as well as a pool. Tr. 9/20/16 (Suzuki) at 36:8-11, 37:19-23.

SWUPA 2144 – Living Waters Land Foundation, LLC

Appurtenant Rights

C-273. Living Waters did not participate or submit any evidence in the quantification phase of this proceeding. Two tenants farming a portion of Living Waters' land testified in support of SWUPA 2144E, but they did not know anything about Living Waters' appurtenant rights claims. *See* Tr. 9/19/16 (Baloaloa) at 123:22-124:4.

Permit Request

C-274. Living Waters timely filed SWUPA 2144 on April 29, 2009, seeking a permit for its existing use of 22,938 gpd for diversified agriculture on 22 acres, or 1,043 gad. *Id.* at Tables 1-3; *see also* Baloaloa/Evangelista WT 8/30/16.

SWUPA 2304 – Division of State Parks

C-275. The Division of State Parks, State of Hawai'i ("DSP"), requests an existing use permit of 3,272 gpd to 39,272.7 gpd for 0.028 acres (1,243.19 square feet) of "demonstration" lo'i kalo that is part of the cultural and botanical garden in the 'Īao Valley State Monument or Park. DSP's Reply Br. at 1; Tr. 7/11/16 (Lau) at 24:15 to 26:16. The park and the water use is located upstream of WWC's diversion on Wailuku River.

Appurtenant Rights

C-276. DSP also claims appurtenant rights on LCA No. 3529, 'Āpana 1, which was kalo land according to the Māhele records, and which certain historical records indicate contained at least 3/4 acres of lo'i. DSP's Open. Br. at 6, 9. It is unclear where the LCA is

located within the park grounds, and whether the lo‘i currently being irrigated is located within the LCA; DSP indicates that a survey would be needed to resolve this. McEldowney WT 2/5/16 at 7; Collins Supplement WT 3/16/16 at 2. The rest of the land in the park grounds is apparently subject to a reservation of water rights, but the LCA is not. McEldowney WT 2/5/16 at 6-8.

Permit Request

C-277. The 3,272 to 39,272.7 gpd is what DSP measured on a site visit in May 2016. Tr. 7/11/16 (Kumabe) at 61:14 to 66:9. DSP’s initial SWUPA had stated that total use was 5,000 gpd, but indicated: “Current use is not monitored. Total use request is an approximation.” SWUPA 2304 at 3. When asked whether 5,000 gpd (or 178,571 gad for the 0.028 acres) would be adequate, DSP staff stated that it would “suffice if it were to switch off between upper and lower [lo‘i.] If we had both lois going at the same time, upper and lower, then we would probably want to have more than 5,000 gallons.” Tr. 7/11/16 (Kumabe) at 67:23 to 68:15. Thus, “in order to demonstrate the successful cultivation of kalo, that we would have to limit areas where we demonstrate. . . . If we were to be allotted more than 5,000 gallons, that will provide us with flexibility of maybe demonstrating more of the areas to be cultivated.” *Id.* at 69:6-20.

J. Recycled Water Resources.

C-278. As the Commission found in the 2010 Decision, recycled water resources in the Nā Wai ‘Ehā area include at least 5 mgd available from the County of Maui’s Wailuku/Kahului wastewater treatment plant (“W-K Plant”), which currently is unused and disposed of via underground injection. Several hundred thousand gallons a day of reclaimed water are also produced by private treatment plants in Mā‘alaea, but are also unused and disposed of. 2010 Decision FOF501, COL 107.

C-279. The water from the W-K Plant is R-2 (near R-1) quality, which “is acceptable for a wide range of uses presently active in central Maui. There are no technical or regulatory issues preventing the use of R-2 water by one or more of the users who submitted written testimony.” Schwarm WT 10/26/07, ¶ 6 (MA06-01). As the county wastewater coordinator explained, “R2 historically has been the quality that has been used throughout the state for many years,” including golf courses and “landscaping or agricultural subdivisions.” Tr. 1/25/08 (Parabicoli) at 137:8 to 138:10, 150:7-12 (MA06-01). Chloride levels in such water are below drinking water standards, and any nutrient content after treatment “adds value as a fertilizer.” *Id.* at 149:18 to 150:6, 157:16 to 158:4, 138:13-21. Recycled water is a “long-term insurance policy for water resources,” because it “never stops flowing” and can thus “free up other types of water that are being used for either potable purposes or other valuable uses, whether they be stream restoration, agricultural, cultural practices.” *Id.* at 153:15 to 154:8.

C-280. In 2013, the Commission issued its comprehensive Update of the Hawaii Water Reuse Survey and Report (“CWRM Reuse Report,” *see* Ex. Nā Wai-21), which included discussion of Nā Wai ‘Ehā water resources. The CWRM Reuse Report specifically recognized: “The benefits of a large agricultural user such as HC&S substituting recycled water for at least a portion of the diverted stream water it uses are significant. Stream flows could be restored, which may also significantly increase groundwater recharge of freshwater aquifers. This fact could be important for designated aquifers such as Maui’s Iao Aquifer that has been threatened in recent years due to over pumping and insufficient recharge rates.” *Id.* at 5-18 (citation omitted). *See also id.* at 5-10 (“[T]here are irrigation projects that have great potential for replacing or supplementing their existing water sources with recycled water. On Maui, the use of recycled water would greatly benefit the large sugar cane fields, which primarily use stream

water for irrigation. Doing so could potentially help restore stream flows, recharge aquifers and make more stream water available for other uses.”).

C-281. The 2010 Decision observed that the County currently has no existing infrastructure to deliver recycled wastewater to HC&S’s fields, but private parties could construct their own pipeline to the plant. *Id.* FOFs 502-04, COL 108. The Hawai‘i Supreme Court, however, vacated the 2010 Decision’s disqualification of any use of recycled water “based solely on the current lack of infrastructure.” *Nā Wai ‘Ehā*, 128 Hawai‘i at 262, 287 P.3d at 163.

C-282. As pointed out in the original IIFS proceeding, a pipeline delivery infrastructure already exists between the former Maui Land and Pine cannery in Kahului to HC&S’s fields 921 and 922 in Mā‘alaea, through which HC&S received recycled water since the 1990s. *See* Ex. C-77 (map); Tr. 1/30/08 (Volner) at 29:16 to 30:15, 135:8 to 138:1 (MA06-01) (background on the existing infrastructure).

C-283. Thus, the CWRM Reuse Report specifically raised the opportunity of connecting the W-K Plant to the existing HC&S-Maui Land & Pine pipeline to provide irrigation water to HC&S, which “could result in a significant benefit to central Maui’s fresh water aquifers.” *Id.* at 4-6. The “main benefit is that recycled water could be used to irrigate HC&S’s seed cane rather than stream water.” *Id.* However, [u]p to this point, the [County] has not developed a recycled water distribution system in central Maui mainly because of available and affordable brackish groundwater and stream water.” *Id.* at 4-5. The CWRM Reuse Report’s rationales for using recycled water for HC&S sugarcane or seed cane would also apply to HC&S’s current stated plans to grow bioenergy crops like tropical grasses.

C-284. In the remand IIFS proceeding, HC&S submitted a report on the recycled water issue, but concluded that “[u]ntil the terms under which the County would provide, and HC&S would receive, reclaimed water are finalized, the practicability of HC&S using reclaimed water as an alternative to Nā Wai ‘Ehā surface water cannot be properly analyzed.” Volner Dec. 2/11/14, ¶ 7 (MA06-01 Remand). Such terms included “agreements regarding, among other things, cost sharing, the volume of treated effluent that would be made available to HC&S, whether treated effluent would also be made available to other users, access to and ownership of the transmission pipelines, delivery requirements, and the rates at which the County will sell the treated effluent to HC&S.” *Id.* ¶ 6.

C-285. As the County explained in its letter to HC&S dated January 15, 2014, discussions with HC&S over the use of recycled water from the W-K Plant have continued “off and on over the past 20 years.” Ex. E-R31, Appendix A, at 1 (MA06-01 Remand) (“County Letter”). HC&S had previously “indicated a preference for R-1 water,” which would have required the County to upgrade the W-K Plant. CWRM Reuse Report at 4-6. But in preparing its report for the remand IIFS proceeding, HC&S finally inquired with the County about using R-2 water. *See* County Letter at 3.

C-286. In response to HC&S’s inquiries, the County felt that “this is a good opportunity” and “conceptually supports this project because it mutually benefits the County, HC&S and the community” County Letter at 1. The County indicated that it would consider funding some or all of the necessary infrastructure improvements, depending on several variables including who will own the offsite improvements, whether additional customers will use the water, and how long HC&S would use the water. *Id.* at 3. The County also expected that it would absorb the long-term pumping and maintenance costs to provide the water. *Id.*

C-287. The County provides recycled water to agricultural users at “heavily subsidized” rates. County Letter at 3 (citing standard rates of 15 to 33 cents per 1000 gallons). Moreover, under the “Avoided Cost” clause in the county ordinance, HC&S would pay no more for recycled water than HC&S’s current water costs. CWRM Reuse Report at 4-7.

C-288. The County concluded its January 15, 2014 letter by stating that it “would appreciate information on the actual probability of this project moving forward so we can begin to formulate an agreement or look more seriously at alternative users for this resource,” and that it “look[ed] forward with HC&S and your firm to further refine this proposal and develop a schedule to implement the delivery and use of recycled water.” County Letter at 5.

C-289. In this proceeding, HC&S reported that “[s]ince 2014, there has been no progress in discussions between HC&S and the County.” HC&S’s Open. Br. (No 2205) at 17. Thus, no progress has been made from HC&S’s previous position that “the practicability of HC&S using reclaimed water as an alternative to Nā Wai ‘Ehā surface water cannot be properly analyzed.” Volner Dec. 2/11/14, ¶ 7 (MA06-01 Remand).

PROPOSED CONCLUSIONS OF LAW

I. LEGAL FRAMEWORK

A. Public Trust Doctrine.

1. The public trust doctrine is a fundamental principle of constitutional law in Hawai'i. *In re Waiāhole Combined Contested Case Hr'g*, 94 Hawai'i 97, 132, 9 P.3d 409, 444 (2000) ("*Waiāhole P*"). The Code "does not supplant the protections of the public trust doctrine" or "override the public trust doctrine or render it superfluous." *Id.* at 133, 9 P.3d at 445.

2. The constitutional public trust "embodies a dual mandate of 1) protection and 2) maximum reasonable and beneficial use." *Waiāhole I*, 94 Hawai'i at 139, 9 P.3d at 451. The mandate of protection establishes the duty to "ensure the continued availability and existence of [Hawai'i] water resources for present and future generations." *Id.* "This disposes of any portrayal of retention of waters in their natural state as 'waste.'" *Id.* at 137, 9 P.3d at 449.

3. The mandate of maximum reasonable and beneficial use establishes the standard for water use in Hawai'i. *See Waiāhole I*, 94 Hawai'i at 139, 9 P.3d at 451 (analogizing this constitutional provision to laws mandating the maximum beneficial or highest and best use of water resources). This requires "not maximum consumptive use, but rather the most equitable, reasonable, and beneficial allocation of state water resources, with full recognition that resource protection also constitutes 'use.'" *Id.* at 140, 9 P.3d at 452.

4. Protected public trust purposes include: maintenance of waters in their natural state or resource protection, with its numerous derivative public uses, benefits, and values; domestic use, particularly drinking water; and the exercise of Native Hawaiian and traditional and customary rights, including appurtenant rights and reservations of water by the Department of Hawaiian Home Lands. *Waiāhole I*, 94 Hawai'i at 136-37 & n.34, 9 P.3d at 448-49 & n.34;

In re Wai‘ola o Moloka‘i, Inc., 103 Hawai‘i 401, 429, 431, 83 P.3d 664, 692, 694 (2004)
 (“*Wai‘ola*”).

5. The public trust does not include “private commercial use as a protected ‘trust purpose.’” *Waiāhole I*, 138, 9 P.3d at 450. Indeed, the public trust “must recognize enduring public rights in trust resources separate from, and superior to, the prevailing private interests in the resources at any given time.” *Id.*

6. Under the public trust, the state’s continuing authority over its water resources “precludes any grant or assertion of vested rights to the water to the detriment of public purposes” and “empowers the state to revisit prior diversions and allocations, even those made with due consideration of their effect on the public trust.” *Waiāhole I*, 94 Hawai‘i at 141, 9 P.3d at 453.

7. Under the public trust, the Commission also bears the “affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible.” *Waiāhole I*, 94 Hawai‘i at 141, 9 P.3d at 453.

8. The public trust does not merely “recognize the necessity of a balancing process,” but rather mandates that “any balancing between public and private purposes must begin with a presumption in favor of public use, access, and enjoyment” and “establishes use consistent with trust purposes as the norm or ‘default’ condition.” *Waiāhole I*, 94 Hawai‘i at 142, 9 P.3d at 454; *see also id.* 155, 9 P.3d 467 (reiterating the “presumption in favor of public trust purposes”).

9. Thus, the public trust “prescribes a ‘higher level’ of scrutiny for private commercial uses” and ultimately places the burden on “those seeking or approving such uses to justify them in light of the purposes protected by the trust.” *Waiāhole I*, 94 Hawai‘i at 142, 9 P.3d at 454.

10. In contrast to the balancing between public and private purposes, the public trust “assigns no priorities or presumptions in the balancing of public trust uses”; rather, the Commission “must ensure that all trust purposes are protected to the extent feasible.” *Waiāhole I*, 94 Hawai‘i at 142 n.43, 9 P.3d at 454 n.43.

11. As “the primary guardian of public rights under the trust,” the Commission “must not relegate itself to the role of mere umpire passively calling balls and strikes for adversaries appearing before it, but instead must take the initiative in considering, protecting, and advancing public rights in the resource at every stage of the planning and decisionmaking process.” *Waiāhole I*, 94 Hawai‘i at 143, 9 P.3d at 455.

12. The public trust compels the Commission to examine the “cumulative impact of existing and proposed diversions on trust purposes.” *Waiāhole I*, 94 Hawai‘i at 143, 9 P.3d at 455.

13. The public trust mandates the Commission to “implement reasonable measures to mitigate the impact of offstream diversions, including the use of alternative sources of water.” *Waiāhole I*, 94 Hawai‘i at 143, 9 P.3d at 455.

14. The public trust requires planning and decisionmaking from a global, long-term perspective. *Waiāhole I*, 94 Hawai‘i at 143, 9 P.3d at 455

15. The Commission “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.” *Waiāhole I*, 94 Hawai‘i at 143, 9 P.3d at 455.

16. The Commission’s duties under the constitution and Code also embody the precautionary principle, which holds that scientific uncertainty “should not be a basis for

postponing effective measures to prevent environmental degradation”; rather, “a trustee’s duty to protect the resource mitigates in favor of choosing presumptions that also protect the resource.” *Waiāhole I*, 94 Hawai‘i at 154, 9 P.3d at 466. “[A]t minimum, the absence of firm scientific proof should not tie the Commission’s hands in adopting reasonable measures designed to further the public interest.” *Id.* at 155, 9 P.3d at 467.

B. Instream Flow Standards.

17. The Commission “has an affirmative duty under the public trust to protect and promote instream trust uses.” *Waiāhole I*, 94 Hawai‘i at 153, 9 P.3d at 465.

18. The Code mandates that the Commission “shall establish and administer” an “instream use protection program” and “instream flow program,” in order “to protect, enhance, and reestablish, where practicable, beneficial instream uses of water in the State.” Haw. Rev. Stat. §§ 174C-71, -71(4), 174C-5(3).

19. Instream flow standards (“IFSs”) “are an integral part of the regulatory scheme established by the Code” and “serve as the primary mechanism” to fulfill the Commission’s public trust duty “to protect and promote the entire range of public trust purposes dependent upon instream flows.” *Waiāhole I*, 94 Hawai‘i at 147-48, 9 P.3d at 459-60.

20. An IFS is the amount of water “required to be present at a specific location in a stream system at certain specified times of the year to protect fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses.” Haw. Rev. Stat. § 174C-3. An interim instream flow standard (“IIFS”) is a “temporary instream flow standard of immediate applicability” that “terminat[es] upon the establishment of an IFS.” *Id.*

21. The Code identifies beneficial instream uses including, but not limited to: “maintenance of fish and wildlife habitats”; “outdoor recreational activities”; “maintenance of

ecosystems such as estuaries, wetlands, and stream vegetation”; “aesthetic values such as waterfalls and scenic waterways”; “maintenance of water quality; “the conveyance of irrigation and domestic water supplies to downstream points of irrigation”; and “the protection of traditional and customary Hawaiian rights.” Haw. Rev. Stat. § 174C-3.

22. Parallel to the constitutional duty to protect public trust purposes “wherever feasible,” IFSs must protect and restore instream uses and values “to the extent practicable.” *Waiāhole I*, 94 Hawai‘i at 155, 9 P.3d at 467; see also *In re Waiāhole Ditch Combined Contested Case Hr’g*, 105 Hawai‘i 1, 11, 93 P.3d 643, 653 (2004) (requiring the Commission to show “whether instream values would be protected to the extent practicable”) (“*Waiāhole II*”).

23. “[T]he Commission must designate [IFSs] as early as possible, during the process of comprehensive planning, and particularly before it authorizes offstream diversions potentially detrimental to public instream uses and values.” *Waiāhole I*, 94 Hawai‘i at 148, 9 P.3d at 460.

24. The Commission must determine IFSs first, before “allowing diversions of instream flows.” *Waiāhole I*, 94 Hawai‘i at 156, 9 P.3d at 468; see also *id.* at 148, 9 P.3d at 460 (emphasizing that IFSs are not “competing” with permit applications, but rather operate independently of the permitting system). The methodology of establishing IFSs outlined by the Commission also begins with investigating and evaluating instream flows first. *Id.* at 153 n.56, 9 P.3d at 465 n.56.

25. “[T]he Code envisions the establishment of bona fide ‘permanent’ [IFSs] as an ultimate objective in its mandated ‘instream use protection program.’” *Waiāhole I*, 94 Hawai‘i at 150, 9 P.3d at 462. The Commission “must establish permanent [IFSs] of its own accord ‘whenever necessary to protect the public interest in the waters of the State,’” *id.* at 153, 9 P.3d at 468 (quoting Haw. Rev. Stat. § 174C-71(1)), including when, as in this case, there is

“substantial conflict between instream and offstream interests either presently or in the foreseeable future,” *id.* at 147 n.49, 9 P.3d at 459 n.49.

26. “Any person with standing may petition the Commission to adopt an [IIFS] for streams in order to protect the public interest pending the establishment of a permanent [IFS].” Haw. Rev. Stat. § 174C-71(2)(A).

27. While IIFSs are “adopted more quickly,” this “does not the alter the Commission’s duty to protect instream uses.” *Waiāhole I*, 94 Hawai‘i at 151 n.55, 9 P.3d at 463 n.55 (quoting the Commission). Rather, “interim standards must still provide meaningful protection of instream uses” and “protect instream values to the extent practicable.” *Id.* at 151, 155, 9 P.3d at 463, 467; *Waiāhole II*, 105 Hawai‘i at 11, 93 P.3d at 653 (same).

28. In determining IFSs, the Commission “shall weigh the importance of present or potential instream values with the importance of present or potential uses of water from the stream for noninstream purposes, including the economic impact of restriction of such uses.” Haw. Rev. Stat. §§ 174C-71(1)(E), -71(2)(D). At this stage, the Commission may “reasonably estimate” instream and offstream demands, “mindful of its duty to protect instream values to the extent practicable.” *See Nā Wai ‘Ehā*, 128 Hawai‘i at 258, 287 P.3d at 159 (internal quotation marks omitted).

29. The presence of “existing” diversions “does not relieve the Commission of its duty to consider and support the public interest in stream flows.” *Waiāhole I*, 94 Hawai‘i at 149, 9 P.3d at 461. “[T]he Commission’s duty to establish proper instream flow standards continues notwithstanding existing diversions.” *Id.* at 150, 9 P.3d at 462.

30. “[E]xisting uses are not automatically ‘grandfathered’ under the constitution and Code, especially in relation to public trust uses.” *Waiāhole I*, 94 Hawai‘i at 149, 9 P.3d at 461.

“[T]he Commission may reclaim instream values to the inevitable displacement of existing offstream uses.” *Id.* “[E]xisting uses may have to yield” to “superior claims,” including “public instream uses” and “unexercised appurtenant rights.” *Id.* at 149 n.52, 9 P.3d at 461 n.52.

31. Scientific uncertainty “does not extinguish the presumption in favor of public trust purposes or vitiate this Commission’s affirmative duty to protect such purposes wherever feasible.” *Waiāhole I*, 94 Hawai‘i at 155, 9 P.3d at 467. Thus, under the public trust and precautionary principle, “the Commission should consider providing reasonable ‘margins of safety’ when establishing instream flow standards” and incorporate them “into its initial determination of the minimum standard.” *Id.* at 156, 9 P.3d at 468.

32. While “work[ing] towards establishing permanent instream flow standards,” the Commission must “designate [IIFSs] based on the best information presently available.” *Waiāhole I*, 94 Hawai‘i at 156, 9 P.3d at 468.

33. By definition, IIFSs must include all flows as “is ‘practicable’ to “‘protect, enhance, and reestablish’ instream uses . . . at least for the interim.” *Waiāhole I*, 94 Hawai‘i at 157, 9 P.3d at 469. The Hawai‘i Supreme Court has “rejected the idea of public streams serving as convenient reservoirs for offstream private use.” *Id.* at 155, 9 P.3d at 467.

34. Moreover, water not actually needed for reasonable-beneficial use must remain in the streams to avoid unlawful waste. *Waiāhole I*, 94 Hawai‘i at 118, 156, 9 P.3d at 430, 468.

35. In the *Waiāhole* case, the Hawai‘i Supreme Court made clear that “the ultimate burden of justifying interim standards” does not fall on the petitioners. 94 Hawai‘i at 153, 9 P.3d at 465. In the original *Nā Wai ‘Ehā* IIFS proceeding, the Court specified that in the context of IIFS petitions, the Code “does not place a burden of proof on any particular party”; rather “the burden in setting an IIFS is on the Commission to ‘protect instream values to the extent

practicable.” 128 Hawai‘i at 253, 258, 287 P.3d at 154, 159. Nonetheless, in meeting this burden, the Commission must still comply with all the mandates of the constitutional public trust, including the presumption or default in favor of public trust purposes and the higher level of scrutiny for private commercial uses. *See also Kauai Springs, Inc. v. Planning Comm’n*, 133 Hawai‘i 141, 174, 324 P.3d 951, 984 (2014) (“The agency is to apply a presumption in favor of public use, access, enjoyment, and resource protection.”).

C. Traditional and Customary Native Hawaiian Rights.

36. Traditional and customary Native Hawaiian rights (“T&C rights”) are protected at every level of the law, including the constitution, statutes, and common law. The Hawai‘i Supreme Court “has stressed that the rights of native Hawaiians are a matter of great public concern in Hawaii.” *Ka Pa‘akai o Ka ‘Aina v. Land Use Comm’n*, 94 Haw. 31, 42, 7 P.3d 1068, 1079 (2000) (“*Ka Pa‘akai*”) (internal quotations omitted).

37. Article XII, § 7 of the Hawai‘i 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.”

38. Article XII, section 7 confers upon the Commission “the power to protect [Native Hawaiian] rights and to prevent any interference with the exercise of these rights.” *Ka Pa‘akai*, 94 Hawai‘i at 45, 7 P.3d at 1082.

39. Article XII, § 7 correlatively “places an affirmative duty on the State and its agencies to preserve and protect traditional and customary native Hawaiian rights.” *Nā Wai*

Ehā, 128 Hawai‘i at 247, 287 P.3d at 148 (quoting *Ka Pa ‘akai*, 94 Hawai‘i at 45, 7 P.3d at 1082) (emphasis added).

40. The Commission “may not act without independently considering the effect of [its] actions on Hawaiian traditions and practices.” *Ka Pa ‘akai*, 94 Hawai‘i at 46, 7 P.3d at 1083.

41. The Commission “is obligated to protect customary and traditional rights to the extent feasible.” *Public Access Shoreline Haw. v. Haw. Planning Comm’n*, 79 Hawai‘i 425, 437, 903 P.2d 1246, 1258 (1995) (“*PASH*”); *Ka Pa ‘akai*, 94 Hawai‘i at 35, 7 P.3d at 1072.

42. Haw. Rev. Stat. § 7-1 establishes the rights of tenants to gather certain enumerated items and also the “right of drinking water, and running water, and the right of way.” Haw. Rev. Stat. § 1-1 more broadly codifies the doctrine of custom as it applies in Hawai‘i, protecting traditional and customary practices that were established by 1892. *See PASH*, 79 Hawai‘i at 437-442, 447-51, 903 P.2d at 1258-63, 1268-72.

43. The “exercise of Native Hawaiian and traditional customary rights” is a protected public trust purpose under the constitutional public trust, which the Commission has an affirmative duty to protect to the extent feasible. *Waiāhole I*, 94 Hawai‘i at 137, 9 P.3d at 449. In so holding, the Hawai‘i Supreme Court reviewed the early law of the Hawaiian Kingdom and recognized the “specific objective of preserving the rights of native tenants during the transition to a western system of private property.” *Id.* at 137, 9 P.3d at 449. The court made clear its intention to uphold this “original intent” of the public trust. *Id.*

44. The Code specifically identifies the “protection of traditional and customary Hawaiian rights” as an “instream use,” Haw. Rev. Stat. § 174C-3, mandates that “adequate provision shall be made for the protection of [T&C] rights,” which “are declared to be in the

public interest,” *id.* § 174C-2(c), and “obligates the Commission to ensure that it does not ‘abridge or deny’ traditional and customary rights of Native Hawaiians.” *Waiāhole I*, 94 Hawai‘i at 153, 9 P.3d at 465 (quoting Haw. Rev. Stat. § 174C-101(c)).

45. The Code provides that protected T&C rights include, but are not limited to, “the cultivation or propagation of taro on one’s own kuleana and the gathering of hihiwai, opae, o’opu, limu, thatch, ti leaf, aho cord, and medicinal plants for subsistence, cultural, and religious purposes.” Haw. Rev. Stat. § 174C-101(c).

46. Native Hawaiian T&C rights do not require ownership of land, but rather are associated with “residency” or “tenancy” in an ahupua‘a, or other traditional and customary practice. *Pele Def. Fund v. Paty*, 73 Haw. 578, 618-20 & n.33, 837 P.2d 1247, 1271-72 & n.33 (1992) (“PDF”); *PASH*, 79 Hawai‘i at 448, 903 P.2d at 1269. “[A]lthough a tenant may not own any land in the ahupua‘a, since these rights are personal in nature, as a resident of the ahupua‘a, he may assert any traditional and customary rights necessary for subsistence, cultural, or religious purposes.” *PDF*, 73 Haw. at 619 n.33, 837 P.2d at 1271 n.33 (quoting 1 Proceedings of the Constitutional Convention of Hawai‘i of 1978, at 640).

47. The exercise of T&C rights “may extend beyond the ahupua‘a in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner.” *PDF*, 73 Haw. at 620, 837 P.2d at 1272. “[C]ommon law rights ordinarily associated with tenancy do not limit customary rights existing under the laws of this state.” *PASH*, 79 Hawai‘i at 448, 903 P.2d at 1269.

48. The T&C rights of Native Hawaiians cannot be abandoned, but remain intact even if a practice has not been continuous in a particular area. *PASH*, 79 Hawai‘i at 450, 903 P.2d at 1271.

49. The T&C rights of Native Hawaiians to cultivate kalo are distinct from appurtenant rights. The law recognizes and protects each of these rights independently. *See, e.g.,* HRS §§ 174C-101(c), (d); -63. T&C rights belong to “ahupua‘a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778,” whereas appurtenant rights attach to “kuleana and taro lands.” *Id.* § 101(c), (d). “[A]ppurtenant water rights are incidents of land ownership.” *Reppun v. Bd. of Water Supply*, 65 Haw. 531, 551, 656 P.2d 57, 70 (1982). In contrast, “[c]ustomary and traditional rights in these islands flow from native Hawaiians’ pre-existing sovereignty.” *PASH*, 79 Hawai‘i at 449, 903 P.2d at 1270.

50. Given these distinctions, the Commission must recognize and protect T&C rights of Native Hawaiians to cultivate kalo, independently of any appurtenant rights that may or may not exist on the land. Indeed, such T&C rights to cultivate kalo are particularly pertinent and critical for the many Native Hawaiians who do not own any of the limited amounts of land with appurtenant rights awarded during the Māhele, or who own land where the appurtenant rights have been extinguished.

51. T&C rights to cultivate kalo are not limited to Native Hawaiians who have direct ancestral ties to the particular land they seek to cultivate, or the ahupua‘a in which the land is located. In other words, Native Hawaiians need not show that their direct ancestors had established a T&C practice on the land or in the ahupua‘a in question. Rather, Native Hawaiians need only show that a T&C practice of kalo cultivation had been established in the ahupua‘a by 1892, based upon which Native Hawaiians would have a right to exercise such practice regardless whether they trace their direct ancestry to the land or ahupua‘a. Nothing in the legal precedents on T&C rights require such a direct ancestral connection. Indeed, such a rule would significantly and unreasonably restrict the exercise of T&C rights by depriving Native Hawaiians

any opportunities and rights of mobility going forward. This would also be inconsistent with the traditional “fact that [Native Hawaiian tenants] were not ‘serfs’ tied to the land . . . but were free to leave at any time and begin their efforts anew in virtually any uncultivated area.” *Reppun*, 65 Haw. at 541, 656 P.2d at 65.

52. In *Ka Pa ‘akai*, the Hawai‘i Supreme Court admonished that “for the rights of native Hawaiians to be meaningfully preserved and protected, they must be enforceable.” 94 Hawai‘i at 46, 7 P.3d at 1083. Therefore, “in an effort to effectuate the State’s obligation,” *id.*, the Court established the “analytical framework” requiring agencies like the Commission to make express findings regarding:

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 petition 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 [Commission] to reasonably protect native Hawaiian rights if they are found to exist.

Nā Wai ‘Ehā, 128 Hawai‘i at 247, 287 P.3d at 148 (quoting *Ka Pa ‘akai*, 94 Hawai‘i at 46-47, 7 P.3d at 1083-84).

D. Appurtenant Rights.

53. “[A]ppurtenant water rights are rights to the use of water utilized by parcels of land at the time of their original conversion into fee simple land.” *Reppun*, 65 Haw. at 551, 656 P.2d at 71. “As use of the word ‘appurtenant’ indicates, it is water rights which pertain to or annexed to that particular parcel of land conveyed by the original grant from the King or Hawaiian government.” *McBryde Sugar Co., Ltd. v. Robinson*, 54 Haw. 174, 190-91, 504 P.2d 1330, 1341 (1973).

54. “Appurtenant water rights are incidents of land ownership,” that constitute “an easement in favor of the property with an appurtenant right as the dominant estate.” *Reppun*, 65 Haw. at 551, 656 P.2d at 70-71 (brackets omitted); *see also Peck v. Bailey*, 8 Haw. 658, 661-62 (1867).

55. “[T]he right to the use of water acquired as appurtenant rights may only be used in connection with that particular parcel of land to which the right is appurtenant.” *McBryde*, 54 Haw. at 191, 504 P.2d at 1341.

56. The Hawai‘i Supreme Court’s ruling in *McBryde* “prevents the effective severance or transfer of appurtenant water rights. This position is consistent with the general rule that appurtenant easements attach to the land to be benefited and cannot exist or be utilized apart from the dominant estate.” *Reppun*, 65 Haw. at 551-52, 656 P.2d at 71 (citing Restatement of Property § 487, cmt. b). However, a deed “that attempt[s] to reserve such rights ha[s] the effect of extinguishing them,” because “there is nothing to prevent a transferor from effectively providing that the benefit of an easement appurtenant shall not pass to the transferee of the dominant estate.” *Id.* at 552, 656 P.2d at 71 (quoting Restatement of Property § 487, cmt. b) (brackets omitted).

57. “[T]he proper measure of [appurtenant] rights is . . . the quantum of water utilized at the time of the Mahele.” *Reppun*, 65 Haw. at 554, 656 P.2d at 72; *see also McBryde*, 54 Haw. at 188-89, 504 P.2d at 1340. The Hawai‘i Supreme Court, however, recognized that “requiring too great a degree of precision in proof would make it all but impossible to ever establish such rights.” *Reppun*, 65 Haw. at 554, 656 P.2d at 72. *See also Carter v. Territory*, 24 Haw. 47, 59 (1917) (“It is very difficult at this late day to show what quantity of water was used upon a particular parcel of land by ancient custom when it first became the subject of private ownership.

Where the use of water upon land by ancient custom is shown by satisfactory evidence the right is not to be denied merely because the quantity has not been measured and cannot be proven.”).

58. The Court thus provided that when “the same parcel of land is being utilized to cultivate traditional products by means approximating those utilized at the time of the Mahele, there is sufficient evidence to give rise to a presumption that the amount of water diverted for such cultivation sufficiently approximates the quantity of the appurtenant water rights to which that land is entitled.” *Id.* at 554, 656 P.2d at 72. *See also Territory v. Gay*, 31 Haw. 376, 383 (1930) (explaining that sometimes “mere reference to the land in the award or in the records of the land commission as ‘taro land’ (‘aina kalo’ or ‘loi kalo’) or as ‘cultivated land’ (‘aina mahi’) has sufficed to lead to and to support an adjudication that that land was entitled to use water for agricultural purposes,” and that testimony of witnesses before the land commission including such language “or other statements substantially to that effect, have sufficed to support a similar adjudication”).

59. The Hawai‘i Constitution, art. XI, § 7, directs the legislature to “provide for a water resource agency which, as provided by law, shall . . . establish criteria for water use priorities while assuring appurtenant rights and existing correlative and riparian uses”

60. The Commission is statutorily mandated to “determine appurtenant water rights, including quantification of the amount of water entitled to by that right, which determination shall be valid for purposes of” the Code.” Haw. Rev. Stat. § 174C-5(15).

61. The Code provides: “Appurtenant rights are preserved. Nothing in this part [Part IV, “Regulation of Water Use”] shall be construed to deny the exercise of an appurtenant right by the holder thereof at any time. A permit for water use based on an existing appurtenant right shall be issued upon application.” Haw. Rev. Stat. § 174C-63. Further, “[t]he appurtenant water

rights of kuleana and taro lands, along with those traditional and customary rights assured in this section, shall not be diminished or extinguished by a failure to apply for or to receive a permit under this chapter.” Haw. Rev. Stat. § 174C-101(d).

62. The Hawai‘i Supreme Court noted that the public trust’s protection of Native Hawaiian T&C rights “also extends to the appurtenant rights recognized in Peck.” *Waiāhole I*, 94 Hawai‘i. at 137 & n.34, 9 P.3d at 449 & n.34. *See also* Lawrence H. Miike, *Water and the Law in Hawai‘i* 104 (2004) (indicating that the inclusion of appurtenant rights as a public trust purpose should refer to traditional and customary uses, “or else the purposes of the public trust could be easily subverted by the commercial uses of appurtenant rights, thereby turning the public trust on its head and making private gain a public purpose”).

E. Extinguishment of Appurtenant Rights.

63. In selling off its former agricultural lands in private land transactions, WWC’s predecessor companies consistently reserved all water rights from the land, including appurtenant rights. While *Reppun* holds that such reservations have the effect of extinguishing appurtenant rights, certain parties argue in this case that the *Reppun* precedent has been overridden by the 1978 constitutional amendments and/or the 1987 enactment of the Code.

64. The Hawai‘i Supreme Court’s holding that such reservations of appurtenant rights have “the effect of extinguishing them,” *Reppun*, 65 Haw. at 552, 656 P.2d at 71, is binding legal precedent that the Commission has the duty “to adhere to . . . , without regard to their views as to its propriety, until the decision has been reversed or overruled by the court of last resort or altered by legislative enactment.” *State v. Brantley*, 99 Hawai‘i 463, 483, 56 P.3d 1252, 1272 (2002). The court, in turn, “should not depart from the doctrine of stare decisis without some compelling justification.” *State v. Romano*, 114 Hawai‘i 1, 11, 155 P.3d 1102, 1112 (2007).

“[S]tare decisis has added force when . . . citizens, in the private realm, have acted in reliance in a previous decision, for in this instance overruling the decision would dislodge settled rights and expectations.” *State v. Garcia*, 96 Hawai‘i 200, 206, 29 P.3d 919, 925 (2002); *see also In re Allen*, 35 Haw. 501, 524 (1940) (citing the principle that courts are “much more reluctant to depart from the law as declared in a prior opinion when such declaration affects individual property rights and commercial transactions whereby such rights are acquired”). Here, the reservations of appurtenant rights were established in private commercial transactions in which the parties agreed on the property rights to be transferred and the corresponding sale prices to be paid. *See* Tr. 7/29/16 (Atherton) at 88:18-89:13.

65. Nothing in the Constitution or Code nullifies or prohibits the ability of private parties in private land transactions to “provid[e] that the benefit of an easement appurtenant shall not pass to the transferee of the dominant estate,” as the Court recognized based on basic property principles. *Reppun*, 65 Haw. at 552, 656 P.2d at 71 (brackets omitted) (quoting Restatement of Property § 487, cmt. b).

66. Article XI, § 7 of the Hawai‘i Constitution calls for the creation of the Commission that “as provided by law, shall . . . establish criteria for water use priorities while assuring appurtenant rights,” among other functions. As an initial matter, this provision in the Constitution is not self-executing. *See Waiāhole I*, 94 Hawai‘i at 132 n.30, 9 P.3d at 444 n.30 (explaining that art. XI, § 7 is “self-executing to the extent that it adopts the public trust doctrine” and separately “also mandates the creation of any agency to regulate water use ‘as provided by law’”). Further, nothing in this provision or its history purports to substantively alter any appurtenant rights or private transactions regarding appurtenant rights.

67. It also may be noted that the Hawai‘i Supreme Court issued its *Reppun* decision in 1982, four years after the 1978 constitutional convention, and even cited the constitutional amendments in article XI in its opinion, yet it did not indicate any limitation on its ruling regarding the extinguishment of appurtenant rights. *See Reppun*, 65 Haw. at 560 n.22, 656 P.2d at 76 n.22 (citing Haw. Const. art. XI, § 7); *id.* at 560 n.20, 656 P.2d at 72 n.20 (citing Haw. Const. art. XI, § 1).

68. Likewise, nothing in the text or history of the Code, including § 174C-63, purports to substantively alter any appurtenant rights or private transactions regarding appurtenant rights, or overrule the Hawai‘i Supreme Court’s holding regarding extinguishment of appurtenant rights. In affirming that “[a]ppurtenant rights are preserved,” § 174C-63 provides that “[n]othing in this part [relating to water use permitting] shall be construed to deny the exercise of an appurtenant right” and that “[a] permit for water use based on an existing appurtenant right shall be issued upon application.” These provisions address the effect and limits of the Code’s water use permitting system in relation to appurtenant rights; they do not, in themselves, substantively address or alter any underlying appurtenant rights or control any private transactions regarding appurtenant rights.

69. Thus, § 174C-63 contrasts in purpose and function from the Kuleana Act, Haw. Rev. Stat. § 7-1, which the Hawai‘i Supreme Court held was the statutory origin of riparian rights in Hawai‘i. *See Reppun*, 65 Haw. at 549, 656 P.2d at 69. Unlike § 7-1, § 174C-63 does not affirmatively establish or define any rights, but simply limits the effect of the Code and preserves rights that already exist. Along these lines, it bears noting that § 174C-63 specifically refers to “existing” appurtenant rights. This indicates a recognition that appurtenant rights can be made not to exist; otherwise, the term “existing” would be superfluous.

70. The Hawai‘i Supreme Court based its holding regarding extinguishment of appurtenant rights on basic common-law property principles regarding appurtenant easements. *See Reppun*, 65 Haw. at 552, 656 P.2d at 71 (quoting Restatement of Property § 487, cmt. b). “Where it does not appear there was legislative purpose in superseding the common law, the common law will be followed.” *Waiāhole I*, 94 Hawai‘i at 130, 9 P.3d at 442. The Code indicates no such intent to abrogate *Reppun*. In contrast, the Code does indicate such intent to overrule the common-law in § 174C-49(c), which provides that “[t]he common law of the State to the contrary notwithstanding, the Commission shall allow the holder of a use permit to transport and use surface or ground water beyond overlying land or outside the watershed” under certain conditions.

71. Finally, it should be emphasized that *Reppun*’s recognition of the extinguishment of appurtenant rights is consistent with the principles underlying *Reppun* and other seminal Hawai‘i Supreme Court decisions that realigned the law from the plantation-era system based on Western notions of private property toward a new framework based on the public trust—including Native Hawaiian T&C rights, which the Court recognized was the “original intent” of the trust. Appurtenant rights are an example of a customary practice that was translated to a property right, then further converted to a commodity that could be transferred and sold. *See Reppun*, 65 Haw. at 539-48, 656 P.2d at 63-69. Thus, as a part of its “rectification of basic misconceptions concerning water ‘rights’ in Hawaii,” *id.* at 548, 656 P.2d at 69, the Court prohibited the transfer of appurtenant rights, yet allowed that “nothing would preclude the giving of effect” of the “inten[t] to extinguish those rights” in a private transaction. *Id.* at 552, 656 P.2d at 71. More fundamentally, however, the Court “made clear that underlying every private diversion and application there is, as there always has been, a superior public interest in this

natural bounty.” *Robinson v. Ariyoshi*, 65 Haw. 641, 675, 658 P.2d 287, 312 (1982). It is this public trust interest that forms the foundation for water resources protection and management in Hawai‘i today. This public trust framework does not conflict, but rather aligns, with the Court’s rulings on the private interests in appurtenant rights and the legal effect of reservations of such rights.

F. Protection of T&C and Appurtenant Rights in Instream Flow Standards and Water Use Permitting.

72. T&C rights and appurtenant rights bear importance to the determinations of both IFSs and SWUPAs. T&C rights and appurtenant rights (particularly those connected with T&C uses) are public trust purposes, which the Commission must take the initiative to consider, protect, and advance “at every stage of the planning and decisionmaking process.” *Waiāhole I*, 94 Hawai‘i at 143, 9 P.3d at 455.

73. In the IFS context, T&C rights are among the “entire range of public trust purposes dependent upon instream flows” that IFSs must “protect and promote.” *Waiāhole I*, 94 Hawai‘i at 148, 9 P.3d at 460. As stated above, T&C rights include rights to gather and fish in stream and nearshore waters, as well as rights to cultivate kalo. *See* Haw. Rev. Stat. § 174C-101(c). The Code includes “protection of traditional and customary Hawaiian rights” and “conveyance of irrigation and domestic water supplies to downstream points of diversion” in its definition of “instream use” and mandates that “adequate provision shall be made for the protection of traditional and customary Hawaiian rights.” *Id.* §§ 174C-3, -2.

74. Thus, in addition to flows required for instream uses and values such as resource protection, the IFS must also incorporate flows to sustain T&C rights to gather and fish, as well as supply T&C rights to cultivate kalo. *See* Douglas W. MacDougal, *Private Hopes and Public*

Values in the “Reasonable Beneficial Use” of Hawai‘i’s Water: Is Balance Possible?, 18 U. Haw. L. Rev. 1, 46, 61-62 (1996) (recognizing that “[o]ther beneficial instream uses under the Water Code also go beyond this conservation purpose and encompass assuring sufficient water to allow the practice of traditional and customary Hawaiian rights, among other purposes,” and that the “[instream flow] standards would incorporate conservation and all other ‘beneficial instream uses,’ including the conveyance of sufficient water downstream to allow taro growing on kuleana and taro lands”).

75. In the *Waiāhole* case, for example, the Hawai‘i Supreme Court specifically recognized the Commission’s provision of additional flows in the IIFS so that “appurtenant rights, riparian uses, and existing uses would be accounted for.” *Waiāhole II*, 105 Hawai‘i at 12, 10, 93 P.3d at 654, 652. In contrast, in the original *Nā Wai ‘Ehā* IIFS proceeding, the court ruled that the Commission “did not discharge its duty” to protect Native Hawaiian rights where the Commission justified its IIFS determination based on issues regarding amphidromous species, but failed to consider downstream users’ T&C rights to cultivate kalo. 128 Hawai‘i at 248-49, 287 P.3d at 149-50.

76. In the SWUPA context, the Code mandates that “[a] permit for water use based on an existing appurtenant right shall be issued upon application,” Haw. Rev. Stat. § 174C-63, and that T&C rights “shall not be abridged or denied,” *id.* § 174C-101(c). Such rights, however, are still properly subject to the constitutional and statutory reasonable-beneficial mandate; *i.e.*, they do not allow the wasting of water. Nonetheless, where T&C and/or appurtenant rights are exercised to cultivate kalo or other traditional products according to traditional means, such water uses should qualify as *prima facie* reasonable-beneficial. Thus, T&C water uses should

not be required to follow different standards of efficiency or seek alternative sources, apart from what traditionally applied to such uses. *See* 2010 Decision COLs 94, 115.

77. Moreover, as discussed below, other permit applicants bear the burden of showing that their proposed uses do not abridge or deny public trust purposes, including T&C and appurtenant rights, and the Commission bears the duty to hold applicants to their burden.

G. Water Use Permit Applicants' Burden of Proof.

78. While the Hawai'i Supreme Court stated that no particular party bore the burden of proof in the original *Nā Wai 'Ehā* IIFS proceeding, *see* 128 *Nā Wai 'Ehā*, 128 Hawai'i at 258, 287 P.3d at 159, this proceeding incorporates water use permit applications and thus is identical to the *Waiāhole* case and subject to all the legal requirements established in *Waiāhole* and other precedents involving water use permitting, including the permit applicants' burden of proof.

79. The burden of proof for permit applicants, particularly private commercial diverters, is established at every level of the law, including the constitution, the Code, as well as the common law. "Under the public trust and the Code, permit applicants have the burden of justifying their proposed uses in light of protected public rights in the resource. As stated above, the public trust effectively creates this burden through its inherent presumption in favor of public use, access, and enjoyment." *Waiāhole I*, 94 Hawai'i at 160, 9 P.3d at 472. Similarly, under the common law, the "burden of demonstrating that any transfer of water was not injurious to the rights of others rested wholly upon those seeking the transfer" *Id.* at 142-143, 9 P.3d at 454-55 (quoting *Robinson*, 65 Haw. at 649 n.8, 658 P.2d at 295 n.8).

80. "[A]n applicant for a water use permit bears the establishing that the proposed use will not interfere with any public trust purposes." *Wai'ola*, 103 Hawai'i at 441, 83 P.3d at 704.

This includes the burden of proving “that the proposed water use would not abridge or deny traditional and customary native Hawaiian rights.” *Id.* at 442, 83 P.3d at 705.

81. Permit applicants are “obligated to demonstrate affirmatively” that the use will not negatively affect trust purposes. *Wai‘ola*, 103 Haw. at 441-42, 83 P.3d at 704-05. The mere “absence of evidence . . . [i]s insufficient to meet the burden imposed upon [the applicant] by the public trust doctrine, the Hawai‘i Constitution, and the Code.” *Id.* at 442, 83 P.3d at 705.

82. The Commission, in turn, is “duty-bound to place the burden on the applicant to justify the proposed water use in light of the trust purposes.” *Waiāhole II*, 105 Hawai‘i at 16, 93 P.3d at 658; *accord Wai‘ola*, 103 Hawai‘i at 426, 83 P.3d at 689 (“[T]he Commission is duty bound to hold [the applicant] to its burden under the Code and the public trust doctrine.”).

83. If the applicant fails to meet its burden, the “Commission’s analysis should . . . cease[.]” *Waiāhole II*, 105 Hawai‘i at 16, 93 P.3d at 658. In other words, the Commission “is precluded from allowing a proposed use . . . in the absence of an affirmative showing that the use does not conflict with those [public trust] principles and purposes. . . . [A] lack of information from the applicant is exactly the reason an agency is empowered to deny a proposed use of a public trust resource.” *Kauai Springs, Inc. v. Planning Comm’n*, 133 Hawai‘i 141, 174, 324 P.3d 951, 984 (2014).

84. The mandate of “reasonable-beneficial use” is established in both the constitutional public trust doctrine, and the Code. *Waiāhole I*, 94 Hawai‘i at 138-40, 145-46, 9 P.3d at 450-52, 457-58.

85. Permit applicants’ burden of proof under the Code include the “reasonable-beneficial use” and “consistent with the public interest” requirements. *Waiāhole I*, 94 Hawai‘i at 160, 9 P.3d at 472. The Code defines “reasonable-beneficial use” as the “use of water in such a

quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is both reasonable and consistent with the state and county land use plans and the public interest.” Haw. Rev. Stat. § 174C-3.

86. The reasonable-beneficial standard incorporates the best features of both reasonable use and beneficial use and “demand[s] examination of the proposed use not only standing alone, but also in relation to other public and private uses and the particular water source in question,” which includes “public instream values” and “the public interest in stream flows.” *Waiāhole I*, 94 Hawai‘i at 160-61, 9 P.3d at 472-73.

87. Uncertainty pending the establishment of permanent instream flow standards does not allow a “permissive view toward stream diversions” or “reduce the level of scrutiny [the Commission] must apply.” *Waiāhole I*, 94 Hawai‘i at 158-611, 9 P.3d at 470-73. The Commission must still “requir[e] a higher level of scrutiny for private commercial water usage.” *Waiāhole II*, 105 Hawai‘i at 16, 93 P.3d at 658. It must review “every offstream use in view of the cumulative potential harm to instream uses and values and the need for meaningful studies of stream flow requirements.” *Waiāhole I*, 94 Hawai‘i at 159; 9 P.3d at 471.

88. The Commission thus may decide in favor of “postponing certain uses, or holding them to a higher standard of proof.” *Waiāhole I*, 94 Hawai‘i at 159; 9 P.3d at 471. In the *Waiāhole* case, the Commission concluded that non-agricultural uses such as golf course and landscaping uses were subject to a “higher standard, in light of higher uses for windward surface water, including retaining water in the streams” and carried a “heavy burden to show why stream water should be diverted out of its watershed of origin.” *See id.* at 168, 9 P.3d at 480.

89. Permit applicants “[a]t a very minimum . . . must prove their own actual water needs” and “must also demonstrate the absence of practicable mitigating measures, including the

use of alternative water sources” and “the propriety of draining water from public streams to satisfy [the applicants’] needs.” *Waiāhole I*, 94 Hawai‘i at 161-62, 9 P.3d at 473-74.

90. “Informal” and “very general” claims are insufficient to satisfy an applicant’s burden. *Waiāhole II*, 105 Hawai‘i at 16, 93 P.3d at 658.

91. Each permit applicant must prove that each specific use is reasonable-beneficial by providing details on “acres to be used, the crops to be planted, and the water needed as to each group.” *Waiāhole II*, 105 Hawai‘i at 25, 93 P.3d at 667. Absent such basic information, an applicant cannot meet its legal burden. *Id.* at 26, 93 P.3d at 668.

92. Demonstrating the absence of practicable alternatives is intrinsic to the public trust, the statutory instream use protection scheme, and the definition of ‘reasonable-beneficial’ use, and is an essential part of any balancing between competing interests. *Waiāhole II*, 105 Hawai‘i at 15, 93 P.3d at 657.

93. The Code expressly provides that “[i]n order to avoid or minimize the impact on existing uses of preserving, enhancing, or restoring instream values, the commission shall consider physical solutions, including water exchanges, modifications of project operations, changes in points of diversion, changes in time and rate of diversion, uses of water from alternative sources, or any other solution. . . .” *Waiāhole I*, 94 Hawai‘i at 149, 9 P.3d at 461 (quoting Haw. Rev. Stat. § 174C-71(1)(E)); *see also* Haw. Admin. R. § 13-169-20(5).

94. An alternative is practicable if it is available and capable of being used after taking into consideration cost, existing technology, and logistics. *Waiāhole II*, 105 Hawai‘i at 19, 93 P.3d at 661.

95. An applicant’s inability to afford an alternative source of water, standing alone, does not render that alternative impracticable. *Waiāhole II*, 105 Hawai‘i at 19, 93 P.3d at 661.

96. An alternative source of water is not rendered impracticable simply because an applicant does not own or control the source. *Waiāhole II*, 105 Hawai‘i at 17, 93 P.3d at 659.

97. This Commission “is not obliged to ensure that any particular user enjoys a subsidy or guaranteed access to less expensive water sources when alternatives are available and public values are at stake.” *Waiāhole I*, 94 Hawai‘i at 165, 9 P.3d at 477.

98. Stream protection and restoration need not be the least expensive alternative for offstream users to be practicable from a broader, long-term social and economic perspective. *Waiāhole I*, 94 Hawai‘i at 165, 9 P.3d at 477.

99. Offstream users have the burden to prove any system losses (e.g., seepage, leakage, and evaporation) are reasonable-beneficial by establishing the specific amount lost, actual need for economic and efficient utilization of the system, and lack of practicable mitigation measures, including repairs, maintenance, and lining of ditches and reservoirs. *Waiāhole I*, 94 Hawai‘i at 172-73, 9 P.3d at 484-85; *Waiāhole II*, 105 Hawai‘i at 27, 93 P.3d at 669.

100. Whether or not a permit is required for system losses, offstream users, and ultimately the Commission, “must somehow account for” water lost or missing by adopting “provisions that encourage system repairs and limit losses.” *Waiāhole II*, 105 Hawai‘i at 27, 93 P.3d at 669.

101. In addition to meeting the constitutionally mandated standard of reasonable-beneficial use, an applicant for a water use permit under the Code must affirmatively demonstrate that its proposed use satisfies all the other criteria set forth in Haw. Rev. Stat. § 174C-49(a). *Waiāhole I*, 94 Hawai‘i at 160-61, 9 P.3d at 472-73; *Waiāhole II*, 105 Hawai‘i at 15-16, 93 P.3d at 657-58.

H. Structure and Steps for Decisionmaking in This Combined Contested Case Hearing.

102. This combined contested case hearing consolidates an IIFS Petition and SWUPAs. It also includes issues related to T&C and appurtenant rights, which are pertinent to determining both instream flow standards and water use permits. Based on the legal mandates above, the following discussion sets forth the steps for considering and resolving these various interrelated claims and issues in this case.

103. The Commission must determine the IIFSs first, protecting and promoting instream uses and values to the extent practicable. COL 22. At this stage, the Commission may reasonably estimate instream and offstream demands in conducting its task of weighing the importance of present or potential instream values with the importance of present or potential uses of water from the stream for noninstream purposes, including the economic impact of restriction of such uses.

104. In determining the IIFSs, the Commission must also protect Native Hawaiian T&C rights to the extent feasible. These include rights to gather and fish, as well as rights to cultivate kalo, which may or may not be accompanied with appurtenant rights. Thus, the IIFS must incorporate additional flows to sustain T&C gathering and fishing rights, as well as to convey flows downstream to supply T&C rights to cultivate kalo and appurtenant rights.

105. Once it determines the IIFSs, the Commission then turns to considering individual claims of water rights and applications for water use permits. Given the protected status of appurtenant rights and T&C rights to cultivate kalo, these rights must be determined first in order to properly structure the permitting process.

106. The Commission must determine the existence and quantification of appurtenant rights for individual applicants, assuming that the rights have not been extinguished. Likewise, the Commission must determine T&C rights to cultivate kalo for individual applicants, whether or not it is accompanied with appurtenant rights. Where a Native Hawaiian ‘ohana with T&C rights to cultivate kalo owns a kuleana with existing appurtenant rights, these rights may overlap for practical purposes. But even when the appurtenant rights are extinguished, Native Hawaiians still have a T&C right to water to cultivate kalo, which the Commission must ensure is not abridged or denied, and which other permit applicants have the burden to show are not abridged or denied by their proposed water uses.

107. While appurtenant rights and T&C rights to cultivate kalo are properly subject to the constitutional and statutory reasonable-beneficial mandate, so long as the water uses based on appurtenant and/or T&C rights are reasonable-beneficial, permits must be issued as a matter of right. Where appurtenant and/or T&C rights are exercised to cultivate kalo or other traditional products according to traditional means, such water uses are *prima facie* reasonable-beneficial.

108. Given the protected status and historical origins of appurtenant rights and T&C rights to cultivate kalo, the Code’s distinction between “existing” and “new” uses in relation to the date of water management area designation does not apply to water uses based on those rights. Rather, the Commission must protect and enable the exercise of appurtenant rights and/or T&C rights to cultivate kalo by issuing permits for all requested reasonable-beneficial water uses based on those rights, apart from any “existing” or “new” classification. *See* Minute Order 1 at 2 (recognizing different categories of applicants, the first of which are “applicants whose appurtenant rights will have been confirmed,” which “[i]ncludes their applications for both existing and new uses”).

109. Once the Commission provides for appurtenant rights and T&C rights, it then must address SWUPAs for “existing uses” at the time of designation. Haw. Rev. Stat. § 174C-50(b). *See also* Provisional Order at 2 (recognizing the order of first considering SWUPAs for water on parcels with appurtenant rights and quantifying reasonable beneficial use on those parcels, then considering “all other [SWUPAs] for existing uses”). Existing uses are not grandfathered or automatically issued permits. Existing water users must prove reasonable-beneficial use, Haw. Rev. Stat. § 174C-50(b), which includes showing actual need, lack of practicable mitigation and alternatives, and the propriety of draining water from public streams to meet the offstream needs, as well as showing that the proposed use will not abridge or deny appurtenant or T&C rights. Existing uses may need to yield to superior claims such as newly exercised appurtenant rights and T&C rights to cultivate kalo. The Commission, in turn, must hold applicants to their burden and review every proposed use in view of the cumulative potential harm to instream uses and values and the need for meaningful studies of stream flow requirements.

110. It may bear noting that existing uses are not tied to a particular quantity of water, in the way that appurtenant *rights*, for example, are tied to the quantity of water used at the time of the Māhele. Existing uses do not create such a right to the quantity of water being used at the time of designation, but rather are allowed to continue only in a quantity, manner, and purpose that is reasonable-beneficial. Along related lines, for existing uses in agriculture, the Code allows for “replacing or alternating the cultivation of any agricultural crop with any other agricultural crop, which shall not be construed as a change in use.” Haw. Rev. Stat. § 174C-3 (definition of “existing agricultural use”).

111. After the Commission resolves existing use SWUPAs, it then turns to new use SWUPAs. *See* Minute Order 1 (anticipating that “[b]ecause the amount of water being applied for under appurtenant rights and existing uses . . . it is likely that there will be no water available for new-use applicants”). In addition to proving reasonable-beneficial use, including all the requirements described above for existing uses, new use applicants must also show that their proposed uses satisfy all the other criteria under Haw. Rev. Stat. § 174C-49(a), including but not limited to showing that the proposed use “[w]ill not interfere with any existing legal use of water.” Here, as well, the Commission must continue to hold applicants to their burden and review every proposed use in view of the cumulative potential harm to instream uses and values and the need for meaningful studies of stream flow requirements.

I. Rights to the “Water Course” or “Means” of Water Use and Access.

112. As the Hawai‘i Supreme Court has explained, water rights are “not limited simply to a specified quantity of water,” but also “include[] interests in the means of any diversions and the purposes to which the water was applied.” *Robinson v. Ariyoshi*, 65 Haw. 641, 649 n.8, 658 P.2d 287, 295 n.8 (1982) (emphasis added). Specifically regarding appurtenant rights, the seminal case of *Peck v. Bailey*, 8 Haw. 658 (1867) held that such a right “constitutes an easement . . . as the dominant estate” over the rights of other lands. *Id.* at 662. This easement right “includes the *water courses* on [the grantee’s] lands, *and all the water* which the lands had enjoyed from time immemorial.” *Id.* (emphasis added). Thus, “if a riparian proprietor should interfere with an ancient *auwai*, *by which other lands had been watered* from time immemorial, he would be liable in damages, because this was clearly an *easement for the benefit of those lands* through which the ancient water course extended.” *Peck*, 8 Haw. at 661-62 (emphasis added).

113. As *Peck* explained, “[t]he water courses on this Ahupua‘a have existed on this have existed from time immemorial, and were doubtless made by the order of some ancient King, and when the late King conveyed these lands to the proprietors, the *rights of the water courses*, in their full enjoyment, was included as an appurtenance. . . . It is very evident that each party has *rights to the water courses running* through their lands.” *Id.* at 671 (emphasis added). See also *Carter v. Territory*, 24 Haw. 47, 57-58 (1917) (explaining that “[t]he ancient ditch systems connected with running streams became a permanent feature of the topography of the localities where they were constructed,” and “the right to water therefrom passed as an appurtenance or incident without express mention”).

114. In sum, *Peck* holds that appurtenant rights constitute an easement that includes not only the water itself, but also the “water course” or ‘auwai—*i.e.*, the means of access or supply. Indeed, to enable the actual exercise of appurtenant rights, the two cannot be logically and practically separated, and one is meaningless without the other.

115. The Code broadly grants the Commission “jurisdiction statewide to hear *any dispute* regarding water resource protection, water permits, or *constitutionally protected water interests*, or where there is insufficient water to meet competing needs for water, whether or not the area involved has been designated as a water management area under this chapter. The final decision on any matter shall be made by the commission.” *Id.* § 174C-10 (emphasis added). The Code also expressly grants the Commission broad authority to “determine appurtenant rights, including quantification of the amount of water entitled to by that right.” Haw. Rev. Stat. § 174C-5(15). This authority to determine appurtenant water rights is not limited solely to the quantification of the water right; such an interpretation would nullify and render superfluous the language “determine . . . , *including* quantification.” (Emphasis added.)

116. The legislative history of § 174C-5(15) confirms that it was added to the Code in response to the Attorney General’s office advising the Commission that “determination of appurtenant water rights is directly tied to a determination of rights in land” and, thus, “under current law, the courts are the proper forums to determine appurtenant water rights.” Stand. Comm. Rep. No. 102, in 2002 House Journal, at 1273. The legislature believed that “the Commission should be authorized to determine and quantify appurtenant rights: (1) To protect the exercise of appurtenant rights; and (2) to allow the Commission to allocate water in water management areas and to determine instream flow standards.” *Id.* “Moreover, adjudicating appurtenant rights in the courts will probably be expensive and time consuming.” *Id.* See also Stand Comm. Rep. No. 3136, in 2002 Senate Journal, at 1500 (expressing the intent to “facilitate the determination and administration of appurtenant water rights”). In sum, the legislative history does not indicate any intent to limit the scope of the Commission’s authority in determining appurtenant rights, but rather shows that the legislature intended to directly address and rectify the issue raised by the Attorney General’s office.

117. As the court pointed out in *Robinson*, a long history of Hawai’i cases on water rights, including appurtenant rights, make clear that the determination of water rights includes not just a quantity of water standing alone, but also the means (including location, method, and order of diversion and conveyance) of exercising the right. Indeed, most of these cases involve the former “Commissioners of Water Rights” during the kingdom and territory of Hawai’i, which were the functional predecessors of this Commission.

118. In *Wailuku Sugar Co. v. Hale*, 11 Haw. 475 (1898), for example, the court affirmed a water commissioner’s order requiring a water user to allow water to pass through his kalo land to another water user’s adjoining kalo land, rejecting the argument that the

commissioner lacked jurisdiction because the requested relief was “for the opening of a right of way of plaintiff’s water through defendant’s land and not a dispute as to any water.” *Id.* at 476. Similarly, in *Kahookiekie v. Keanini*, 8 Haw. 310, 312 (1891), the court affirmed a water commissioner’s order requiring a water user to remove a flume and cease other practices that impaired the flow to lower water users. Other cases like *Loo Chit Sam v. Wong Kim*, 5 Haw. 130, 131 (1884), and *Palolo Land & Improvement Co. v. Wong Quai*, 15 Haw. 554, 556-59 (1903), document extensive directives from water commissioners to open, remove, and modify diversions and ‘auwai, and to assign flows from specific diversions and ‘auwai to water users.

119. In *Davis v. Afong*, 5 Haw. 216 (1884), the court rejected the argument that water commissioners could only “declare what the respective rights of the parties are” and had no authority to order removal of obstructions or restoration of water courses. *Id.* at 218. The court opined that “[w]e do not think the Legislature intended any such limitation of the jurisdiction of the Commissioners,” or “intend[ed] to compel parties to establish their rights in one forum and oblige them to resort to another forum to have these rights enforced and protected.” *Id.* Thus, the court affirmed that modifications that diminished flow in the ‘auwai must be removed and the ‘auwai must be restored. *Id.* at 224. In particular, the court emphasized that the interference with the ‘auwai “is a *trespass upon the auwai* in which the plaintiffs have an *easement*. This easement goes to the extent that the *auwai is not to be cut, narrowed or interfered with by defendant to the injury of plaintiffs.*” *Id.* (emphasis added). This reiterates the original understanding in Peck of appurtenant rights as an easement that includes the ‘auwai or right of access.

120. Along the same lines, given its broad, express authority to “determine appurtenant rights,” Haw. Rev. Stat. § 174C-5(15), and “to hear any dispute regarding . . . constitutionally

protected water interests” and render a “final decision,” *id.* § 174C-10, as well as its constitutionally established comprehensive water management role, the Commission has the authority to determine, administer, and protect appurtenant rights, including both the “water” itself and the “water course.”

121. Stated another way, just as traditionally the “konohiki” bore the trust “‘duty’ to assist each of the deserving tenants,” *Reppun*, 65 Haw. at 547, 656 P.2d at 68, the Commission bears that responsibility in the 21st century and must exercise it to protect the exercise of appurtenant rights in this case. *See Waiāhole I*, 94 Hawai‘i at 179, 9 P.3d at 491 (recognizing the Code’s legislative purpose of providing “a comprehensive regulatory system based on permits issued by the Commission in place of the common law regime of water rights administered by the courts”).

II. INSTREAM USES AND VALUES OVERVIEW

(*See supra* FOFs A-1 to A-185)

122. In general, all of Nā Wai ‘Ehā’s rivers and streams hold important present and potential instream values, as highlighted by Nā Wai ‘Ehā’s legendary place in Native Hawaiian tradition and culture, and the Commission’s designation of all four Nā Wai ‘Ehā waters as “Candidate Streams for Protection” and “Blue Ribbon Resources.”

123. As the Hawai‘i Supreme Court recognized, the record contains substantial evidence that establishing mauka-to-makai flows in all the streams of Nā Wai ‘Ehā would support the public interest by fostering many of the statutorily-designated instream uses. *Nā Wai ‘Ehā*, 128 Hawai‘i at 251, 287 P.3d at 152.

124. The importance of high base flow to the overall stream ecosystem from mauka to makai, and conversely the negative impacts of historical diversions, is established in general and

in the record of these Nā Wai ‘Ehā proceedings and, at this point in this latest proceeding, are uncontroverted by the parties.

125. For native amphidromous species, there is a direct correlation between streamflow volume under non-freshet conditions and postlarval recruitment in Central Maui streams, such that increased streamflow correlates with increased recruitment at the stream mouth. In addition, the largest migrations of native stream species occur in streams with relatively minimal or no diversions. Similar correlations occur between increased streamflows and larval drift and the speed of upstream migration.

126. In general, instream physical habitat for native amphidromous species increases with increased discharge up to median natural discharge. According to the generalized relation in the USGS Streamflow Report, if natural, undiverted Q_{70} discharge, which is an indicator of median base-flow conditions, is reduced in half by diversions, then habitat is reduced to about 80 percent of what it would be at the Q_{70} discharge, although this calculation does not address the abundance and productivity of native species, or benefits to other instream values.

127. The Parham Report indicated that whereas the historical diversions under the “Fully Diverted” scenario eliminated the overall amount of habitat for native amphidromous species by over 99%, the recommended IIFSs in the Hearings Officer’s 2009 Proposed Decision returns approximately 27% of the habitat units to Nā Wai ‘Ehā streams, and additional habitat improvement to the Wailuku River channel increases the total to over 30% of natural habitat units. In sum, restoration of baseflows to Nā Wai ‘Ehā streams will substantially increase available stream animal habitat.

128. Restoration of Nā Wai ‘Ehā instream flows will also benefit the native non-amphidromous or limnetic species, which comprise the main, fundamental component of native stream biota and the bulk of biodiversity in Hawaiian streams.

129. Restored mauka-to-makai flows will enable functioning mauka-to-makai ecosystems in Nā Wai ‘Ehā streams. The limnetic biota will follow the restored water downstream from the headwaters, while amphidromous biota will recolonize the stream in an upstream fashion.

130. The Code includes within “instream use” the maintenance of the broader ecosystems supported by flowing streams, including estuaries and wetlands. Haw. Rev. Stat. § 174C-3. Restoration of Nā Wai ‘Ehā instream flows will benefit the estuarine, nearshore marine, and wetland ecosystems connected to Nā Wai ‘Ehā streams.

131. The interrelationships between streamflows and estuarine and nearshore marine ecosystems, and the importance of high base flow to these ecosystems, is scientifically and culturally recognized in general and in these Nā Wai ‘Ehā proceedings. Base flows provide nutrients and minerals that support the productivity of estuarine and nearshore marine resources such as limu, crustaceans, he‘e, and fish.

132. Wailuku River and Waiehu Stream feed into and support the nearshore ecosystem of Ka‘ehu Bay off the coast of Paukūkalo, where many kama‘aina and Native Hawaiians gather and fish. Similarly, the largest fringing reef on Maui stretches along the coast of Waihe‘e, around the mouth of Waihe‘e River; and the coastline is a favorite gathering and fishing area for community members. Long-time kama‘āina community members emphasized the importance of returning consistent streamflows to these nearshore ecosystems and the gathering and fishing practices they support.

133. Each of the four Nā Wai ‘Ehā waters also support coastal wetlands. These include the Ka‘ehu Wetlands in Paukūkalo between Wailuku River and Waiehu Stream, the Kapoho Wetland and Paeloko Pond in Waihe‘e, and Keālia Pond and National Wildlife Refuge at the delta of Waikapū Stream. These wetlands support community uses such as fishponds and farming, including kalo, as well as spiritual and healing practices; they also provide important habitat for endangered native birds.

134. The interconnection between streamflows and these wetland ecosystems is also scientifically and culturally recognized in these proceedings. The most obvious example is Waikapū Stream, which is the primary water source for Keālia Pond and National Wildlife Refuge. Other wetlands, such as the Kapoho Wetlands in Waihe‘e are mostly sustained through groundwater recharge from Nā Wai ‘Ehā streams.

135. The USGS Groundwater Report shows that streamflow restoration would increase groundwater levels across Nā Wai ‘Ehā, including in the coastal wetland areas, by a range starting from .1 to .5 feet and extending to more than 3 feet. Long-time kama‘āina community witnesses confirm the connection between consistent streamflows to the ocean and the water levels in the coastal wetlands.

136. The Code repeatedly recognizes the public instream value of recreation, from its declaration of policy, Haw. Rev. Stat. § 174C-2(c), to the definition of instream use, *id.* § 174C-3, and the express mandate to “give careful consideration to the requirements of public recreation, the protection of the environment, and the procreation of fish and wildlife,” *id.* § 174C-31(k).

137. Restoration of Nā Wai ‘Ehā instream flows would create and enhance instream recreational values and opportunities, particularly downstream of the Companies’ diversions, which are the parts of the stream that are accessible to community members and the public.

138. As the Commission has documented, Nā Wai ‘Ehā waters support important public outdoor recreational activities, including hiking, fishing, swimming, parks, scenic views, and nature study. Waihe‘e River and Wailuku River ranked as “Blue Ribbon Resources” and “Statewide Outstanding Streams” for recreation, among only three streams on Maui and 18 streams in the state with this distinction.

139. For each of the Nā Wai ‘Ehā waters, community members testified to the degraded aesthetic and recreational values of the streams in their historical diverted conditions and sought the restoration of flow to support such values for their ‘ohana and communities, including younger generations.

140. Studies and education are also recognized uses for restored instream flows. *Waiāhole I*, 94 Hawai‘i at 136, 9 P.3d at 448. The scientific consensus is that long-term flow restoration is essential to support further ecological studies, as well as additional and better analysis of the effects of diversions on recharge and physical habitat.

141. Each of the Nā Wai ‘Ehā waters support community-based education initiatives. These programs serve thousands of visitors and students and would be enriched and made more meaningful with the restoration of instream flows.

142. The Code mandates that it “shall be liberally interpreted to protect and improve the quality of water of the State,” Haw. Rev. Stat. § 174C-2(d), requires the Commission to study the effects of existing and contemplated water needs and uses on “water quality,” *id.* § 174C-

31(c)(2), and includes “[t]he attainment of adequate water quality” as an objective in the Commission’s water resources planning, *id.* § 174C-31(g).

143. Waihe‘e River, Wailuku River, and Waikapū Stream are three of the ten streams on Maui that have been designated by the state as “impaired” in water quality, which poses harms to aquatic life and habitat and recreational and aesthetic values.

144. There is a direct relation between offstream diversions and the impairment of Nā Wai ‘Ehā water quality; conversely, the greater amount of water in the stream, the greater the assimilative capacity to deal with pollutants. The restoration of high, steady base flows to Nā Wai ‘Ehā waters would improve their water quality.

145. The Code expressly includes “[t]he conveyance of irrigation and domestic water supplies to downstream points of diversion” in its definition of “instream use.” Haw. Rev. Stat. § 174C-3. The Hawai‘i Supreme Court specifically pointed out the requirement to consider the needs and rights of users downstream of the Companies’ diversions in determining the IIFS. *Nā Wai ‘Ehā*, 128 Hawai‘i at 248, 287 P.3d at 149.

146. Throughout these proceedings, including in this case, numerous landowners, residents, and Native tenants located downstream of the Companies’ diversions have testified regarding the need for restored streamflows to supply water downstream for lo‘i kalo and other uses. These community members’ water needs and rights have been detailed above and are incorporated here by reference.

147. The Code mandates that “adequate provision shall be made” for the “preservation and enhancement of waters of the State for municipal uses [and] public water supply.” Haw. Rev. Stat. § 174C-2(c). Restoration of Nā Wai ‘Ehā streamflows will provide recharge and

enhancement to public drinking water aquifers, including the ‘Īao, Waihe‘e, and Waikapū Aquifers.

148. The ‘Īao Aquifer is central Maui’s main drinking water source. The County of Maui rely on the ‘Īao and Waihe‘e Aquifers for its municipal water supply, and Waikapū Aquifer is slated to supply various potable and non-potable wells.

149. Total potential recharge from Nā Wai ‘Ehā rivers and streams has been calculated at 14.5 mgd. Historical diversions reduced recharge of Nā Wai ‘Ehā aquifers by 11.5 mgd. As a comparison, the current sustainable yields of ‘Īao, Waihe‘e, and Waikapū Aquifers of 20 mgd or less, 8 mgd, and 2 mgd, respectively.

150. Restoration of Nā Wai ‘Ehā streamflows would result in significant water-level increases and salinity decreases in all wells throughout the Wailuku Aquifer Sector that encompasses Nā Wai ‘Ehā, and would raise groundwater levels across the region and extending into the central plain.

151. Restoration of Nā Wai ‘Ehā streamflows would also benefit Native Hawaiian culture and the exercise of traditional and customary Native Hawaiian rights. The Commission and Hawai‘i Supreme Court have recognized the distinct connection between Nā Wai ‘Ehā and Hawaiian history and culture, the persistence of Native Hawaiian practices in Nā Wai ‘Ehā, and the connection between these practices and streamflow levels. *Nā Wai Ehā*, 128 Hawai‘i at 245-47, 287 P.3d at 146-48. Again, the importance of these rights and practices and the need for restored streamflows to protect and promote them have been uncontroverted in this proceeding.

152. Nā Wai ‘Ehā traditional and customary practices include but are not limited to cultivating kalo, gathering of upland resources such as native plants, the gathering of ‘o‘opu,

‘ōpae, and hīhīwai from streams, ocean fishing and gathering, and religious and spiritual practices. All of these practices necessitate flowing streams.

153. Restoration of Nā Wai ‘Ehā streamflow would enormously benefit Native Hawaiians and other communities who seek to reconnect with their culture and live a self-sustaining lifestyle, and more people would be able to engage in traditional and customary practices with more water. Restoration of mauka-to-makai flow to the streams is critical to the perpetuation and practice of Hawaiian culture in Nā Wai ‘Ehā.

III. NONINSTREAM USES OVERVIEW

A. Appurtenant and T&C Rights and Lo‘i Kalo Water Uses.

154. Many individual community member applicants are requesting to use stream water, and most or all of them are claiming appurtenant and/or T&C rights to such water. For ease of reference and review, Table 1, attached hereto, lists all these applicants by the stream from which they are primarily supplied, recognizing that, because of the Companies’ layout of the ditch system, some applicants actually receive water from stream(s) other than the one in their vicinity.

155. Table 1 also separates these applicants by whether they are located on the Companies’ ditch system, or upstream or downstream of the Companies’ diversion. This distinction is key for purposes of water management and allocation, including the determination of IIFS, because it shows which applicants receive water via the Companies’ ditch system, and which receive (or would receive) water directly from the streams.

156. Table 1 includes: (1) requested quantifications of (unextinguished) appurtenant water rights, and (2) requested water use amounts for lo‘i kalo. For purposes of this IIFS analysis, review of water use amounts focuses on lo‘i kalo because these uses, in its totality

including necessary flow-through amounts, comprise the vast bulk of both the requested quantifications of appurtenant rights and the requested water use amounts, by orders of magnitude. The calculated figures for appurtenant rights and lo‘i kalo water use are based on both 100,000 and 300,000 gpd, recognizing that Mr. Reppun stated that lo‘i kalo water needs span that range.

157. Table 1 indicates that, in the aggregate, the requested quantifications of appurtenant rights are generally in the same range as the requested water use amounts for lo‘i kalo for each stream, even though many, but not all, applicants requesting quantifications of appurtenant rights are requesting water for lo‘i kalo. In other words, based on the available information, there does not appear to be significant difference between the total “pool” of potentially available appurtenant water rights and the total amount of water actually requested for lo‘i kalo.

158. Table 1 further indicates that a greater proportion of the total water amounts requested for lo‘i kalo are from community members who receive (or would receive) water directly from the streams, mostly downstream of the Companies’ diversions. A total of 4.2 to 12.5 mgd (based on 100,000 to 300,000 gpd) has been requested for lo‘i kalo water uses downstream of the Companies’ diversions. In contrast, requests lo‘i kalo water uses supplied by the Companies’ ditch system total 3.9 to 11.7 mgd (based on 100,000 to 300,000 gpd).

B. HC&S.

(See *supra* FOFs C-5 to C-41)

Water Uses

159. HC&S's transition from sugar cane to diversified agriculture, to the extent that it actually occurs, will result in significant reductions in water needs, as past cases have shown, and as HC&S has also acknowledged.

160. In this proceeding, HC&S has produced no actual, concrete plan or model for potential future diversified agriculture and acknowledges that much of it is at the concept stage. HC&S raised the general prospect of cultivating "bioenergy crops" on its Waihe'e-Hopoi Fields, but indicated only "some preliminary experience" with "some bioenergy crops." It made clear that "further research and testing is necessary for growing these crops on a large scale in central Maui," the results of which "will be critical to analyzing the economic viability of cultivating different energy crops on HC&S lands."

161. HC&S based its proposed water duties for bioenergy crops on estimated water requirements for "bioenergy tropical grasses, such as energy canes and banagrass" from "a preliminary assessment arising out of the DoD [Department of Defense] Study." HC&S provided no indication it would be cultivating such bioenergy tropical grasses, and no support for its claimed figures. It produced no documents from the DoD study and did not know when any results from the study would be published, or if even preliminary results had been published.

162. HC&S also suggested that sorghum would most likely initially replace sugar cane, but acknowledged that it "has not been able to accurately determine the actual water duty for sorghum." HC&S provided no data, studies, or other support for the water duty of sorghum. Available evidence in the record, however, indicates that water requirements of sorghum are a third or less than those of sugarcane. Another sorghum bioenergy project on Maui with the same concept as HC&S's proposal planned to use recycled water at a rate of 1,389 gad.

163. HC&S states that that its “circumstances are very similar” to the transition to diversified agriculture in the *Waiāhole* case. In that case, in light of “a lack of data on actual uses for diversified agriculture,” the Commission determined that 2,500 gad is a reasonable water duty for diversified agriculture, subject to being “evaluated periodically or upon request, based on the best available data and field experience.” *Waiāhole I*, 94 Hawai‘i at 162, 9 P.3d at 474. Almost 20 years after that determination in the *Waiāhole* case, the 2,500 gad allocation has not been requested to be reevaluated or amended and, in fact, appears to have been fully sufficient to enable the transition from sugarcane to diversified agriculture.

164. In this case, given the still preliminary, conceptual, and uncertain state of HC&S’s plans for potential diversified agriculture, including potential bioenergy crops, on its Waihe‘e-Hopoi Fields, as well as the lack of data and support on actual water needs for specific crops, the Commission concludes, for purposes of its IIFS analysis, that the 2,500 gad figure applied in the *Waiāhole* case for the transition from sugarcane to diversified agriculture provides a reasonable figure for a similar transition in Nā Wai ‘Ehā. Applying 2,500 gad to the 3,650 acres of the Waihe‘e-Hopoi Fields amounts to 9.13 mgd of reasonable potential water use.

Well 7

165. As for HC&S’s Well 7 source, that well was historically the largest capacity well in Hawai‘i and HC&S’s primary source for the Waihe‘e-Hopoi fields, supplying an average of 21 mgd over 60 years, and a maximum of 18.5 mgd under the 2014 Order. It is well-situated and -equipped to continue to supply agricultural water for the Waihe‘e-Hopoi fields, and should be utilized to the maximum extent practicable to ensure maximum reasonable beneficial use of all water resources, and recognizing that instream uses have no other alternatives to Nā Wai ‘Eha stream flows.

166. The 2014 Order cited reasonable water uses for sugarcane on the Waihe'e-Hopoi Fields of 21.75 mgd and a practicable alternative of up to 18.5 mgd from Well 7. Since 18.5 mgd was a maximum amount, the average amount of Well 7 use would have been less on average, only to the extent that Nā Wai 'Ehā water was insufficient.

167. HC&S has not indicated how much of the 18.5 mgd maximum it actually used on average. In the absence of that information, a reasonable working assumption is that average use was half of 18.5 mgd, or 9.25 mgd. Thus, for purposes of comparing past and current water needs, estimated average "net" water requirements (total need minus estimated average Well 7 use) was 12.5 mgd for sugarcane (21.75 minus 9.25).

168. In this case, HC&S argued that using 18.5 mgd from Well 7 on a sustained basis would make farming the Waihe'e-Hopoi Fields uneconomical, but it simply jumped to that conclusion without explanation, information, or analysis. In any event, the sustained use of 18.5 mgd would not be required for diversified agriculture. HC&S further suggested that no amount of Well 7 use is economically practicable during the transition to diversified agriculture. Again, this blanket assertion lacks support and, moreover, is untenable.

169. According to HC&S, the cost of using Well 7 water would be 17.8 cents/1,000 gallons (or less for the 800 acres that do not require booster pumping to supply). This cost is comparable to the "cost" HC&S asserted during the original IIFS proceeding, and far less than what other farmers and the Commission have deemed practicable. In contrast, Waiāhole Ditch users were paying 35 cents/1,000 gallons in 2000, and Maui County's agricultural rate is 75 cents/1,000 gallons.

170. HC&S does not substantiate its claim that it cannot afford 17.8 cents/1,000 gallons or less. In fact, it states that "until more data is collected to populate the economic

model, HC&S would not know what water costs can be borne.” In the original Nā Wai ‘Ehā proceeding, the Hawai‘i Supreme Court held that “the Commission erred when it made its decision regarding Well No. 7 based on cost while explicitly acknowledging that it did not have the data needed to truly analyze cost.” 128 Hawai‘i at 262, 287 P.3d at 163. Likewise, without knowing what water costs can be borne, neither HC&S nor the Commission has any basis for precluding the use of Well 7.

171. Moreover, HC&S’s claim that it cannot afford the cost of using Well 7, even if true, would not render that alternative impracticable from a broader perspective. *Waiāhole II*, 105 Hawai‘i at 19, 93 P.3d at 661. “Regardless of [HC&S’s] financial situation, the Water Commission ‘is not obligated to ensure that any particular user enjoy a subsidy or guaranteed access to less expensive water sources when alternatives are available and public values are at stake.’” *Id.*

172. HC&S states that “ideally,” it would continue its previous practice of using some of its biofuel stock to generate electricity for its wells, yet it attempts to defer and avoid the issue until some indefinite time in the future. The presumption under the public trust works the other way, in favor of protecting Nā Wai ‘Ehā instream uses. In other words, use of Well 7 as an alternative to Nā Wai ‘Ehā diversions should be presumed economically practicable unless and until actual information and analysis shows otherwise.

173. In sum, HC&S should incorporate the potential costs of using Well 7 and other alternatives into its planning of its future agricultural operations now, rather than indefinitely avoiding the issue. The Commission, for its part, has no basis for precluding Well 7 as an alternative to Nā Wai ‘Ehā diversions; rather, the Commission concludes that use of Well 7 is practicable and should be incorporated in the Commission’s IIFS analysis as discussed above.

174. The 9.13 mgd of reasonable potential water use for diversified agriculture estimated above is less than half of the maximum of 18.5 mgd that HC&S acknowledged it could practicably use. Thus, based on HC&S's acknowledgment and the presumption in favor of protecting Nā Wai 'Ehā instream uses, Well 7 should be considered a practicable alternative for most or all of HC&S's water needs for diversified agriculture on the Waihe'e-Hopoi Fields.

175. HC&S has indicated no significant adverse impact to the aquifer to date while using a maximum of 18.5 mgd. It raises conjecture about the decrease in well yield, yet offers no data or analysis and thus acknowledges that it is relying primarily on economic factors in arguing against the practicability of Well 7 use. Moreover, it has contrarily insisted on the long-term quality of its wells and emphasized the regional water flow into the aquifer. In sum, such conjecture should not suffice to eliminate Well 7 as a practicable alternative. In the course of building out its potential diversified agricultural operations and increasing its water use, HC&S can continue to monitor the salinity and capacity of its well, and the Commission may adjust its assessment based on the actual information.

176. In the alternative, estimates of HC&S's potential reasonable-beneficial use could be expressed as a range between zero, based on full use of Well 7, and a certain maximum amount, based on partial usage of Well 7. For example, given the reduction in water needs with the shift from sugarcane to diversified agriculture, the amount of Well 7 use could also be reduced. In this connection, the Commission observes that HC&S historically used Well 7 as its primary source and thus used more water from the well than it used from Nā Wai 'Ehā streams. The Companies never provided historical figures of HC&S's Nā Wai 'Ehā stream water use prior to Wailuku Sugar's closure, but based on an HC&S "share" of water diverted by WWC of 23% (*see supra* FOF C-3) and the average WWC diversions in 2005-06 of 52.72 mgd (*see* 2010

Decision at 211), HC&S's estimated historical Nā Wai 'Ehā stream water use, not including HC&S's 'Āao and South Waiehu diversions, is around 12 mgd. In comparison, HC&S used a historical average of 21 mgd from Well 7.

177. Applying these estimates to HC&S's uses going forward, as well as presumptions in favor of public trust uses given the lack of data from the Companies, Well 7 should be a practicable alternative for no less than half of HC&S water needs. Thus, as a range of potential reasonable-beneficial use, HC&S could use a minimum of 0 mgd of Nā Wai 'Ehā stream water, based on full use of Well 7 for 9.13 mgd of potential water use for diversified agriculture, to a maximum of 4.57 mgd (half of 9.13 mgd). In contrast, as stated above, HC&S's estimated net water requirements for sugar cane is 12.5 mgd (21.75 mgd minus 9.25 mgd).

System Losses

178. In the 2010 Decision, the Commission explained that "merely requiring parties to address losses has not resulted in prompt remedying of losses," so it "place[d] the burden and motivation to address loss squarely upon the parties in control of those systems," such that "HC&S and WWC will have to aggressively address" system losses. *Id.* at 187.

179. On appeal, the Hawai'i Supreme Court stated that the Commission's order to prevent losses from Waiale Reservoir was "commendable," but vacated and remanded the 2010 Decision's determinations regarding the Companies' other losses, directing the Commission to "reasonably estimate" losses, mindful of its duty to "protect instream values to the extent practicable." *Nā Wai 'Ehā*, 128 Hawai'i at 257-58, 287 P.3d at 158-59.

180. HC&S has indicated that it has opted to bypass the Waiale Reservoir to avoid the losses from that particular portion of its system. But it has not provided information on actual losses from the rest of its system and the practicability of minimizing those losses. Instead, it

proposes a fixed amount of losses of 2.15 mgd, which would represent 47% of the 4.57 mgd estimated net water requirements for diversified agriculture.

181. At this point, over six years after the 2010 Decision, the Commission concludes based on the available information (or lack thereof), that HC&S should be held to no less rigorous standards, and should not be allowed greater percentage losses, than what its counterpart owner and operator of this ditch system, WWC, has been able to achieve—i.e., 4.97%.

182. The Commission further observes that adding an additional 4.97% losses for HC&S results in applying the same factor twice to the water delivered to HC&S. This may result in “double counting” of waste over the entire ditch system. Given that portions of the water HC&S receives—specifically, its South Waiehu and ‘Īao diversions—do not travel through WWC’s portion of the ditch system, the Commission concludes that 7.46% (4.97% + $\frac{1}{2}$ of 4.97%) is the maximum total amount of system losses that should be allocated to HC&S’s uses under the circumstances. Again, to avoid double counting, any part of these losses that are allocated to HC&S should not be allocated to WWC, and vice versa.

183. Applying 7.56% to 4.57 mgd net water requirements equals 0.35 mgd of system losses for HC&S. Adding 0.35 mgd to 4.57 mgd equals 4.92 mgd, which represents total water requirements minus Well 7 contributions plus system losses.

C. Atherton Entities.

(See *supra* FOFs C-42 to C-130)

Appurtenant Rights

184. A deed in MTP’s chain of title contains a reservation of appurtenant rights, which “had the effect of extinguishing” the appurtenant rights in the various LCAs contained within the

MTP Parcel. *Reppun*, 65 Haw. at 552, 656 P.2d at 71. MTP and/or its affiliates were aware when they purchased the MTP Parcel that it had no water rights and instead negotiated for ground water rights on a different parcel, which has allowed them to pursue the Waikapū Country Town Development.

185. The Atherton Entities have withdrawn their appurtenant rights claims except to the extent necessary to provide a negligible amount drinking water for cattle grazing on Fields 731 and 733.

Water Uses

186. The current and potential future off-stream needs of the Atherton Entities are addressed together because they are under common control, and the land owned by both will become part of the planned Waikapū Country Town development. With respect to water needs for agriculture, however, the Atherton Entities are differently situated: MTP has been engaged in diversified agriculture for decades but will cease all agricultural operations as the MTP Parcel becomes the “village center” in Waikapū Country Town, while WP, as HC&S’s former lessor, is transitioning its land from sugar cane to diversified agriculture.

187. Unlike some other applicants requesting water for substantial acreages, WP already has leases with experienced and committed tenant farmers and ranchers who are currently making productive use of over 300 acres of its land. As anticipated in WP’s DEIS, its tenant farmers are poised to relocate and expand their operations from approximately 140-150 acres to more than 700 acres in the area planned as a dedicated agricultural component of Waikapū Country Town.

188. In response to feedback from the Waikapū community during its extensive outreach and engagement, WP has configured that agricultural component to protect Waikapū

Stream flows by locating all cultivation below Waihe'e Ditch. Land above Waihe'e Ditch, for which Waikapū Stream is the water source, will be used for expanded cattle grazing operations by WP's tenant ranchers, and will require only drinking water for the cattle.

189. WP's tenant farmers, Kumu Farms and Hoaloha Farms, have at least four years' experience on WP's land, and plan to expand their cultivation of the same crops. Nonetheless, the data regarding their actual water needs, to the extent any was introduced, is inconsistent and inconclusive. Despite the requirement in their leases, Kumu Farms and Hoaloha Farms' water use was not separately metered, and there was no evidence introduced regarding how long it took them to expand into their current acreage. Absent evidence of the total acreage under cultivation at any given time, testimony that Kumu Farms and Hoaloha Farms together used 540,000 gpd over 140 acres (or 153.5 acres) was not only inaccurate, it was effectively a single data point—one month out of four years—rather than an average.

190. As previously discussed, the Hawai'i Supreme Court, in the *Waiāhole* case, affirmed the Commission's conclusion that, lacking data on actual uses, 2,500 gad is a reasonable water duty for diversified agriculture, subject to being "evaluated periodically or upon request, based on the best available data and field experience," *Waiāhole I*, 94 Hawai'i at 162, 9 P.3d at 474, and that allocation appears to have been fully sufficient to enable the transition from sugarcane to diversified agriculture. Based on the available data regarding WP's tenants' actual water needs, and given MTP's actual use of 2,110 gad for diversified agriculture on the adjacent MTP Parcel, the Commission concludes that 2,500 gad is a reasonable allocation for a similar transition from sugarcane to diversified agriculture on WP's land.

191. Applying that figure to the 722.5 acres that will be farmed by Kumu Farms and Hoaloha Farms amounts to 1,806,250 gpd. Based on the evidence in the record, 25 gad should

be more than sufficient to provide drinking water for cattle grazed on WP's land above Waihe'e Ditch. Applying that figure to the 459.4 acres that will be used by Beef & Blooms and Makani Olu amounts to 11,485 gpd. The total for WP, 1.82 mgd, does not include the additional 37,044 gpd temporarily needed by Kumu Farms for 18 acres in Field 733. The Commission concludes that, during the period Kumu Farms needs to use that field, WP's tenant farmers will not be able to use WP's full allocation of 1.82 mgd.

192. MTP's actual use is 124,532 gpd, which the Commission concludes is reasonable for purposes of its IIFS analysis.

Alternatives

193. Despite some inconsistent and unsupported statements regarding alternative, WP has given more serious consideration to alternative water sources than most off-stream users, and has taken substantial steps to implement alternatives.

194. In addition to its three potable wells, WP dug two wells intended for non-potable use both as part of its water-saving dual water system for Waikapū Country Town, and as an affordable water source for the farmers on its agricultural lands. The potable wells are available for use at an estimated pumping cost of \$1.10/1,000 gallons; the non-potable wells do not yet have pumps, and the pumping cost has not been evaluated. WP is also considering solar-generated electricity to reduce pumping costs.

195. Unlike many other off-stream users, WP has embraced the use of reclaimed water, and is designing the wastewater treatment facility at Waikapū Country Town to produce R-1 quality recycled water. WP anticipates that, when Waikapū Country Town is fully built-out, it will generate 650,000 gpd of R-1 water, which it will use to augment its non-potable water supply.

196. Reclaimed water will likely not be available for at least 10 years. It is uncertain, but apparently within WP's control, when the non-potable wells will be available. The only alternative water source immediately available is the potable wells, and the only impediment WP identified to using those wells is the pumping cost.

197. It is likely to take several years before Kumu Farms and Hoaloha Farms are able to farm their entire combined 722.5 acres, and use the entire allocation of 1.8 mgd for that land. If, once they are farming the entire 722.5 acres, WP's tenant farmers need more than 1.8 mgd, there may be other practicable alternative sources available by that time. For example, the village center in Waikapū Country Town is in the first five-year phase of development. At some point in that phase, MTP will no longer need water for agriculture and water allocated for MTP's use could be available for WP's use. When WP completes its non-potable wells, they may be used as needed to augment the allocation of surface water. By the time that the entire 722.5 acres is brought under cultivation, it could be more economical for WP to use well water rather than pay for surface water.

D. MMK Golf Courses.

(See *supra* FOFs C-144 to C-157)

198. Golf courses, as well as parks and landscape irrigation, are not agricultural uses within the meaning of the Code. *Waiāhole I*, 94 Hawai'i at 168, 9 P.3d at 480.

199. Consistent with the *Waiāhole* case, the Commission concludes in this case that non-agricultural uses such as golf course and landscaping uses are subject to a "higher standard, in light of higher uses for [Nā Wai 'Ehā] surface water, including retaining water in the streams." See *Waiāhole I*, 94 Hawai'i at 168, 9 P.3d at 480. This case is no different in principle from the *Waiāhole* case; indeed, this case may involve even more extensive "higher uses," including not

only stream flow protection, but also many more landowners and tenants with appurtenant and T&C rights.

200. Based on MMK's own multi-year records, MMK's actual water need is 0.934 mgd. This reflects its long-term average use over seven years between 2009 and 2015, after water-saving measures were implemented and water usage stabilized at the decreased levels.

201. Regarding MMK's request for an additional "20 percent cushion" to account for drier months, the Commission's long-standing practice has been to use a 12-month moving average for permits to account for variations in usage. The Commission has no precedent for allocating a permanent "cushion" for water users as MMK proposes.

202. The Commission has ruled that golf-course irrigation with diverted stream water is not reasonable-beneficial if alternatives are available and other needs dependent exclusively upon surface water would be frustrated. *Waiāhole I*, 94 Hawai'i at 168, 9 P.3d at 480. This is consistent with and inherent in the principle of reasonable-beneficial use, given that "instream uses have no alternatives at any cost to [Nā Wai 'Ehā streamflows]." *Id.* at 165, 9 P.3d at 477.

203. On its face, MMK's assertion that well water may be feasible "at some time down the line," but is currently unavailable based on speaking to Mr. Atherton "a couple times," does not indicate that well water is not available and practicable.

204. MMK's own reference book exhibit maintains that well water usually proves "excellent" for golf course irrigation and has the advantage of being in close proximity to where the water is used and having less variability than surface sources. MMK, however, has not considered the option of installing its own well. It has not asserted or indicated that the use of well water would be economically impracticable, particularly where its "prepaid" arrangement

with WWC, under which it currently does not pay anything for water, would be negated and replaced by PUC-regulated rates.

E. Wailuku County Estates.

(*See supra* FOFs C-158 to C-191)

Appurtenant Rights

205. The deed by which the developer of the WCE subdivision bought the land from Wailuku Agribusiness was subject to a “Water Reservation,” which “had the effect of extinguishing” the appurtenant rights in the various LCAs contained within the subdivision property. *Reppun*, 65 Haw. at 552, 656 P.2d at 71.

206. Consequently, the Commission need not consider the further issues whether WCE met its burden of proving, for each individual WCE lot or TMK, what portion(s) of which LCA(s) were located in the TMK and where they were located, the quantity of water entitled to each portion of an LCA, and the total amount of water entitled to each TMK. *See* Minute Order No. 2 at 1-2. Appurtenant rights are tied to a specific parcel, and cannot be exercised outside that parcel. Thus, the law does not allow an aggregate or “bulk” recognition and quantification of appurtenant rights for WCE to distribute throughout its subdivision.

Water Uses

207. WCE’s existing, actually metered uses of 210,980 gpd over 120 lots equals 1,758 gpd per lot. In contrast, WCE seeks an additional 511,700 of new uses for a total of 722,590 gpd for 184 lots, or 3,927 per lot. This amounts to a 223% increase in water use on a per-lot basis. Adding the 540 gpd of water received from the county system increases the per-lot total to 4,467 gpd per lot, which is around 4 to 7 times the 600 to 1,200 gpd that the County allocates for

agricultural developments, and 7 to 11 times the 400 to 600 gpd of combined indoor and outdoor use for an average typical residential customer.

208. Given the numerous gaps, errors, inaccuracies, and discrepancies underlying WCE's claimed figures as explained above, WCE's water use should instead be calculated based on a standardized allocation per each lot, along the lines of municipal-type uses, where the standardized average accounts for the differences between individual users over the aggregate. The County's figure of 600 to 1,200 gpd for agricultural subdivisions that the Commission recognized in its 2010 Decision would be such a justified standardized calculation under these circumstances, recognizing that WCE receives an additional 540 gpd from the county system. As an alternative maximum upper limit, WCE should be allocated no more than the 2,200 gpd per lot limit that the 2010 Decision found was adequate according to WCE. Together with the 540 gpd from the county system, this is more than double the County's allocation for agricultural developments.

209. Thus, WCE's estimated reasonable-beneficial use for 184 lots is 220,800 to 404,800 gpd. Any shortfalls in water could be mitigated by storage options, including WWC's Reservoir No. 45 that serves WCE, and individual storage systems, as WCE acknowledged.

210. As for WCE's claimed existing use of 158,768 gpd for its common areas, WCE admitted the figure was "high," and indicated that the figure was not a metered amount, but was derived by subtracting lot uses from total deliveries from WWC. Thus, the figures appear to include unaccounted for inefficiencies and waste. The Commission in its 2010 Decision found that actual use would not have been even half of 0.1 mgd because of the use of drought-tolerant grass. The record does not show that irrigation of areas such as drainage swales and retention basins, which serve to collect water in the first place, is necessary, let alone an accepted or best

practice; moreover, the use of climate-appropriate grass should obviate the need for irrigation. Assuming this claimed use should be allocated any water at all, it should be less than 50,000 gpd. As the Commission found in the 2010 Decision, the municipal system is an alternative source of water for WCE irrigation purposes, and WCE acknowledged that since the County of Maui allows other agricultural property in central Maui to use municipal water, it is unlikely the County would deny such a petition by WCE. The Commission thus determined that WCE and other such WWC customers had practicable alternatives to Nā Wai ‘Ehā stream flows.

F. MDWS.

211. The Community Groups and OHA have no objection to MDWS’s request for a total of 3.2 mgd from Wailuku River for MDWS’s ‘Īao Water Treatment Plant. The 2010 Decision recognized MDWS’s water use up to 3.2 mgd as a reasonable use, and the 2014 Order reaffirmed this conclusion. 2010 Decision COLs 62, 232; 2014 Order COL 18.

212. While it should not affect the result in this case, as a potentially relevant legal matter, MDWS’s use is a beneficial “public use” for its municipal water supply, but it is not a “public trust” use; and MDWS apparently no longer claims that it is. *See* MDWS’s Responsive Br. at 7.

213. The public trust doctrine’s recognition of “domestic” use as a public trust purpose does not extend to the “municipal” uses of MDWS. *See Waiāhole I*, 94 Hawai‘i at 137, 9 P.3d at 449. The law has long distinguished domestic and municipal use. In recognizing “domestic” use as a public trust purpose, the Hawai‘i Supreme Court relied on basic riparian principles established in Hawai‘i and elsewhere, *see id.* (citing, *inter alia*, Haw. Rev. Stat. § 7-1 and Restatement (Second) of Torts § 850A cmt. c (1979)), which recognize a preference for domestic or “natural” uses that do not “materially diminish the supply of water,” *Peck*, 8 Haw. at 662. It is

well-settled that municipal uses “cannot invoke the domestic preference to acquire land and water rights to supply their inhabitants.” A. Dan Tarlock, *Law of Water Rights & Resources* § 3:59 at 3-97 (2004 rev. ed.).

214. Equating domestic and municipal uses would essentially resurrect the argument rejected in the “Mono Lake” case, that the public trust encompassed “all public uses,” including the municipal uses of the City of Los Angeles. See *National Audubon Soc’y v. Superior Ct. of Alpine Cty.*, 658 P.2d 709, 723-24 (Cal. 1983). *National Audubon* dismissed such a “broad concept of trust uses,” maintaining that the “public trust is more than an affirmation of state power to use public property for public purposes. It is an affirmation of the duty of the state to protect the people’s common heritage of streams, lakes, marshlands, and tidelands” *Id.* The Hawai’i Supreme Court adopted *National Audubon*’s reasoning without qualification and recognized that “the trust protects public waters . . . against . . . ‘substantial impairment,’ whether for private or public purposes.” *Waiāhole I*, 94 Hawai’i at 138-39, 9 P.3d at 450-51. The Court described the municipal diversions in *National Audubon* as “a public purpose,” not a public trust purpose. *Id.* at 140, 9 P.3d at 452.

215. Thus, while the public trust recognizes the “important public benefits” of municipal uses such as MDWS’s uses in this case, it stops short of recognizing them as a “public trust purpose.” *Waiāhole I*, 94 Hawai’i at 138, 9 P.3d at 450.

G. Other WWC Customers; WWC System Losses

216. The applicants discussed above in this Part include the largest water users by volume on the Companies’ ditch system. Wahi Ho‘omaluku has submitted a new use permit request for water to irrigate macadamia nut trees on its land, but it has not irrigated those trees since prior to 2008, and they remain productive. It also has requested water to cultivate 3.1 acres

of lo‘i kalo on kuleana land (although only 2.2 acres has unextinguished appurtenant rights) on the south side of South Waiehu Stream, upstream of HC&S’s Spreckels Ditch, but its proposed use is speculative; it has no discernible plans for actual kalo cultivation, including where and how it would obtain the water for the kuleanas. *See supra* FOFs C-233 to 260.

217. Various other WWC customers with much smaller use amounts requested water in this case, including, for example: Living Waters Land Foundation, LLC (22,938 gpd), Kihei Gardens & Landscaping Co., LLP (33,261 gpd), and Pohakulepo Recycling, LLC (8,555 gpd).

218. WWC has previously reduced its system losses based on a study of its system and has more recently taken further measures to reduce its system losses to 4.97%, which the Commission concludes is a reasonable level of system losses under the circumstances.

IV. IIFS DETERMINATION AND IMPLEMENTATION

A. Background and Context

219. The IIFSs established in the 2010 Decision included:

- On Waihe‘e River, 10 mgd just downstream of the Spreckels Ditch diversion.
- On North Waiehu Stream, 1.6 mgd immediately below the North Waiehu Ditch diversion.
- On South Waiehu Stream, 0.9 immediately below the South Waiehu Ditch diversion.

220. The IIFSs established in the 2014 Order included:

- On Waihe‘e River, the IIFS at both the Waihe‘e Ditch and the Spreckels Ditch intakes remaining at 10 mgd.
- On North Waiehu Stream, moving the IIFS to a lower elevation to reflect the abandonment of the North Waiehu Ditch. The relocated IIFS is just below the existing alternate diversion structure just above the Waihe‘e Ditch, and the IIFS amount is 1.0 mgd, which was intended to reflect the approximately 0.6 mgd of seepage loss between the previous and current IIFS points.

- On South Waiehu stream, maintaining the 0.9 mgd IIFS, as subsequently amended, whereby about 250,000 gpd is provided to the kuleana intake via HC&S's South Waiehu (Spreckels) Ditch diversion, and the remainder of low flows are returned to the stream.
- On Wailuku River, setting an IIFS of 10 mgd just below WWC's 'Īao-Waikapū/Maniania Diversion, which is adjusted lower when stream flow falls below 15 mgd;¹ and in lieu of setting an IIFS at the Spreckels Ditch diversion, setting an IIFS of 5 mgd at or near the stream mouth, such that no water may be diverted at the Spreckels Ditch intake except when stream flow is adequate to satisfy the 5 mgd IIFS.
- On Waikapū Stream, setting an IIFS of 2.9 mgd below the South Waikapū Ditch diversion return; and continuing and not diminishing the status quo frequency and amount of intermittent high flows that are allowed to pass the Waihe'e Ditch diversion.

221. In setting the current IIFSs, the 2014 Order recognized that the IIFSs were resolved in a settlement to “enable the earlier interim protection of instream uses and Native Hawaiian practices without further delays in litigation,” and that the public interest supported such voluntary resolution “particularly given this Proceeding involves the amendment of interim standards.” *Id.* at 24-25, COLs 20-21.

222. Moreover, the 2014 Order set the current IIFSs in a “balance between protecting instream uses and Native Hawaiian practices and accommodating reasonable beneficial noninstream uses.” 2014 Order at 24, COL 19. HC&S's sugar operations on 3,650 acres in the Waihe'e-Hopoi Fields and 1,120 acres of the 'Īao-Waikapū Fields, the water requirements for which were calculated at 27.81 mgd, comprised the primary, largest noninstream use that was “accommodated” by the current IIFSs. *Id.* FOFs 44-45, COL 12.

¹ Specifically, when average daily stream flow is between 15 and 10 mgd for three consecutive days, the greater of one-third or 3.9 mgd may be diverted for noninstream use until the flow returns to 15 mgd or above. When daily average flow falls below 10 mgd, commencing the next day and continuing until the average daily stream flow returns to at least 10 mgd, 3.4 mgd may be diverted for noninstream use, which was intended to accommodate 3.2 mgd for MDWS's water treatment plant and an estimated 0.2 mgd used by kuleana users.

223. Through the course of these proceedings, the Nā Wai ‘Ehā IIFSs have thus far been amended twice. The first amendment in 2010 essentially was a first step in considering the shift in water uses resulting from the end of the former Wailuku Sugar and Wailuku Agribusiness plantation operations, and addressing the Commission’s constitutional and statutory duty to restore streamflows. The second amendment in 2014, achieved through a mediated settlement, further advanced that progress by more fully resolving issues such as the practicability of using HC&S’s Well 7.

224. In this proceeding, the Commission has another opportunity to fulfill its public trust mandate in a further evolving context that includes: (1) HC&S’s closure of sugar operations and desired transition to diversified agriculture; and (2) the designation of Nā Wai ‘Ehā as the state’s first (and still only) surface water management area and the resulting WUPA process, which has revealed a broader landscape of water uses in Nā Wai ‘Ehā, not limited to the historically predominant diversions of the Companies, but also including other, historically un- or under-recognized uses and rights such as those of community members downstream of the Companies’ diversions.

225. In the *Waiāhole* case, the Hawai‘i Supreme Court emphasized that the sugar plantation closure:

has provided the Commission a unique and valuable opportunity to restore previously diverted streams while rethinking the future of [the island]’s water uses. The Commission should thus take the initiative in planning for the appropriate instream flows before demand for new uses heightens the temptation simply to accept renewed diversions as a foregone conclusion.

94 Hawai‘i at 149, 9 P.3d at 461. This may ring even truer in this case, insofar as it follows and builds on a decade of proceedings, studies, testimonies, all of which have helped provide a more holistic understanding of instream and noninstream uses and appurtenant and Native Hawaiian

rights in Nā Wai ‘Ehā. More than ever before, the Commission has the opportunity in Nā Wai ‘Ehā to establish a “21st-century ahupua‘a” model for water resource protection and management consistent with the public trust and Native Hawaiian stewardship principles.

226. Among the four Nā Wai ‘Ehā waters, the IIFSs for Waiehu Stream appear to have restored a relatively greater portion of natural low streamflows—recognizing that the streamflow figures for Waiehu Stream (and Waikapū Stream) were estimates extrapolated from available data and not actual measurements as in the case of Waihe‘e and Wailuku Rivers. The current IIFS on North Waiehu Stream of 1.0 mgd below the Waihe‘e Ditch diversion structure, which is intended to equate to an IIFS of 1.6 mgd at the North Waiehu Ditch diversion (around 880 ft elevation) represents 68% of the estimated Q_{70} flow of 2.5 mgd at the North Waiehu Ditch diversion. *See* USGS Streamflow Report at 11 (ditch elevations), *id.* at 51, 70 (stream flows at various elevations). The current IIFS on the South Waiehu Stream of .9 mgd below HC&S’s Spreckels Ditch diversion (around 270 ft elevation) (which includes provision of 200,000 gpd to the South Waiehu kuleana ‘auwai) is about 69% of the estimated Q_{70} flow of 1.3 mgd above the diversion. USGS Streamflow Report at 11, 70.

227. Notably, the North Waiehu Ditch has been abandoned since 2011, and WWC has not moved forward with reestablishing any diversion on that stream. Thus, the only flows that Waiehu Stream has contributed to the Companies total diversions since 2011 are the South Waiehu flows above the 0.9 mgd IIFS that HC&S has diverted in its Spreckels Ditch diversion.

228. Furthermore, several kuleana landowners have been cut off from water with the abandonment of WWC’s North Waiehu diversion, notwithstanding the express requirement in the 2014 Order that WWC will “provide water to the kuleana property that previously was

provided water from the North Waiehu Ditch” and “continue to service the Waiehu kuleana users from the Waihe‘e Ditch.” *Id.* at 26. The decision in this case should address these issues.

229. Waihe‘e River received restoration of 10 mgd in the 2010 Decision, but remained the same in the 2014 Order. Wailuku River in the 2014 Order received restoration of 10 mgd, subject to adjustment during low flow periods. Waihe‘e and Wailuku Rivers appear to have been contributing the most water to the Companies’ diversions under the current IIFSs, both in terms of absolute amounts, and in terms of relative proportions of available natural low flows. For example, the current 10 mgd IIFS for Waihe‘e River is just 36% of the Q_{70} flow of 28 mgd. The current 10 mgd IIFS for Wailuku River is 59% of the Q_{70} flow of 17 mgd, although at flows less than 15 mgd (*i.e.*, a little less than Q_{70} flow), the IIFS is reduced to allow diversion of 1/3 or more of the streamflow. *See* USGS Streamflow Report at 44.

230. On Waihe‘e and Wailuku Rivers as well, various downstream water users and rightholders seek to use stream flows for lo‘i kalo and other irrigation uses, which would support upward amendments of the IIFSs to account for the conveyance of the necessary flows downstream.

231. Also, on Wailuku River, the recent flood has damaged and impaired WWC’s diversion, burying the grate and the river bed below the dam, and carving a new channel around the area where the grate is located. This has limited, at least in the short term, the ability of the diversion to take stream flows and has also brought renewed focus to the unresolved issue of the need to implement the IIFS at the diversion site, as opposed to 1,000 feet downstream at the ditch return point.

232. The current Waikapū Stream IIFS of 2.9 mgd below the South Waikapū Ditch return at around the 920-ft elevation is about 64% of the estimated Q_{70} flow of 4.5 mgd. USGS

Streamflow Report at 11, 21. This has restored instream flow in the middle reach of the stream downstream of WWC’s South Waikapū diversion, where downstream water users and rightholders on the North Waikapū ‘auwai are located. Additional users and rightholders on the North Waikapū ‘auwai have come forward and requested water in this proceeding, which would support amendments of the IIFS to reflect these increased downstream needs.

233. Further downstream at the Waihe‘e Ditch diversion on Waikapū Stream, however, the 2014 Order continued the historical status quo, in which the diversion takes the streamflows except when higher flows pass the diversion and excess flows are returned to the stream. Currently, such “excess” water flowing downstream in Waikapū Stream may have substantially increased to a point where it is directly benefitting the supply of water to Keālia Pond at the stream delta. *See supra* FOFs A-91, A-135. Previous proceedings have deferred the issue of an IIFS below WWC’s last diversion on Waikapū Stream. The decision in this case should address this outstanding issue.

234. Since the partial restorations of stream flow in 2010 and 2014, there has been no indication that any users on the Companies’ ditch system have been cut off or limited in their supply of water as a result of the amended IIFS. In this proceeding, the parties were afforded the opportunity and encouraged to report on any issues regarding the current availability of water, but no such information or data were produced by any parties, and none of the testimonies alluded to any issues or any changes in water uses, apart from WWC and HC&S indicating that they took steps to avoid or reduce system losses, as the Commission has directed.

235. Commission staff provided figures of the Companies’ reported median or Q₅₀ diversions from 2011-2016 in Exhibit 1 to Dr. Strauch’s Staff Report. The table lists the “amount diverted estimated from water use reporting” as: from Waihe‘e River, 17.62 mgd and

6.76 mgd diverted by the Waihe‘e and Spreckels Ditches, respectively; from South Waiehu Stream, 3.99 mgd diverted by the Spreckels Ditch; from Wailuku River, 11.48 mgd and 10.69 mgd diverted by the ‘Īao and Spreckels Ditches, respectively; and from Waikapū Stream, 1.38 mgd and 1.36 mgd from diverted by the South Waikapū and Waihe‘e Ditches, respectively. The Companies’ total median diversions from 2011-2016, post-IIFSs, was 53.28 mgd. In comparison, the 2010 Decision estimated the total water diverted by the Companies in 2005 and 2006 at 63.50 mgd and 55.94 mgd, respectively. *Id.* at 211.

236. In considering the current request to amend upwards the IIFS, it is helpful and instructive to review the significant changes in current and prospective water uses that have occurred since the establishment of the current IIFS in 2014. First, water use requests by community members primarily for lo‘i kalo have increased, both in terms of the number of community members coming forward with requests and the total amount of water requested. Most or all of these community members also claim priority appurtenant rights or T&C rights to grow kalo.

237. For purposes of water management and allocation, including the determination of IIFSs, it is important to distinguish such community members between those receiving water through the Companies’ ditch system, and those receiving water directly from the streams downstream (and sometimes upstream) of the Companies’ diversions.

238. As for the community members who receive water through the Companies’ ditch system, the total water requests for lo‘i kalo of around 7.8 mgd (based on 200,000 gad) reflect somewhat of an increase from the amount of use or deliveries to the kuleana ‘auwai that the Companies previously reported. WWC reported total “kuleana” uses of 6.18 mgd in 2006, Ex. D-7 at 3 (MA06-01), and stated that this amount had continued for some time based on what

WWC had delivered historically in the past, Tr. 1/15/08 (Chumbley) at 174:13-16, 176:2-4 (MA06-01). In addition, HC&S reported providing about 0.25 mgd to the South Waiehu kuleana ‘auwai, 2010 Decision, FOF 187, and the current South Waiehu IIFS provides for 0.25 gpd to be provided to the ‘auwai. The consistent testimony since the original IIFS proceeding was that community members receiving water from the Companies’ ditch system were not receiving enough water. 2010 Decision, FOFs 234, 296.

239. A greater proportion of the total water amounts currently requested for lo‘i kalo, however, are from community members who receive (or would receive) water directly from the streams, downstream of the Companies’ diversions. A total of around 8.3 mgd (based on 200,000 gad) has been requested for lo‘i kalo water uses and rights downstream of the Companies’ diversions. As stated above, allocations for the conveyance of streamflows for such downstream uses and rights must be incorporated in the IIFSs in addition to amounts provided for other instream uses.

240. In providing additional water to downstream uses and rights, however, the Commission must also provide protection to those with water rights who rely on the Companies’ ditch system. In other words, the Commission must protect public trust rights to cultivate kalo of both those on Companies’ ditch system, and those downstream of the Companies’ diversions, to the extent practicable. As further explained below, the Commission will enable this balance through provisions for adjustable IIFSs.

241. The second major change in current and prospective water uses since 2014 stems from the closure of HC&S’s sugar operations. History and experience, including the *Waiāhole* case as well as the closure of Wailuku Sugar in Nā Wai ‘Ehā, has shown that the transition from

sugar to diversified agriculture results in significant reductions in agricultural water needs, and this case looks to be no different.

242. For the Waihe'e-Hopoi fields, HC&S reported deliveries of 35.58 mgd and use of 22.87 mgd in 2005-06. In contrast, the 2010 Decision determined reasonable needs of 21.75 mgd, while the 2014 Order concluded that maximum of 18.5 mgd was a practicable alternative, of which assumed average use is 9.25 mgd; thus estimated "net" water requirements were 12.5 mgd. Assuming that HC&S follows through with cultivating the entirety of these fields, which is far from certain based on the record, estimated potential reasonable-beneficial uses, including system losses, would be 0 to 4.92 mgd depending on the amount of Well 7 use. This represents a difference of 7.58 to 12.5 mgd between HC&S's water needs for sugarcane and potential future reasonable-beneficial use on the Waihe'e-Hopoi fields.

243. For the 'Īao-Waikapū fields, HC&S reported deliveries of 10.43 mgd and use of 10.26 mgd for sugar cane in 2005-06, and the 2010 Decision determined reasonable needs of 6.06 mgd. 2010 Decision at 215-16. Again assuming that all of the Waikapu Properties' contemplated diversified agriculture operations come to fruition, estimated potential reasonable-beneficial uses would be 1.82 mgd, not factoring in any use of well water. For the 'Īao-Waikapū Fields, this represents a difference of 4.24 mgd or more between the water needs for sugarcane and potential future reasonable-beneficial use on the 'Īao-Waikapū fields.

244. Thus, a total reduction in noninstream needs of 11.82 to 16.74 mgd or more is anticipated as a result of the closure of HC&S and contemplated transition to diversified agriculture.

245. Apart from water needs for lo'i kalo and changes in water needs on former sugarcane lands, other present and future noninstream uses have not appreciably changed from

those that CWRM already considered in previous proceedings. Both the 2010 Decision and 2014 Order, for example, assumed MDWS's use of the full amount of 3.2 mgd under its agreement with WWC. 2010 Decision, COL 62, 2014 Order, COL 19. The 2010 Decision considered 2.37 mgd in water deliveries to WWC customers (besides MDWS) in 2006 and recognized the water use of "1.2 mgd or less" by MMK's golf courses. 2010 Decision, COL 226. The total estimated reasonable-beneficial water uses of WWC's customers in this case fall within a similar range: *e.g.*, 0.9 for MMK's golf courses; 0.12 mgd for MTP; 0.2 to 0.4 mgd for WCE; and much smaller amounts for other customers totaling 0.1 mgd or less. As the Commission concluded in 2010 Decision, WWC customers like WCE have a practicable alternative in the municipal water system. 2010 Decision, FOF 405, COL 226.

246. The approximate total of all the estimated reasonable-beneficial noninstream water uses (not including those of appurtenant and T&C rightholders) includes 1.8 (or less) to 7.11 mgd for diversified agriculture on the former HC&S lands, 3.2 mgd for MDWS, and 1.3 (or less) to 1.5 for other WWC's customers. Applying 4.97% for WWC system losses (excluding HC&S's water uses, which already incorporates system losses) may add up to 0.3 mgd to the total.

B. Determination of the IIFS and Balancing of Instream and Noninstream Uses.

247. The Commission recognizes and concludes that restoration of higher consistent base flows to Nā Wai 'Ehā rivers and streams would further promote instream uses and values and protect the appurtenant and T&C rights of community members downstream of the Companies' diversions. Such additional restoration is practicable given the significant reductions in water demand for noninstream uses due to the closure of HC&S's sugar operations (and is required where downstream water users have priority rights). Above all, the Commission

remains “mindful of its duty to ‘protect instream values to the extent practicable.’” *Nā Wai ‘Ehā*, 128 Hawai‘i at 258, 287 P.3d at 159.

248. In providing higher consistent base flows in the IIFSs, the Commission is also cognizant of the need to protect the appurtenant and T&C rights of community members on the Companies’ ditch system. Notwithstanding that such rights are supplied via the Companies’ ditch system, they are still public trust uses co-equal with the instream uses that the IIFSs are intended to protect, and similarly have no alternatives to streamflows.

249. The Commission must also consider and weigh the impact of increasing the IIFSs on noninstream, non-public trust uses and consider solutions to mitigate or avoid the impact on existing uses. In relation to such uses, however, the presumption or default favors public trust uses. Moreover, noninstream uses have available solutions (*i.e.*, alternatives and mitigation) to compensate for reduced availability of streamflows, whereas instream and other public trust uses “have no alternatives at any cost” to the streamflows. *Waiāhole I*, 94 Hawai‘i at 165, 9 P.3d at 477. Such solutions are further addressed below in this IIFS discussion.

250. As the IIFS is increased to include higher percentages of natural lower flows, the probabilities that the supply of water to appurtenant and T&C rightholders, as well as other users, on Companies’ diversions will be partially or entirely constrained during low flow periods also increases. Conversely, setting the IIFSs below the lowest natural flow so that certain users would be accommodated at all times is also problematic, because it relegates public trust instream uses to only the lowest flows available after other uses are accommodated and fails protect instream uses to the extent practicable during higher flow periods.

251. One option to address this issue may be to adopt seasonal IIFSs, but the record contains little or no information on seasonal streamflow amounts. It is also unclear whether the

availability of and demand for surface water falls within sufficiently discrete and definable periods to enable seasonal IIFSs to work.

252. The Commission concludes that a reasonable approach to address this issue, in keeping with the Commission's public trust duties, is to provide for adjustable IIFSs, such that when streamflows drop below a certain low-flow threshold, the IIFS will temporarily decrease to allow diversion of a portion of the total available flow.

253. Indeed, there is already precedent for such adjustable IIFSs in these proceedings, including the South Waiehu IIFS, which was set at 0.9 mgd but also provided a consistent flow of 0.25 mgd to the kuleana 'auwai during low flows. Similarly, the Wailuku River IIFS incorporated adjustments during low flows to allow for partial diversions, specifying the intent to accommodate MDWS's treatment plant and "kuleana users served exclusively by the 'Īao-Waikapū Ditch." 2014 Order at 27.

254. In sum, based on consideration of all of the foregoing and the entire record, the Commission concludes that the following IIFSs would restore Nā Wai 'Ehā rivers and streams to the extent practicable, balancing the importance of present and potential instream uses and values with the importance of present or potential noninstream uses:

255. For Waihe'e River, the IIFS just below the Waihe'e and Spreckels Ditch diversions is increased from 10 mgd to 18 mgd, with an adjustment provision as stated below.

256. For Wailuku River, the IIFS just below the 'Īao Ditches diversion is increased from 10 to 13 mgd, with an adjustment provision as stated below.

257. Waihe'e and Wailuku are the two largest rivers in Nā Wai 'Ehā and offer the most habitat units based on the Parham Report. Yet, to date, the IIFSs have restored less flows to these two rivers as a relative matter, compared to the two other streams. The current IIFS of 10

mgd for Waihe'e River, in particular, is only 1 mgd more than *half* of the Q₉₉ flow, *i.e.*, nearly the lowest flow at all times, of 18 mgd. The Parham Report indicated that the restoration of 10 mgd increased amphidromous species habitat units within the stream from less than 1% to 11.1%, showing clear room for further improvement. *Id.* at 72.

258. The 18 mgd IIFS for Waihe'e River is equal to the Q₉₉ flow and about two-thirds (64%) of the Q₇₀ flow of 28 mgd. USGS Streamflow Report at 44. The 18 mgd figure also incorporates flows for the uses of downstream appurtenant and T&C rightholders, estimated at around 2 mgd.

259. The 13 mgd IIFS for Wailuku River is the same as was recommended in the 2009 Proposed Decision and is equal to about three-fourths (76%) of the Q₇₀ flow of 17 mgd. *See* USGS Streamflow Report at 44. The 13 mgd also incorporates flows for downstream appurtenant and T&C rightholders, estimated at around 5 mgd (at 200,000 gad). The higher relative percentage in comparison to Waihe'e River takes into consideration that Waihe'e River has steadier higher flows and is not as variable as Wailuku River: e.g., for Waihe'e, the Q₉₉ flow of 18 mgd is more than half (53%) of the Q₅₀ flow of 34 mgd, whereas for Wailuku, the Q₉₉ flow of 8.4 mgd is about a third (34%) of the Q₅₀ flow of 25 mgd. *See id.* Also, Wailuku River has the longest perennial channel of all the Nā Wai 'Ehā streams and according to the Parham Report offers the greatest amount of total available habitat units for amphidromous species. Parham Report at 71-72.

260. In addition, for Waihe'e and Wailuku Rivers, the Commission incorporates the concept of IIFS adjustment adopted for Wailuku River in the 2014 Order, as follows. For Waihe'e, when the average daily flow measured by the USGS gage is below 27 mgd for three consecutive days (18 mgd is 2/3 of 27 mgd), the IIFS decreases to two-thirds (2/3) of the stream

flow, such that one-third (1/3) of the streamflow may be diverted, until the flow returns to 27 mgd or above.

261. For Wailuku, when the average daily flow measured by the USGS gage is below 19.5 mgd for three consecutive days (13 mgd is 2/3 of 19.5 mgd), the IIFS decreases such that the greater of 1/3 of the stream flow or 3.4 mgd may be diverted, until the flow returns to 19.5 mgd or above. As explained in the 2014 Order, this minimum 3.4 mgd diversion is intended to accommodate MDWS's use of 3.2 mgd for its treatment plant and 0.2 mgd for kuleanas served exclusively by the Īao Waikapū Ditch.

262. Further downstream on Wailuku River, the 2014 Order established an IIFS of 5 mgd near the mouth, which, based on the estimated seepage of around 5 mgd between the Īao Ditches diversion and near the mouth, effectively meant that the Spreckels Ditch intake had to be shut off during flows less than 10 mgd. *See* USGS Streamflow Report at 63-64, 71. However, given the expressed difficulties in monitoring flow near the mouth, the Commission instead concludes that the IIFS should be moved to just below the Spreckels Ditch intake. The estimated seepage between the Īao Ditches diversion at 780-ft elevation and the Spreckels Ditch diversion is around 3 mgd or less at lower flow levels. *See* USGS Streamflow Report at 9, 71. Accordingly, pending updated seepage measurements, the IIFS just below the Spreckels Ditch intake should be 10 mgd.

263. For North Waiehu Stream, the IIFS just below the diversion structure above the Waihe'e Ditch on North Waiehu Stream is increased from 1.0 to 1.5 mgd, with an adjustment provision as stated below. For South Waiehu Stream, the IIFS just below the Spreckels Ditch diversion on South Waiehu Stream is increased from 0.9 mgd to 1.3 mgd, with an adjustment provision as stated below.

264. The IIFS figures for Waiehu Stream are the same as were recommended in the 2009 Proposed Decision. The 1.5 mgd IIFS for North Waiehu (which is equivalent to 2.2 mgd at the original IIFS location below the North Waiehu Ditch based on 0.7 mgd of estimated seepage) is about 83% of the estimated Q₇₀ flow of 1.8 mgd (2.5 mgd below the North Waiehu Ditch minus 0.7 mgd). *See* USGS Streamflow Report 11, 51. The 1.3 mgd IIFS for South Waiehu is equal to the estimated Q₇₀ flow. *See id.* at 11, 70. Despite Waiehu Stream's relatively smaller size, the benefits of restoring flow to the stream for amphidromous species habitat have been recognized. *See, e.g.,* Parham Report at 72.

265. Moreover, for both North and South Waiehu Streams, the Commission incorporates the adjustment provision that the 2014 Order adopted for South Waiehu Stream to protect kuleana rightholders. Specifically, for South Waiehu Stream, during low flow conditions about 0.25 mgd will be provided to the kuleana 'auwai, with the rest of the flows remaining in the stream.

266. As for North Waiehu Stream, the supply of water to kuleanas from that stream has been cut off since 2011, and contrary the requirement in the 2014 Order to provide water to those kuleanas and also service the Waiehu kuleanas from the Waihe'e Ditch, the kuleana water supply has not yet been restored. The adjustment provision during low flows for North Waiehu Stream will be set at a later date once the water supply to the North Waiehu kuleanas are restored pursuant to the Commission's order, based on further information on the necessary flow amounts for the kuleanas.

267. For Waikapū Stream, the IIFS at the location established in the 2014 Order is increased from 2.9 mgd to 3.9 mgd, with an adjustment provision as stated below. The 3.9 mgd IIFS is about 87% of the estimated Q₇₀ flow of 4.5 mgd around that elevation. *See* USGS

Streamflow Report at 52, 72. In line with the IIFSs for the other streams, the IIFS should be relocated to just below the South Waikapu Ditch diversion. Based on seepage estimates, the IIFS at that higher-elevation location should be about 1.2 mgd less, or 2.7 mgd, to account for the streamflow gains between the two points, including the tributary. *Id.* at 72.

268. Based on Mr. Atherton’s expressed plans to “get off” of Waikapū stream water,” present and potential uses for water from the South Waikapū Ditch will be limited to the kuleanas on the South Waikapū Ditch, using an estimated 0.3 mgd (based on 200,000 gad), as well as cattle drinking, and agricultural uses of 37,044 gpd (only for the next 2-3 years). Downstream of the diversion, appurtenant and T&C rightholders on the North Waikapū kuleana ‘auwai seek water uses estimated at around 1.3 mgd. The 3.9 mgd IIFS incorporates the flows for these downstream rightholders and also aims to restore instream flow in this stream reach to the extent practicable in light of the limited and declining uses from the South Waikapū Ditch system.

269. Moreover, for Waikapū Stream, the Commission incorporates the adjustment provision that the 2014 Order adopted for South Waiehu Stream to protect kuleana rightholders on the ditch system. Specifically, during low flow conditions about 0.3 gpd will be provided to the South Waikapū kuleana ‘auwai, with the rest of the flows remaining in the stream.

270. As for the still-outstanding issue of the IIFS below WWC’s Waihe‘e Ditch diversion on Waikapū Stream, the 2010 Decision acknowledged that restoration of flow would answer whether Waikapū Stream flows mauka to makai. *Id.* FOF 596, COLs 169(7), 259. Likewise, the USGS Streamflow Report acknowledged that its estimates of seepage in the lower reach of Waikapū Stream may not be accurate and contain much uncertainty, and that restoration

of flow at different rates for periods sufficient to attain steady flow conditions would provide better information. *Id.* at 77, 74, vi.

271. The Hawai‘i Supreme Court has admonished against “leav[ing] a diverted stream dry in perpetuity, without ever determining the appropriate stream flows”—and maintained it “cannot accept such a proposition.” *Waiāhole I*, 94 Hawai‘i at 158-59, P.3d at 470-71. It appears that, with the wind down of HC&S’s operations, substantial excess water was being discharged from the Waihe‘e Ditch return into Waikapū Stream. Ultimately, there may never be a better time than now, when the successor agricultural operations on the former sugarcane lands are still beginning, to conduct an investigation with controlled restorations to determine the flow characteristics of Waikapū Stream’s lower reaches. This inquiry should not only examine the conditions under which Waikapū Stream flows to the ocean, as may reflect on benefits to native amphidromous species, but also the full range of benefits that the continuous or partial flows may provide to other instream values, such as the Keālia Pond wetland habitat. The Commission will direct staff, in consultation with DAR, U.S. Fish and Wildlife Service and the Keālia Pond National Wildlife Refuge, USGS, the Companies, as well as the Community Groups and other relevant stakeholders to propose and implement a plan for investigating these issues, with the goal of presenting the information to the Commission for further consideration and action on the IIFS for Waikapū Stream below the Waihe‘e Ditch diversion.

272. In total, pending further investigation including the IIFS below the last diversion on Waikapū Stream and verification of estimated seepage amounts, the IIFS amendments above increase the Nā Wai Ehā IIFSs by a combined 12.9 mgd, to a combined total of 38.4 mgd, subject to reduction during lower flow periods. Based on USGS’s data, at the Q99 flow, the IIFSs will be reduced by the adjustment provisions to around 12 mgd for Waihe‘e River (2/3 of

18 mgd), 5 mgd for Wailuku River (8.4 mgd minus 3.4 mgd), 1.05 mgd for South Waiehu Stream (1.3 mgd minus 0.25 mgd), an amount less than 2.2 mgd to be determined for North Waiehu Stream, and 3.6 mgd for Waikapu Stream (3.9 mgd minus 0.3 mgd), or a total of less than 23.85 mgd.

273. The IIFS determinations above are, as always, interim standards subject to ongoing revision based on further information and experience, but in this proceeding are based on the best available information and experience to date. The Commission observes that the restoration of flows and installation of gages pursuant to this decision will provide opportunities to improve the data on stream flows particularly on Waiehu and Waikapū Streams, and also to verify or refine the seepage loss estimates, which is particularly important where certain IIFSs have been based on such estimates.

274. As for the various users and appurtenant and T&C rightholders downstream (and some upstream) of the Companies' diversions seeking to use water, IIFSs need not be designated for these individual diversions. Rather any necessary restrictions and oversight can be implemented by the permits. In effect, the Commission could recognize that such uses, most or all of which are protected public trust purposes, are largely or effectively subsumed within the IIFS given that, as Mr. Reppun explained, the 'auwais are an integrated part of the stream system and return most of the flows. Alternatively, if IIFSs are calculated for these diversions, then the Commission could adopt the approach in its 2010 Decision, in which it deemed only the consumptive portion of lo'i kalo water use, estimated at around 10 to 25% of the total inflow, to be subtracted from streamflows. *See id.* COL 220.

275. These IIFSs and adjustment provisions fulfill the Commission's duties in designating IIFSs. First, they provide higher base flows to instream uses more of the time, while

protecting the appurtenant and T&C rights of community members on the Companies' ditch system during times of lower flow. In other words, the adjustable IIFS approach fulfills the Commission's public trust duty to ensure that both instream uses, and co-equal public trust rights of appurtenant and T&C rightholders on the Companies' ditch system, are protected to the extent feasible.

276. The automatic adjustment provisions also provide a solution, among others, to mitigate or avoid the impact streamflow restoration may have on other existing uses. Although, as established in historical practice and the uncontroverted record, the kuleana rightholders on the Companies' ditch system have priority over other users, the adjustable IIFSs will also provide the Companies and other users with water during lower flow periods.

277. Moreover, to the extent that the amount of available water will be reduced particularly during the periods of lowest flow, other users (besides kuleana rightholders) have various measures to mitigate or avoid these impacts. *See, e.g.*, Ex. C-89 at 0004 (MA06-01) (A&B's consultant explaining that HC&S would compensate for a reduction of 10 mgd for a proposed water treatment plant by "employ[ing] farming methodologies" to "maintain the level of existing agricultural cultivation" and "supplement[ing] a portion of the agricultural water with brackish water from an existing well").

278. As an initial matter, the Companies' use of stream flows has always involved an "inherent variability" given the fluctuating flow characteristics of Hawai'i streams. 2010 Decision, COL 239. The IIFS does not change this basic premise, but ostensibly increases the importance of implementing practicable and constructive water management solutions.

279. Now that more base flow is required to remain in the stream, ditch operations may need to shift toward capturing more water during higher flow periods. *See* Haw. Rev. Stat. §

174C(1)(E) (including solution of “changes in time and rate of diversion”). This shift may be already occurring, *e.g.*, where ditch flow records from 2011 to 2016 indicate that, on Wailuku River, HC&S’s lower Spreckels diversion has diverted a comparable amount of flows on average as WWC’s upper ‘Īao diversion. Storage and conservation measures such as reservoirs or tanks are an important part of this solution.

280. In addition, use of alternative sources like ground water is a critical solution from a comprehensive management perspective. *See* Haw. Rev. Stat. § 174C(1)(E) (“use of water from alternative sources”). While applicable in general, this importance of ground water as an alternative particularly resonates in Nā Wai ‘Ehā, given the long-standing use of Well 7 as a primary source for agricultural irrigation, as well as the current or coming availability of wells (potable and non-potable) on the Atherton entities’ lands which are currently unused pending plans for development. The “conjunctive use” of groundwater with surface water is an established agricultural practice, particularly in areas with water constraints; indeed, the former Hawai‘i sugar industry, and perhaps Well 7 above all, are prime examples. Ground water aquifers have storage characteristics akin to natural reservoirs, which enables water availability and use to be better coordinated with times of need. If ground water does not replace stream water entirely as a practicable and more reliable source, it at least should provide a substantial alternative source during lower flow periods and solution to the inherent variability of streamflows.

281. Along the same lines, recycled water should be aggressively pursued as a solution to the reduced availability of stream water. As the county wastewater director explained, such resources are “drought proof” and never stop flowing, yet these valuable resources continue to be dumped and wasted. In addition to resources available in wastewater treatment plants in

Wailuku/Kahului and Mā‘alaea, Waikapu Country Town alone is expected to produce 650,000 gpd of R-1 quality reclaimed water, and there are other projects in the approval process that will need to treat and dispose of wastewater. This issue will be further specifically addressed in the WUPA discussion below.

282. Another potential solution that should be pursued further is the coordination of uses on the ditch system, including the sharing of water during different times. *See* Haw. Rev. Stat. § 174C(1)(E) (“modification of project operations”); *see also* Ex. Nā Wai-2 at 14-16 (“management practices plan” submitted by the ditch operator in the *Waiāhole* case). For example, there is historical precedent and practice in this region and elsewhere of dividing water use between day and night. *See, e.g.*, 2010 Decision, FOF 273; *Horner v. Kumuliili*, 10 Haw. 174 (1895). Lo‘i kalo may need less water during the night, when less heat needs to be removed from the lo‘i, whereas irrigating fields crops or a golf course during the night would conserve water. The ditch operators should address these and other such solutions in a management plan for their ditch system.

C. Consideration of Economic Impacts.

283. In its determination of the IIFs and adjustment provisions, the Commission also considers the economic impact of restricting present or potential noninstream uses. While a few parties have offered some information on economic aspects of their activities (e.g., employees, revenues, claimed benefits to the local economy) to support underlying suggestions about the impact of the total cessation of their water uses and operations, little or no information has been provided on the impacts, if any, of reduced water availability or the adoption of solutions including mitigation and alternatives. The Commission has previously found such “all-or-

nothing” arguments unhelpful, and this continues to apply here. *See* 2010 Decision, COLs 154, 238.

284. As discussed above, the potential impacts on noninstream users, including economic impacts, will be significantly mitigated or avoided by the provisions for adjustable IIFSs, and the ongoing ability of the Commission to adjust the IIFS in light of better information. In the event of any shortages, Haw. Rev. Stat. § 174C-62 also allows the Commission to take further direct action including “apportioning, rotating, limiting, or prohibiting the use of the water resources of the area.” In such a case, the exercise of appurtenant rights and T&C rights to cultivate kalo would have legal priority over other uses. *See* 2010 Decision, COL 240(a).

285. The adoption of practicable mitigation or alternatives such as conservation or efficiency measures, storage, or alternative sources like well water, may have an “economic impact” in terms of a cost, but such practicable measures are an intrinsic part of the public trust and reasonable-beneficial use. Thus, as a matter of law, any balancing favors the adoption of such practicable measures. *See* 2010 Decision, COLs 43, 256, 262.

286. As the Commission recognized in 2010 Decision and also in this case, some of WWC’s customers have a practicable alternative in the municipal water system. 2010 Decision, COL 226. This alternative poses little or no economic impact or cost for these customers; in fact, the rates WWC charges are comparable or the same as the county rates, and may eventually be higher under PUC regulation.

287. Likewise, parties such as HC&S and the Atherton Entities who have access to well water will bear little or no economic impact or cost in using this practicable alternative. As HC&S’s has acknowledged, the cost of water is one of the smallest factors in the overall cost of farming, even for those who pay for water. As discussed above, HC&S’s suggestion that no

amount of Well 7 use is practicable is not justified given the stated cost of 17.8 cents per 1000 gallons, and HC&S's admission that it simply does not know what water costs can be borne in its future operations.

288. Indeed, this case is different from the previous IIFS case, where HC&S was an ongoing agricultural operation and raised claims regarding the economic impacts of the cessation of sugar operations (which again were off-point in any event). Here, the sugar operations have ended—incidentally, for causes unrelated to water availability—and HC&S has still not determined whether its contemplated future diversified agricultural operations will be economically viable. Thus, as discussed above, any balancing at this point weighs in favor of requiring HC&S to incorporate the costs of using Well 7 in its planning and analysis of its future agricultural operations, rather than allowing it to avoid the issue entirely.

289. WWC has previously raised claims about economic impacts on its business. As the Commission concluded in the 2010 Decision, this may result in the cessation of WWC's operations or sale of WWC's ditch infrastructure to the County of Maui. *Id.* COLs 240(b), (d). The ultimate economic impact of such an acquisition has not been discussed in this case, but could be beneficial from a broader public standpoint.

D. Ka Pa'akai Analysis.

290. In the original *Nā Wai 'Ehā* IIFS proceeding, the Hawai'i Supreme Court observed that the Commission's 2010 Decision followed the first step of the *Ka Pa'akai* framework of documenting in its findings the "identity and scope of 'valued cultural, historical, or natural resources' in [Nā Wai 'Ehā], including the extent to which [T&C] rights are exercised in Nā Wai 'Ehā." 128 Hawai'i at 247-48, 287 P.3d at 148-49. These findings included the "distinct connection between Nā Wai 'Ehā and Hawaiian history and culture," the recognition

that “native Hawaiian practices still continue in Nā Wai ‘Ehā,” and “the connection between current traditional and customary practices and streamflow levels.” *Id.* at 245-47, 287 P.3d at 146-48.

291. The Court concluded, however, that the Commission “did not discharge its duty with regard to the feasibility of protecting native Hawaiian rights.” *Nā Wai ‘Ehā*, 128 Hawai‘i at 249, 287 P.3d at 150. These rights included rights to cultivate kalo, as well as gathering rights. *Id.* at 248, 287 P.3d at 149. The Court thus vacated and remanded the 2010 Decision “for further consideration of the effect the IIFS will have on native Hawaiian practices, as well as the feasibility of protecting the practices.” *Id.* at 249, 287 P.3d at 150. *See also* 2010 Decision, Dissenting Opinion at 3 (emphasizing that “restoration of the Nā Wai ‘Ehā waters is of importance for traditional and customary purposes” and “the Commission has a duty to take feasible actions to reasonably protect native Hawaiian rights”) (citing *Ka Pa ‘akai*).

292. The Commission has considered the effect the IIFS will have on Native Hawaiian rights and practices in determining the IIFS. Specifically, the Commission has increased the IIFSs in all four Nā Wai ‘Ehā streams with the goal of protecting and promoting T&C rights of instream and nearshore gathering and fishing, as well as cultivating kalo. At the same time, the Commission has incorporated adjustment provisions in the IIFS during lower flow conditions in order to protect T&C rights to cultivate kalo that rely on the supply of water through the Companies’ ditch system.

293. Likewise, the Commission has also considered the feasibility of protecting Native Hawaiian rights and practices in increasing the IIFS for all four Nā Wai Ehā streams while providing for adjustment provisions during lower flow conditions, thereby protecting the T&C rights of both those on the Companies’ ditch system, and those exercising rights in the stream

and downstream of the Companies' diversions, to the extent feasible. As further information and experience is gained through the comprehensive management of Nā Wai 'Ehā resources, additional IIFS increases may be warranted. Moreover, the Commission will ensure that instream and downstream T&C practices are protected to the extent feasible, beyond the IIFS, by ensuring proper implementation and monitoring of streamflows, including the requirement that any water not actually needed for noninstream use remains in the stream.

E. Implementation.

1. Monitoring

294. In amending the IIFS based on further information and experience, the Commission also emphasizes the need for timely and accurate monitoring and reporting of IIFS compliance. The 2010 Decision directed that “[i]nstallation and maintenance of stream gauges immediately below the main diversions identified in the IIFS shall be the responsibilities of the parties doing the diversions, as part of their responsibilities to report on the amount of their diversions and to ensure that the IIFS below their diversions are met.” *Id.* at 188. The USGS Streamflow Report also specifically indicated the need for long-term continuous-record stream-gaging stations upstream of diversions in Waiehu and Waikapū Streams and downstream of all diversions to more accurately determine streamflows and recharge. *Id.* at vi.

295. Yet, despite the ongoing hard work of Commission staff to provide independent verification by operating gauges and collecting the data, the record on IIFS implementation and monitoring thus far indicates a need for improvement. Flow monitoring records show extended periods of non-compliance with the IIFS. Because the data can only be downloaded periodically when Commission staff visits Maui, compliance is only reviewed after-the-fact. No penalties, warnings, or other incentives have been implemented to encourage compliance.

296. The IIFS is a legally binding mandate and primary mechanism to fulfill the Commission’s public trust duties and must be treated accordingly, with the “openness, diligence, and foresight” demanded of a trustee. Thus, the Commission concludes that going forward, a system of real-time monitoring is required. Such a system is especially critical for the implementation of adjustable IIFSs, because of the added complexities involved in calculating and adjusting the flows, as well as monitoring and verifying compliance.

297. Real-time monitoring will enable the Commission and public to ensure compliance with the legally binding IIFSs, and just as importantly, will foster public confidence in the system. Commission staff has indicated that the monitoring equipment and installation could be funded by private parties, after which Commission staff can handle ongoing management. The Companies should be responsible for such costs as a condition of their permits and those of WWC’s customers (*i.e.*, such funding is a condition to WWC’s right to divert water for its customers).

2. Flow Passage at the Diversions

298. The harm of the diversion structures to native stream life has been recognized and undisputed throughout these proceedings. The Commission in the 2010 Decision directed that “[n]ew diversion infrastructures . . . will have to be provided on all four streams. . . . Construction of bypasses of diversions that current [sic] disrupt stream flows will also be the responsibility of the diverters.” *Id.* at 188. Seven years later, compliance has fallen short of these terms and expectations.

299. In 2014, the Parham Report specifically criticized the ongoing practice of diverting most of the stream flows except for a small amount of water passed over the dam, then releasing the bulk of the water downstream. The oft-cited example is WWC’s ‘Īao Diversion,

which leaves a 1000-foot dry stretch below the diversion, but the diversions on Waihe'e River and Waikapū Stream pose the same problem. As the Parham Report stated, this practice is “of convenience” for the diverters, but does not serve the public interest in ecological restoration. In sum, remedying this problem should be a “high priority with any water return scenario.”

Commission staff similarly maintained that the goal is to prevent the water needed to meet the IIFS from being diverted in the first place, and that the current measure of installing a small channel iron or plate over the grate is insufficient.

300. The Commission emphasizes here that remediating the diversions to restore *as much flow as practicable at the diversion site* is a mandatory requirement that demands full and timely compliance. In other words, the public trust mandate to restore instream uses to the extent practicable applies not only to water quantities, but also diversion structures and flow passage.

301. The recent flood in Wailuku River, which created a new channel around the 'Īao diversion, appears to have provided a valuable opportunity to enable restoration of flow at the point of diversion and eliminate the 1000-foot dry reach. The Commission should ensure that this opportunity will not be ignored when any repairs on the diversion are undertaken.

Moreover, the Commission must renew its attention to ensuring that the diverters comply with the Commission's directives without delay for all the diversion structures on the Nā Wai 'Ehā rivers and streams.

3. Revision of IIFS Based on 'Auwai Restoration

302. Finally, as another matter of IIFS administration, some appurtenant and T&C rightholders currently receiving water through the Companies' ditch system may have the capability of partially or fully reestablishing a direct connection of their 'auwai to the streams. In the event that this occurs, the IIFS should include an automatic revision provision by which

the IIFS is increased (and the adjustment provision during lower flows is decreased) as a ministerial matter by the amount needed to flow downstream to the reconnected ‘auwai and no longer needed to be diverted by the Companies’ ditch system. Such revision is necessary to ensure that any such change in the point of diversion for appurtenant and T&C rightholders is properly incorporated in the IIFS, as opposed to enabling the Companies to continue to divert the streamflows for other purposes.

V. APPURTENANT RIGHTS AND WATER USE PERMITS DETERMINATION AND IMPLEMENTATION

303. The 2014 Order repeatedly provided that findings and conclusions regarding “water use requirements,” “alternative water sources,” or “system losses” are made without prejudice to the rights of the Parties and the Commission to revisit those issues in connection with any proceeding involving a WUPA for water diverted from any of the Nā Wai ‘Ehā Streams inasmuch as the burden of proof with respect to such issues in a WUPA proceeding will be upon the applicant rather than the Commission. *Id.* at 18-19, 21-25, FOF 72, COLs 9, 13-18, 22. The 2014 Order thus deferred to this proceeding the resolution of any offstream diversions and the applicants’ full legal burden of justifying those diversions.

A. Applicants with Appurtenant and/or T&C Rights.

1. Pro Se Community Applicants

Appurtenant Rights

304. The Commission concludes *pro se* community applicants met their burden of proving, through the submission of various forms of evidence, *see* FOF B-8, how their lands were used at the time of the Māhele, including estimating how much of their lands were cultivated in lo‘i kalo.

305. The Commission adopts Dr. Kame‘eleihiwa’s rebuttable presumptions and guiding principles and applies them to appurtenant rights analyses where applicable.

306. Based on the testimony of expert kalo farmer Paul Reppun, as well as the testimonies of applicant-kalo farmers with experience farming lo‘i in Nā Wai ‘Ehā, such as Lester Nakama, the Commission concludes 200,000 gad is necessary to grow healthy kalo in the traditional manner in Nā Wai ‘Ehā.

307. Therefore, the Commission quantifies applicants’ (unextinguished) appurtenant rights by applying 200,000 gad to the acreage these applicants estimated were cultivated in lo‘i kalo at the time of the Māhele. These quantifications are provided in Table 2, appended hereto.

308. As the exercise of (unextinguished) appurtenant rights can never be denied, the Commission notes these quantifications are subject to modification upon submission of additional proof.

T&C Rights

309. A number of *pro se* community applicants asserted T&C rights to Nā Wai ‘Ehā water to grow kalo, other subsistence agricultural crops, and/or native medicinal plants. *See* Table 3, appended hereto (identifying T&C rightholders). These parties established they are ahupua‘a tenants who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778, and that they use and/or plan to use surface water in the traditional manner for subsistence, cultural, and/or religious purposes. Haw. Rev. Stat. § 174C-101(c). Accordingly, the Commission recognizes these T&C rights and addresses these water requests along with the requests of appurtenant rightholders *before* addressing “existing uses” and “new uses” that do not involve the exercise of appurtenant or T&C rights.

SWUPAs for *Pro Se* Community Appurtenant and T&C Rightholders

310. As previously discussed, *pro se* community applicants with appurtenant and/or T&C rights who use water to cultivate kalo or other crops in the traditional manner are engaging in *prima facie* “reasonable-beneficial” water uses. They are not required to follow different standards of efficiency or seek alternative sources, apart from what traditionally applied to such uses.

311. Notwithstanding that most *pro se* community applicants possess priority appurtenant and/or T&C rights, all *pro se* community applicants listed in Tables 3 and 4 established they lack practicable alternatives to ‘auwai/stream water which, in most cases, runs near their lands and is used for domestic purposes, including the sharing of lo‘i kalo and other food crops among ‘ohana and neighbors.

312. The water uses of applicants listed in Tables 3 and 4 are “economic and efficient”: the amount requested is what they actually need to irrigate lo‘i kalo, home gardens, and for other primarily domestic uses; they implement a variety of measures to minimize water loss through evaporation and seepage, including, for example, using pipes or garden hoses where feasible and providing shade over open ‘auwai; and they employ farming practices, including the use of mulch, to protect the soil from erosion and to minimize the use of water.

313. The Tables 3 and 4 applicants’ use of stream water to irrigate lo‘i kalo and other crops and gardens and for other domestic purposes is also consistent with the State and County land use plans and in the public interest: all of the land use activities supporting these applicants’ water use requests are consistent with applicable State land use classifications and County zoning; and the requested water uses to exercise T&C rights, for agriculture, and for maintenance of proper ecological balance and scenic beauty are, as a matter of law, “in the public interest.” Haw. Rev. Stat. § 174C-2(c).

314. Thus, the Commission concludes the applicants listed in Tables 3 and 4 met their burden of proving actual water needs, and that their uses are “reasonable-beneficial.” *Waiāhole I*, 94 Hawai‘i at 160, 9 P.3d at 472.

315. The Commission concludes the following water requirements are appropriate for Nā Wai ‘Ehā: 200,000 gad for lo‘i kalo, 2,500 gad for diversified agriculture, and 600 gpd per single-family home. In the absence of more reliable actual use data, these water requirements are applied to applicants’ water use requests.

316. Table 3 provides the water amounts approved for each SWUPA with appurtenant and/or T&C rights.

2. Wahi Ho‘omalū (SWUPA 2351)

Appurtenant Rights

317. The Commission concludes that Wahi Ho‘omalū has appurtenant rights with respect to 14 kuleana parcels on the south side of South Waiehu Stream, upstream of HC&S’s Spreckels Ditch diversion, and that 21.54 acres within 12 of those LCAs were cultivated in kalo at the time of the Māhele as set forth below:

	LCA	Prov. Rec.?	Total Acres	Acres in Kalo
2.	2461:2	Y	0.45	0.45
3.	2468:1	N	0.433	0.00
4.	2468:2	Y	0.45	0.45
5.	2554:1	Y	0.50	0.50
6.	2554:2	Y	1.38	1.38
7.	3259	Y	4.83	4.83
8.	3275D	Y	2.06	1.03
9.	3275E2	N	1.12	1.12
10.	3275E3	Y	6.62	6.62
12.	3275E6	Y	3.39	3.39
13.	3275W	Y	0.49	0.00
14.	3451	Y	1.53	0.77
15.	11222:1	Y	1.58	0.79
16.	1806:2	Y	0.49	0.21

TOTAL			25.323	21.54
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318. With respect to LCA 3456:4, which is now Wahi Ho‘omalu’s Parcel 26, WACI conveyed its interest in the property to Wahi Ho‘omalu “EXCEPTING, RESERVING and GRANTING, HOWEVER, onto Grantor, its successors and assigns, all water and water rights (surface and ground water) within or appurtenant to the Property.” WACI’s attempted reservation of appurtenant rights “had the effect of extinguishing” the appurtenant rights in LCA 3456:4, which is now Parcel 26. *Reppun*, 65 Haw. at 552, 656 P.2d at 71.

Wahi Ho‘omalu (SWUPA 2351–Kalo)

319. Wahi Ho‘omalu’s SWUPA seeks a permit to use 464,400 gpd to grow kalo on approximately 3.1 acres on six kuleana parcels: LCA 2554:2 (0.50 acres); LCA 1806:2 (0.21 acres); LCA 3259 (0.50 acres); LCA 3451 (0.50 acres), LCA 11222 (0.50 acres), and LCA 3456:4 (0.886 acres).

320. The appurtenant rights to the land awarded as LCA 3456:4, which land is now Parcel 26, have been extinguished by the reservation of those rights in the deed from WACI to Wahi Ho‘omalu. LCA 3456:4 was also awarded as LCA 2468:1, which describes the same land but is cited in the property description as part of the source of title to Parcel 1. Appurtenant rights attach to land, and LCA 3456:4 and LCA 2468:1 describe the same land. That land is now in Parcel 26, and was in Parcel 26 when Wahi Ho‘omalu purchased it subject to WACI’s reservation of appurtenant rights.

321. Wahi Ho‘omalu’s proposed water use for lo‘i kalo remains speculative. It has demonstrated no present ability or plan to cultivate lo‘i kalo on the 2.21 acres with unextinguished appurtenant rights. Mr. Russell admitted he only became interested in growing kalo when he learned he could get a water use permit. He initially requested 6,000 gad in his

SWUPA, demonstrating unfamiliarity with the water needs for lo‘i kalo. He then requested a permit for water for 37 acres of kalo until he realized it would be a lot of work. Even after he reduced his request to 3 acres of kalo, he was not planning to open the lo‘i himself, but to find someone who could grow kalo. Mr. Russell has not yet even considered where and how he would obtain the water for the LCA parcels.

322. The Commission concludes that Wahi Ho‘omalua has not yet demonstrated a reasonable-beneficial use, which is a fundamental constitutional and statutory requirement and necessary prerequisite for a water use permit. The Commission will defer Wahi Ho‘omalua’s SWUPA, to the extent it is based on appurtenant rights, until Wahi Ho‘omalua has more concrete plans for kalo cultivation, including details on where and how it would obtain the water for its LCAs.

B. Existing Use SWUPAs.

1. Pro Se Community Applicants

323. For similar reasons as stated above, the Commission concludes that *pro se* community applicants who have applied for “existing use” permits, many of which are for domestic uses in modest amounts, have met their burden of proving reasonable-beneficial use. Table 4 provides the water amounts approved for each of these “existing use” SWUPAs.

2. HC&S (SWUPA 2205)

324. As discussed above, during this proceeding, HC&S has raised some preliminary and evolving proposals regarding directions and concepts for potential future diversified agriculture on its Waihe‘e-Hopoi Fields, but it does not know the actual water duty for its currently suggested bioenergy crops, or whether the larger-scale cultivation of such crops is economically viable.

325. In the *Waiāhole* case, the Commission considered the state Department of Agriculture’s (“DOA’s”) WUPA for a proposed agricultural park and concluded that the proposed use “is still in the planning stage and not yet certain enough to assure actual use within a reasonable time frame.” 94 Hawai‘i at 186, 9 P.3d at 498 (quoting the Commission). The Commission thus denied DOA’s WUPA “without prejudice to reapplication when DOA can demonstrate that actual use will commence within a reasonable time frame.” *Id.* The Hawai‘i Supreme Court affirmed this ruling and further observed that, to the extent that applicants seek assurances of water availability for their planning, “the Code specifically addresses this need . . . in providing for water reservations.” *Id.*

326. Like DOA’s agricultural park proposal, HC&S’s proposals for diversified agriculture on the Waihe‘e-Hopoi Fields and other former sugar plantation lands is still in the planning stage and not yet certain enough to assure actual use within a reasonable time frame, or at all. For its SWUPA, HC&S bears the full burden of proof mandated by law. Yet, HC&S makes clear that it lacks details and proof on basic, critical elements of reasonable-beneficial use such as actual water needs and practicable alternatives. When HC&S states that it does not know the actual water duties for crops, does not know what water costs of using Well 7 can be borne, and does not know whether cultivation of its proposed bioenergy crops is viable on a larger scale, it cannot meet its burden of proof.

327. HC&S indicates that it has started with a 50-acre trial field of bioenergy crops and will plant another 500 acres, which will be critical to analyzing the economic viability of cultivating energy crops. The Commission will issue a conditional, temporary permit for these 550 acres at a rate of 2,500 gad, or 1.25 mgd, limited to the duration that these field trials continue. Based on the record, the 2,500 gad figure is an appropriate transitional amount and

more than sufficient for the sorghum cultivation that HC&S has proposed, and Well 7 is practicably available to compensate for any actual shortfalls.

328. HC&S's SWUPA is otherwise denied without prejudice to reapplication when HC&S can demonstrate that actual, reasonable-beneficial use will commence in a reasonable timeframe. Moreover, to inform and facilitate such a reapplication, the Commission provides guidance on the required proof. In its planning of future sustainable agricultural operations, HC&S should incorporate analysis and implementation of practicable alternatives, including use of Well 7. It should also incorporate a specific analysis and implementation plan on practicable measures to minimize system losses.

3. MMK Maui, LP (SWUPA 2186)

329. Consistent with the *Waiāhole* case, the Commission concludes in this case that golf-course and landscaping uses are subject to a "higher standard" and bear a "heavy burden to show why stream water should be diverted out of its watershed of origin." *See Waiāhole I*, 94 Hawai'i at 168, 9 P.3d at 480.

330. Based on MMK's own multi-year records, MMK's actual water need is 0.934 mgd, which reflects its long-term average use over seven years between 2009 and 2015, after water-saving measures were implemented and water usage stabilized at the decreased levels. MMK's request for a blanket, permanent "20 percent cushion" to account for higher-usage periods is not consistent with Commission practice; rather, the Commission uses the 12-month moving average to account for variations in usage.

331. On its face, MMK's assertion that well water may be feasible "at some time down the line," but is currently unavailable based on speaking to Mr. Atherton "a couple times," does

not meet MMK's burden of proof to show that well water is not a practicable alternative. MMK has also not shown that well water would be economically impracticable.

332. Given that well water is not presently available in the near-term, the Commission will issue MMK a temporary, conditional permit for 0.934 mgd, subject to MMK providing proof regarding the availability, timing, and practicability of well water alternatives over the longer term. As in the *Waiāhole* case, the Commission concludes that MMK "will be subject to special requirements including the duty to seek alternative sources when they are reasonably available." 94 Hawai'i at 429, 480, 9 P.3d at 117, 168. Moreover, MMK permitted uses are subordinate to priority appurtenant and T&C rights and are subject to those uses being satisfied first.

4. Wailuku Country Estates (SWUPAs 2189, 2190N & 2196)

333. The deed by which the developer of the WCE subdivision bought the land from Wailuku Agribusiness was subject to a "Water Reservation," which "had the effect of extinguishing" the appurtenant rights in the various LCAs contained within the subdivision property. *Reppun*, 65 Haw. at 552, 656 P.2d at 71.

334. Consequently, the Commission need not consider the further issues whether WCE met its burden of proving, for each individual WCE lot or TMK, what portion(s) of which LCA(s) were located in the TMK and where they were located, the quantity of water entitled to each portion of an LCA, and the total amount of water entitled to each TMK. *See* Minute Order No. 2 at 1-2. Appurtenant rights are tied to a specific parcel, and cannot be exercised outside that parcel. Thus, the law does not allow an aggregate or "bulk" recognition and quantification of appurtenant rights for WCE to distribute throughout its subdivision.

335. WCE's farm plans do not require any agriculture, but allows "conservation," which involves landscaping activities like planting trees and grass. WCE's uses should thus be subject to a "higher standard, in light of higher uses for [Nā Wai 'Ehā] surface water, including retaining water in the streams," and a "heavy burden" to show why its uses for landscaping and irrigation ancillary to its development should be entitled to stream water, as opposed to farmers across the state who use municipal water. *See Waiāhole I*, 94 Hawai'i at 168, 9 P.3d at 480.

336. As explained above, the documentation WCE submitted to support its water use claims contain numerous gaps, errors, inaccuracies, and discrepancies that preclude reasonable reliance on WCE's claimed figures. WCE's water use should instead be calculated based on a standardized allocation per each lot, along the lines of municipal-type uses, where the standardized average accounts for the differences between individual users over the aggregate. WCE's existing, actually metered uses of 210,980 gpd over 120 lots equals 1,758 gpd per lot; adding the 540 gpd received from the county system totals 2,298 gpd. In contrast, the County allocates 600 to 1,200 gpd for agricultural developments.

337. WCE also acknowledged that the municipal system is a practicable alternative to WWC's supply. Economic practicability does not appear to be an issue given the pending PUC regulation of WWC's rates. To the extent that WCE receives Nā Wai 'Ehā stream water from WWC, the Commission concludes that such use should be subordinate to priority appurtenant and T&C rights, as well as MDWS's municipal uses relying on the same source of Wailuku River.

338. Based on the record and circumstances, the Commission will issue WCE an existing use permit of 210,980 gpd for 120 lots (1,758 gpd), and a new use permit for 112,512 gpd, representing a proportional expansion of the existing use over the remaining 64 lots, for a

total of 323,492 gpd, provided that these permitted uses are subject to appurtenant and T&C rights and MDWS's municipal uses of Nā Wai 'Ehā streamflows being met first.

C. New Use SWUPAs.

1. Wahi Ho'omalū (SWUPA 2351–New Uses)

339. Wahi Ho'omalū has withdrawn its request for 240,000 gpd to produce domestic water for future development. Wahi Ho'omalū has failed to demonstrate that irrigating macadamia nut trees that it voluntarily stopped irrigating prior to 2008, and that are still productive, is a reasonable-beneficial use of water. Wahi Ho'omalū's new use permit request is thus denied.

D. Conclusions re: Recycled Water

340. In the 2010 Decision, the Commission made clear its intention to “forc[e] all parties to address critical water issues which have been avoided for far too long,” which included the directive that “[l]arger diverters facing ongoing and growing needs, including the County, should explore joint development of reclamation and water recycling in order to address their needs without returning to these streams.” *Id.* at 194.

341. Here, the benefits of recycled water use are recognized and undisputed, and the opportunities for such beneficial use have been discussed for decades without resolution, and without any progress since the Hawai'i Supreme Court ordered proper consideration of the issue in 2014. Meanwhile, millions of gallons per day of recycled water resources are wasted, while applicants seek to divert flows from Nā Wai 'Ehā rivers and streams. The record does not show that recycled water use is *not* practicable, if the County and larger water users can cooperate on funding and logistics and finalize a collective solution. *See* CWRM Reuse Report at 4-7

(“Mutual cooperation is needed between multiple parties to insure success, and HC&S must support the use of recycled water.”). Absent any incentive and direction, however, individual end users will continue to claim that, on their own, they have no practicable means of using recycled water, which will leave the collective problem unaddressed indefinitely. Ultimately, resolution of this “reverse” tragedy of the commons scenario requires leadership from the Commission, which is precisely the role the Commission was created to fulfill as “the primary guardian of public rights under the trust.”

342. The Commission concludes that large present and potential water users like HC&S and the County will have no incentive to cooperate on making recycled water available if the only consequence is that they can get stream water instead. Thus Commission will thus require the County and HC&S to provide quarterly status reports regarding their efforts, in coordination with other larger water users such as MMK, to proactively address the issue of making recycled water available for productive use, and shall provide a detailed plan within one year of the date of this decision. Unless the County and HC&S are able to show bona fide discussions and meaningful progress, the Commission will consider how this ongoing limbo should impact its analysis of whether applicants have met their burden to demonstrate the absence of practicable alternatives.

E. Administration of Permits and Rights.

1. Water Course and Access Rights and Appointment of a Special Master

343. FOFs above discussed the historical and factual background in Nā Wai ‘Ehā, including: the original understanding and directive in *Peck* that the plantation diversions were “subject to the rights of tenants,” including “taro patches and the water necessary for their cultivation” and “rights of the water courses”; the Companies’ historical comprehensive control

and modification of the traditional ‘auwai system; and the Companies’ consistent recognition and documentation of their “obligations” to “suppl[y]” kuleana “priority” rights. *See supra* FOFs, Part VII.

344. Based on the totality of these circumstances, and pursuant to the Commission’s comprehensive authority and duty to determine, administer, and protect water rights, the Commission concludes that the Companies have a continuing obligation to supply water to kuleanas through their ditch system, where their historical modifications to the kuleanas’ traditional means of accessing stream water have made the kuleanas dependent on the Companies’ ditch system to access such water. Such obligation shall continue as an ongoing part of the Companies’ operation of their ditch system, unless and until the Companies restore the kuleanas’ means of accessing stream water to the traditional status quo ante, or otherwise furnish the kuleana rightholders a mutually agreeable alternate means of accessing stream water.

345. This obligation is based on a number of related grounds. First, as the appurtenant rights cases make clear, the Companies’ modification or elimination of the traditional ‘auwai constitutes a “trespass” of the appurtenant right easement, *Davis*, 5 Haw. at 224, which obligates the Companies, should they fail to restore the traditional ‘auwai route, to instead provide an alternate route for the exercise of the easement through their ditch system. In the alternative, such an easement through the ditch system would be established by “necessity” to enable kuleanas to receive water. *See, e.g., Henry v. Ahlo*, 9 Haw. 490, 491-92 (1894) (ordering a right of way by necessity for a kuleana where defendant closed the previous access). Finally, the Companies would also have an obligation to supply water to kuleanas under equitable estoppel, which “precludes [the Companies] from asserting to [the kuleana owners’] disadvantage, a right inconsistent with a position previously taken” in the Companies’ practices and documents—*i.e.*,

that the Companies had “kuleana obligations” whereby kuleanas “shall be supplied” through the ditch system and “ha[ve] priority.” *Godoy v. Haw. Cnty.*, 44 Haw. 312, 320 354 P.2d 78, 82 (1960).

346. The Commission also has the ongoing authority and duty to resolve water course or access issues as they may arise in the administration of the IIFSs and permits—effectively serving the role of the modern-day “konohiki” to protect kuleana rights. *See Reppun*, 65 Haw. at 546, 656 P.2d at 68 (recounting the konohiki’s traditional role to manage “equality of division and avoid troublesome quarrels between the tenants”). For this purpose, the Commission has the authority to appoint a special master to hear evidence and make recommendations for a Commission decision. Haw. Rev. Stat. § 92-16(a)(3) provides such general authority to all state boards and commissions, and the Commission’s rules, Haw. Admin. R. 13-167-23(d) authorizes the Commission to “employ the use of special hearings officers or special masters for the purposes of mediation, fact finding, and/or arbitration.” Such a special master will be able to address water course and access issues, in addition to any other implementation and administration issues regarding the IIFS and permits, on an ongoing basis as necessary.

2. Water Use Reporting

347. As the Commission made clear, and the Hawai‘i Supreme Court confirmed, in order to avoid the waste of water, any streamflows above the IIFSs must remain in the stream unless permitted and actually needed for offstream use. *Waiāhole I*, 94 Hawai‘i at 156, 9 P.3d at 468. That is, the IIFS states “an absolute minimum required under any circumstances,” and even after water uses are permitted, diverters have an ongoing obligation to divert only the amounts they actually need, without waste.

348. In order to ensure compliance with this mandate, mutual trust and cooperation among users, and public confidence in the administration of the IIFSs and permits, diverters must provide full transparency on the amount of diversions and uses. To this end, the Commission has the authority and duty to require water use reporting and monitoring, particularly under the comprehensive permitting regime instituted in this water management area.

349. The Companies will be required to provide monthly reports detailing their diversions and all the end uses on their ditch system. Reported information on water uses must include the metered uses of individual customers, or in the case of kuleana rightholders, the amounts delivered to the kuleana 'auwai. The Commission staff, in consultation with community members and stakeholders, should work out a simplified reporting system for kuleana rightholders that avoids creating administrative and cost burdens, which could include periodic (*e.g.*, quarterly) communications and inspections and technical assistance with measuring 'auwai flows.

Table 1: Kuleana On Ditch, Upstream, or Downstream

Community Member	SWUPA #(s) (existing and new)	Stream	System	APPURTENANT RIGHTS			WATER		
				Lo'i (acre)	GPD (100,000 gad)	GPD (300,000 gad)	Lo'i (acre)	GPD (100,000 gad)	GPD (300,000 gad)
Diannah Lai Goo	2365N	Waihe'e	Waihe'e Upstream	1.05	105,000	315,000	1.05	105,000	315,000
			Waihe'e Upstream Total	1.05	105,000	315,000	1.05	105,000	315,000
John VareI	3470N	Waihe'e	Waihe'e Downstream	1.89	189,000	567,000	1	100,000	300,000
Joseph Alueta	2362N	Waihe'e	Waihe'e Downstream		0	0	2	200,000	600,000
Hawaiian Islands Land Trust	2706N	Waihe'e	Waihe'e Downstream	3.2	320,000	960,000	7	700,000	2,100,000
			Waihe'e Downstream Total	5.09	509,000	1,527,000	10	1,000,000	3,000,000
Hawaiian Islands Land Trust	2706N	Waihe'e	Waihe'e Ditch System	0	0	0	2	200,000	600,000
Winifred & Gordon Cockett	2223	Waihe'e	Waihe'e Ditch System	0.65	65,000	195,000		0	0
Alfred Santiago	2273, 2274N	Waihe'e	Waihe'e Ditch System	1.626	162,600	487,800	1.5	150,000	450,000
Greg Ibara	2245, 2246N	Waihe'e	Waihe'e Ditch System	1.171	117,100	351,300	0.027	2,700	8,100
Jordanella Ciotti	2247, 2248N	Waihe'e	Waihe'e Ditch System	0.23	23,000	69,000	0.058	5,800	17,400
Mary Ann Velez	2241, 2242N	Waihe'e	Waihe'e Ditch System	0.913	91,300	273,900	0.46	46,000	138,000
Diannah Lai Goo	2233, 2234N	Waihe'e	Waihe'e Ditch System	0.724	72,400	217,200	0.724	72,400	217,200
Richard Emoto & Roys Ellis	2227	Waihe'e	Waihe'e Ditch System	0.845	84,500	253,500	0.445	44,500	133,500
Stanley Faustino & Kanealoha Lovato-Rodrigues	2228, 2229N	Waihe'e	Waihe'e Ditch System	0.7	70,000	210,000	0.67	67,000	201,000
Micheal Rodrigues & William Freitas	2269, 2270N	Waihe'e	Waihe'e Ditch System	0.33	33,000	99,000	0.33	33,000	99,000
Micheal Rodrigues & William Freitas	2269, 2270N	Waihe'e	Waihe'e Ditch System	0.983	98,300	294,900	0.98	98,000	294,000
Robert Barrett & Lester Nakama	2322, 2323N	Waihe'e	Waihe'e Ditch System	3.125	312,500	937,500	3.125	312,500	937,500
Clifford & Cristal Koki	2252, 2253N	Waihe'e	Waihe'e Ditch System	1.2	120,000	360,000	0.736	73,600	220,800
William La'a & Emmett & Renette Rodrigues	2324, 2325N	Waihe'e	Waihe'e Ditch System	1.955	195,500	586,500	1.64	164,000	492,000
William Freitas	2364N	Waihe'e	Waihe'e Ditch System	0.388	38,800	116,400	0.5	50,000	150,000
Kenneth Kahalekai	2249	Waihe'e	Waihe'e Ditch System	2.617	261,700	785,100	1.92	192,000	576,000
Kau'i Kahalekai	2312	Waihe'e	Waihe'e Ditch System	2.705	270,500	811,500	2.776	277,600	832,800
Ramsey Anakalea & Lester Nakama	2320, 2321N	Waihe'e	Waihe'e Ditch System	0.6	60,000	180,000	0.5	50,000	150,000
John VareI	2262, 2263	Waihe'e	Waihe'e Ditch System		0	0	0.27	27,000	81,000
Burt Sakata & Peter Fritz	2334, 2335N	Waihe'e	Waihe'e Ditch System	1.17	117,000	351,000	1.267	126,700	380,100
Ka'iulani (Michael) Doherty	2225, 2226N	Waihe'e	Waihe'e Ditch System	2.445	244,500	733,500	2	200,000	600,000
Thomas Texeira & Denise Texeira	2280, 2281	Waihe'e	Waihe'e Ditch System	0.327	32,700	98,100	0.15	15,000	45,000
Piko A'o, LLC	2264, 2265N	Waihe'e	Waihe'e Ditch System		0	0	4.78	478,000	1,434,000
Gordon Apo & Lester Nakama	2316, 2317	Waihe'e	Waihe'e Ditch System	1.4	140,000	420,000	0.73	73,000	219,000
Cordell Chang	2221, 2222	Waihe'e	Waihe'e Ditch System	1.25	125,000	375,000	0.5	50,000	150,000
Charlene & Jacob Kana	2313, 2314N	Waihe'e	Waihe'e Ditch System	1.57	157,000	471,000	1.153	115,300	345,900
Bryan Sarasin, Sr.	2294	Waihe'e	Waihe'e Ditch System	0.99	99,000	297,000	0.009	900	2,700
Diannah Lai Goo	2231, 2232N	Waihe'e	Waihe'e Ditch System	1.305	130,500	391,500	0.46	46,000	138,000
Kathleen De Hart	2361N	Waihe'e	Waihe'e Ditch System	0.5	50,000	150,000	0.02	2,000	6,000
Alfred Kailiehu, Jr. & Ina Kailiehu	2250, 2251N	Waihe'e	Waihe'e Ditch System	0.459	45,900	137,700	0.253	25,300	75,900
Nolan Ideoka & Lester Nakama	2318, 2319	Waihe'e	Waihe'e Ditch System	1	100,000	300,000	0.77	77,000	231,000
Cecilia Chang	2182	Waihe'e	Waihe'e Ditch System	0.5	50,000	150,000		0	0
			Waihe'e Ditch System Total	33.678	3,367,800	10,103,400	30.753	3,075,300	9,225,900

Table 1: Kuleana On Ditch, Upstream, or Downstream

Community Member	SWUPA #(s) (existing and new)	Stream	System	APPURTENANT RIGHTS			WATER		
				Lo'i (acre)	GPD (100,000 gad)	GPD (300,000 gad)	Lo'i (acre)	GPD (100,000 gad)	GPD (300,000 gad)
Jeff & Ramona Lei Smith	2369N	Waiehu	S. Waiehu Upstream		0	0	0.5	50,000	150,000
Isabelle Rivera	2266, 2267N	Waiehu	S. Waiehu Upstream	2.55	255,000	765,000	2.42	242,000	726,000
Regino Cabacungan & Kathy Alves	2219, 2220N	Waiehu	S. Waiehu Upstream	0.21	21,000	63,000	0.22	22,000	66,000
Francisco Cerizo	2307, 2308N	Waiehu	S. Waiehu Upstream	1.2	120,000	360,000	0.46	46,000	138,000
			S. Waiehu Upstream Total	3.96	396,000	1,188,000	3.6	360,000	1,080,000
Natalie Hashimoto & Carl Hashimoto	2363N	Waiehu	N. Waiehu Downstream	0.18	18,000	54,000		0	0
			N. Waiehu Downstream Total	0.18	18,000	54,000	0	0	0
Lester Nakama	2326, 2327N	Waiehu	N. Waiehu Ditch System	1	100,000	300,000	1.1	110,000	330,000
Lester Nakama	2328, 2329N	Waiehu	N. Waiehu Ditch System	0.7	70,000	210,000	0.7	70,000	210,000
Peter Lee & Lester Nakama	2330, 2331N	Waiehu	N. Waiehu Ditch System	2.132	213,200	639,600	1.066	106,600	319,800
Paul Higashino	2342	Waiehu	N. Waiehu Ditch System		0	0	2	200,000	600,000
Renee Molina	2171	Waiehu	S. Waiehu Ditch System	1.3	130,000	390,000	0.125	12,500	37,500
Jason Miyahira	2258	Waiehu	S. Waiehu Ditch System	2.08	208,000	624,000	0.5	50,000	150,000
			Waiehu Ditch System Total	7.212	721,200	2,163,600	5.491	549,100	1,647,300
Ho'oululāhui, LLC	2243, 2244N	Wailuku	Wailuku Downstream		0	0	3.08	308,000	924,000
Francis Ornellas	2370N	Wailuku	Wailuku Downstream	0.51	51,000	153,000	1.421	142,100	426,300
Kimberly Lozano	2371N	Wailuku	Wailuku Downstream		0	0	0.1836	18,360	55,080
Noelani & Allan Almeida & Gordon Almeida	3626N	Wailuku	Wailuku Downstream	2.365	236,500	709,500		0	0
Duke & Jean Sevilla, Christina Smith & County of Maui	2275	Wailuku	Wailuku Downstream	1.381	138,100	414,300	20.33	2,033,000	6,099,000
			Wailuku Downstream Total	4.256	425,600	1,276,800	25.0146	2,501,460	7,504,380
Gary & Evelyn Brito	2215, 2216N	Wailuku	Wailuku Ditch System	0.248	24,800	74,400	0.037	3,700	11,100
Kenneth Mendoza	2256, 2257N	Wailuku	Wailuku Ditch System	0.11	11,000	33,000	0.003	300	900
Luke McLean	2204	Wailuku	Wailuku Ditch System	0.855	85,500	256,500	1	100,000	300,000
Leslie Vida, Jr.	2188	Wailuku	Wailuku Ditch System	0.27	27,000	81,000	0.0365	3,650	10,950
Donna Vida	2292, 2293N	Wailuku	Wailuku Ditch System	0.728	72,800	218,400		0	0
Claire Pinto	2303	Wailuku	Wailuku Ditch System	0.855	85,500	256,500		0	0
			Wailuku Ditch System Total	3.066	306,600	919,800	1.0765	107,650	322,950
Ione Shimizu	2276	Waikapū	Wa kapū Downstream	0.265	26,500	79,500	0.032	3,200	9,600
Katherine Riyu	2268	Waikapū	Wa kapū Downstream		0	0	0.305	30,500	91,500
Judith Yamanoue	2338	Waikapū	Wa kapū Downstream	1	100,000	300,000	0.5	50,000	150,000
Warren Soong	2277	Waikapū	Wa kapū Downstream	0.85	85,000	255,000		0	0
Hōkūao & Alana Pellegrino	2332, 2333N	Waikapū	Wa kapū Downstream	2.805	280,500	841,500	0.821	82,100	246,300
T & Z Harders Family LTD	2240, 3467N	Waikapū	Wa kapū Downstream	10.33	1,033,000	3,099,000	5	500,000	1,500,000
Theodore and Zelie Harders	2311	Waikapū	Wa kapū Downstream	0.396	39,600	118,800		0	0
Alan Birnie	2213, 2214N	Waikapū	Wa kapū Downstream		0	0	0.0045	450	1,350
Douglas Bell	2212	Waikapū	Wa kapū Downstream	0.34	34,000	102,000		0	0
Patricia Federcell	2230	Waikapū	Wa kapū Downstream	1.78	178,000	534,000		0	0
			Waikapū Downstream Total	17.766	1,776,600	5,329,800	6.6625	666,250	1,998,750
Ho'okahi Alves	2260, 2261N	Waikapū	Wa kapū Ditch System	0.712	71,200	213,600	0.5	50,000	150,000

Table 1: Kuleana On Ditch, Upstream, or Downstream

Community Member	SWUPA #(s) (existing and new)	Stream	System	APPURTENANT RIGHTS			WATER		
				Lo'i (acre)	GPD (100,000 gad)	GPD (300,000 gad)	Lo'i (acre)	GPD (100,000 gad)	GPD (300,000 gad)
John Minamina Brown Trust/Crystal Smythe, Trustee	2217, 2218N	Waikapū	Wa kapū Ditch System	1.25	125,000	375,000	1.15	115,000	345,000
Evelyn Kamasaki	2368	Waikapū	Wa kapū Ditch System	0.71	71,000	213,000		0	0
George & Yoneko Higa	2366N	Waikapū	Wa kapū Ditch System	1.361	136,100	408,300		0	0
			Waikapū Ditch System Total	4.033	403,300	1,209,900	1.65	165,000	495,000
			Grand Total	80.291	8,029,100	24,087,300	85.2976	8,529,760	25,589,280

Table 2: Approved Appurtenant Rights Quantifications						
Applicant	SWUPA No.	Lo'i Kalo (acre)	Lo'i Kalo (gpd at 200,000 gad)	Diversified Agriculture (acre)	Diversified Agriculture (gpd at 2,500 gad)	Total Amount (gpd)
WAIHE'E						
Diannah Lai Goo	2365N	1.05	210,000	0	0	210,000
John Varel	3470N	1.89	378,000	0	0	378,000
Hawaiian Islands Land Trust	2706N	3.2	640,000	0.47	1,175	689,295 ¹
Winifred & Gordon Cockett	2223	0.65	130,000	0	0	130,000
Alfred Santiago	2273, 2274N	1.626	325,200	0	0	325,200
Greg Ibara	2245, 2246N	1.171	234,200	0	0	234,200
Jordanella Ciotti	2247, 2248N	0.23	46,000	0	0	46,000
Mary Ann Velez	2241, 2242N	0.913	182,600	0	0	182,600
Diannah Lai Goo	2233, 2234N	0.724	144,800	0	0	144,800
Richard Emoto & Roys Ellis	2227	0.845	169,000	0	0	169,000
Stanley Faustino & Kanealoha Lovato-Rodrigues	2228, 2229N	0.7	140,000	0	0	140,000
Michael Rodrigues & William Freitas	2269, 2270N	1.313	262,600	0	0	262,600
Robert Barrett & Lester Nakama	2322, 2323N	3.125	625,000	0	0	625,000
Clifford & Cristal Koki	2252, 2253N	1.2	240,000	0	0	240,000
William La'a & Emmett & Renette Rodrigues	2324, 2325N	1.955	391,000	0	0	391,000
William Freitas	2364N	0.388	77,600	0	0	77,600
Kenneth Kahalekai	2249	2.617	523,400	0	0	523,400
Kau'i Kahalekai	2312	2.705	541,000	0.445	1,113	542,113

¹ Total also includes 2,400 gpd for 4 pāhale (at 600 gpd each) and 45,720 gpd for 1.27 acres of fishponds (at 36,000 gad).

Table 2: Approved Appurtenant Rights Quantifications						
Applicant	SWUPA No.	Lo'i Kalo (acre)	Lo'i Kalo (gpd at 200,000 gad)	Diversified Agriculture (acre)	Diversified Agriculture (gpd at 2,500 gad)	Total Amount (gpd)
Ramsey Anakalea & Lester Nakama	2320, 2321N	0.6	120,000	0.6	1,500	121,500
Burt Sakata & Peter Fritz	2334, 2335N	1.17	234,000	0	0	234,600 ²
Ka'iulani (Michael) Doherty	2225, 2226N	2.445	489,000	0.25	625	490,225 ³
Thomas Texeira & Denise Texeira	2280, 2281	0.327	65,400	0	0	65,400
Gordon Apo & Lester Nakama	2316, 2317N	1.4	280,000	0	0	280,000
Cordell Chang	2221, 2222N	1.25	250,000	0	0	250,000
Charlene & Jacob Kana	2313, 2314N	1.57	314,000	0	0	314,000
Bryan Sarasin, Sr.	2294	0.99	198,000	0	0	198,000
Diannah Lai Goo	2231, 2232N	1.305	261,000	0	0	261,000
Kathleen De Hart	2361N	0.5	100,000	0	0	100,000
Alfred Kailiehu, Jr. & Ina Kailiehu	2250, 2251N	0.459	91,800	0	0	91,800
Nolan Ideoka & Lester Nakama	2318, 2319	1	200,000	0	0	200,000
Cecilia Chang	2182	0.5	100,000	0	0	100,000
WAIEHU						
Lester Nakama	2326, 2327N	1	200,000	0	0	200,000
Lester Nakama	2328, 2329N	0.7	140,000	0	0	140,000
Peter Lee & Lester Nakama	2330, 2331N	2.132	426,400	0	0	426,400
Isabelle Rivera	2266, 2267N	2.55	510,000	0	0	510,000

² Total also includes 600 gpd for 1 pāhale.

³ Total also includes 600 gpd for 1 pāhale.

Table 2: Approved Appurtenant Rights Quantifications

Applicant	SWUPA No.	Lo'i Kalo (acre)	Lo'i Kalo (gpd at 200,000 gad)	Diversified Agriculture (acre)	Diversified Agriculture (gpd at 2,500 gad)	Total Amount (gpd)
Regino Cabacungan & Kathy Alves	2219, 2220N	0.21	42,000	0	0	42,000
Francisco Cerizo	2307, 2308N	1.2	240,000	0	0	240,000
Renee Molina	2171	1.3	260,000	0	0	260,000
Jason Miyahira	2258	2.08	416,000	0	0	416,000
Natalie Hashimoto & Carl Hashimoto	2363N	0.18	36,000	0	0	36,000
WAILUKU						
Gary & Evelyn Brito	2215, 2216N	0.248	49,600	0	0	49,600
Kenneth Mendoza	2256, 2257N	0.11	22,000	0	0	22,000
Francis Ornellas	2370N	0.51	102,000	0.76	1,900	103,900
Noelani & Allan Almeida & Gordon Almeida	3626N	2.365	473,000	0	0	473,000
Duke & Jean Sevilla & Christina Smith	2275	1.381	276,200	0	0	276,200
Leslie Vida, Jr.	2188	0.27	54,000	0	0	54,000
Donna Vida	2292, 2293N	0.728	145,600	0	0	145,600
Claire Pinto	2303	0.855	171,000	0	0	171,000
Luke McLean	2204	0.855	171,000	0	0	171,000
WAIKAPŪ						
Ione Shimizu	2276	0.265	53,000	0	0	53,000
Judith Yamanoue	2338	1	200,000	0	0	200,000
Warren Soong	2277	0.85	170,000	0	0	170,000
Hōkūao & Alana Pellegrino	2332, 2333N	2.805	561,000	0	0	561,000

Table 2: Approved Appurtenant Rights Quantifications

Applicant	SWUPA No.	Lo'i Kalo (acre)	Lo'i Kalo (gpd at 200,000 gad)	Diversified Agriculture (acre)	Diversified Agriculture (gpd at 2,500 gad)	Total Amount (gpd)
T & Z Harders Family LTD	2240, 3467N	10.33	2,066,000	0	0	2,066,000
Theodore and Zelie Harders	2311	0.396	79,200	0	0	79,200
Douglas Bell	2212	0.34	68,000	0	0	68,000
Patricia Federcell	2230	1.78	356,000	0	0	356,000
Ho'okahi Alves	2260, 2261N	0.712	142,400	0	0	142,400
John Minamina Brown Trust/Crystal Smythe, Trustee	2217, 2218N	1.25	250,000	0	0	250,000
Evelyn Kamasaki	2368	0.71	142,000	0	0	142,000
George & Yoneko Higa	2366N	1.361	272,200	0	0	272,200

Table 3: Approved SWUPAs for Applicants with T&C and/or Appurtenant Rights

Permittee	SWUPA No.	T&C	AR	Lo'i Kalo (gpd at 200,000 gad)	Diversified Agriculture (gpd at 2,500 gad)	Domestic (gpd at 600 gpd per home)	Total Permit Amount (gpd)
WAIHE'E							
Diannah Lai Goo	2365N	Yes	Yes	210,000	0	0	210,000
John Varel	3470N		Yes	200,000	0	0	200,000
Joseph Alueta	2362N	Yes		400,000	0	0	400,000
Hawaiian Islands Land Trust	2706N		Yes	1,800,000	0	0	1,800,000
Winifred & Gordon Cockett	2223	Yes	Yes	0	785	0	785
Alfred Santiago	2273, 2274N	Yes	Yes	300,000	0	0	300,000
Greg Ibara	2245, 2246N		Yes	5,400	0	0	5,400
Jordanella Ciotti	2247, 2248N		Yes	11,600	1,270	0	12,870
Mary Ann Velez	2241, 2242N		Yes	92,000	0	1,200	93,200
Diannah Lai Goo	2233, 2234N	Yes	Yes	144,800	0	0	144,800
Richard Emoto & Roys Ellis	2227		Yes	[89,000]	[1,000]	0	432,000 ¹
Stanley Faustino & Kanealoha Lovato-Rodrigues	2228, 2229N	Yes	Yes	134,000	0	0	134,000
Michael Rodrigues & William Freitas	2269, 2270N	Yes	Yes	472,300 ²	1,200 ³	0	473,500
Robert Barrett & Lester Nakama	2322, 2323N		Yes	625,000	0	0	625,000

¹ This total is based on actual use for hydroelectricity, and includes the amounts used to irrigate lo'i kalo and diversified agriculture.

² This amount is based on the Freitas 'ohana's actual use (177,300 gpd) and Rodrigues' reduced request (295,000 gpd). See FOFs B-199 to B-208.

³ This amount is based on actual use.

Table 3: Approved SWUPAs for Applicants with T&C and/or Appurtenant Rights

Permittee	SWUPA No.	T&C	AR	Lo'i Kalo (gpd at 200,000 gad)	Diversified Agriculture (gpd at 2,500 gad)	Domestic (gpd at 600 gpd per home)	Total Permit Amount (gpd)
Clifford & Cristal Koki	2252, 2253N	Yes	Yes	147,200	1,308	0	148,508
William La'a & Emmett & Renette Rodrigues	2324, 2325N	Yes	Yes	328,000	0	0	328,000
William Freitas	2364N	Yes	Yes	100,000	688	0	100,688
Kenneth Kahalekai	2249	Yes	Yes	384,000	1,750	0	385,750
Kau'i Kahalekai	2312	Yes	Yes	555,200	0	0	555,200
Ramsey Anakalea & Lester Nakama	2320, 2321N		Yes	100,000	0	0	100,000
Burt Sakata & Peter Fritz	2334, 2335N		Yes	253,400	3,045	600	257,045
Ka'iulani (Michael) Doherty	2225, 2226N	Yes	Yes	400,000	2,125	0	402,125
Thomas Texeira & Denise Texeira	2280, 2281N	Yes	Yes	30,000	1,338	0	31,338
Piko A'o, LLC	2264, 2265N	Yes		956,000	17,075	600	973,675
Gordon Apo & Lester Nakama	2316, 2317N	Yes	Yes	146,000	0	0	146,000
Cordell Chang	2221, 2222N	Yes	Yes	100,000	1,125	0	101,125
Charlene & Jacob Kana	2313, 2314N	Yes	Yes	230,600	0	0	230,600
Bryan Sarasin, Sr.	2294		Yes	1,800	1,250	0	1,034,090 ⁴
Diannah Lai Goo	2231, 2232N	Yes	Yes	92,000	0	3,600	95,600
Kathleen De Hart	2361N	Yes	Yes	4,000	1,125	0	5,125
Alfred Kailiehu, Jr. & Ina Kailiehu	2250, 2251N	Yes	Yes	50,600	0	600	51,200
Nolan Ideoka & Lester Nakama	2318, 2319N		Yes	154,000	0	0	154,000

⁴ This total includes actual use of 1,031,040 gpd for aquaculture.

Table 3: Approved SWUPAs for Applicants with T&C and/or Appurtenant Rights

Permittee	SWUPA No.	T&C	AR	Lo'i Kalo (gpd at 200,000 gad)	Diversified Agriculture (gpd at 2,500 gad)	Domestic (gpd at 600 gpd per home)	Total Permit Amount (gpd)
Cecilia Chang	2182		Yes	0	850	0	850
WAIEHU							
Paul Higashino	2342	Yes		691,200 ⁵	1,250	0	692,450
Lester Nakama	2326, 2327N		Yes	220,000	0	0	220,000
Lester Nakama	2328, 2329N		Yes	140,000	0	0	140,000
Peter Lee & Lester Nakama	2330, 2331N		Yes	213,200	0	0	213,200
Jeff & Ramona Lei Smith	2369N	Yes		100,000	3,050	0	103,050
Isabelle Rivera	2266, 2267N	Yes	Yes	484,000	0	600	484,600
Regino Cabacungan & Kathy Alves	2219, 2220N	Yes	Yes	44,000	0	600	44,600
Francisco Cerizo	2307, 2308N		Yes	92,000	1,850	0	93,850
Renee Molina	2171	Yes	Yes	25,000	625	0	25,625
Jason Miyahira	2258		Yes	100,000	3,350	0	103,350
Natalie Hashimoto & Carl Hashimoto	2363N		Yes	0	0	600	600
WAILUKU							
Gary & Evelyn Brito	2215, 2216N	Yes	Yes	14,596 ⁶	0	600	15,196
Kenneth Mendoza	2256, 2257N		Yes	1,184 ⁷	0	600	1,784

⁵ This amount is based on actual use.

⁶ This amount is based on actual use.

⁷ This amount is based on neighboring Brito 'ohana's actual use of 394,500 gad.

Table 3: Approved SWUPAs for Applicants with T&C and/or Appurtenant Rights

Permittee	SWUPA No.	T&C	AR	Lo'i Kalo (gpd at 200,000 gad)	Diversified Agriculture (gpd at 2,500 gad)	Domestic (gpd at 600 gpd per home)	Total Permit Amount (gpd)
Ho'ouluhūhui, LLC	2243, 2244N	Yes		616,000	7,500	0	623,500
Francis Ornellas	2370N	Yes	Yes	284,200	223	0	284,423
Kimberly Lozano	2371N	Yes		36,720	2,138	0	38,858
Noelani & Allan Almeida & Gordon Almeida	3626N	Yes	Yes	0	2,728	0	2,728
Duke & Jean Sevilla & Christina Smith	2275	Yes	Yes	66,000	0	1,200	67,200
Duke Sevilla & County of Maui	2275	Yes		4,000,000	0	0	4,000,000
Leslie Vida, Jr.	2188	Yes	Yes	7,300	775	0	8,075
Donna Vida	2292, 2293N	Yes	Yes	0	2,400	0	2,400
Claire Pinto	2303	Yes	Yes	0	2,750	0	2,750
Luke McLean	2204	Yes	Yes	200,000	0	0	200,000
WAIKAPŪ							
Ione Shimizu	2276		Yes	6,400	1,210	0	7,610
Katherine Riyu	2268	Yes		61,000	0	600	61,600
Judith Yamanoue	2338	Yes	Yes	100,000	0	600	100,600
Warren Soong	2277		Yes	0	0	600	600
Hōkūao & Alana Pellegrino	2332, 2333N	Yes	Yes	164,200	2,750	600	167,550
Karl & Lee Ann Harders	2237	Yes		0	0	600	600
Theodore & Zelig Harders Family Ltd. P'ship	2238	Yes		0	0	1,800	1,800
Theodore and Zelig Harders	2239	Yes		0	0	600	600

Table 3: Approved SWUPAs for Applicants with T&C and/or Appurtenant Rights

Permittee	SWUPA No.	T&C	AR	Lo'i Kalo (gpd at 200,000 gad)	Diversified Agriculture (gpd at 2,500 gad)	Domestic (gpd at 600 gpd per home)	Total Permit Amount (gpd)
T & Z Harders Family Ltd.	2240, 3467N	Yes	Yes	1,000,000	7,500	0	1,007,500
Theodore and Zelie Harders	2311	Yes	Yes	0	0	600	600
Alan Birnie	2213, 2214N	Yes		900	0	600	1,500
Douglas Bell	2212	Yes	Yes	0	2,160 ⁸	0	2,160
Patricia Federcell	2230		Yes	0	4,113 ⁹	0	4,113
Ho'okahi Alves	2260, 2261N	Yes	Yes	100,000	0	600	100,600
John Minamina Brown Trust/ Crystal Smythe, Trustee	2217, 2218N	Yes	Yes	230,000	0	600	230,600
Evelyn Kamasaki	2368		Yes	0	1,675	0	1,675
George & Yoneko Higa	2366N		Yes	0	2,500	0	2,500

⁸ This amount is based on actual use.

⁹ This amount is based on actual use.

Table 4: Approved “Existing Use” SWUPAs				
Permittee	SWUPA No.	Diversified Agriculture (gpd at 2,500 gad)	Domestic (gpd at 600 gpd per home)	Total Permit Amount (gpd)
WAIHE‘E				
Lorrin Pang	2283	5,400 ¹	0	10,800 ²
WAIKAPŪ				
Russel Gushi	2235	0	600	600
Jerri Young	2259	0	600	600
James Dodd	2224	4,113 ³	0	4,113
Waldemar & Darlene Rogers	2271	0	600	600

¹ This amount is based on actual use.

² This total includes actual use of 5,400 gpd for fishponds.

³ This amount is based on actual use.

PROPOSED DECISION AND ORDER

1. Effective immediately, the IIFSs for Nā Wai ‘Ehā rivers and streams are amended as described in COLs Part IV, *supra*, as follows:

a. Waihe‘e River:

The IIFS just below the Waihe‘e and Spreckels Ditch diversions is 18 mgd; provided that when the average daily flow measured by the USGS gage is below 27 mgd for three consecutive days, the IIFS decreases to two-thirds (2/3) of the stream flow, such that one-third (1/3) of the streamflow may be diverted, until the flow returns to 27 mgd or above.

b. Wailuku River:

The IIFS just below the ‘Īao Ditches diversion is 13 mgd; provided that when the average daily flow measured by the USGS gage is below 19.5 mgd for three consecutive days, the IIFS decreases such that the greater of 1/3 of the stream flow or 3.4 mgd may be diverted, until the flow returns to 19.5 mgd or above.

c. South Waiehu Stream:

The IIFS just below the Spreckels Ditch diversion is 1.3 mgd; provided that during low-flow conditions about 0.25 mgd will continue to be provided to the kuleana ‘auwai, with the rest of the flows remaining in the stream.

d. North Waiehu Stream:

The IIFS just below the diversion structure above the Waihe‘e Ditch on North Waiehu Stream is 1.5 mgd, subject to verification of the actual seepage amount between the current and 2010 IIFS location; and provided that during low-flow conditions water will be provided to North Waiehu kuleana in an amount to be determined by the

Commission, based on further information on the actual flow amounts needed to supply the kuleana from the diversion once the water supply to the North Waiehu kuleana is restored.

Furthermore, within 30 days of the issuance of this D&O, WWC is to provide the Commission staff an engineering plan to satisfy its agreement, and the Commission's 2014 Order, to provide water from Waihe'e Ditch to kuleana users in Waiehu who, but for WWC's decision to shut down North Waiehu Ditch, would be able to access water from that source.

e. Waikapū Stream:

The IIFS at the location established in the 2014 Order is 3.9 mgd, and the actual IIFS location is relocated to just below the South Waikapū Ditch diversion, at which point the IIFS is estimated at 2.7 mgd, subject to verification of the actual stream flow gain between the two points; provided that during low-flow conditions about 0.3 mgd will continue to be provided to the South Waikapū kuleana 'auwai, with the rest of the flows remaining in the stream.

Furthermore, Commission staff, in consultation with DAR, U.S. Fish and Wildlife Service and the Keālia Pond National Wildlife Refuge, USGS, the Companies, as well as the Community Groups, OHA, and other relevant stakeholders, will develop and implement a plan for investigating, with controlled flow restorations, the flow characteristics of Waikapū Stream's lower reaches. This inquiry shall examine the conditions under which Waikapū Stream flows to the ocean and the full range of benefits that continuous or partial flows may provide to instream values such as the Keālia Pond wetland habitat.

The IIFSs above are subject to amendment as a ministerial matter if kuleana currently receiving water through the Companies' ditch system are able to partially or fully reestablish a direct connection between their 'auwai and the stream.

2. Commission staff will immediately move forward with implementing a real-time monitoring system for the Nā Wai 'Ehā IIFSs. The Companies shall be responsible for such costs as a condition of their permits and those of WWC's customers (i.e., such funding shall be a condition to WWC's right to divert water for its customers).

3. As ordered in the 2010 Decision, the diverters continue to be responsible to modify their diversion structures to restore as much of the flow as practicable at the diversion site. Commission staff, in coordination with DAR, will advise the diverters and the Commission regarding the best practicable solutions from an ecological standpoint, and the diverters will expeditiously move forward to comply, or face enforcement action by the Commission.

4. The appurtenant rights claims and SWUPAs are granted and/or denied as stated in the COLs Part V, *supra*.

5. The County and HC&S are ordered to provide quarterly status reports regarding their efforts, in coordination with other larger current or potential water users such as MMK, to proactively address the issue of making recycled water available for productive use, and shall provide a detailed plan within one year of the date of this decision.

5. The Commission will appoint a special master to address issues regarding water course and access rights as discussed in the FOFs Part VII, and COLs Part I.I, as well as any other implementation and administration issues regarding the IIFS and permits, on an ongoing basis as necessary.

6. The Commission orders the Companies to provide monthly reports detailing their diversions and all the end uses on their ditch system. Reported information on water uses shall include the metered uses of individual customers, or in the case of kuleana rightholders, the amounts delivered to the kuleana 'auwai. Commission staff, in consultation with community members and stakeholders, will work out a simplified reporting system for kuleana rightholders that avoids creating administrative and cost burdens, which could include periodic (*e.g.*, quarterly) communications and inspections and technical assistance with measuring 'auwai flows.

IT IS SO ORDERED.

COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII

Surface Water Use Permit Applications,) Case No. CCH-MA15-01
 Integration of Appurtenant Rights and)
 Amendments to the Interim Instream Flow) **CERTIFICATE OF SERVICE**
 Standards, Na Wai Eha Surface Water)
 Management Areas of Waihee, Waiehu, Iao)
 and Waikapu Streams, Maui)
)
)
)

CERTIFICATE OF SERVICE

On February 17, 2017, I caused true and correct copies of the foregoing documents to be served on the following parties by electronic service. Service on those Parties who have not agreed to electronic service is via the Commission website pursuant to Minute Order #4.

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