

HONOLULU CITY COUNCIL
KE KANIHELA O KE KALANA O HONOLULU
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MEMORANDUM

DATE: AUGUST 15, 2024

TO: SHERRY ARCA
CLERK, COMMITTEE ON HOUSING, SUSTAINABILITY AND HEALTH

FROM: COUNCILMEMBER MATT WEYER 
CHAIR, COMMITTEE ON HOUSING, SUSTAINABILITY AND HEALTH

SUBJECT: PROPOSED AMENDMENTS TO BILL 38 (2024), FD1, RELATING TO AMENDING THE O'AHU WATERSHED MANAGEMENT PLAN

Attached for consideration by the Housing, Sustainability and Health Committee are my proposed amendments to Bill 38 (2024), FD1, relating to amending the O'ahu Watershed Management Plan.

Thank you.

Attachments: Amendment Form, Bill 38 (2024), FD1
Maps of East Honolulu Watershed Management Projects and Champions

COUNCIL COM. 216
HSH

AMENDMENT FORM
Bill 38 (2024), FD1
EAST HONOLULU WATERSHED MANAGEMENT PLAN

TOTAL PAGES: 9
DATE: August 15, 2024
COUNCILMEMBER: Matt Weyer

Item No.	Bill or EH WMP	ROH or EH WMP Section, Exhibit, or Figure, and Title	Page No.	Amendment Description	Amendment Text (in Ramseyer Format)	Comments or Clarification				
1	EH WMP	Executive Summary Table 1: EHWMP Projects with Champions	ES-12	Amend Executive Summary Table 1.	Executive Summary Table 1: EHWMP Projects with Champions <table><tr><th>EHWMP Project</th><th>Project Champions</th></tr><tr><td>1. Kalauhaʻihaʻi Fishpond and Kānewai Spring Restoration</td><td>~~[DLNR Engineering Branch and]~~ Maunalua Fishpond Heritage Center</td></tr></table>	EHWMP Project	Project Champions	1. Kalauhaʻihaʻi Fishpond and Kānewai Spring Restoration	~~[DLNR Engineering Branch and]~~ Maunalua Fishpond Heritage Center	Recognize the Kalauhaʻihaʻi Fishpond and Kānewai Spring restoration as a priority project.
EHWMP Project	Project Champions									
1. Kalauhaʻihaʻi Fishpond and Kānewai Spring Restoration	~~[DLNR Engineering Branch and]~~ Maunalua Fishpond Heritage Center									
2	EH WMP	2.2.1 Political Boundaries	2-10	Amend first paragraph on the page (third paragraph of the section).	Ahupuaʻa were typically long narrow strips of land running from the mountain tops to the sea, often following natural features such as streams and ridges, and were delineated to allow their chiefs access to a broad range of resources. ⁶ Three ahupuaʻa are located in the East Honolulu district: Waikīkī, Kuliʻouʻou, and ~~[Waimānalo]~~ <u>Maunalua</u> (Figure 2-4). ⁷ In East Honolulu, each ahupuaʻa contains several watersheds.	Correct the names of the three ahupuaʻa in East Honolulu per Elizabeth Reilly testimony to the BWS.				

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3	EH WMP	2.4 Surface Water Table 2-6: East Honolulu Named Surface Waters	2-30	Amend Table 2-6.	Table 2-6: East Honolulu Named Surface Waters³² <table><tr><th>Shoreline/ Bay</th><th>Watershed</th><th>Spring or Pond</th><th>Intermittent Streams</th><th>Ephemeral Streams</th></tr><tr><td rowspan="10">Maunalua Bay</td><td>Wai'alaie Nui</td><td rowspan="3">None</td><td>Wai'alaie Nui</td><td>None</td></tr><tr><td>Wailupe</td><td>Wailupe Kului Gulch</td><td>Wai'alaie Iki</td></tr><tr><td>Niu</td><td>Pia</td><td rowspan="2">None</td></tr><tr><td>Niu</td><td>Kalauha'iha'i Spring and Fishpond</td><td>Kuli'ou'ou</td></tr><tr><td>Portlock</td><td>None</td><td>None</td><td>Kohelepelepe</td></tr><tr><td>Haha'ione</td><td>Kuapā Pond</td><td>Kamilo Nui</td><td rowspan="5">None</td></tr><tr><td><u>Haha'ione</u></td><td><u>Keawāwa Wetland*</u></td><td><u>Kamilo Nui</u></td></tr><tr><td><u>Haha'ione</u></td><td><u>Kānewai Spring</u></td><td><u>None</u></td></tr><tr><td>Kamilo Nui</td><td>Kuapā Pond</td><td>Kamilo Iki</td></tr><tr><td>Kamilo Iki</td><td>Kuapā Pond</td><td>Kamilo Iki</td></tr><tr><td>Hanauma Bay</td><td>Hanauma Bay</td><td>None</td><td>None</td><td>None</td></tr><tr><td>Kaiwi</td><td>Koko Crater</td><td>None</td><td>None</td><td>Napaia</td></tr></table> [NOTE:] * Keawāwa Wetland in Haha'ione and ~~[Kānewai]~~ Kānewai Spring in Kuli'ou'ou are not identified in the "Streams" GIS layer (DLNR DAR) ~~[that this table is derived from]~~, although they are identified as surface waters by the community and Keawāwa Wetland has been delineated by NRCS.	Shoreline/ Bay	Watershed	Spring or Pond	Intermittent Streams	Ephemeral Streams	Maunalua Bay	Wai'alaie Nui	None	Wai'alaie Nui	None	Wailupe	Wailupe Kului Gulch	Wai'alaie Iki	Niu	Pia	None	Niu	Kalauha'iha'i Spring and Fishpond	Kuli'ou'ou	Portlock	None	None	Kohelepelepe	Haha'ione	Kuapā Pond	Kamilo Nui	None	<u>Haha'ione</u>	<u>Keawāwa Wetland*</u>	<u>Kamilo Nui</u>	<u>Haha'ione</u>	<u>Kānewai Spring</u>	<u>None</u>	Kamilo Nui	Kuapā Pond	Kamilo Iki	Kamilo Iki	Kuapā Pond	Kamilo Iki	Hanauma Bay	Hanauma Bay	None	None	None	Kaiwi	Koko Crater	None	None	Napaia	Add references to Keawāwa Wetland and Kānewai Spring per Elizabeth Reilly and Maunalua Fishpond Heritage Center testimony to the BWS.
Shoreline/ Bay	Watershed	Spring or Pond	Intermittent Streams	Ephemeral Streams																																																			
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4	EH WMP	2.5.1 Wildlife Preserves Paikō Lagoon Wildlife Sanctuary	2-45	Amend first bullet point.	Paikō Lagoon Wildlife Sanctuary, formerly a coastal fishpond, is fed by ~~[a fresh water spring]~~ <u>Kānewai Spring</u> and Kuli'ou'ou Stream and is managed by the State DLNR. The lagoon's water level varies with the tides and occasionally exposes the saline mudflats. This wildlife sanctuary provides habitat to the endangered Hawaiian stilt (ae'o) as well as other migratory waterbirds. The proximity of residential uses may threaten the sanctuary due to intrusions by humans and domesticated animals.	Clarify that Kānewai Spring is a source of Paikō Lagoon.																																																	

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5	EH WMP	2.9.3 Cultural Resources and Wahi Pana Fishponds, Springs, and Wetlands Kalauha‘iha‘i Fishpond	2-67	Amend second bullet point under the Fishponds, Springs, and Wetlands subsection.	~~Kalauha‘iha‘i Fishpond (also referred to as the Kānewai Fishpond)~~ was once home to many different types of native fresh water fish, even including prawn. ~~[Via the Kānewai Spring, a]~~ A lava tube once provided fresh water to the fishpond. The fishpond is connected to Paikō Lagoon Wildlife Sanctuary by a rock ‘auwai (ditch, canal) and mākāhā (sluice gate). Water flow to the fishpond was blocked following the widening of Kalaniana‘ole Highway in the 1990’s. The fishpond is currently owned by DLNR. The Maunalua Fishpond Heritage Center (MFHC) is developing a lease agreement for the property and working with DLNR to return the water flow. MFHC is also interested in restoring Kalapa o Ma Ua Ridge (immediately mauka of the fishpond) by removing invasive species and replacing with native plants. The hillside is currently covered with haole koa and other weeds. The Kalapa o Ma Ua Ridge provides a good vantage point for the fishpond and could be used for cultural and educational opportunities since it allows for observation of the tide, wind, and weather.	Correct information about the Kalauha‘iha‘i Fishpond per Maunalua Fishpond Heritage Center testimony to the BWS.				
6	EH WMP	4.2.2 EH WMP Objectives and Subobjectives Objective #3: Protect Native Hawaiian Rights and Traditional and Customary Practices Subobjective 3.4: Increase community awareness of Maunalua's unique history of water through educational programs.	4-6	Amend Subobjective 3.4.	Sub-Objective 3.4: Increase community awareness of Maunalua’s unique history of water through educational programs. Maunalua encompasses the area from southeast O’ahu at Koko Head to Kupikipikio on the slopes of Diamond Head. The area has a unique history that includes Keahupua O Maunalua (also referred to as the Kuapā Fishpond), once the largest fishpond in the Hawaiian Islands. However, awareness of Maunalua’s history is not as prevalent today due to the destruction of many cultural sites and the urbanization that took place in the mid to late twentieth century. Educational programs, including signage, can be used to help perpetuate Maunalua’s history. <u>An example is the Nā ‘Anae Holo Mural Project championed by Maunalua.net.</u>	Recognize the Nā ‘Anae Holo Mural Project championed by Maunalua.net per Maunalua Fishpond Heritage Center testimony to the BWS.				
7	EH WMP	4.3.1 Overview of EH WMP Watershed Management Projects Table 4-1: EHWMP Projects with Champions Project #1	4-8	Amend Table 4-1.	Table 4-1: EHWMP Projects with Champions <table><tr><th>EHWMP Project</th><th>Project Champions</th></tr><tr><td>1. Kalauha‘iha‘i Fishpond <u>and Kānewai Spring</u> Restoration</td><td>~~[DLNR Engineering Branch and]~~ Maunalua Fishpond Heritage Center</td></tr></table>	EHWMP Project	Project Champions	1. Kalauha‘iha‘i Fishpond <u>and Kānewai Spring</u> Restoration	~~[DLNR Engineering Branch and]~~ Maunalua Fishpond Heritage Center	Recognize Kānewai Spring as Maunalua Fishpond Heritage Center’s initiative in the list of priority projects.
EHWMP Project	Project Champions									
1. Kalauha‘iha‘i Fishpond <u>and Kānewai Spring</u> Restoration	~~[DLNR Engineering Branch and]~~ Maunalua Fishpond Heritage Center									
8	EH WMP	4.3.1 Overview of EH WMP Watershed Management Projects Figure 4.1: East Honolulu Watershed Management Projects with Champions	4-10	Amend Figure 4-1	In Figure 4.1, update the name of Project #1 to read: Kalauha‘iha‘i Fishpond <u>and Kānewai Spring</u> Restoration, and add a second "1" location indicator for <u>Kānewai Spring</u> . See attachment for amendments to Figure 4-1.	Recognize Kānewai Spring as Maunalua Fishpond Heritage Center’s initiative in the list of priority projects.				

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9	EH WMP	4.3.3 Watershed Management Project Descriptions Table 4-2: Relationship of EH WMP Objectives, Issues, Sub-Objectives, Projects and Strategies. Objective #1: Promote Sustainable Watersheds	4-12	Amend Table 4-2, Objective #1, third line item	<table><tr><td>Issue: Urban land uses and stream channelization have significantly impacted ecosystem diversity within surface waters.</td><td>1.3: Enhance ecosystem diversity within East Honolulu’s streams and nearshore waters.</td><td>#1: Kalauha‘iha‘i Fishpond and <u>Kānewai Spring</u> Restoration #2: Wailupe Stream Restoration #3: Kuli‘ou‘ou Watershed Retention and Infiltration Retrofit #12: Mālama Maunaloa Programs #13: Coral Assisted Evolution Project #14: Community Cleanups and Water Quality Phone Application</td><td>B: Stream Restoration, Dechannelization and Maintenance P: Restoration of Fresh water Spring Flows to Nearshore Coastal Waters</td></tr></table>				Issue: Urban land uses and stream channelization have significantly impacted ecosystem diversity within surface waters.	1.3: Enhance ecosystem diversity within East Honolulu’s streams and nearshore waters.	#1: Kalauha‘iha‘i Fishpond and <u>Kānewai Spring</u> Restoration #2: Wailupe Stream Restoration #3: Kuli‘ou‘ou Watershed Retention and Infiltration Retrofit #12: Mālama Maunaloa Programs #13: Coral Assisted Evolution Project #14: Community Cleanups and Water Quality Phone Application	B: Stream Restoration, Dechannelization and Maintenance P: Restoration of Fresh water Spring Flows to Nearshore Coastal Waters	Recognize Kānewai Spring as Maunaloa Fishpond Heritage Center’s initiative in the list of priority projects.
Issue: Urban land uses and stream channelization have significantly impacted ecosystem diversity within surface waters.	1.3: Enhance ecosystem diversity within East Honolulu’s streams and nearshore waters.	#1: Kalauha‘iha‘i Fishpond and <u>Kānewai Spring</u> Restoration #2: Wailupe Stream Restoration #3: Kuli‘ou‘ou Watershed Retention and Infiltration Retrofit #12: Mālama Maunaloa Programs #13: Coral Assisted Evolution Project #14: Community Cleanups and Water Quality Phone Application	B: Stream Restoration, Dechannelization and Maintenance P: Restoration of Fresh water Spring Flows to Nearshore Coastal Waters										
10	EH WMP	4.3.3 Watershed Management Project Descriptions Table 4-2: Relationship of EH WMP Objectives, Issues, Sub-Objectives, Projects and Strategies. Objective #2: Protect and Enhance Water Quality and Quantity	4-14	Amend Table 4-2, Objective #2, third line item.	<table><tr><td>Value: Water quality of Maunaloa Bay was one of the most discussed water resource issues among East Honolulu stakeholders. Issue: Maunaloa Bay is considered an impaired water body; many former fresh water sites in the district have been destroyed.</td><td>2.3: Improve the water quality of Maunaloa Bay by increasing the amount of fresh water that enters the Bay.</td><td>#1: Kalauha‘iha‘i Fishpond and <u>Kānewai Spring</u> Restoration #3: Kuli‘ou‘ou Watershed Retention and Infiltration Retrofit</td><td>P: Restoration of Fresh water Spring Flows to Nearshore Waters</td></tr></table>				Value: Water quality of Maunaloa Bay was one of the most discussed water resource issues among East Honolulu stakeholders. Issue: Maunaloa Bay is considered an impaired water body; many former fresh water sites in the district have been destroyed.	2.3: Improve the water quality of Maunaloa Bay by increasing the amount of fresh water that enters the Bay.	#1: Kalauha‘iha‘i Fishpond and <u>Kānewai Spring</u> Restoration #3: Kuli‘ou‘ou Watershed Retention and Infiltration Retrofit	P: Restoration of Fresh water Spring Flows to Nearshore Waters	Recognize Kānewai Spring as Maunaloa Fishpond Heritage Center’s initiative in the list of priority projects.
Value: Water quality of Maunaloa Bay was one of the most discussed water resource issues among East Honolulu stakeholders. Issue: Maunaloa Bay is considered an impaired water body; many former fresh water sites in the district have been destroyed.	2.3: Improve the water quality of Maunaloa Bay by increasing the amount of fresh water that enters the Bay.	#1: Kalauha‘iha‘i Fishpond and <u>Kānewai Spring</u> Restoration #3: Kuli‘ou‘ou Watershed Retention and Infiltration Retrofit	P: Restoration of Fresh water Spring Flows to Nearshore Waters										

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11	EH WMP	4.3.3 Watershed Management Project Descriptions Table 4-2: Relationship of EH WMP Objectives, Issues, Sub-Objectives, Projects and Strategies. Objective #3: Protect and Enhance Water Quality and Quantity	4-16	Amend Table 4-2, Objective #3, first and second line items.	<table><tr><td>Value: East Honolulu values is an area once known for its fishing resources and large fishponds. The community values this history. Issue: Nearly all the district's fishponds were destroyed in the 20th century.</td><td>3.1: Restore fishponds and springs for cultural and educational use.</td><td>#1: Kalauha'iha'i Fishpond and <u>Kānewai Spring</u> Restoration</td><td>P: Restoration of Fresh water Spring Flows to Nearshore Waters</td></tr><tr><td>Value: The community values the preservation of cultural sites and has led grassroots efforts to protect and maintain them.</td><td>3.2: Provide support to community organizations that are stewarding cultural and natural resources.</td><td>#1: Kalauha'iha'i Fishpond and <u>Kānewai Spring</u> Restoration #7: Keawāwa Wetland and Hawea Heiau Restoration #8: Kaiwi Coast Mauka Lands Preservation #11: Maunalua Watershed Talk Stories #12: Mālama Maunalua Programs #31: Ka Lapa O Maua (Paikō Ridge) Preservation</td><td></td></tr></table>	Value: East Honolulu values is an area once known for its fishing resources and large fishponds. The community values this history. Issue: Nearly all the district's fishponds were destroyed in the 20th century.	3.1: Restore fishponds and springs for cultural and educational use.	#1: Kalauha'iha'i Fishpond and <u>Kānewai Spring</u> Restoration	P: Restoration of Fresh water Spring Flows to Nearshore Waters	Value: The community values the preservation of cultural sites and has led grassroots efforts to protect and maintain them.	3.2: Provide support to community organizations that are stewarding cultural and natural resources.	#1: Kalauha'iha'i Fishpond and <u>Kānewai Spring</u> Restoration #7: Keawāwa Wetland and Hawea Heiau Restoration #8: Kaiwi Coast Mauka Lands Preservation #11: Maunalua Watershed Talk Stories #12: Mālama Maunalua Programs #31: Ka Lapa O Maua (Paikō Ridge) Preservation		Recognize Kānewai Spring as Maunalua Fishpond Heritage Center's initiative in the list of priority projects.
Value: East Honolulu values is an area once known for its fishing resources and large fishponds. The community values this history. Issue: Nearly all the district's fishponds were destroyed in the 20th century.	3.1: Restore fishponds and springs for cultural and educational use.	#1: Kalauha'iha'i Fishpond and <u>Kānewai Spring</u> Restoration	P: Restoration of Fresh water Spring Flows to Nearshore Waters											
Value: The community values the preservation of cultural sites and has led grassroots efforts to protect and maintain them.	3.2: Provide support to community organizations that are stewarding cultural and natural resources.	#1: Kalauha'iha'i Fishpond and <u>Kānewai Spring</u> Restoration #7: Keawāwa Wetland and Hawea Heiau Restoration #8: Kaiwi Coast Mauka Lands Preservation #11: Maunalua Watershed Talk Stories #12: Mālama Maunalua Programs #31: Ka Lapa O Maua (Paikō Ridge) Preservation												
12	EH WMP	4.3.3 Watershed Management Project Descriptions Table 4-2: Relationship of EH WMP Objectives, Issues, Sub-Objectives, Projects and Strategies. Objective #4: Facilitate Public Participation, Education and Project Implementation	4-17	Amend Table 4-2, Objective #4, second line item.	<table><tr><td>Issue: The effectiveness of watershed projects is dependent upon younger generations being educated to steward water resources.</td><td>4.2: Provide educational opportunities for the community to learn about protecting and preserving water resources in East Honolulu with a particular emphasis on youth education.</td><td>#1: Kalauha'iha'i Fishpond and <u>Kānewai Spring</u> Restoration #7: Keawāwa Wetland and Hawea Heiau Restoration #8: Kaiwi Coast Mauka Lands Preservation #11: Maunalua Watershed Talk Stories #12: Mālama Maunalua Programs #14: Community Cleanups and Water Quality Phone Application #16: DFM Community Programs #28: BWS Water Conservation Incentives Program</td><td>C: Stream Debris Educational Program E: Trail Educational Program O: Climate Change and Resilience Education</td></tr></table>	Issue: The effectiveness of watershed projects is dependent upon younger generations being educated to steward water resources.	4.2: Provide educational opportunities for the community to learn about protecting and preserving water resources in East Honolulu with a particular emphasis on youth education.	#1: Kalauha'iha'i Fishpond and <u>Kānewai Spring</u> Restoration #7: Keawāwa Wetland and Hawea Heiau Restoration #8: Kaiwi Coast Mauka Lands Preservation #11: Maunalua Watershed Talk Stories #12: Mālama Maunalua Programs #14: Community Cleanups and Water Quality Phone Application #16: DFM Community Programs #28: BWS Water Conservation Incentives Program	C: Stream Debris Educational Program E: Trail Educational Program O: Climate Change and Resilience Education	Recognize Kānewai Spring as Maunalua Fishpond Heritage Center's initiative in the list of priority projects.				
Issue: The effectiveness of watershed projects is dependent upon younger generations being educated to steward water resources.	4.2: Provide educational opportunities for the community to learn about protecting and preserving water resources in East Honolulu with a particular emphasis on youth education.	#1: Kalauha'iha'i Fishpond and <u>Kānewai Spring</u> Restoration #7: Keawāwa Wetland and Hawea Heiau Restoration #8: Kaiwi Coast Mauka Lands Preservation #11: Maunalua Watershed Talk Stories #12: Mālama Maunalua Programs #14: Community Cleanups and Water Quality Phone Application #16: DFM Community Programs #28: BWS Water Conservation Incentives Program	C: Stream Debris Educational Program E: Trail Educational Program O: Climate Change and Resilience Education											

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13	EH WMP	4.3.3 Watershed Management Project Descriptions	4-20	Amend Project #1 description.	Project #1: Kalauha‘iha‘i Fishpond and Kānewai Spring Restoration Location Niu (<u>Kalauha‘iha‘i Fishpond</u>) and Kuli‘ou‘ou (<u>Kānewai Spring</u>) Project Champion & Partners ~~[DLNR Engineering Branch and]~~ Maunalua Fishpond Heritage Center (<u>MFHC</u>), <u>DLNR Engineering Branch</u> Project Goals ▪ Restore ~~the~~ artesian water flow to the Kalauha‘iha‘i Fishpond. ▪ Reduce cesspool discharges mauka of the Kalauha‘iha‘i Fishpond~~[-]~~ <u>and Kānewai Spring.</u> EHWMP Objectives & Sub-Objectives Addressed ▪ Objective #2: Protect and Enhance Water Quality and Quantity. ○ Sub-Objective 1.3: Enhance ecosystem diversity within East Honolulu’s streams and nearshore waters. ○ Sub-Objective 2.3: Improve the water quality of Maunalua Bay by increasing the amount of fresh water that enters the Bay. ○ Sub-Objective 2.7: Re-evaluate aquifer sustainable yields to support ground water dependent ecosystems. ▪ Objective #3: Protect Native Hawaiian Rights and Traditional and Customary Practices. ○ Sub-Objective 3.1: Restore fishponds and springs for cultural and educational use. ○ Sub-Objective 3.2: Provide support to community organizations that are stewarding cultural and natural resources. ▪ Objective #4: Facilitate Public Participation, Education and Project Implementation. Sub-Objective 4.2: Provide educational opportunities for the community to learn about protecting and preserving water resources in East Honolulu with particular emphasis on youth education. Background <u>This project highlights two initiatives led by Maunalua Fishpond Heritage Center with the goal of restoring freshwater flow to two springs (pūnāwai) and nearshore fishponds in East Honolulu: Kalauha‘iha‘i Fishpond and Kānewai Spring.</u> <u>Kalauha‘iha‘i Fishpond</u> Kalauha‘iha‘i Fishpond is a spring-fed fishpond in Niu, O‘ahu. The fishpond is said to have been historically owned by King Kamehameha I and Queen Ka‘ahumanu and provided subsistence fishery for Native Hawaiians. In Hawaiian history it is believed to be the site where the ‘ai kapu (Hawaiian system of laws governing contact between men and women) was broken by Queen Ka‘ahumanu for the Island of O‘ahu in 1819. In the 1820’s, the fishpond was given to Captain Alexander Adams, who later passed on the land to his descendants. Until the mid-1990’s, cold, fresh water poured from a lava tube in the pond through a stone ‘auwai (irrigation channel) to the sea. The pond and nearshore teemed with native fish, shrimp, and limu. The last owner and keeper of the fishpond lived in a glass floored home over the fishpond. According to local accounts, during a State highway widening project in the early 1990’s, contractors damaged the lava tube that conveyed spring water from mauka areas to the pond. Concrete was poured to plug the leak, sealing off the water source. The pond subsequently dried up, and the lack of fresh water also impacted the nearshore ecosystem. The fishpond is currently owned by DLNR and is set to be managed by the MFHC under a 30-year lease of the property. Since 2013, the MFHC has led an effort to restore the fishpond with the help of school and community volunteers. Initial funds of ~~\$1,000,000~~ were secured through State Representative Mark Hashem~~[-]~~ <u>in 2021</u>, and DLNR <u>Engineering Branch</u> is now conducting a phased project to restore the artesian water flow to the Kalauha‘iha‘i Fishpond.	Updates the Project #1 description to recognize Kānewai Spring as Maunalua Fishpond Heritage Center’s initiative in the list of priority projects.

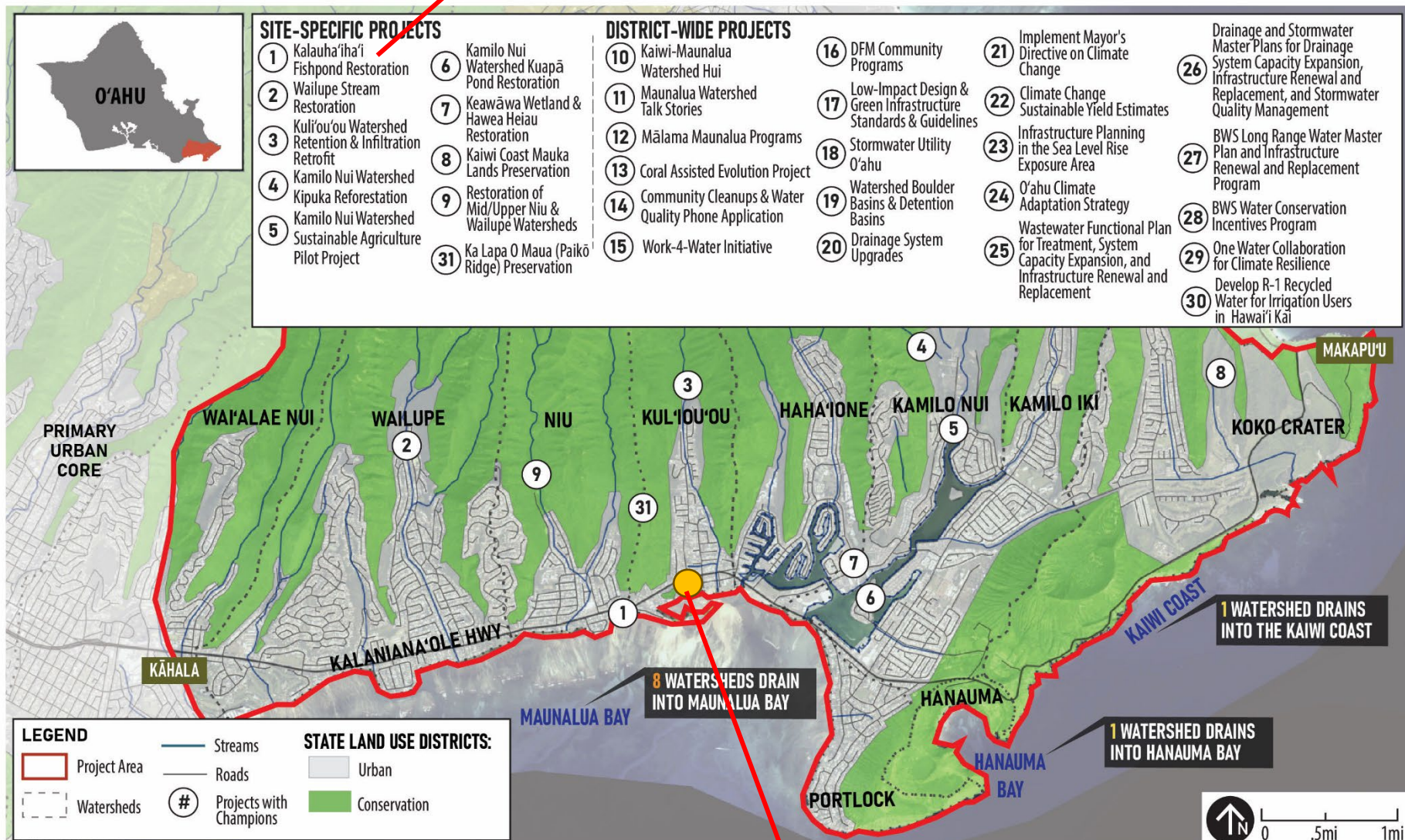
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					Water restoration will be achieved ~~[by installing a trench collection system. This system will collect groundwater mauka]~~ through directional drilling underneath the road, which will be used to install a small diameter pipe to channel groundwater from the mauka side of Kalaniana'ole Highway ~~[and transport it]~~ to the Kalauha'iha'i Fishpond ~~[via a 120' long trench. The trench collection system was selected as the best alternative to restore groundwater flow as it provides multiple points where water is collected and does not require electrical power].~~ Another strategy to improve water flow to the fishpond is to establish a protective water recharge capture zone around and mauka of the fishpond and lagoon aligning with the Kuli'ou'ou watershed boundary supplying ground water flow to the coast. Ground water recharge in the Wai'alae East aquifer is estimated by USGS in 2017 as approximately 10 MGD minus the sustainable yield of 2 MGD. BWS has reduced its Kuli'ou'ou Well pumping by two-thirds of the 0.3 MGD permitted use through water conservation in Kuli'ou'ou valley. Converting the remaining cesspools and managing chemical use within the capture zone will reduce nutrient and contaminant movement to the nearshore. Residential irrigation within the recharge capture zone adds beneficial freshwater flow to the fishpond. <u>Kānewai Spring</u> <u>Kānewai Spring is home to a variety of fresh water fish including shell fish pipiwai and hapawai, 'ama'ama (mullet), āholehole (young Hawaiian flagtail), native shrimp 'opae 'oeha'a and 'opae huna, and endangered birds such as 'ae'o (Hawaiian stilt). The spring is protected in perpetuity through its 2017 purchase by the Trust for Public Land and MFHC. MFHC stewards the Spring, focusing on education, monitoring, and restoration of the natural and cultural resources at the site. In late 2022, MFHC observed that the pond at Kānewai was dry and the artesian water supply to the spring had slowed to a trickle. Construction fencing and activity was noted to be occurring mauka of Kalaniana'ole Highway around the location of the artesian source of the spring.¹³⁸ This has created a new challenge for the stewardship and restoration of the site.</u> Preliminary Ka Pa'akai Analysis The proposed project is expected to enhance, protect and restore traditional and customary practices. Project Status The DLNR has preliminarily determined that the ~~[installation of the trench collection system]~~ restoration project at Kalauha'iha'i Fishpond would have minimal or no significant effect on the environment and can therefore qualify for an Environmental Assessment exemption.¹³⁹ The DLNR submitted a Proposed Environmental Assessment exemption notice to BWS in August 2023. Pending permits and approvals, Construction is expected to begin in late 2024, with project completion expected within 6 months. <u>MFHC is working with partners and agencies to determine the cause of the reduced water flow to Kānewai Spring and identify solutions to restore it, which may include directional drilling similar to what is proposed for Kalauha'iha'i Fishpond.</u> Estimated Cost \$1,500,000 has been released by the Legislature for the Kalauha'iha'i Fishpond restoration project to date. The project is in the final permitting and implementation phases. <u>Stewardship of Kanewai Fishpond is funded through the efforts of MFHC, although additional funding may be required to restore the artesian flow to the site following its recent disruption.</u> ¹³⁸ <u>An Engineering Solution to Restoring Wai: Kānewai Spring and Kalauha'iha'i Fishpond. Hawai'i Water Resources Research Center Seminar Series: 10 March 2023.</u>	

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14	EH WMP	4.3.4 Strategy P: Restoration of Fresh Water Spring Flows to Nearshore Coastal Waters	4-95	Amend Strategy P Description.	Strategy P: Restoration of Fresh [water] Water Spring Flows to Nearshore Coastal Waters Description East Honolulu was historically rich in fishponds and fresh water ponds. However, most natural springs and fishponds were damaged or destroyed in the 20 th century due to urbanization. The lack of fresh water flow to Maunalua Bay is a contributing factor to the Bay's water quality. BWS, DLNR, and other government agencies should collaborate with community organizations to identify potential areas where hydrologic connections between natural springs and coastal nearshore waters, which have been cut off or diverted over time, can be restored. Restoring Kalauha'iha'i Fishpond <u>and Kānewai Spring</u> (Project #1) has been identified by the community as a priority.	Reference Kānewai Spring in Strategy P per Maunalua Fishpond Heritage Center testimony to the BWS.
15	EH WMP	Chapter 4 References	4-99	Remove reference to Hookuleana, LLC (2024).	[Hookuleana, LLC. (2014). "Kalauha'iha'i Fishpond". Available at: http://imagesofoldhawaii.com/kalauha%CA%BBiha%CA%BBi-fishpond/]	Remove incorrect reference per Maunalua Fishpond Heritage Center testimony to the BWS.
16	EH WMP	5.4 Priority Watersheds for Improvement of Water Quality in Maunalua Bay Kuli'ou'ou Watershed	5-17	Amend sixth (last) paragraph under Kuli'ou'ou Watershed.	Kuli'ou'ou Stream drains into Maunalua Bay along a heavily developed shoreline near the Paikō Lagoon Wildlife Sanctuary. Many of the properties fronting the lagoon have seawalls to protect against coastal erosion. Compared to the district's other watersheds, Kuli'ou'ou is the most susceptible to sea level rise and erosion, as nearly 58 square acres of the Kuli'ou'ou watershed falls within the 3.2 ft SLR-XA. <u>Kānewai Spring is also within the Kuli'ou'ou Watershed and is one of the two remaining freshwater springs along the East Honolulu shoreline. The spring is protected in perpetuity through a 2017 purchase of the land and is stewarded by the Maunalua Fishpond Heritage Center.</u>	Add Kānewai Spring to watershed description per Maunalua Fishpond Heritage Center testimony to the BWS.
17	EH WMP	5.4.1 Figure 5-4: EH WMP Projects with Champions to Support the Improvement of Water Quality in Maunalua Bay. Project #1	5-20	Amend Figure 5-4, Project #1	In Figure 5-4, update the name of Project #1 to read: Kalauha'iha'i Fishpond <u>and Kānewai Spring</u> Restoration, and add a second leader line to the location of Kānewai Spring. See attachment for amendments to Figure 5-4.	Recognize Kānewai Spring as Maunalua Fishpond Heritage Center's initiative in the list of priority projects.

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18	EH WMP	5.4.1 Table 5-3 Short-term (2-5 years target implementation) Project #1	5-25	Amend Table 5-3, Short-term, Project #1	<table><tr><th colspan="6">SHORT-TERM (2-5 YEARS TARGET IMPLEMENTATION)</th></tr><tr><td><u>Project #1:</u> Kalauha'iha'i Fishpond and Kānewai Spring Restoration</td><td><u>Project Goal:</u> return water flow to the Kalauha'iha'i Fishpond[-] and Kānewai Spring. <u>Catalyst Project Alignment:</u> Increased flow of fresh water to Maunaloa Bay will improve the health of nearshore ecosystems.</td><td>[DLNR Engineering Branch and] Maunaloa Fishpond Heritage Center, DLNR Engineering Branch</td><td><u>To Date:</u> The DLNR has selected ~~[trench collection system]~~ <u>directional drilling and installation of small diameter pipe</u> as the best alternative to restore groundwater flow to the ~~[fishpond.]~~ Kalauha'iha'i Fishpond. The DLNR submitted a Proposed Environmental Assessment exemption notice to BWS in August 2023. <u>Investigations into solutions for the cessation of water flow to Kānewai Spring are ongoing.</u> <u>Next Steps:</u> The DLNR will secure final permitting[-] <u>for the Kalauha'iha'i Fishpond work.</u> Pending permits and approvals, construction is expected to begin in late 2024.</td><td>\$1,500,000 has been released by the Legislature for the project to date.</td><td>2025</td></tr></table>	SHORT-TERM (2-5 YEARS TARGET IMPLEMENTATION)						<u>Project #1:</u> Kalauha'iha'i Fishpond and Kānewai Spring Restoration	<u>Project Goal:</u> return water flow to the Kalauha'iha'i Fishpond[-] and Kānewai Spring. <u>Catalyst Project Alignment:</u> Increased flow of fresh water to Maunaloa Bay will improve the health of nearshore ecosystems.	[DLNR Engineering Branch and] Maunaloa Fishpond Heritage Center, DLNR Engineering Branch	<u>To Date:</u> The DLNR has selected ~~[trench collection system]~~ <u>directional drilling and installation of small diameter pipe</u> as the best alternative to restore groundwater flow to the ~~[fishpond.]~~ Kalauha'iha'i Fishpond. The DLNR submitted a Proposed Environmental Assessment exemption notice to BWS in August 2023. <u>Investigations into solutions for the cessation of water flow to Kānewai Spring are ongoing.</u> <u>Next Steps:</u> The DLNR will secure final permitting[-] <u>for the Kalauha'iha'i Fishpond work.</u> Pending permits and approvals, construction is expected to begin in late 2024.	\$1,500,000 has been released by the Legislature for the project to date.	2025	Recognize Kānewai Spring as Maunaloa Fishpond Heritage Center's initiative in the list of priority projects.
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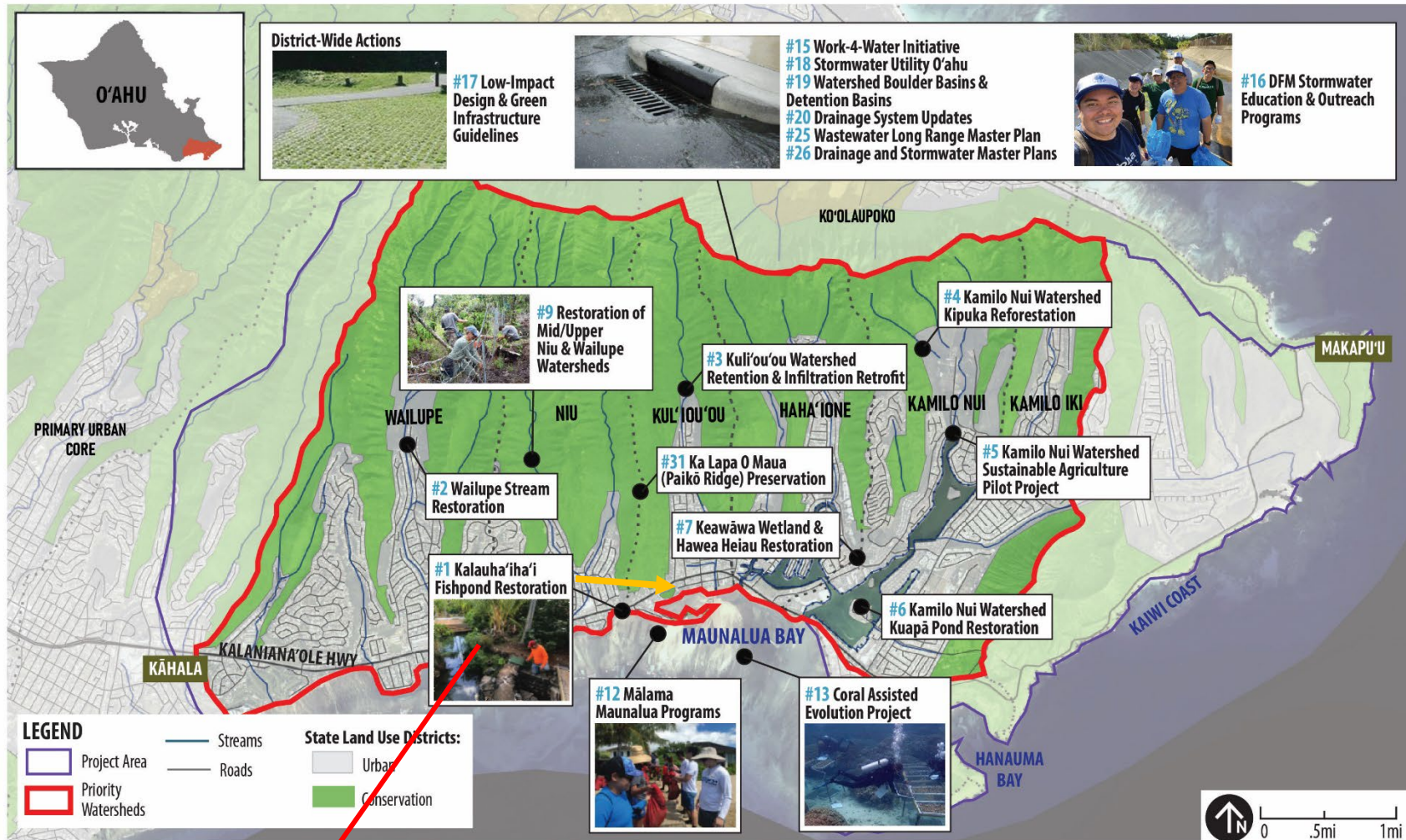
Update name of project # 1 to be Kalauha'iha'i Fishpond and Kānewai Spring Restoration

Figure 4-1: East Honolulu Watershed Management Projects with Champions



Add another circle labeled "1" at location of Kanewai Spring

Figure 5-4: EHWMP Projects with Champions to Support the Improvement of Water Quality in Maunaloa Bay



Update name of project # 1 to be Kalauha'iha'i Fishpond and Kānewai Spring Restoration

Add another leader line from Project #1 to location of Kanewai Spring (see yellow arrow)