

Appendix D: Water Quality and Aquatics

Appendix D-1: Addendum to Draft EA Aquatics Study

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AECOS, Inc.

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January 30, 2011

Attn: Heather Forester, Planner
SSFM International, Inc.
99 Aupuni Street, Suite 202
Hilo, HI 96720


Ms. Forester,

This letter is to inform your company of the results of our recent survey of 15 additional locations (beyond those covered in *AECOS*, 2010) including roadway rights-of-way and undeveloped and developed lots to be impacted by the Kea'au-Pāhoa Road Improvements Project. *AECOS*, Inc. biologists conducted this most recent survey on January 19, 2011 by inspecting each site for hydrological or biological factors that would indicate the presence of wetlands or waterways, jurisdictional or otherwise. For most work areas the entire location was traversed by foot in an effort to locate the aforementioned conditions.

The additional project locations occur in developed or disturbed former lowland mesic forest once dominated by *ōhia lehua* (*Metrosideros polymorpha*) in the Puna District, south of Hilo, on the Island of Hawai'i. Geologically this region is an extensive Pahala ash deposit that is highly porous, typically resulting in relatively few streams. Runoff readily percolates into the substratum before enough water can collect to form a surface flow.

The surveyed project locations include a mix of highway verge areas, lawns, scrub growth, and forested land, all devoid of streams and wetlands. No flowing water or channels of any significance are present in these additional proposed work areas. Likewise, no wetland hydrology or obligate wetland plant species were encountered during the survey. The vegetation in undeveloped portions of the survey area is dominated by strawberry guava (*Psidium cattleianum*), molasses grass (*Melinis multiflora*), *ōhia lehua*, and sword ferns (*Nephrolepis* sp.; see Table 1). Highway and side street verges are vegetated by a mix of ornamental and ruderal species, none with any importance from a resource conservation perspective. No aquatic species listed by the Endangered Species Act were encountered during the survey and none is anticipated to utilize the project area.

AECOS, Inc. 2010. Biological and water quality surveys for the Kea'au-Pāhoa Road Improvements Project, Puna District Hawai'i. Prep. for SSFM International, Inc. *AECOS* No. 1125A: 18 pp.

Sincerely,

Chad Linebaugh
Biologist
AECOS Inc.

AECOS 1125B

Table 1. Field notes for additional project work areas—Kea'au-Pāhoa Road Improvements—surveyed on January 19, 2011.

Location	Work	Morphology	Water	Aquatic Biota	Vegetation / Flora
Pohaku Pl. x Kea'au-Pāhoa Rd	rt in/rt out	road cut into bedrock	none	none	<i>Melinis multiflora</i> , <i>Nephrolepis</i> sp. <i>Andropogon</i> sp.
Puakalo St. x Kea'au-Pāhoa Rd	rt in/rt out	ditch parallels KP Rd. north of Puakalo St.	none	none	<i>Andropogon</i> sp. <i>Psidium cattleianum</i> , <i>Melinis minutiflora</i> , misc mowed grasses
Pohaku Cir. from Pohaku Pl. to (new) Kaloli Dr.	widen 50 ft R-O-W	lawns; boulders	none	none	ornamentals and lawn grasses; <i>Nephrolepis</i> sp., <i>Andropogon</i> sp.
AC road across from Puakalo St.	rt in/rt out	sloped R-O-W	puddle in road	none	<i>Melinis minutiflora</i> , <i>Ageratum conyzoides</i> , <i>Stachytarpheta jamaicensis</i>
Uala (31 st Ave.) x Kaloli Dr.	close w/ cul de sac	lawn; forest	puddle	none	<i>Psidium cattleianum</i> , <i>Macaranga mappa</i>
Uala (31 st Ave.)	connect Uala and Puakalo-50 ft R-O-W	'ōhia lehua scrub	none	none	<i>Metrosideros polymorpha</i> <i>Dissotis rotundifolia</i> , <i>Nephrolepis</i> sp.
Kaloli Dr. x Kea'au-Pāhoa Rd.	extend Kaloli Dr. to Pohaku Cir.	bas. boulders forest; 24in culvert-KP Road	none	none; Coqui frogs	<i>Psidium cattleianum</i> , <i>Metrosideros polymorpha</i> <i>Urocloa maxima</i> , <i>Arundina graminifolia</i>
Ilima St. x Kea'au-Pāhoa Rd.	close w/ cul de sac	elevated above road	none	none	<i>Psidium cattleianum</i> , <i>Melinis minutiflora</i> , <i>Melinis repens</i>
34 th Ave from Orchidland Dr. to Ilima St.	widen 50ft R-O-W	lawns, scrub	none	none	ornamentals and lawn grasses; <i>Metrosideros polymorpha</i> , <i>Albizia saman</i> , <i>Andropogon</i> sp.
Orchidland Dr. x Kea'au-Pāhoa Rd.	extend Orchidland Dr to Uhaloa Rd. 60 ft R-O-W	homesite under const.; forest	none	none	<i>Metrosideros polymorpha</i> , <i>Dicranopteris linearis</i> <i>Psidium cattleianum</i>

Table 1 cont.

Location	Work	Morphology	Water	Aquatic Biota	Vegetation / Flora
Uhaloa from Paradise Dr. to Orchidland Dr.	widen 50 ft R-O-W	lawns; scrub	none	none	ornamentals and lawn grasses; <i>Cuscuta campestris</i>
Paradise Dr. x Kea'au-Pāhoa Road	rt in/cul de sac	sloped embankment	none	none	<i>Samanea saman</i> , <i>Urochloa maxima</i> , <i>Clidemia hirta</i> , <i>Urochloa mutica</i>
Pohaku Cir. x Kea'au-Pāhoa Rd.	rt in/rt out	gravel bank	none	none	ornamentals and lawn grasses
Aulii St. x Kea'au-Pāhoa Rd.	rt in/rt out	scrub	none	none	<i>Urochloa maxima</i> , <i>Pluchea</i> sp. <i>Buddleja</i> sp. <i>Psidium cattleianum</i> , <i>Melinis repens</i>
Makuu Dr. x Kea'au-Pāhoa Rd.	extend Makuu Rd. to 34th Ave.	meadow; scrub/ forest	none	none	<i>Melinis repens</i> meadow; <i>Psidium cattleianum</i> and <i>Metrosideros polymorpha</i> scrub/forest, <i>Macaranga</i> spp.

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Appendix D-2: Draft EA Aquatics Study

Refer to Appendix D of the Draft EA for the original Aquatics and Water Quality Study.

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