Section 1 Introduction

1.1 Project Background

At the request of SSFM International, Inc., Cultural Surveys Hawai‘i, Inc. (CSH) has prepared this archaeological monitoring plan for the proposed Farrington Highway Drainage Improvements Project along Farrington Highway in the vicinity of Orange Street, Mākaha Ahupua‘a, Wai‘anae District, O‘ahu Island. The Project area is shown on a U.S. Geological Survey 7.5-minute topographic map, Wai‘anae Quadrangle (Figure 1), on a U.S. Geological Survey aerial photograph (Figure 2), and on Hawai‘i Tax Map Key (TMK) plat map [1] 8-4-003 (Figure 3).

The State of Hawai‘i Department of Transportation (DOT) Highways Division is updating the drainage system for an approximately 785 foot stretch of Farrington Highway (Figure 4 to Figure 6) in the vicinity of Orange Street. Ground-disturbing construction activities associated with the Project will include re-grading of swales, demolition and replacement of culverts, demolition and relocation of waterlines, reconstructing of driveways, and improvements to guardrails and signs. Most of the work will take place on the *makai* or south side of Farrington Highway. All work will be within the State DOT Right-of-Way.

This archaeological monitoring plan was designed to fulfill the state requirements for monitoring plans under Hawai‘i Administrative Rules (HAR) Chapter 13-279-4 and to support the proposed Project’s historic preservation review under Hawai‘i Revised Statutes (HRS) Chapter 6E-42 and HAR Chapter 13-284. This archaeological monitoring plan has been prepared under archaeological permit number 12-04 issued by the State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR).

Figure 1. 1998 U.S. Geological Survey 7.5-minute topographic map, Wai‘anae Quadrangle, showing the Project

Figure 2. Aerial photograph showing the Project area (2007 U.S. Geological Survey Orthoimagery)

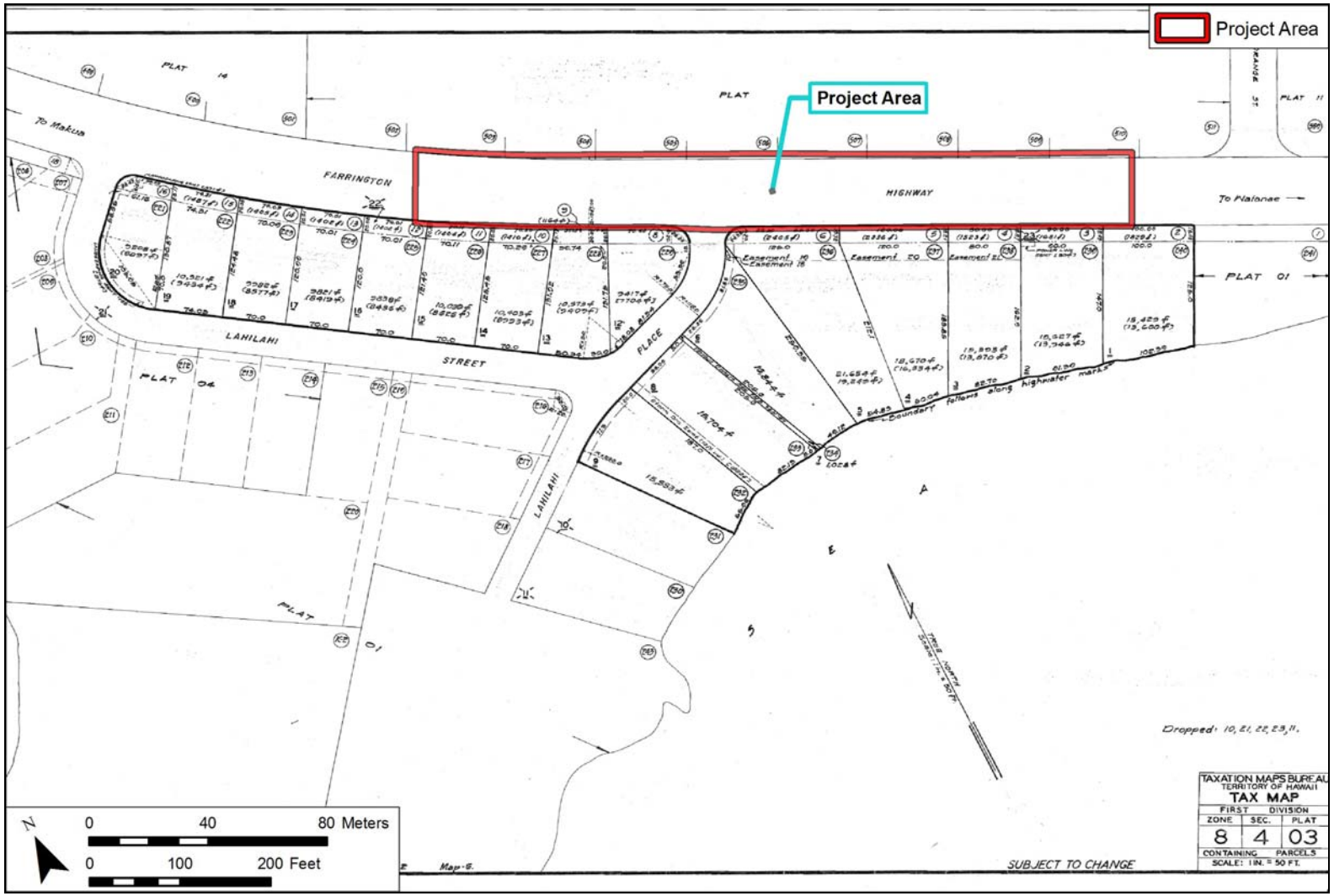

Figure 3. Tax Map Key (TMK) plat map [1] 8-4-003, showing the Project area (Hawai‘i TMK Service 2012)

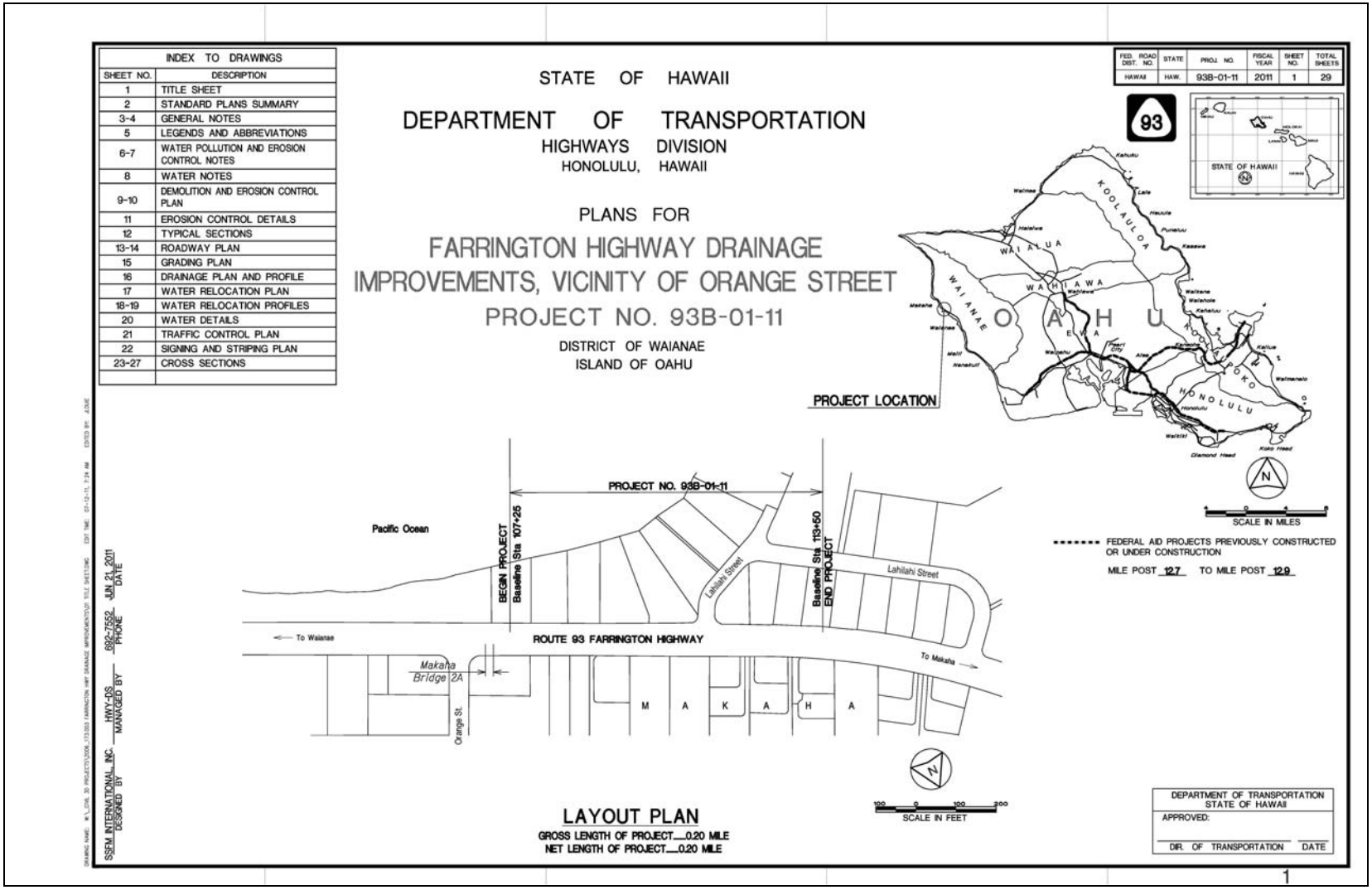

Figure 4. Site Plan (1) (supplied by SSFM International, Inc.)

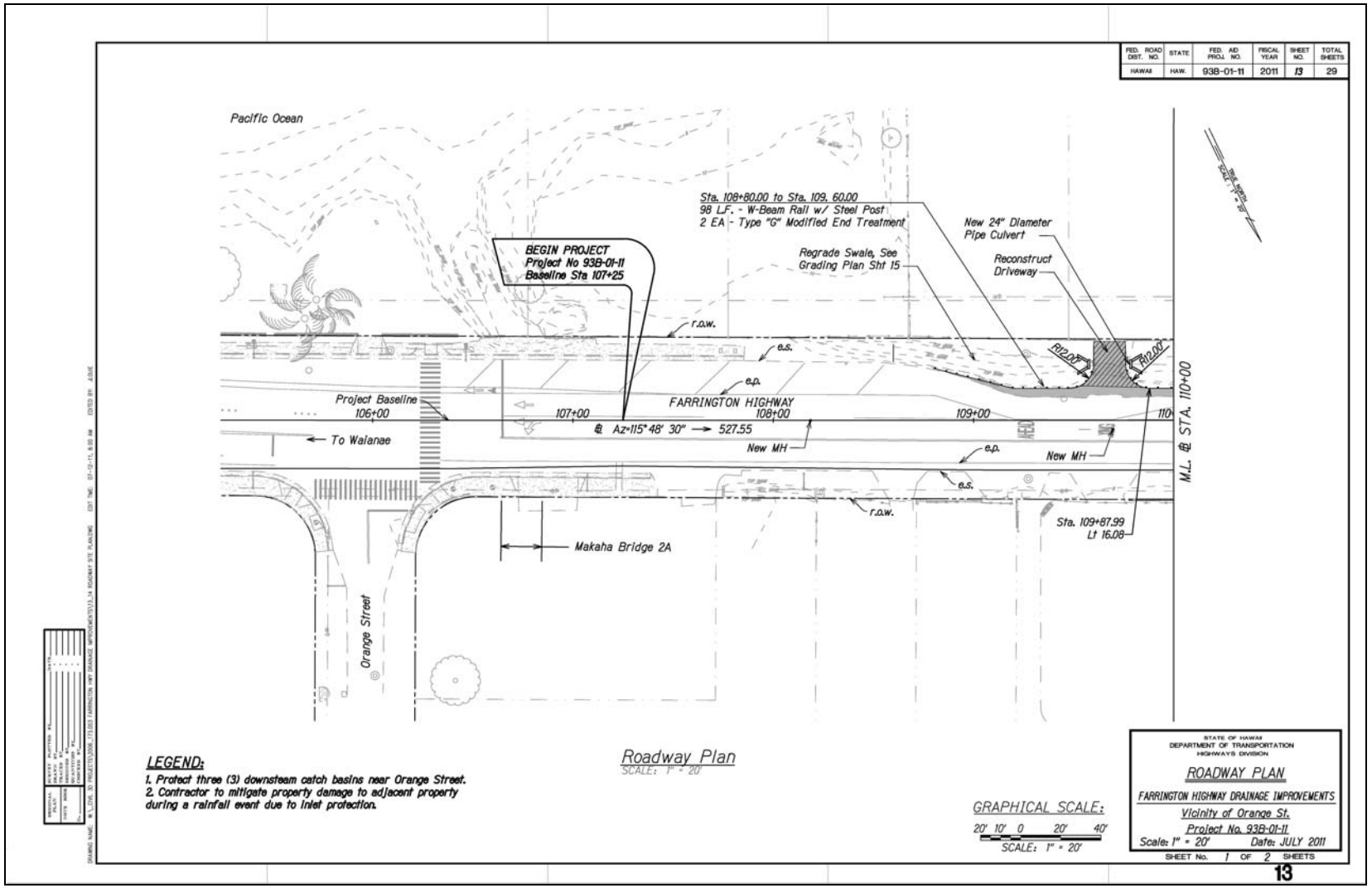

Figure 5. Site Plan (2) (supplied by SSFM International, Inc.)

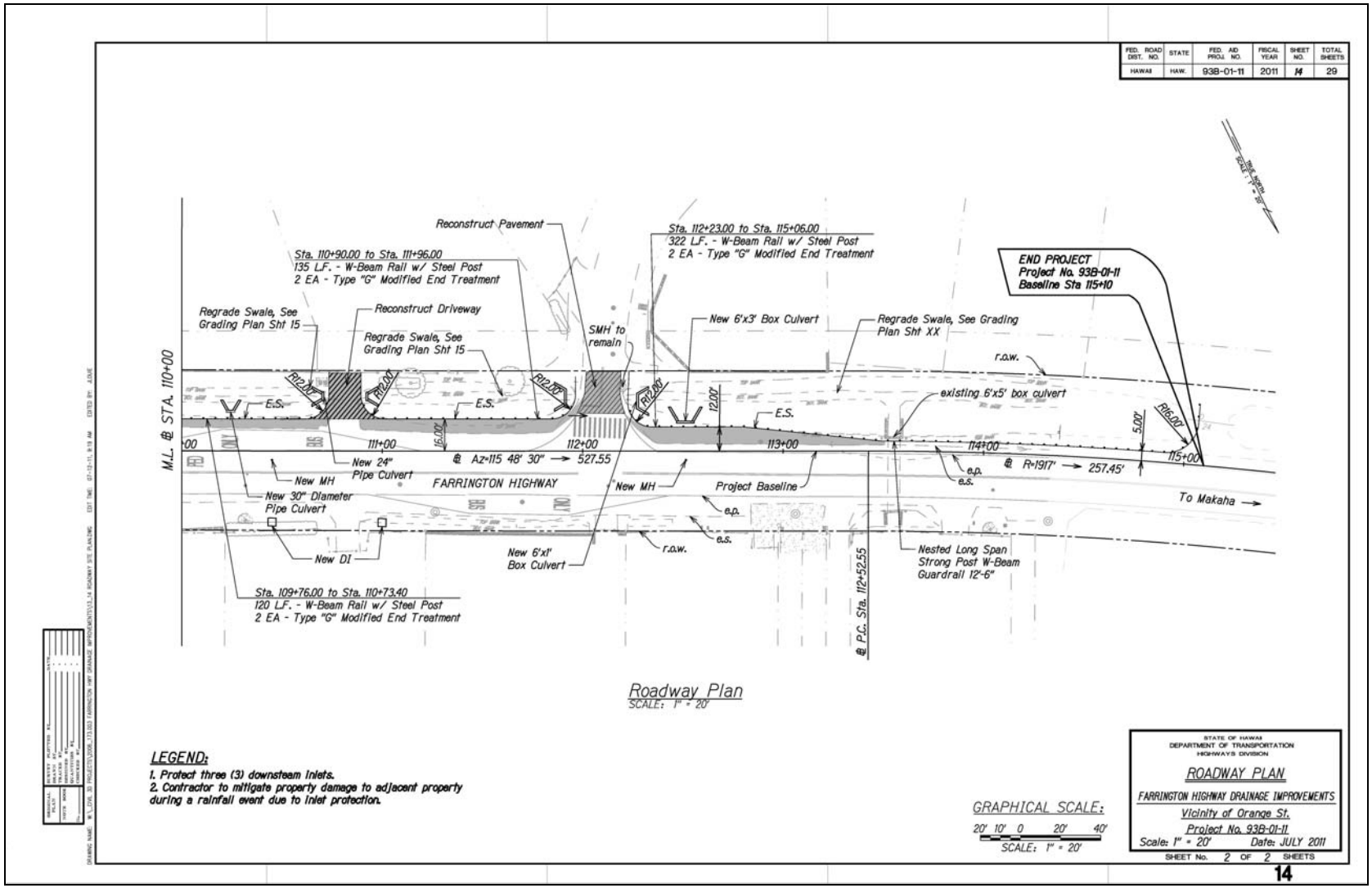

Figure 6. Site Plan (3) (supplied by SSFM International, Inc.)

1.2 Environmental Setting

1.2.1 Natural Environment

Generally, the coastal areas of this part of Wai‘anae are characterized by white sand beaches with low dunes and narrow back dunes (Cordy 1998). In addition, there are localized areas of old, uplifted coral reefs and limestone flats. Much of the coastal area has been disturbed by both historic and modern development; most of the narrow back dunes have been graded.

The soils underlying the project area consist mainly of ancient reefs or compacted sandstone and sands overlain by alluvial clays. According to U.S. Department of Agriculture (USDA) soil survey data (Foote et al. 1972), sediments in the Project area include soils of the Waialua silty clay series, 0 to 3 percent slopes (WkA) (Figure 7). Waialua series soils are characterized as moderately well drained soils developed from basic igneous rock and found on alluvial fans. South of Orange Street, the highway overlies Hanalei silty clay, 0 to 2 percent slopes (HnA), a soil developed from alluvium and found in stream bottoms and flood plains. Although the Farrington Highway Project area parallels areas of beach sand (BS), there are no Jaucas Series soils in the Project area, according to the Foote et al. (1972) soil survey.

Vegetation along this arid coast is sparse. With 20 inches (500 mm) or less of annual rainfall, only the hardiest plants adapted to coastal environments can thrive in this zone (Giambelluca et al.. 1986). Typical native vegetation in the vicinity of the Project area along Farrington Highway includes *hau* (*Hibiscus tiliaceus*), *kou* (*Cordia subcordata*), *kamani* (*Calophyllum inophyllum*), *naupaka* or *naupaka kahakai* (*Scaevola sericea*), *pa‘u o Hi‘iaka* (*Jacquemontia ovalifolia sandwicensis*), the native beach morning glory or *pohuehue* (*Ipomea pes-caprae*) and the coconut or *niu* (*Cocos nucifera*), and introduced species include sea grape (*Coccoloba uvifera*), *kiawe* (*Prosopis pallida*), Madagascar olive trees (*Noronhia emarginata*), and *koa haole* (*Leucaena leucocephala*).

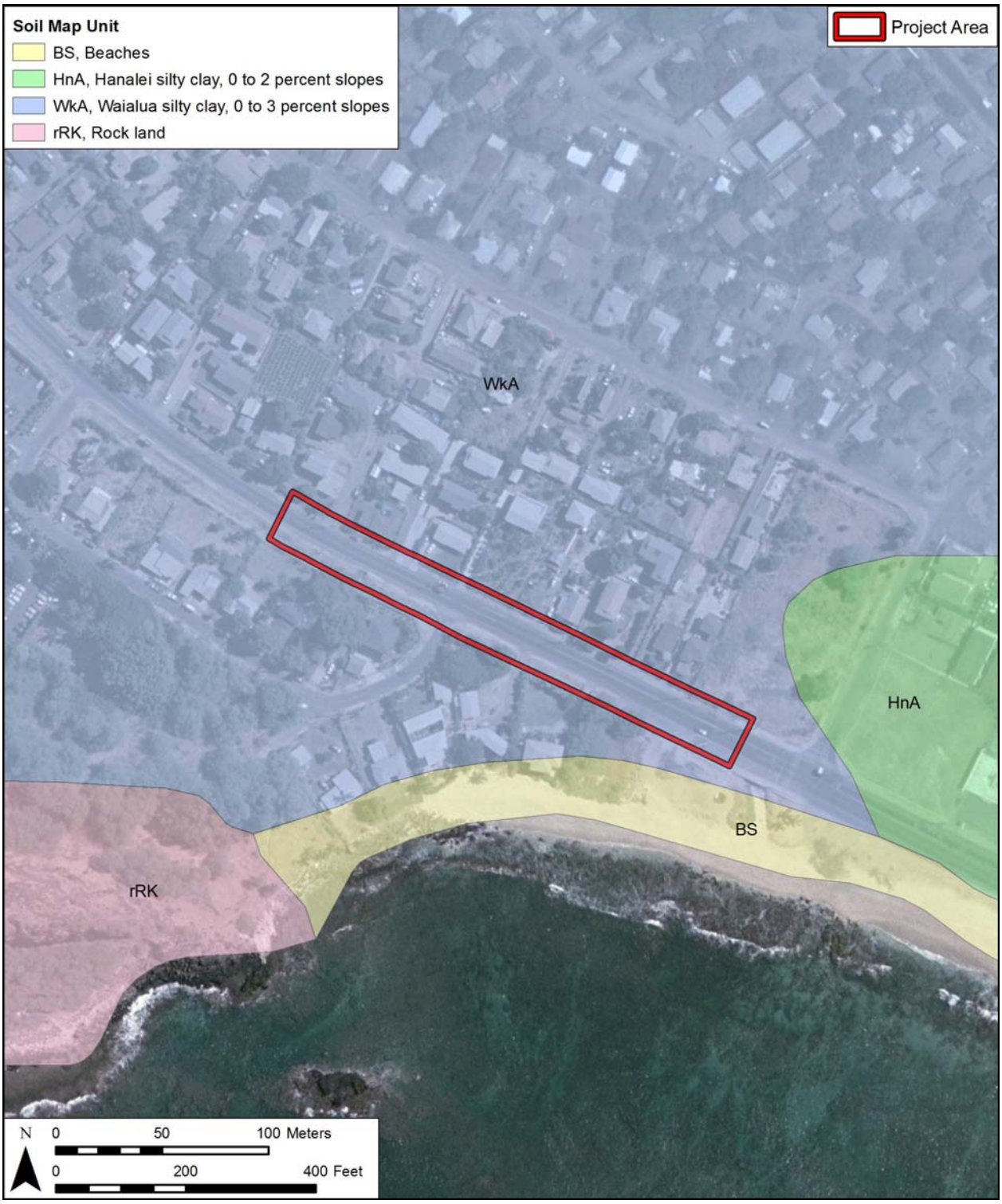

Figure 7. Portion of the 1998 USGS 7.5-minute series topographic map, Wai‘anae Quadrangle, showing the Project area with soil overlay (Foote el al. 1972)