

LAHAINA CIVIC CENTER TENNIS COURTS



Photo Top - Undeveloped land owned by the State Department of Hawaiian Home Lands.
Photo Bottom Right - New concrete drainage channel designed to capture off-site storm runoff.
Photo Bottom Left - Special clog-resistant grated drain inlet.

PROJECT TEAM

Agency: County of Maui
Department of Parks and Recreation
Planning and Development Division

Contractor: David P. Ting and Sons, Inc.

Civil Engineer: Ronald M. Fukumoto Engineering, Inc.

Structural Engineer: Arnold T. Okubo and Associates, Inc.

Electrical Engineer: ECM, Inc.

Landscape Architect: Russel Y. Gushi, ASLA

Traffic Engineer: Phillip Rowell and Associates

Archaeologist: Scientific Consultant Services, Inc.

Planner: Munekiyo & Hiraga, Inc.

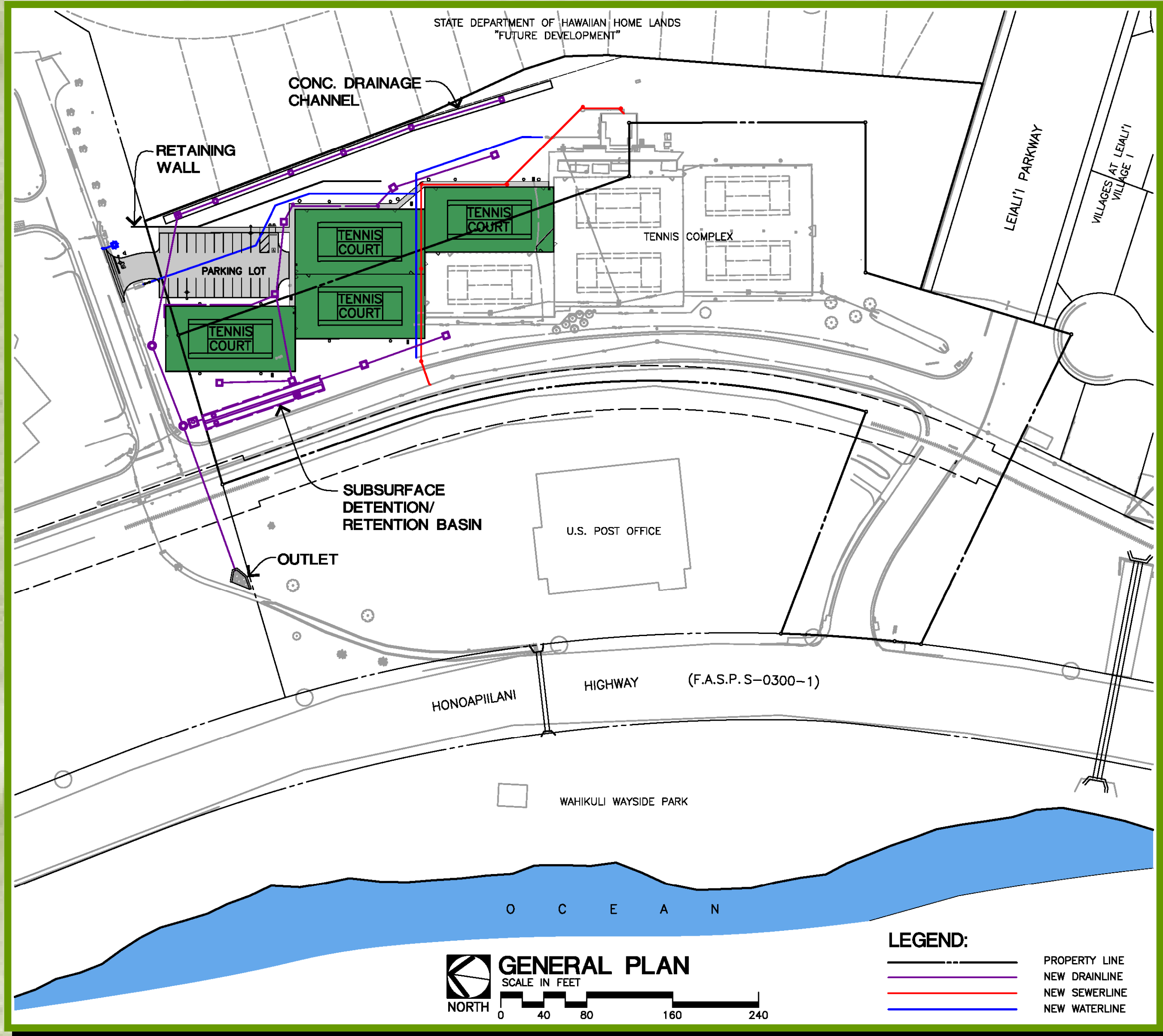
LAHAINA CIVIC CENTER TENNIS COURTS

The Lahaina Civic Center Tennis Courts is a \$2.5-million expansion project in West Maui for the Department of Parks and Recreation, County of Maui. The expansion of the tennis complex included the addition of four tennis courts with sports lighting, fencing, and wind-screens; a 25-stall paved parking lot with lighting; accessible walkways with lighting; retaining walls; landscape plantings and irrigation; and site utilities.

Site utilities consist of water, wastewater, drainage, and electrical systems. Water system improvements consist of relocation of a fire hydrant and water service lines. Wastewater system improvements include a sewer lateral for the existing tennis court restroom and the closure of its existing cesspool. Drainage system improvements consist of channels, inlets, manholes, drain pipes, and a subsurface detention/retention basin. Electrical system improvements include underground distribution lines for the lighting.



Photo Above - Entrance before construction. A temporary gravel apron was installed as an erosion control measure to prevent the tracking of sediment outside the construction area.
Photo Left - New paved entrance and 25-stall parking lot.



ENGINEERING DIFFICULTY

The project site required a large amount of grading due to the topography of the site. The site topography included slopes varying from 20 to 40 percent in the steepest areas and 4 to 7 percent in the flattest areas. One of the challenges was matching the elevations of the new tennis courts to the existing tennis courts. Tennis courts are flat with maximum slopes of 1 percent in any direction. To meet the slope requirements, a 240-foot long retaining wall with an average height of 6 feet was designed to provide a flat area for the tennis court expansion.

In addition, the mitigation of storm runoff was a significant component in the project. Off-site storm runoff enters the site from the East. To prevent this runoff from entering the new parking lot and tennis complex, a 382-foot long concrete drainage channel intercepts the runoff and routes it around the site.

CONSTRUCTION DIFFICULTY

Scheduling and maintaining access to other facilities during construction were the main construction difficulties. Site work began in April 2009 and continued through December 2009. The contractors were pressed for time because of the Maui Invitational Basketball Tournament held at the LCC gymnasium in November. All major site work requiring heavy equipment needed to be completed before the tournament to minimize the disturbance of the surrounding area.

The LCC has various state and county offices including the Lahaina Health Center, Lahaina Police Station, Lahaina Fire Station, Lahaina District Court, and the gymnasium. Therefore, all work within the roadway needed to be performed in a timely manner and with minimal impact to the traffic traveling to and from these facilities.

ENVIRONMENTAL CONSIDERATIONS

One of the main environmental concerns was the mitigation storm runoff. The project site is in close proximity to the ocean and the point of discharge for the existing drainage system is Waikuli Wayside Park. A subsurface D/R basin was designed to control the amount of runoff entering the drainage system. In addition, erosion control and best management practices were implemented during construction to minimize environmental impacts to downstream areas.

Another environmental concern was the abandonment of the cesspool servicing the restroom for the tennis complex. Wastewater improvements consisted of the closure of the existing cesspool and construction of a sewer lateral that connects to the County of Maui's collection system.

PUBLIC BENEFIT

To offset the trend of resort tennis court closures, the west side now has its own 9-court public tennis facility. With more than three years of combined efforts in planning and implementation, it is now possible for the district of Lahaina to host larger events and competitions. The 25-stall parking lot provides safe parking for people using the facility. Accessible walkways provide a path from the parking lot to the restroom and tennis courts. The additional tennis courts give adults and children the opportunity to play more often and enjoy the game of tennis.



Photo Top - Original drainage swale used to capture off-site flows.
Photo Middle - Location of the new subsurface D/R basin.
Photo Bottom - 60-inch perforated corrugated aluminum drain pipes used for the subsurface D/R basin.



Photo Top - Completion of mass grading and partial construction of the concrete drainage channel.
Photo Bottom - Construction of the first lift of the site retaining wall. Each lift was carefully inspected by the structural engineer before proceeding with the next lift.



Photo Above - Accessible parking (partial view).
Photo Right - Accessible walkway leading to the tennis courts and restrooms.



Event: **HSPF MAUI CHAPTER
2010 PROJECT OF THE YEAR COMPETITION**

Sponsor: **Hawaii Society of Professional Engineers
Maui Chapter**

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By: **Ronald M. Fukumoto Engineering, Inc.
1721 Wili Pa Loop, Suite 203
Wailuku, Hawaii 96793**

