The 100 and 500 year flood zone was mapped by the Federal Emergency Management Agency (FEMA), per the Flood Insurance Rate Map (FIRM) dated September 30, 2005. The tsunami hazard maximum run-up area was calculated by the University of Southern California using a tsunami model and is based upon potential earthquake sources and hypothetical extreme landslide sources, generally following the 12 meter topographic contour. OES field verified the tsunami run-up area for accuracy. The OES presented the flood zones and tsunami run-up on the OES Hazard Identification and Analysis Map 916-464-1014 dated June 2001.