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transmittal

date 11/17/2015 ☒ attached ☐ via regular mail

to John Dinger & Alyssa Moore ☐ via messenger ☐ via overnight mail

project San Francisco Coastal Regional Sediment Management Plan (ESA Project # 211658)

items Prior and Updated Coastal Hazard Maps and Electronic Data

comments Dear John and Alyssa,

The attached zipped folders contain the most recent updates to the hazard mapping for the San Francisco Coastal Regional Sediment Management Plan (SF CRSMP) as well as previous mapping submitted in 2012.

The previously submitted Coastal Hazard Maps were derived from future conditions hazard mapping originally created for the Ocean Protection Council and Pacific Institute. These prior maps were adjusted for the site data and selected sea level rise scenarios and time horizons. The shapefiles and pdfs associated with these maps are included in the folder titled 'HazardZones_OPC_PWA_2008.' The mapping was electronically sent to the USACE in February 2012 as part of a larger data transfer. We have also included this original zipped data transfer folder, which contains shapefiles related to ecology, geology, geomorphology, the human environment, and the physical environment in addition to the 2008 Hazard Maps. The zipped folder with the previous data transfer contains original metadata and readme's from the previous transfer.

In 2012 and 2013, the Hazard Maps were updated using a "2-line" model developed by ESA PWA. The "2-line" model tracks both the shore and backshore, allowing us to model the effect of beach nourishment, armoring, and other erosion mitigation measures. The 2-line model is a more refined version of the original 2008 PWA Hazard Mapping and approximately account for the effect of wider beaches reducing backshore (bluff) erosion. Several other improvements were included in the updated modeling. The net result was reduced shore recession, relative to the original 2008 maps except where there is landslide potential, such as in Daly City. The landslide potential was estimated by geologic-geomorphic interpretation.

Hazard Zones were mapped for five scenarios, current conditions in 2010 (Option 0), beach nourishment (Option 1), beach nourishment with reef (Option 2), armoring (Option 3), and a hybrid approach of allowing erosion and holding the line (Option 4i and 4ii). Options 1 through 4 were modeled for years 2050 and 2100 based on a "High" sea level rise scenario as described in USACE, 2011, Sea-Level Change Considerations for Civil Works Programs.

These most recent update to these Hazard Maps occurred in September, 2013. The shapefiles and



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PDFs associated with this update are included in the folder titled 'HazardZones_ESAPWA_16Sep2013.' Also note that the PDFs created in this updated were used in the draft version of the SF CRSMP in Appendix B.

Note that:

1. The new mapping is for the reaches with critical erosion only, and
 2. not all reaches have the "allow erosion" scenario most similar to the original maps.
- Hence, we think both map sets are useful, and there may be other permutations that may be of interest (e.g. the potential erosion for all reaches using the newer 2-line model). We can provide these as additional services if desired, if authorized with an increase in fee.

Please read the electronic disclaimer included in the main directory of the zipped folder prior to opening the GIS shapefiles.

Let us know if you have any questions or need additional data.

Thank you,

Hannah Snow

sent by Hannah Snow

cc Bob Battalio, P.E.