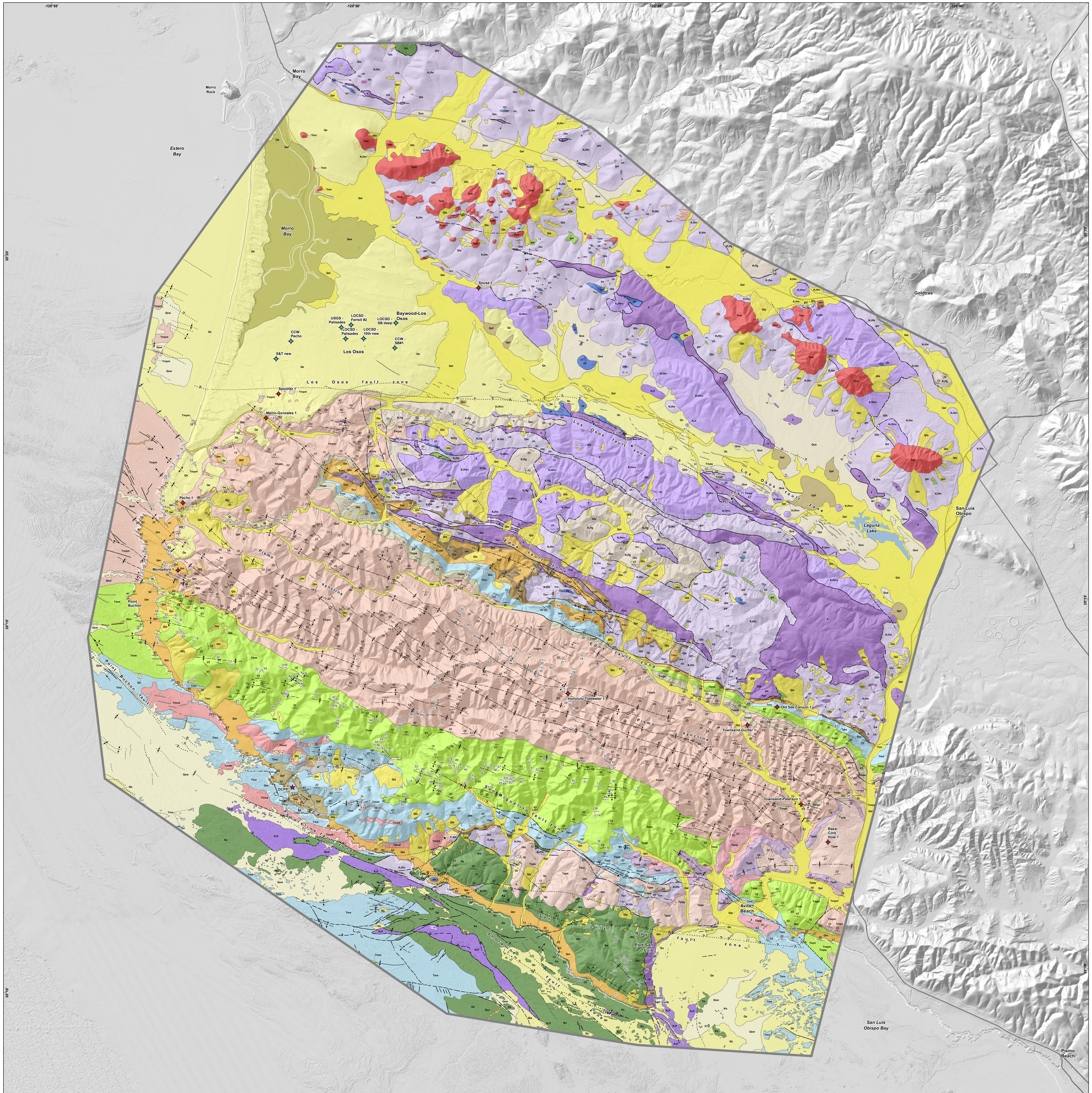

EXPLANATION

Geologic Units

Quaternary

Unit	Description
af	**Artificial fill:** fill material emplaced locally during construction and improvement activities.
Qs	**Marine sediments, offshore:** unlithified marine sand and silt with minor gravel mantling bedrock offshore.
Qsw	**Sand wave deposits, offshore:** unlithified sheets of sand that form migrating marine dunes.
Qcs	**Fluvial channel fill, offshore:** sediments filling paleo-stream channels cut into submerged bedrock platforms, inferred to be sand wave deposits (Qsw) over remnant alluvium and older marine sediment.
Qes	**Estuarine deposits of Morro Bay:** unlithified mud, silt, and sand within intertidal zone and channels.
Qe	**Eolian deposits:** unlithified sand deposited in dunes (may be active or inactive).
Qal	**Alluvial deposits:** unlithified silt, sand, and gravel valley fill deposited during overbank flooding, channel backfilling, and construction of debris flow levees.
Qc	**Colluvium:** unlithified poorly sorted silt, sand, and gravel mantling bedrock hillslopes.
Qt	**Fluvial terrace deposits:** unlithified silt, sand, and gravel deposited in stream valleys.
Qaf	**Alluvial fan deposits:** unlithified silt, sand, and gravel deposited in fans along valley margins.
Qls	**Landslide deposits:** unlithified masses of displaced bedrock and/or soil, may be active or inactive.
Qm	**Marine terrace deposits:** unlithified to weakly lithified marine sand and gravel deposited above wave-cut platforms in the Pleistocene and commonly overlain by alluvial fan and colluvial deposits.
Qoa	**Older alluvial deposits:** weakly lithified siltstone, sandstone, and conglomerate deposited as valley fill in the Pleistocene.
Qu	**Quaternary deposits, undifferentiated**

Neogene — Pliocene

Pismo Formation

Unit	Description
Tpps	**Squire Member:** unstratified white to tan, medium-to coarse-grained sandstone.
Tppb	**Belleview Member:** sandy claystone, siltstone, claystone and fine-grained sandstone, diatomaceous horizons.
Tppg	**Gragg Member:** fine- to medium-grained sandstone, rare diatomaceous siltstone, pebble conglomerate, and bituminous sandstone.

Neogene — Miocene

Unit	Description
Tmpm	**Miguelito Member:** siltstone and claystone, brown, thinly bedded, moderately well-lithified, includes rare to common intervals of siliceous and and dolomitic siltstone, opaline and porcelaneous shale, and bituminous sandy siltstone.
Tmpe	**Edna Member:** sandstone, brown, thinly bedded to unstratified, weakly to moderately well-lithified, includes intervals of bituminous sandstone.
Tmm	**Monterey Formation:** tuffaceous, siliceous, and diatomaceous siltstone and shale, gray and brown (weathers to chalky white), thinly bedded and well-lithified, includes common chert laminations.

Obispo Formation

Unit	Description
Tmod	**Obispo Formation, diabase:** brown, aphanitic to phaneritic, intrusive in dikes and sills.
Tmo	**Obispo Formation, undifferentiated:** tuffaceous, dolomitic siltstone and fine sandstone, rare diatomaceous siltstone, tuff, and resistant zeolitized tuff.
Tmr	**Rincon Formation:** siltstone and silty claystone, dark brown, thinly bedded, includes intervals of dolomitic sandstone.

Paleogene — Oligocene

Unit	Description
Tov	**Vaqueros Sandstone:** conglomerate and sandstone, tan to gray, includes prominent coquina horizon.
Tocf	**Cambria Felsite:** Hard rhyolite/dacite grayish-white crystalline felsite.
Tom	**Morro Rock – Islay Hill Volcanic Intrusive Complex:** dacite volcanic plugs, lava domes, intrusive sheets, and felsic-rhyolite dacite.

Geologic Units (cont.)

Jurassic/Cretaceous

Unit	Description
Ks	**Cretaceous Sandstone:** arkosic to lithic sandstone, brown, bedded, well-lithified, fine- to course-grained, includes minor shale.
KJf	**Franciscan Complex, undifferentiated**
KJfm	**Franciscan Complex, melange:** sheared shale, mudstone and siltstone with small bodies of graywacke (gw), schist (sch), blueschist (bs), conglomerate (cg), metavolcanic rocks (mv), serpentinite (s), quartz silica carbonate (sc), shale (sh), and green, white, or red chert (ch).
bs	**Blueschist**
cg	**Conglomerate**
ch	**Chert**
gw	**Greywacke**
mv	**Metavolcanic rocks**
s	**Serpentine**
sc	**Silica-carbonate rocks**
sch	**Schist**
sh	**Shale**
KJg	**Franciscan Complex, graywacke sandstone**
KJfmv	**Franciscan Complex, metavolcanic rocks**
KJfo	**Franciscan Complex, ophiolite**

Geologic Structures

From previous mapping and GMP

- **Syncline:** solid where well located, dashed where approximate, dotted where concealed, queried where inferred. Arrow points in direction of plunge.
- **Anticline:** solid where well located, dashed where approximate, dotted where concealed, queried where inferred. Arrow points in direction of plunge.
- **Fault:** solid where well located, long dash where approximate, short dash where inferred, dotted where concealed, queried where uncertain.
- **Lineament:** solid where well expressed, dashed where moderately expressed, tics indicate facing direction of scarps; possible fault..

From GMP

- 38 Inclined bedding
- 70 Overturned bedding
- 60 Inclined fault
- Vertical fault
- Inclined shear or foliation
- Vertical shear or foliation

From previous studies

- 26 Inclined bedding
- Vertical bedding
- 70 Overturned bedding
- Horizontal bedding
- 60 Inclined fault

Other

- Coastline (white line) at mean lower low water (approximate sea level)
- Oil and gas exploration well
- Hydrogeologic borehole/well
- Diablo Canyon Power Plant (DCPP)

N W E S

Map Scale: 1:32,000

0 1 2 mi.

0 2 4 km

Map Projection: WGS 84 / UTM Zone 10N

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- Cleath & Associates, 2005, Sea Water Intrusion Assessment and Lower Aquifer Source Investigation of the Los Osos Valley Ground Water Basin, San Luis Obispo County, California, unpublished consulting report prepared for the Los Osos Community Services District, October 2005.
- Fugro William Lettis & Associates, 2009, Unpublished field maps from coastline mapping at Diablo Canyon Power Plant site, scale 1:2400 to 1:1200.
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- Fugro William Lettis & Associates, 2011, Transmittal and Documentation of GIS Shape Files of Landslides, Landslide Susceptibility, and Liquefaction Susceptibility for HAZUS Input to Diablo Canyon Power Plant Evacuation Plan, Letter Report and Data CD, dated February 18, 2011.
- Hall, C.A., 1973a, Geologic Map of the Morro Bay South and Port San Luis Quadrangles, California, U.S. Geological Survey Misc. Field Studies Map FM-511, scale 1:24,000.
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- Hall, C.A., and Prior, S.W., 1975, Geologic Map of the Cayucos-San Luis Obispo Region, San Luis Obispo County, California, U.S. Geological Survey Misc. Field Studies Map MF-686 (two sheets), scale 1:24,000.
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- Lettis, W.R., and Hall, N.T., 1994, Los Osos fault zone, San Luis Obispo County, California, in Alterman, I.B., McMullen, R.B., Cluff, L.S., and Slemmons, D.B., eds., Seismotectonics of the Central California Coast Ranges, Geol. Soc. Am. Special Paper 292, p. 73-102 and Plate 5.
- Pacific Gas and Electric Company (PG&E), 1974, Units 1 and 2 Diablo Canyon Power Plant, Final Safety Analysis Report, Update 20, U.S. Nuclear Regulatory Commission Docket Nos. 50-275 and 50-323, Figures 2.5-5, 2.5-6, 2.5-8, and 2.5-12. Also includes: Earth Science Associates, 1974, Geologic Map of the Morro Bay South and Point San Luis Quadrangles, San Luis Obispo County, California: and Adjacent Offshore Area, Plate VIII, Appendix 2.5D, scale 1:24,000.
- Pacific Gas and Electric Company (PG&E), 1990, Response to Question GSG Q16, Diablo Canyon Long Term Seismic Program, Diablo Canyon Power Plant, U.S. Nuclear Regulatory Commission Docket No. 50-275 and No. 50-323, Plate GSG Q16-1.
- Pacific Gas and Electric Company (PG&E), 2004, Final safety analysis report of the Diablo Canyon independent spent fuel storage installation, U.S. Nuclear Regulatory Commission Docket No. 72-26, Figures 2-6.6, 2.6-7, and 2.6-8.
- Pacific Gas and Electric Company (PG&E), 2011, Report on the analysis of the Shoreline fault zone, central Coastal California, Report to the U.S. Nuclear Regulatory Commission, January, 2011. http://www.pge.com/myhome/edusafety/systemworks/dcpp/shorelinereport/
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- Wiegers, M.O., 2010, Geologic Map of the San Luis Obispo 7.5' Quadrangle, San Luis Obispo County, California: A Digital Database, Version 1.0, scale 1:24,000.
- William Lettis & Associates, 1996, Unpublished geology compilation map produced for the DCPP Dry Cask Facility, Geologic/Geotechnical Siting Study, Plate 1 dated February 1996, scale 1:2400.
- William Lettis & Associates, 1998, Unpublished geologic map for the PG&E Diablo Canyon Power Plant Dry Cask Storage Facility Siting Study, prepared in April and May, 1998 with revisions in May, 1998 and February, 2001, scale 1:2400.

Base Image: Composite DEM, version 7 (DCPP Geodatabase, 2013)

PLATE 1: Geologic Map of the Irish Hills and Adjacent Area

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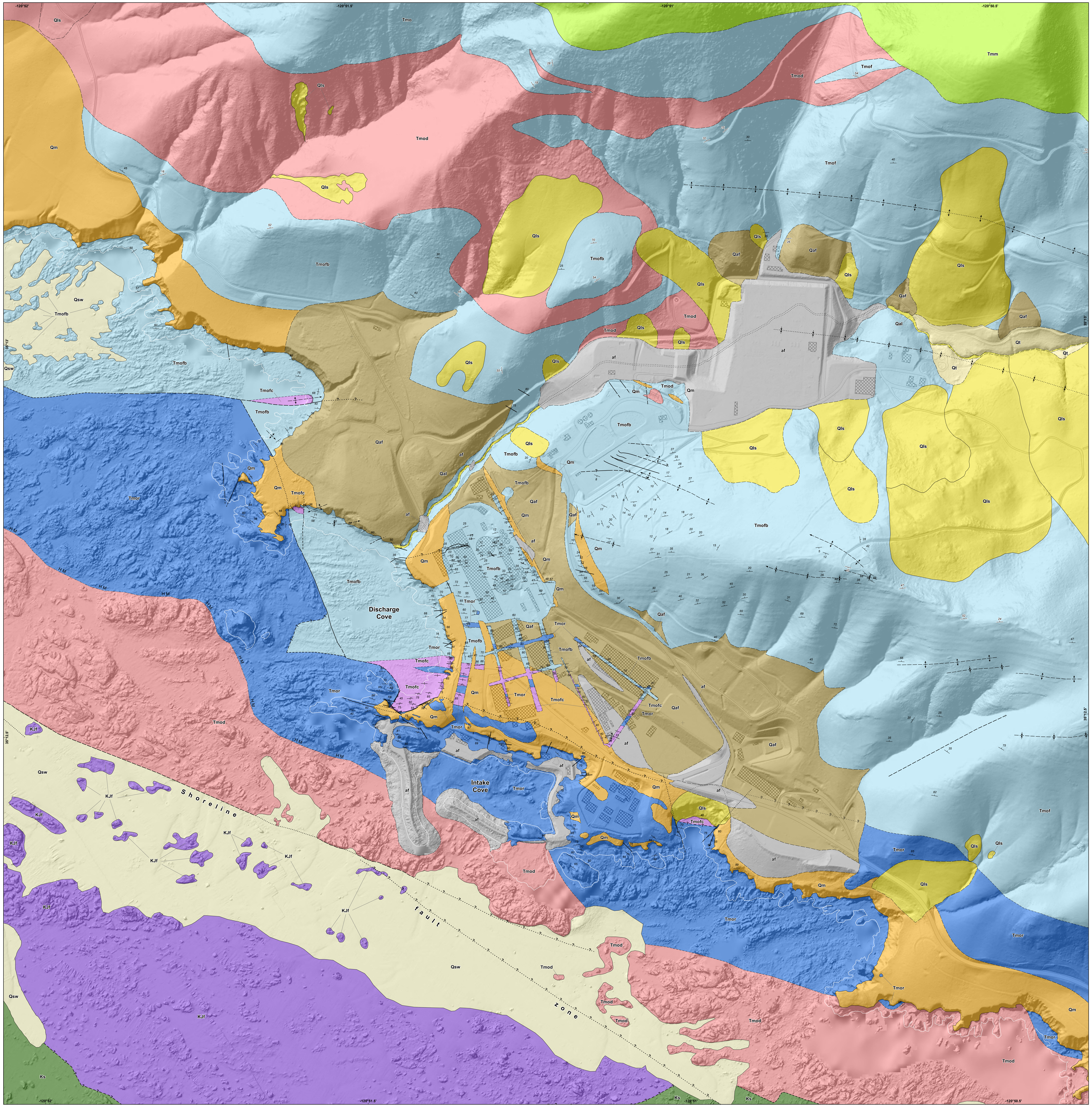

EXPLANATION

Geologic Units

Quaternary

- **af** — **Artificial fill:** fill material emplaced locally during construction and improvement activities. Shallow fills not shown; bedrock with trenches and excavation for power block shown; filled with af.
- **Qsw** — **Sand wave deposits, offshore:** unlithified sheets of sand that form migrating marine dunes.
- **Qal** — **Alluvial deposits:** unlithified silt, sand, and gravel valley fill deposited during overbank flooding, channel backfilling, and construction of debris flow levees.
- **Qaf** — **Alluvial fan deposits:** unlithified silt, sand, and gravel deposited in fans along valley margins (only shown near DCPP).
- **Qls** — **Landslide deposits:** unlithified masses of displaced bedrock and/or soil; may be active or inactive.
- **Qt** — **Fluvial terrace deposits:** unlithified silt, sand, and gravel deposited in stream valleys.
- **Qm** — **Marine terrace deposits:** unlithified to weakly lithified marine sand and gravel deposited above wave-cut platforms in the Pleistocene and commonly overlain by alluvial fan and colluvial deposits.

Neogene — Miocene

- **Tmm** — **Monterey Formation:** tuffaceous, siliceous, and diatomaceous siltstone and shale, gray and brown (weathers to chalky white), thinly bedded and well-lithified, includes common chert laminations.
- **Tmo** — **Obispo Formation, undifferentiated:** tuffaceous, dolomitic siltstone and fine sandstone rare diatomaceous siltstone, tuff, and resistant zeolitized tuff.
  - **Tmod** — **Obispo Formation, diabase:** brown, aphanitic to phaneritic, intrusive in dikes and sills.
  - **Tmof** — **Obispo Formation, fine-grained member:** Bedded tuffaceous to diatomaceous, fine to medium-bedded siltstone, sandstone, and rare shale; commonly dolomitic. Locally includes tuff beds.
  - **Tmofb** — **Obispo Formation, fine-grained sub-member b:** Bedded tuffaceous, dolomitic, fine to medium-bedded siltstone and fine sandstone.
  - **Tmofc** — **Obispo Formation, fine-grained sub-member c:** Bedded shale and siltstone, very fine bedded silty shale with medium bedded, dolomitic siltstone interbeds.
  - **Tmor** — **Obispo Formation, resistant member:** Bedded to massive zeolitic tuff, tuff breccia, and tuffaceous sandstone.

Jurassic/Cretaceous

- **Ks** — **Cretaceous Sandstone:** arkosic to lithic sandstone, brown, bedded, well-lithified, fine- to course-grained, includes minor shale.
- **KJf** — **Franciscan Complex, undifferentiated**

Geologic Structures

From previous mapping and GMP

- **Contact:** solid where well located, long dash where approximate, short dash where inferred, dotted where concealed, queried where uncertain.
- H M — Boundary (contact) between Obispo diabase and tuffaceous rocks interpreted from helicopter magnetic survey (PG&E, 2011). Line may not follow exact contact of rock at surface.
- **Syncline:** dashed where approximate, dotted where concealed. Arrow points in direction of plunge.
- **Anticline:** dashed where approximate, dotted where concealed. Arrow points in direction of plunge.
- **Fault:** solid where well located, long dash where approximate, short dash where inferred, dotted where concealed, queried where uncertain.

From GMP

- 38 — Inclined bedding

From previous mapping

- 26 — Inclined bedding
- Vertical bedding orientation
- 70 — Overturned bedding
- 60 — Inclined fault
- Vertical fault

Geographical Features

- Roads
- Buildings
- Coastline (white line) at mean lower low water (approximate sea level)

N, W, E, S

Map Scale: 1:3,000

0, 500, 1,000 ft.

0, 200, 400 m

Map Projection: WGS 84 / UTM Zone 10N

Geologic Map Sources

- Fugro William Lettis & Associates, 2009, Unpublished field maps from coastline mapping at Diablo Canyon Power Plant site, scale 1:2400 to 1:1200.
- Fugro William Lettis & Associates, 2010, Unpublished field maps from coastline mapping, Rattlesnake Creek to the Diablo Canyon Power Plant, scales include 1:1200, 1:2400, and 1:4800.
- Fugro William Lettis & Associates, 2011, Transmittal and Documentation of GIS Shape Files of Landslides, Landslide Susceptibility, and Liquefaction Susceptibility for HAZUS Input to Diablo Canyon Power Plant Evacuation Plan, Letter Report and Data CD, dated February 18, 2011.
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- Pacific Gas and Electric Company (PG&E), 1990, Response to Question GSG Q16, Diablo Canyon Long Term Seismic Program, Diablo Canyon Power Plant, U.S. Nuclear Regulatory Commission Docket No. 50-275 and No. 50-323, Plate GSG Q16-1.
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- William Lettis & Associates, 1996, Unpublished geology compilation map produced for the DCPP Dry Cask Facility, Geologic/Geotechnical Siting Study, Plate 1 dated February 1996, scale 1:2400.
- William Lettis & Associates, 1998, Unpublished geologic map for the PG&E Diablo Canyon Power Plant Dry Cask Storage Facility Siting Study, prepared in April and May, 1998 with revisions in May, 1998 and February, 2001, scale 1:2400.

Base Image: Composite DEM, version 7 (DCPP Geodatabase, 2013)

PLATE 2: Diablo Canyon Power Plant Site Geologic Map

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