

## **Initial Study: Environmental Cleanup of IR-6 and IR-8 Drainages**

SLAC National Accelerator Laboratory

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### **Project Title**

Environmental Cleanup of IR-6 and IR-8 Drainages

### **Lead Agency Name and Address**

California Regional Water Quality Control Board, San Francisco Bay Region

1515 Clay Street #1400, Oakland, CA 94612

#### *Contact Person:*

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### **Other Permits and Approvals Required**

- U.S. Army Corps of Engineers: Clean Water Act, Section 404 Permit
- California Department of Fish and Wildlife: Lake and Streambed Alteration Agreement
- Regional Water Board: Clean Water Act, Section 401 Certification or Waste Discharge Requirements

### **Project Location**

SLAC National Accelerator Laboratory (SLAC)

2575 Sand Hill Road, San Mateo County, California (street address)

The project is located within unincorporated San Mateo County on Stanford University property, south of Sand Hill Road and East of Interstate 280, partially within the SLAC leasehold and partially outside of the SLAC leasehold. Figure 1 shows the project location. Figure 2 shows the location of the IR-6 and IR-8 drainages at the southern area of SLAC.

### **Project Sponsor**

SLAC National Accelerator Laboratory

2575 Sand Hill Road, Menlo Park, California 94025 (mailing address)

SLAC is operated by Stanford University for the Department of Energy (DOE) and is a multi-program laboratory exploring frontier questions in accelerator research, particle physics and astrophysics, and the structure and function of matter. The linear accelerator began operation in the mid-1960's. SLAC is located on land owned by Stanford University, which is leased to the DOE.

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### **General Plan Designation**

San Mateo County last updated its General Plan in 1986. The General Plan land use designation is Institutional / General Open Space / Future Study for the Stanford University lands where SLAC is located, including the Project area.

### **Zoning and Location**

SLAC is a federally-funded national research laboratory constructed in 1963 and continuously managed and operated by Stanford University (Stanford) under a contract with the United States Department of Energy (DOE). The SLAC facility is located on land owned by Stanford and leased to DOE, although the drainage channels for which the Project is planned are located partly within the SLAC leasehold and partly outside of the SLAC leasehold on Stanford University property, as shown on Figures 2 and 3. As a federal facility, the SLAC facility is exempt from local zoning laws. In addition, the SLAC land is part of the original land grant that established Stanford; the land cannot be sold and must be held in perpetuity by Stanford's trustees to support its educational mission.

The current zoning for the land at SLAC and adjacent to SLAC where the Project is located allows for farming and single-family Residential Estates with a 1- to 5-acre minimum lot size (R-E/S-11). Schools, libraries, riding academies, and golf courses are allowed subject to securing a Use Permit. All of the Project area falls within the R-E/S-11 zoning.

### **Land Uses**

Land use at the SLAC facility is a combination of industrial, educational, and short-term residential. Adjacent land uses north and east of SLAC near Sand Hill Road are commercial and residential; other adjacent land uses include to the south of SLAC include agricultural and open space. As shown on Figure 2, the adjacent land to the south of the project area is a horse track operated by the Portola Valley Training Center (PVTTC), an equine facility located on property owned by Stanford University. The open adjacent land to the west of the Project area (see Figure 2) is also owned by Stanford University, and is grassland used primarily for grazing.

#### **I. Project Summary**

The Project will remove soil containing polychlorinated biphenyls (PCBs), lead, zinc, and copper from portions of earthen drainage channels at SLAC to comply with Regional Water Board Cleanup and Abatement Order No. R2-2009-0072. Following soil removal, the drainages will be backfilled and replanted to enable them to continue to function as drainages and habitat. SLAC is in the process of preparing a Removal Action Work Plan for this Project, which will be submitted to the Regional Water Board for approval before the field work is conducted.

The Project will have a net environmental benefit by removing soil containing PCBs and metals from the drainages and by restoring the Project area's function as a stormwater drainage system with wetland, riparian, and upland vegetation. This Initial Study identifies and evaluates the anticipated environmental effects of the Project and describes mitigation measures to reduce any potentially significant effects to less than significant.

#### **A. Supporting Documents**

A biological assessment (BA) of the Project area was performed in 2016 and is documented in the report: *Biological Assessment for the California Red-legged Frog* (HTH, 2017a). The BA reviews the proposed Project in sufficient detail to determine the extent to which the proposed

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action may affect (a) any threatened, endangered, or candidate animal or plant species and/or its habitat and (b) designated critical habitat of those species.

A delineation of wetland, riparian, and upland areas within the Project area is presented in the report *Preliminary Identification of Waters of the United States* (Wetland Delineation Report; HTH, 2017b).

Plans for vegetation removal, restoration, and monitoring are described in the *Restoration and Monitoring Plan* (HTH, 2017c).

Draft construction plans, attached to this Initial Study, provide details on the scope of the excavations, staging areas, and restoration plans. The construction plans may be modified prior to starting the work, but the draft plans sufficiently illustrate the key elements of the Project.

Related documents, describing prior environmental investigations in the IR-6 and IR-8 drainage channels, the development of risk-based cleanup goals for soil and sediments at SLAC, and the approach to implementing removal actions at SLAC have been prepared in accordance with the Water Board Order and are available on the Water Board's Geotracker website for SLAC [<https://geotracker.waterboards.ca.gov/>], site SL0608125065. Prior Regional Water Board orders for the SLAC site were: Order No. R2-2005-0022 and Order No. R2-1985-0088.

### **II. Project Description**

Stormwater runoff from the narrow linear accelerator, Research Yard (RY), Stanford Synchrotron Radiation Lightsource (SSRL), Campus Area and other parts of the SLAC facility is collected in three earthen surface water channels, referred to as the IR-6 primary, IR-6 secondary, and IR-8 drainage channels. As shown on Figure 2, stormwater combines at the IR-6/8 confluence area, passes through buried culverts under the horse track at the PVTC, and flows through surface drainages at PVTC before discharge to San Francisquito Creek.

The Project will be performed in portions of these three drainage channels and their confluence area (the IR-6/8 confluence area) on undeveloped land near the southern portion of SLAC. The areas of the planned excavations in the drainage channels are shown on Figure 3.

The watersheds of the IR-6 primary and IR-8 channels are largely paved and urbanized. The IR-6 channel drains approximately 30 paved and/or urbanized acres from a network of 7,500 linear feet of stormwater piping. The IR-8 channel drains approximately 65 acres from a network of approximately 12,000 linear feet of storm drain piping. The IR-6 secondary channel receives runoff from a small and mostly unpaved area at the southern edge of SLAC. The drainage channels, the upstream catchment areas, and nearby features of the area are shown on Figure 2.

Sediments in the drainage channels and confluence area contain PCBs; copper, lead, and zinc have also been detected above cleanup levels in limited sediments within the IR-6/8 confluence area. The sources of these impacts were electrical transformers, flaking paints, and lead used as shields during operation of the accelerator. Spills, releases, and known sources of PCBs and metals in those areas have been remediated, and the oil in remaining PCB-transformers has been

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replaced with non-PCB transformer oil or the PCB-transformers removed, so recontamination of sediment is not expected to take place. SLAC previously removed soil from all known upstream sources; from portions of IR-6 primary drainage channel in 1995 and 2006; the IR-6 secondary drainage channel in 2011; and from the upper reach of the IR-8 drainage channel in 2005, as interim actions. Those actions targeted areas with PCBs in soil; and based on periodic soil sampling since those removals, the detected concentrations of PCBs in soil in the drainage channels have significantly decreased with each successive removal activity. Thus source areas in the RY and SSRL have been addressed and residual impacts in the drainages have also been removed to the extent practicable at the time; therefore, this Project will excavate remaining areas with elevated levels of PCBs and metals in sediment and is intended to be a final action to meet cleanup goals.

The Project area includes the earthen portions of the IR-6 drainages, the IR-8 drainage, and the IR-6/8 confluence area, as well as equipment staging and material handling areas and access routes to these areas. Project work areas are shown on the draft construction plans attached to this Initial Study. Temporary access will include the paved road on SLAC leasehold north of the IR-6 drainage and east of the IR-8 drainage, and a grassy path through a gate on the earthen hillside between the channels and the road (see Figure 3). Staging areas will be alongside the paved road and in other asphalt-paved or gravel-covered laydown areas within the SLAC facility. Additional detail about the scope of the project within each of the drainage channels follows:

### A. IR-6 Primary Drainage Channel

The IR-6 primary drainage receives stormwater flow from the RY-SSRL area at SLAC through a network of storm drain lines that daylight into a concrete-lined drainage channel and then into the unlined earthen drainage (see Figures 2 and 3). The earthen portion of the IR-6 primary drainage is approximately 330 feet long, and includes rip-rap in first 60 feet (at the eastern end) to dissipate the high energy flow from the outfall of the concrete-lined channel. There is an earthen berm approximately 3 to 4 feet high between the earthen portions of the IR-6 primary channel and the IR-6 secondary channel to the south. The IR-6 primary drainage channel is normally dry during the summer months and is vegetated with grasses, forbs, and some trees (HTH, 2017b). The Project includes soil and rip-rap removal and replacement, removal of part of the berm separating the primary and secondary channels, followed by backfill and revegetation, along the entire length of the earthen channel, as shown on Figures 3 and 4 and described further below. The estimated total excavation volume in the IR-6 primary drainage, including partial berm removal, is approximately 700 bank cubic yards (BCY).

### B. IR-6 Secondary Drainage Channel

The IR-6 secondary drainage channel parallels the earthen portion of the IR-6 primary channel south of the earthen berm. It includes a concrete-lined portion approximately 180 feet long followed by an unlined earthen channel approximately 360 feet long. The secondary channel receives a stormwater flow from a small area (approximately 0.3 acres) near the southern edge of SLAC. The IR-6 secondary drainage channel is normally dry during the summer months and the earthen portion is vegetated with grasses, forbs, and some trees (HTH, 2017b). Soil

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with PCBs was removed from much of the secondary channel in 2011. The proposed Project includes soil removal and replacement, followed by backfill and revegetation, along portions of the secondary channel where PCBs remain, as shown on Figures 3 and 4 and described further below. The portions of the IR-6 secondary drainage to be excavated have a combined length of approximately 130 linear feet; the estimated excavation volume is approximately 150 BCY.

### **C. IR-8 Drainage Channel**

The IR-8 drainage receives stormwater in the rainy season from the Campus Area at SLAC through a network of storm drain lines that daylight into a concrete-lined drainage channel and then outfalls into the unlined earthen drainage (see Figures 2 and 3). The IR-8 drainage also receives approximately two gallons per minute (on average) of groundwater collected from two subdrain systems for tunnels at SLAC. The earthen portion of the IR-8 drainage is approximately 700 feet long, and includes rip-rap in the first 150 feet (at the northern end) to dissipate the high energy flow from the outfall of the concrete-lined channel.

Due to the pumped groundwater from the tunnel subdrain systems, water flows in the IR-8 drainage year-round. Therefore, the center-line of the IR-8 drainage is perennially wet, creating artificially-induced wetland and riparian conditions. Recent surveys have identified the presence of perennial marsh wetland, riparian, and uplands vegetation in the IR-8 drainage. The vegetation delineations, with proposed excavation areas overlain, are shown on Figure 4 (HTH, 2017b).

For the IR-8 drainage channel, the proposed Project includes soil and rip-rap removal and partial replacement (only half the rip-rap will be replaced), followed by backfill and revegetation, along approximately the upper 360 linear feet of the channel, as shown on Figures 3 and 4 and described further below. The lower half of the IR-8 drainage channel will not be disturbed for the Project. The estimated excavation volume in the IR-8 drainage is approximately 650 BCY.

A concrete oil-water separator (OWS) is located just east of the IR-8 drainage, approximately 120 feet from the start of the unlined earthen channel, as shown on Figure 3. The OWS was installed in approximately 1979 but is currently not in service, and it may never have been used. There is a 6-inch diameter pipe from the end of the concrete-lined channel to the OWS, but the pipe is currently plugged at its inlet in the channel. The OWS is approximately 6.5 feet deep and is installed with roughly half the OWS below ground and half above ground. Based on testing results, the OWS does not include asbestos-containing materials, and water and sediments in the OWS do not contain PCBs. The OWS is within the planned limits of excavation in the IR-8 drainage, and will be demolished and removed as part of this Project; the area where the OWS is located will be restored along with the surrounding drainage.

### **D. IR-6/8 Confluence Area**

The IR-6 and IR-8 earthen drainages come together at the IR-6/8 confluence area, as shown on Figure 3. The IR-6/8 confluence area extends for approximately 50 feet beyond the southern end of the IR-8 drainage channel and receives stormwater from the IR-6 and IR-8 drainage

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channels, as well as the groundwater pumped year-round from the tunnel sub-drains into the IR-8 drainage channel. A small swale is present on the west side of the confluence area, which receives some overland stormwater runoff from west of the confluence area, from Stanford University land leased by the Portola Valley Training Center (PVTC), the horse track south of the confluence area. Water drains from the confluence area to the south through two underground culverts that pass beneath the PVTC. Riparian vegetation is present in the IR-6/8 confluence area due to the year-round flow of groundwater pumped from the tunnel sub-drains into the IR-8 drainage channel. For the IR-6/8 confluence area, the proposed Project includes soil removal and replacement, followed by backfill and revegetation, along approximately 33 feet of the drainage, as shown on Figures 3 and 4 and described further below. The estimated excavation volume in the IR-6/8 confluence area is approximately 50 BCY.

### **E. Equipment Staging and Materials Handling Areas**

Construction equipment as needed, such as small backhoes or excavators, off-road haul trucks, loaders, and a small bulldozer, will be temporarily staged in upland areas along the paved access road on the SLAC leasehold, as well as just north of the IR-6 drainage channel, as shown on Figure 3 and on Sheets G-3 and G-4 in the attached Construction Plans. These staging areas are currently either paved or vegetated with a mix of native and invasive grasses. No grading of equipment or material storage or handling areas is planned. The proposed project would involve placing plastic sheeting below stockpiles, loading from stockpiles, and parking of the construction equipment for two months. Soil excavated from the drainage channels will temporarily be placed on plastic sheeting and, when not actively in use, covered with weighed sheeting to limit dust, until removal by truck to the appropriate offsite disposal facility. Staging and materials handling areas will be restored with erosion control matting and native plant seeding at the completion of soil backfill activities.

### **F. Confirmation Sampling and Analysis**

Confirmation soil samples will be collected from the base of the excavations and analyzed as described below, following sampling procedures in the SLAC Standard Operating Procedures (SOPs) Manual (SLAC, 2008) and analyzed for PCBs and/or zinc, copper, and lead. One 9-point composite sample will be collected every approximately 225 square feet or less. This confirmation sampling strategy is expected to result in the collection of approximately 72 samples from the IR-6 drainage channel (approximately 60 samples from the primary drainage channel and 12 samples from the secondary drainage channel), 43 samples from the IR-8 drainage, and two samples from the IR-6/8 confluence area. The samples from the IR-6 primary, IR-6 secondary, and IR-8 channels will be analyzed for PCBs only. The samples from the IR-6/8 confluence area will also be analyzed for copper, lead, and zinc because these metals were detected at concentrations exceeding ecological screening levels in soil co-located with PCBs. If concentrations of PCBs and/or metals do not meet clean-up goals, additional soil will be excavated to the extent feasible and additional confirmation samples will be collected

The chemical analysis methods for IR-6 and IR-8 Drainage Channel IAs are listed below:

- a. Confirmation samples from the IR-6 and IR-8 drainage channels

- i. PCBs – U.S. EPA Method 8082; and
  - ii. Moisture content – American Society for Testing and Materials (ASTM) Method D2216.
- b. Confirmation samples from IR-6/8 confluence area
- i. PCBs – U.S. EPA Method 8082;
  - ii. Copper, lead, and zinc – U.S. EPA Method 6020A; and
  - iii. Moisture content – ASTM Method D2216.

### **III. Overview of Project Impacts and Mitigation Measures**

#### **A. Excavation and Soil Removal**

The estimated total area of excavation is approximately 18,000 square feet (~0.4 acre), and the depth of excavation is planned to range from 1 to 3 feet below the existing ground surface in most areas, and approximately 5 feet deep near the oil/water separator (see Figure 3). The estimated combined excavation volume is approximately 1,550 BCY, or 2,500 tons. It is estimated that approximately 130 truckloads of excavated material will be transported to a landfill, and a similar number of truckloads of fill material will be brought to the site for restoration. The field work for performing excavation and site restoration is anticipated to take approximately two months. The primary field work is planned for the summer months, within the June through September time frame, to avoid the typical periods of rainfall and stormwater runoff. Water quality is not expected to be impacted during or following the Project, as erosion control measures will be implemented during the Project and while vegetation re-establishes post-excavation.

- Existing PCB concentrations range up to 5.9 milligrams per kilogram (mg/kg) in the drainage channels, and up to 35 mg/kg in fill material near the OWS. The extent and locations of the excavations are designed based on the SLAC site-specific cleanup goal of 0.23 mg/kg for PCBs in soil. This cleanup target reflects human health risk-based goals for potential future unrestricted land use (SLAC, 2007a, 2016) and is also protective based on ecological risk-based goals for soil and sediment (SLAC, 2007b, 2016), as required by the Board Order.
- Existing lead, copper, and zinc concentrations in the IR-6/IR-8 confluence area range up to 235 mg/kg, 130 mg/kg, and 1,600 mg/kg, respectively. The extent and location of the excavation in the confluence area is designed based on locations where these metals exceed both background concentrations (19 mg/kg, 54 mg/kg, and 300 mg/kg, respectively) and screening levels for ecological protection (7.4 mg/kg, 69 mg/kg, and 168 mg/kg, respectively). The cleanup goal for the metals are background levels or the ecological protection screening levels if higher than background.

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- An abandoned concrete OWS that is located within the planned excavation area for the IR-8 drainage channel will also be removed. The OWS extends to approximately 4 feet below ground surface.
- Water will temporarily be diverted around the excavation areas in the IR-8 drainage channel during the Project. Existing water flow in the portion of the IR-8 drainage channel that is not subject to excavation will be maintained.
- Excavated soil, concrete debris from the oil/water separator, and removed vegetation will be disposed off-site in a permitted landfill.

### B. Vegetation Removal

Vegetation will be removed as needed from the planned excavation areas; the planned excavation areas are shown on Figure 3. Approximately 0.02 acres of wetland vegetation and approximately 0.09 acres (360 linear feet on each bank) of riparian vegetation will be removed, as shown on Figure 4. The extent of vegetation removal is described in more detail in the Wetland Delineation Report (HTH, 2017b) and the Restoration and Monitoring Plan (HTH, 2017c). An arborist (Newcomb Tree Experts, Inc.) surveyed the proposed excavation and access areas for the Project in December 2016 and identified trees to be removed as follows:

- IR-6 drainage channel and IR-6/8 confluence work areas (16 trees)
  - 5 Arroyo Willow<sup>1</sup>
  - 8 Live Oak<sup>2</sup>; and,
  - 3 Valley Oak.
- IR-8 drainage channel work area (58 trees):
  - 53 Arroyo Willow
  - 2 Eucalyptus<sup>3</sup>
  - 1 Live Oak; and,
  - 2 London Plane.<sup>4</sup>

No tree or vegetation removal is proposed for equipment staging and materials handling areas.

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<sup>1</sup> Of the 58 willows to be removed in total, 53 are living. For the most part, the willows are small in size: of the living trees, only 19 have a diameter at breast height (dbh) of 6-inches or larger.

<sup>2</sup> The total of 12 Live Oak and Valley Oak trees to be removed range in size from 3 to 20 inches dbh.

<sup>3</sup> The two Eucalyptus trees to be removed are 4 and 7 inches dbh.

<sup>4</sup> The two London Plane trees to be removed are 6 and 10 inches dbh.



### C. Mitigation Measures and Site Restoration

Excavation of the drainage channels will temporarily impact the wetland and riparian habitat there and will permanently remove existing vegetation within the excavation footprint. However, these impacts will be mitigated by “minimizing impacts by limiting the degree or magnitude of the action” and “repairing, rehabilitating, or restoring the impacted environment.” (Cal. Code Regs., tit. 14, § 15370, subds. (c) and (d). To minimize potential impacts, both excavation and restoration will be conducted during summer months, when the flow in all the channels is at its lowest.

Following completion of the excavation and confirmation sampling, the following restoration actions will be implemented:

- Excavated areas will be backfilled with clean import fill and regraded to restore the drainage patterns.
- Permanent erosion control measures will be constructed in backfilled areas, including replacement of rip-rap in approximately 60 feet of the upper IR-6 drainage channel and the upper 75 feet of the IR-8 drainage channel.
- Temporary erosion control measures will be put in place during and after the project, including placement of biodegradable coconut fiber netting in the channels and straw wattles on slopes to prevent erosion until vegetation is re-established.

The following mitigation measures will be implemented:

- Avoidance and minimization measures will be implemented during Project field activities in accordance with U.S. Fish and Wildlife Service’s *Programmatic Biological Opinion for Issuance of Permits for Projects that May Affect the Threatened California Red-Legged Frog in Nine San Francisco Bay Area Counties, California* (USFWS, 2014).
- Rip rap along 75 feet of IR-8 will be removed and restored to an earthen-bottom channel. The restored channel reach will have more gradually sloped banks to facilitate riparian vegetation growth and to reduce stormwater velocities during large storm events, reducing erosion.
- Affected wetland areas in the IR-8 drainage channel will be replanted with cattails.
- Affected riparian areas in the IR-8 drainage channel and IR-6/8 confluence area will be replanted with willows. The 58 willows to be removed willows will be replaced with 86 willow cuttings (HTH, 2017c). Survival will be monitored in accordance with the Restoration and Monitoring Plan (attached).
- Affected upland areas (including the IR-6 drainage channel) will be replanted with grasses.
- A monitoring program will be implemented to document habitat restoration.

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These mitigation activities are discussed in more detail in the attached Restoration and Monitoring Plan.

### D. Net Environmental Benefit

The positive long-term benefits of the Project are anticipated to outweigh its temporary adverse impacts. The Project's primary benefit will be to remove soil containing PCBs from the drainages. In addition, the Project will restore and improve the channels' dual function as a stormwater drainage and wetland, riparian, and upland habitat because the project will replace some hardscape (an OWS and a portion of existing rip-rap) with vegetated earthen channels. Revegetation will use native cattails, willows, and grasses.

### **IV. Environmental Factors Potentially Affected**

The environmental factors checked below (if any) would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture and Forestry Resources	<input type="checkbox"/> Air Quality
<input type="checkbox"/> Biological Resources	<input type="checkbox"/> Cultural Resources	<input type="checkbox"/> Geology /Soils
<input type="checkbox"/> Greenhouse Gas Emissions	<input type="checkbox"/> Hazards & Hazardous Materials	<input type="checkbox"/> Hydrology / Water Quality
<input type="checkbox"/> Land Use / Planning	<input type="checkbox"/> Mineral Resources	<input type="checkbox"/> Noise
<input type="checkbox"/> Population / Housing	<input type="checkbox"/> Public Services	<input type="checkbox"/> Recreation
<input type="checkbox"/> Transportation/Traffic	<input type="checkbox"/> Tribal Cultural Resources	<input type="checkbox"/> Utilities / Service Systems
<input type="checkbox"/> Mandatory Findings of Significance		

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### **DETERMINATION**

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

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Signature

Date

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Signature

Date

**EVALUATION OF ENVIRONMENTAL IMPACTS**

**1. AESTHETICS – Would the Project:**

**a) Have a substantial adverse effect on a scenic vista?**

Evaluation: The project area is not part of a scenic vista.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

Evaluation: Interstate 280 west of the project area is a designated scenic highway. However, there will be not be damage to scenic resources. The Project area is approximately 500 to 900 feet west of the highway and approximately 20 to 30 feet lower in elevation, so the Project area is not readily visible from the highway due to distance and topography. Also, the trees nearest the highway (on the west side of the IR-8 drainage channel) will not be removed for the Project, thus preserving any existing visual presence from the highway.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**c) Substantially degrade the existing visual character or quality of the site and its surroundings?**

Evaluation: There will be short term impacts that will degrade the existing visual character or quality of the site, primarily due to the removal of vegetation and construction activities. These impacts are not anticipated to be significant because they are temporary and localized in nature. Restoration activities are expected to restore or enhance the visual character of the site.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

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### **d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

Evaluation: No new source of light is included in the Project.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

## **2. AGRICULTURE AND FOREST RESOURCES – Would the Project:**

### **a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?**

Evaluation: The Project area is within land designated as Grazing Land under the Farmland Mapping and Monitoring Program, and is not within Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (CDC, 2016).

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?**

Evaluation: The Project area is not zoned for agricultural use, and is not within a Williamson Act contract area.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?**

Evaluation: The Project area is not zoned as forest land, timberland, or Timberland Production.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**3. AIR QUALITY - Would the project:**

**a) Conflict with or obstruct implementation of the applicable air quality plan?**

Evaluation: The Project construction activities will not conflict with applicable air quality plans or regulations. The Project does not include excavating contaminated soil with over 50 parts per million (ppm) of organic compounds, and therefore is not subject to Bay Area Air Quality Management District (BAAQMD) Regulation 8 Rule 40 (Aeration of Contaminated Soil and Removal of Underground Storage Tanks) or other BAAQMD regulations.

Construction-related activities generate criteria air pollutants including carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>10</sub>, and PM<sub>2.5</sub>), ozone precursor emissions such as reactive organic gases (ROG) and oxides of nitrogen (NO<sub>x</sub>); and greenhouse gases (GHGs). Sources of these emissions include on-road haul trucks, delivery trucks, worker motor vehicles, and off-road excavation and loading equipment. Sources of fugitive dust emissions could include construction-related activities such as soil excavation and loading, and soil hauling. The OWS to be demolished and removed has been determined to not contain asbestos, so there are no potential asbestos emissions during the Project.

BAAQMD CEQA Guidelines (BAAQMD, 2012) recommend that all construction projects implement “Basic Construction Mitigation Measures” listed in Table 8-1 of those guidelines to mitigate emissions of criteria pollutants and ozone precursors. The Table 8-1 Basic Construction Mitigation Measures are (BAAQMD, 2012) are copied below:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer’s specifications. All equipment shall be checked by a certified visible emissions evaluator.

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8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

The applicable elements of the BAAQMD's "Basic Construction Mitigation Measures" will be utilized on the Project. The Project is expected to include approximately two small backhoes or excavators, two to four off-road haul trucks for moving excavated soil and fill, a loader, a small dozer for grading during restoration, on-road trucks for soil transportation (approximately 130 loads each of excavated soil and imported fill spread out over two months), and support equipment. This Project will not lead to any long-term increase in emissions, such as an increase in vehicle trips from a new development. With the limited amount of equipment, a project duration of approximately two months, and no increase in long-term emissions, this Project is smaller than many construction projects in the Bay Area and the "Basic Construction Mitigation Measures" are considered sufficient to assure the construction-related emissions on this Project are less than significant.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact.

### **b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?**

Evaluation: See evaluation for Question 3a, above. Based on that evaluation, the Project is not expected to have a significant impact on any air quality standard or contribute substantially to an existing or projected air quality violation.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?**

Evaluation: See evaluation for Question 3a, above. Based on that evaluation, the Project will not have a significant impact on any air quality standard.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**d) Expose sensitive receptors to substantial pollutant concentrations?**

Evaluation: We do not expect the Project to generate substantial pollutant concentrations, and there are no sensitive receptors, near the Project area. Adjacent property includes SLAC itself and open areas at the PVTTC used for horse riding and grazing. With standard dust controls during soil excavation, fugitive dusts are not expected to reach the adjacent properties.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**e) Create objectionable odors affecting a substantial number of people?**

Evaluation: The Project construction activities are not expected to create objectionable odors.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**4. BIOLOGICAL RESOURCES - Would the project:**

**a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

Evaluation: A wetland delineation report (HTH, 2017b), biological assessment (HTH, 2017a), and restoration and monitoring plan (HTH, 2017c) have been prepared for the Project. As described in those reports, the proposed project site includes wetland areas (~0.02 acre) along the IR-8 drainage that provide marginally suitable aquatic habitat for the California red-legged frog (*Rana draytonii*), which is listed as a threatened species under the federal Endangered Species Act, and surrounding riparian and annual grassland habitats support upland habitat for this species. The San Francisco Dusky-footed woodrat (*Neotoma fuscipes annectens*) (a state species of special concern) is present within the Project site, and the western pond turtle (*Actinemys marmorata*) (a state species of special concern) has the potential to occur within the project area. The California tiger salamander (*Ambystoma californiense*) (a state endangered species) was determined to be absent.

California red-legged frogs are known to occur in San Francisquito Creek approximately 0.5 mile south of the site; however, the project site is not considered occupied habitat under the *Stanford Habitat Conservation Plan* (Stanford, 2013). No California red-legged frogs were observed in the IR-8 drainage during surveys conducted in 1998 (Stanford, 1998), 2005 (Stanford, 2005), 2006/2007 (SLAC, 2007b), 2009 (Stanford, 2009), and 2016 (HTH, 2017a), and multiple barriers to dispersal (e.g., Interstate 280, the SLAC development and facilities, and a major equestrian training center) are present between the site and areas known to support the



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species. Although frogs have not been observed in IR-8 and they are not likely to occur on the project site, the site is within potential dispersal distances from occupied areas, and there is a small chance that a transient red-legged frog could disperse through IR-8 and into the project site. In this unlikely event, an individual red-legged frog could be encountered during project implementation. Therefore, the project will implement measures to avoid or minimize potential effects on California red-legged frogs consistent with the U. S. Fish and Wildlife Service's *Programmatic Biological Opinion for Issuance of Permits for Projects that May Affect the Threatened California Red-Legged Frog in Nine San Francisco Bay Area Counties, California* (USFWS, 2014). Mitigation measures for the red-legged frog include a pre-construction survey by a qualified biologist, 5-foot tall orange plastic fencing to restrict frog access to the project area, protection of any frogs observed during the work, restoration with native plant species collected on-site or from local sources, and other measures described in the Programmatic Biological Opinion (USFWS, 2014). Implementation of these mitigation measures would reduce potential project impacts on California red-legged frog to a *less-than-significant* level, as defined by the CEQA Guidelines.

The same measures for avoidance and minimization implemented for the red-legged frog will also limit impacts for the San Francisco Dusky-footed woodrat and western pond turtle. Implementation of these mitigation measures would reduce potential project impacts on a Francisco Dusky-footed woodrat and western pond turtle to a *less-than-significant* level, as defined by the CEQA Guidelines.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?**

Evaluation: The Project will temporarily remove riparian vegetation in the IR-8 drainage channel and IR-6/8 confluence area, which will be replaced in equal or larger amount in the rainy season following the excavation with willow plantings. The willow plantings and full restoration details are described in the Restoration and Monitoring Plan (HTH, 2017c), and include planting approximately 86 new willow cuttings within the Project's riparian area to replace approximately 19 living willows that have a dbh of 6- to 12-inches and will be removed for the Project. The willow planting will provide a continuous riparian corridor in the Project area, within the existing IR-8 drainage channel riparian corridor. Implementation of this mitigation measure is expected to reduce potential project impacts on riparian habitat to a *less-than-significant* level, as defined by the CEQA Guidelines.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

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**c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

Evaluation: The Project will temporarily remove wetland vegetation in the IR-8 drainage channel, which will be replaced in equal or larger amount following the excavation with cattail plantings in the same area as existing wetland vegetation. The cattail plantings and full restoration details are described in the Restoration and Monitoring Plan (HTH, 2017c), and include planting approximately 63 new cattail plugs within the Project's wetland areas to replace cattails removed for the Project. Implementation of this mitigation measures is expected to reduce potential project impacts on wetlands to a *less-than-significant* level, as defined by the CEQA Guidelines.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

Evaluation: As described in the Restoration and Monitoring Plan (HTH, 2017c), the IR-8 drainage does not support native resident or migratory fish as culverts act as barriers to fish. In addition, due to the small size and isolation of the Project area, the presence of existing fences, infrastructure and other development in close proximity to the work site, the work conducted within the IR-6 and IR-8 drainages is not expected to interfere with the movement of any wildlife species.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

Evaluation: The proposed project will not conflict with any local policies ordinances; Stanford lands do not fall within the tree ordinances of Menlo Park or the County of San Mateo.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

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Evaluation: No Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan covers the Project Area. The Stanford *Habitat Conservation Plan* (Stanford, 2013) does not include the Project area.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### 5. CULTURAL RESOURCES - Would the project:

#### a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Evaluation: The Project area does not include any known historical resource as defined in §15064.5.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

#### b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Evaluation: The Project area does not include any known archaeological resource pursuant to §15064.5. If any historic or prehistoric cultural artifacts are encountered during site disturbance, all ground disturbance within 100 feet of the find shall be halted until the San Francisco Bay Regional Water Quality Control Board (Water Board) is notified, and a qualified archaeologist can identify and evaluate the resource(s) and, if necessary, recommend mitigation measures to document and prevent any significant adverse effects on the resource(s). Indicators of archaeological resources could include items of ceramic, glass, or metal, and could include building foundations. Prehistoric indicators could include chipped chert and obsidian tools and tool manufacture waste flakes; grinding and hammering implements; or locally darkened soil.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

#### c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Evaluation: No known unique paleontological resource or site or unique geologic feature is identified in the Project area. If any paleontological resources are encountered during site grading or other construction activities, all ground disturbance shall be halted until the services

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of a qualified paleontologist can be retained to identify and evaluate the scientific value of the resource(s) and, if necessary, recommend mitigation measures to document and prevent any significant adverse effects on the resource(s). Significant paleontological resources shall be salvaged and deposited in an accredited and permanent scientific institution, such as the University of California Museum of Paleontology (UCMP).

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **d) Disturb any human remains, including those interred outside of formal cemeteries?**

Evaluation: No human remains are known to be present in the Project area or have been observed during prior sampling or excavation activities in the Project area. In the event that any human remains are encountered during site disturbance, all ground-disturbing work shall cease immediately and a qualified archaeologist shall notify the Coroner's Division of the San Mateo County Office of the Sheriff and advise that office as to whether the remains are likely to be prehistoric or historic period in date. If determined to be prehistoric, the Coroner's Division will notify the Native American Heritage Commission of the find, which, in turn, will then appoint a "Most Likely Descendant" (MLD). The MLD in consultation with the archaeological consultant and the project sponsor, shall advise and help formulate an appropriate plan for treatment of the remains, which might include recordation, removal, and scientific study of the remains and any associated artifacts. After completion of analysis and preparation of the report of findings, the remains and associated grave goods shall be returned to the MLD for reburial.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

## **6. GEOLOGY AND SOILS -- Would the project:**

### **a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**

- i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.**
- ii) Strong seismic ground shaking?**
- iii) Seismic-related ground failure, including liquefaction?**
- iv) Landslides?**

Evaluation: No structures are present or planned to be constructed in the Project area, and the Project area is not occupied. For construction workers during the project, due to the limited and

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shallow scope of the excavation and the absence of structures, the geologic/seismic hazards, if any, would not present a significant risk.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **b) Result in substantial soil erosion or the loss of topsoil?**

Evaluation: Soil that is to be excavated in the Project area will be replaced with imported fill and topsoil. Erosion control measures, such as replacement of rip-rap, and coconut fiber netting and straw wattles in other areas, will prevent soil erosion in excavated areas. In addition, the riparian, upland, and wetland areas will be revegetated, providing further erosion control function. Implementation of this mitigation measure is expected to reduce the potential for erosion to a *less-than-significant* level, as defined by the CEQA Guidelines.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?**

Evaluation: The Project does not involve constructing any structures on soil or alteration of the geologic unit.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?**

Evaluation: The Project does not involve constructing any structures on soil.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?**

Evaluation: Septic tanks or other wastewater disposal is not required for the Project.

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- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### 7. GREENHOUSE GAS EMISSIONS - Would the project:

#### a) **Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

Evaluation: Limited greenhouse gas (GHG) emissions will occur directly during the Project in the form of carbon dioxide (CO<sub>2</sub>) from combustion of diesel fuel in construction equipment and transportation vehicles. This evaluation uses a qualitative approach in accordance with Section 15064.4(a)(2) of the CEQA Guidelines. The GHG emissions during Project excavation and restoration activities would not be a considerable contribution to the cumulative GHG impact, given that the work would be temporary (approximately 2 months) and would be less intensive than traditional land use development that requires a larger fleet of earthmoving equipment and soil off hauling. Therefore, the impact to GHG emissions during the Project would be less than significant. Following excavation and restoration, the Project will not result in a new source of GHG emissions as no new facilities are being constructed, so the Project will not induce population growth in the area, increase vehicle trips, or increase energy or electricity consumption. In addition, enhanced revegetated areas will absorb carbon dioxide from the environment. Therefore, no long-term impact to GHG emissions would occur.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

#### b) **Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

Evaluation: There is currently no applicable federal, State, or local threshold pertaining to construction related greenhouse gas (GHG) emissions, and the BAAQMD CEQA Guidelines (BAAQMD, 2012) do not include screening criteria or significance thresholds for construction. Therefore, this evaluation uses a qualitative approach in accordance with Section 15064.4(a)(2) of the CEQA Guidelines. The Project would result in a temporary increase in GHG emissions during excavation and restoration from the use of construction equipment and haul trucks. However, Project emissions during excavation and restoration would not be a considerable contribution to the cumulative GHG impact, given that the work would be temporary (approximately 2 months) and would be less intensive than traditional land use development that requires a larger fleet of earthmoving equipment and soil off hauling. Therefore, the impact to GHG emissions during the Project would be less than significant. Following excavation and restoration, the Project will not result in a new source of GHG emissions as no new facilities are being constructed, so the Project will not induce population growth in the area, increase vehicle trips, or increase energy or electricity consumption. Therefore, no long-term impact to GHG emissions would occur.

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- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### 8. **HAZARDS AND HAZARDOUS MATERIALS - Would the project:**

#### **a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

Evaluation: The Project involves the transport of soil that is excavated from the Project area and contains PCBs. The excavated soil is not classified as a hazardous waste. The soil will be transported on public roads to a permitted disposal facility. The transport route near SLAC is a short trip on Alpine Road and/or Sand Hill Road, from which transport will occur along major thoroughfares. The truck beds with the soil will be covered during transportation to prevent soil particle losses to the air during transport. This activity will not cause a significant hazard to the public or the environment during transport, as such transport of impacted soil and disposal in a permitted landfill is standard practice and will not result in exposure of the public to the soil or the PCBs in the soil.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

#### **b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

Evaluation: The excavated soils will be solid, non-flammable, non-corrosive and non-explosive. Temporary on-site stockpiles of excavated are not accessible by the public and will be covered if left overnight. A site-specific Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the Project to describe and implement measures to reduce potential for spills, properly contain and address any spills that may occur, and address erosion and runoff control measures to protect the environment in the event of rain during the Project. The transportation of soil and debris will be accomplished using end-dump tractor-trailer trucks or roll-off trucks, and in the unlikely event of an accident during transportation where soil spills to the ground, such an accident would not present a significant health risk or environmental threat because the soil is a solid that would remain where spilled, and the spilled soil would be re-loaded and transported to the landfill. The excavated soil will be transported in accordance with state and federal requirements for the handling and transportation of hazardous materials. Transport will occur along major thoroughfares outside of SLAC. Based on these activities, the Project will not create a significant hazard to the public due to foreseeable upset or accident conditions resulting in a release of hazardous substances.

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- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

Evaluation: There are no existing or proposed schools within one-quarter mile of the Project area. Although the project is located on Stanford University property, the project is approximately two miles from Stanford classroom buildings and is not expected to generate hazardous emissions. As described in section 3(d) above, we do not expect the Project to generate substantial pollutant concentrations. With standard dust controls during soil excavation, fugitive dusts containing PCBs are not expected to reach the adjacent properties. Implementation of these dust control measures is expected to reduce the potential impacts of hazardous emissions to less than significant levels.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

Evaluation: The Project is located within property that is subject to Cleanup and Abatement Order R2-2009-0072 for SLAC. The Project is being performed to comply with the cleanup requirements of that Order and to reduce the hazard to human health and the environment. Since the Project will reduce the potential hazard, rather than create a hazard to the public or the environment, the "No Impact" determination is selected.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?**

Evaluation: The Project is not located within an airport land use plan or within two miles of a public airport or public use airport.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact



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### **f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?**

Evaluation: The Project is not located in the vicinity of a private airstrip.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

Evaluation: The Project area consists of two drainage channels that do not cross roadways or any other pathway for emergency response or evacuation.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

Evaluation: Limited vegetation will be removed and replaced as part of the Project. This will have no impact on wildland fire conditions.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

## **9. HYDROLOGY AND WATER QUALITY - Would the project:**

### **a) Violate any water quality standards or waste discharge requirements?**

Evaluation: SLAC has demonstrated that PCBs in stormwater from the IR-6 and IR-8 drainages are not impacting water quality in San Francisco Creek, based on a risk assessment performed by SLAC and approved by Water Board (SLAC, 2014). Therefore, the project purpose is focused on removing soil with residual PCBs to improve soil quality.

The Project will not significantly affect groundwater or surface water bodies. The excavations are not to a depth that would encounter groundwater. Stormwater from SLAC flows through the IR-6 and IR-8 drainage channels during storm events in the rainy season, so no stormwater flow is expected during the Project which is planned for summer months. Stormwater diversion around the excavation areas will be provided during construction to prevent soil erosion and

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transport downstream in the event of an unseasonable small storm during the Project, and diversion is planned in IR-8 to convey the flow from SLAC tunnel sub-drains that is pumped into the channel year-round. In the unlikely event of a large storm during the Project, excavated areas will be temporarily lined with secured plastic sheeting during the storm to prevent erosion and sediment runoff. Following excavation, the excavated portions of the drainage channels will be restored with imported fill, and erosion controls consisting of rip-rap, secured coconut fiber netting and straw wattles, and revegetation as applicable will prevent long-term erosion.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?**

Evaluation: The Project involves excavation in shallow soils above the groundwater table, and therefore will not affect groundwater supplies.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?**

Evaluation: The Project will not affect the drainage pattern of the Project area or the upstream stormwater catchment areas for the IR-6 and IR-8 drainage channels in a manner that will result in erosion or siltation on- or off-site. The Project includes excavating portions of the IR-6 and IR-8 drainage channels and then restoring the drainage patterns to substantially the same grade and course as prior to the excavation. The IR-6 drainages will be restored to the existing shallow V-channel shape with an earthen berm separating the primary and secondary channels. Cross sections for the restoration of the IR-8 channel are shown on Sheet G-6 in the Construction Plans. The excavated portions of the IR-8 drainage channel will be restored in a manner such that the channel slopes on either side of the channel base for the perennial low flow conditions are flatter than some of the existing side slopes. The slope flattening will allow larger stormwater flows to spread, reducing stormwater flow velocities and thus reducing the potential for erosion. The flatter channel slopes near the perennial water flow channel will also facilitate riparian vegetation growth, and thus is expected to be an environmental benefit.

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- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?**

Evaluation: See Item (c) above. The Project will not affect the drainage pattern of the Project area or the upstream stormwater catchment areas for the IR-6 and IR-8 drainage channels in a manner that will result in flooding on- or off-site. Also, the Project does not include work in areas upstream of the drainage channels, and therefore will not affect the amount of surface runoff.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

Evaluation: The Project does not include work in areas upstream of the drainage channels, and therefore will not affect the amount of surface runoff.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**f) Otherwise substantially degrade water quality?**

Evaluation: The Project is not expected to significantly affect water quality. See evaluation for Question 9a, above.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?**

Evaluation: The Project does not include housing.

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- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?**

Evaluation: The Project does not include any structures.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?**

Evaluation: The Project does not involve placing people or structures in a new area, or modifying any levee or dam.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **j) Inundation by seiche, tsunami, or mudflow?**

Evaluation: The Project is not in an area subject to seiche, tsunami, or mudflow.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

## **10. LAND USE AND PLANNING Would the project:**

### **a) Physically divide an established community?**

Evaluation: The Project will not change the land use or construct any barriers between communities.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan,**

**local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

Evaluation: The Project is not changing the land use, and therefore is not in conflict with any land use policies, zoning, or regulations regarding land use.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**c) Conflict with any applicable habitat conservation plan or natural community conservation plan?**

Evaluation: The Project area is not within the boundary of the Stanford *Habitat Conservation Plan* (Stanford, 2013) or any other natural community conservation plan.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**11. MINERAL RESOURCES - Would the project:**

**a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**

Evaluation: Shallow excavation of approximately 5 feet or less for the Project will have no impact on mineral resources, and there are no known mineral resources identified in the Project area.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?**

Evaluation: Shallow excavation of approximately 5 feet or less for the Project will have no impact on mineral resources, and there are no known mineral resources identified in the Project area.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**12. NOISE -- Would the project result in:**

**a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Evaluation: San Mateo County noise regulations are provided in §4.88 of the San Mateo County Code of Ordinances (Noise Control). Specific outdoor noise limits are provided only for residences, schools, hospitals, churches, and public library properties (§4.88.330), none of which is adjoining the Project area. Section 4.88.350 (General Noise Regulation) makes it unlawful to willfully or negligently create noise “which causes any discomfort or annoyance to any person of normal sensitivity residing in the area.” The proposed Project is exempt from the noise ordinance, as §4.88.360(e) provides an exemption for noise sources associated with demolition, construction, repair, remodeling, or grading (e.g., excavation) during the hours of 7 AM to 6 PM weekdays and 9 AM to 5 PM on Saturdays. The Project work is planned to take place during those hours. Noise will be limited to standard construction equipment and trucks during daytime working hours. Similar excavation has been performed in the IR-6 drainage channel, adjacent to the PVTC horse track, without any noise concerns raised by the PVTC.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

Evaluation: There are no nearby structures that would be affected by limited groundborne vibration associated with soil excavation and backfill operations, and no excessive groundborne noise with the Project.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

Evaluation: There will be no permanent change in noise levels associated with the Project, as no new structures or facilities are being constructed.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

## Initial Study: Environmental Cleanup of IR-6 and IR-8 Drainages

SLAC National Accelerator Laboratory

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### **d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

Evaluation: Some noise will be generated temporarily during the Project from construction equipment and trucks. Noise will be limited to normal working hours and will be similar to typical workday noise in commercial areas and is not expected to be a significant impact on surrounding properties. Similar excavation has been performed in the IR-6 drainage channel, adjacent to the PVTC horse track, without any noise concerns raised by the PVTC.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

Evaluation: The Project is not located within an airport land use plan or within two miles of a public airport or public use airport.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?**

Evaluation: The Project is not located within the vicinity of a private airstrip.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

## **13. POPULATION AND HOUSING – Would the project:**

### **a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

Evaluation: The Project includes no new homes or infrastructure, and thus will have no impact on population growth.

## Initial Study: Environmental Cleanup of IR-6 and IR-8 Drainages

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- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?**

Evaluation: The Project will have no impact on existing housing.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

Evaluation: The Project will not displace any people.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

## **14. PUBLIC SERVICES**

**a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:**

**Fire protection?**

**Police protection?**

**Schools?**

**Parks?**

**Other public facilities?**

Evaluation: The Project will not require any new governmental facilities or services or impact existing government services or facilities in any way.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact



**15. RECREATION**

**a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

Evaluation: The Project will have no effect on use of recreational facilities.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

Evaluation: The Project will does not include or require recreational facilities.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**16. TRANSPORTATION/TRAFFIC – Would the project:**

**a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?**

Evaluation: The Project includes no changes to infrastructure or facilities and thus will have no impact on transportation or traffic.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?**

Evaluation: The Project includes no changes to infrastructure or facilities and thus will have no impact on traffic demand or congestion.

## Initial Study: Environmental Cleanup of IR-6 and IR-8 Drainages

SLAC National Accelerator Laboratory

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- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?**

Evaluation: The Project includes no changes to infrastructure or facilities and thus will have no impact on traffic patterns or traffic levels.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

Evaluation: The Project does not involve any changes to road designs. Existing roads will be used for transportation of excavated soil and fill material, which are routine and compatible uses of existing roadways.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **e) Result in inadequate emergency access?**

Evaluation: The Project includes no changes to infrastructure or facilities and thus will have no impact on emergency access.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?**

Evaluation: The Project includes no changes to infrastructure or facilities and thus will have no impact on public transit, bicycle, or pedestrian facilities.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**17. TRIBAL CULTURAL RESOURCES**

**Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**

**i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or**

**ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

Evaluation: The appropriate California Bay Area Native American Tribes have been notified of the planned scope of project. In response, other than one Tribe requesting to be informed of project progress, no Tribe responded with a request for consultation. In addition, as part of addressing Section 106 of the Historical Preservation Act, a site-specific intensive cultural resources survey was conducted for the proposed project. A surface survey included visual and metal detector transects across slopes focusing on the central area of the main IR-8 channel, the eastern portion of the project area, and both the primary and secondary channels of IR-6. In addition, eight shovel test pits were excavated, and the test pit soils were screened through ¼” hardware cloth. No artifacts of any type were found in the surface surveys or in shovel test pits. Evidence of past soil disturbance was widespread in this area, further reducing the potential for any significant cultural resources. The survey findings concluded that project site has a very low probability of containing cultural deposits associated with Native American activities both within the project area or its immediate vicinity.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**18. UTILITIES AND SERVICE SYSTEMS - Would the project:**

**a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**

Evaluation: The Project does not include, facilitate, or impact any discharges to wastewater treatment systems.

## Initial Study: Environmental Cleanup of IR-6 and IR-8 Drainages

SLAC National Accelerator Laboratory

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- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

Evaluation: The Project does not include any wastewater discharges and thus does not require construction or expansion of any wastewater treatment facilities.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

Evaluation: The Project will be performed within existing stormwater drainages, which will be restored following soil excavation to continue to serve as stormwater drainage pathways in substantially the same configuration and dimensions as pre-excavation. As shown in the channel restoration sections on Sheet G-6 in the Construction Plans, the side slopes of the IR-8 channel will be flattened within the excavated areas to reduce stormwater velocities to reduce erosion potential and to facilitate riparian vegetation growth, and thus is expected to be an environmental benefit. No new stormwater drainage facilities or expansion of existing facilities is required.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**

Evaluation: Temporary water supply for dust control during the Project will be provided by existing SLAC water supplies. The Project does not create any new permanent water supply requirement. No new water supplies are necessary to serve the project.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?**

## Initial Study: Environmental Cleanup of IR-6 and IR-8 Drainages

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Evaluation: The Project does not create any demand for wastewater treatment.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

Evaluation: The Project includes disposing of excavated soil at a Class II permitted landfill, such as the Altamont landfill located at 10840 Altamont Pass Road in Livermore (Contra Costa County), California. The Altamont landfill has sufficient permitted capacity to receive the solid waste, and has accepted similar soil with PCBs from SLAC on past projects. An alternative Class II landfill permitted to accept the waste may also be selected during Project implementation.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

### **g) Comply with federal, state, and local statutes and regulations related to solid waste?**

Evaluation: The Project is required to comply with federal, state, and local statutes and regulations related to solid waste. The primary element of compliance is to properly transport and dispose of excavated material at a permitted solid waste disposal landfill.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

## **19. MANDATORY FINDINGS OF SIGNIFICANCE**

### **a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?**

Evaluation: The purpose of the Project is to improve the quality of the environment by removing soil impacted by PCBs in the IR-6 and IR-8 drainage channels at SLAC and restore the Project area to existing conditions to continue to function as stormwater drainage pathways and wetland, riparian, and upland habitat. The project will have temporary impacts to riparian and wetland

## Initial Study: Environmental Cleanup of IR-6 and IR-8 Drainages

SLAC National Accelerator Laboratory

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vegetation but all disturbed areas will be restored on-site to their original condition, or better, following excavation as described above and in the Wetland Delineation Report (HTH, 2017b) and the Restoration and Monitoring Plan (HTH, 2017c). There are no fish in the Project area. The project will not substantially reduce wildlife populations below a self-sustaining level, and will not eliminate, reduce the number, or restrict the range of any special-status plant or wildlife population, as described above and in the Restoration and Monitoring Plan (HTH, 2017c).

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?**

Evaluation: There will be no cumulative impacts. The Project is intended to provide the final cleanup of these drainage channels so that future excavations will not be required. If future excavations are required in the same area(s) for some reason, there would be no cumulative impacts because restoration would be provided following each event. There are no other currently planned Projects at SLAC that would have cumulative effects.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

**c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?**

Evaluation: The Project does not have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly. Persons outside the Project area will not be exposed to the PCB-containing soil that is being excavated and disposed at a regulated landfill. Project personnel are specifically trained to execute the scope of work and will utilize proper personal protective equipment to minimize any potential exposure to PCBs.

- Potentially Significant Impact
- Less than Significant with Mitigation Incorporated
- Less Than Significant Impact
- No Impact

## Initial Study: Environmental Cleanup of IR-6 and IR-8 Drainages

SLAC National Accelerator Laboratory

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### Attachments

- Figure 1 Regional Map
- Figure 2 Location of IR-6 and IR-8 Drainage Channels
- Figure 3 Proposed Excavation Areas at IR-6 and IR-8 Drainage Channels
- Figure 4 Existing Vegetation and Proposed Excavation Areas at IR-6 and IR-8 Drainage Channels

Construction Plans: Environmental Cleanup of IR-6 and IR-8 Drainages, SLAC National Accelerator Laboratory, February 2017 (DRAFT)

Biological Assessment for the California Red-legged Frog

Preliminary Identification of Waters of the United States

Restoration and Monitoring Plan

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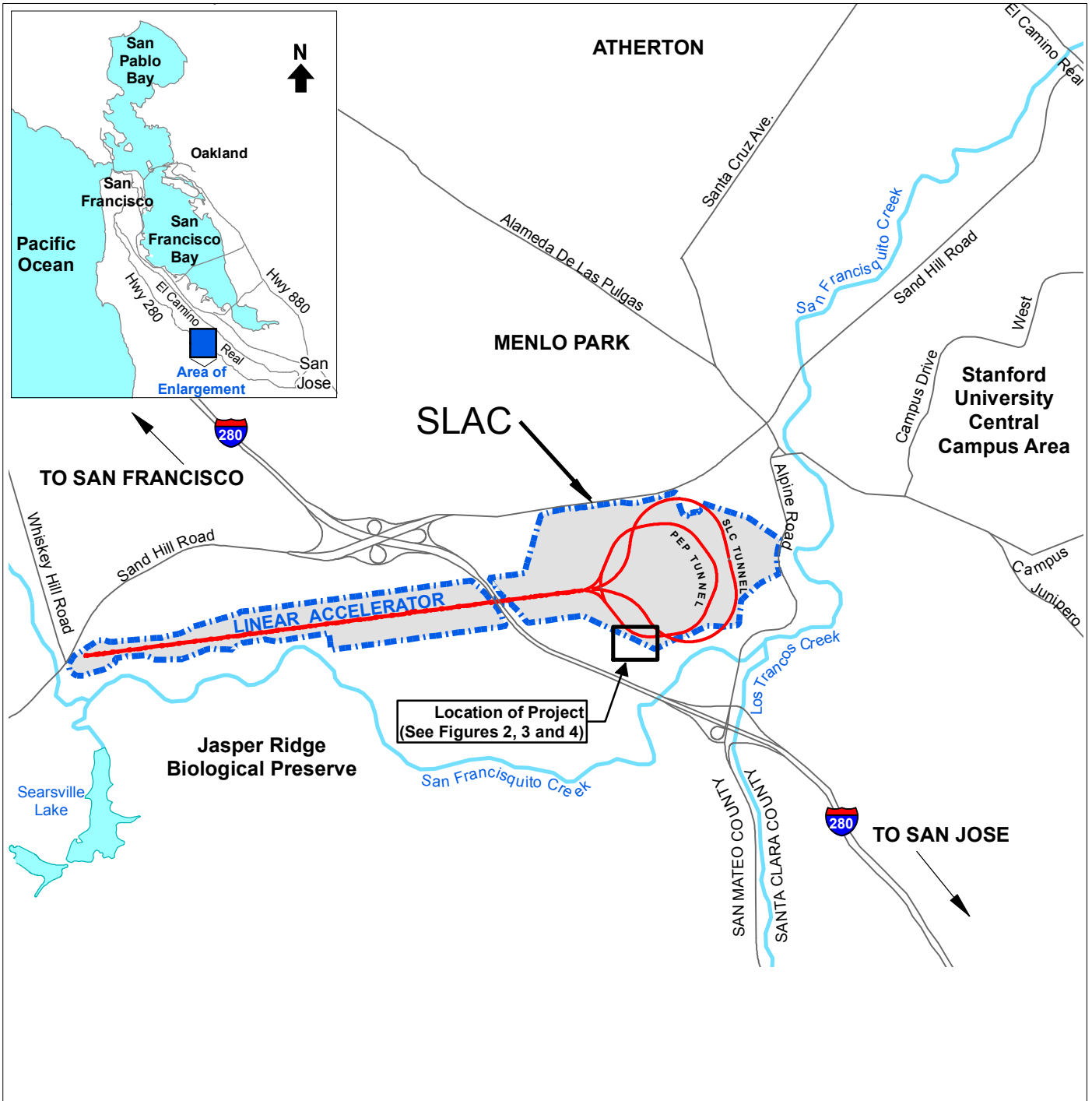
## Initial Study: Environmental Cleanup of IR-6 and IR-8 Drainages

SLAC National Accelerator Laboratory

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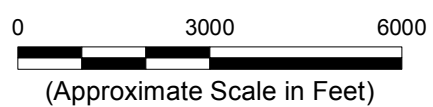
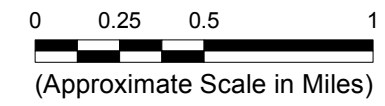
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**Notes**

- 1. All locations are approximate.

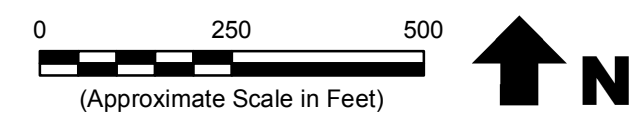
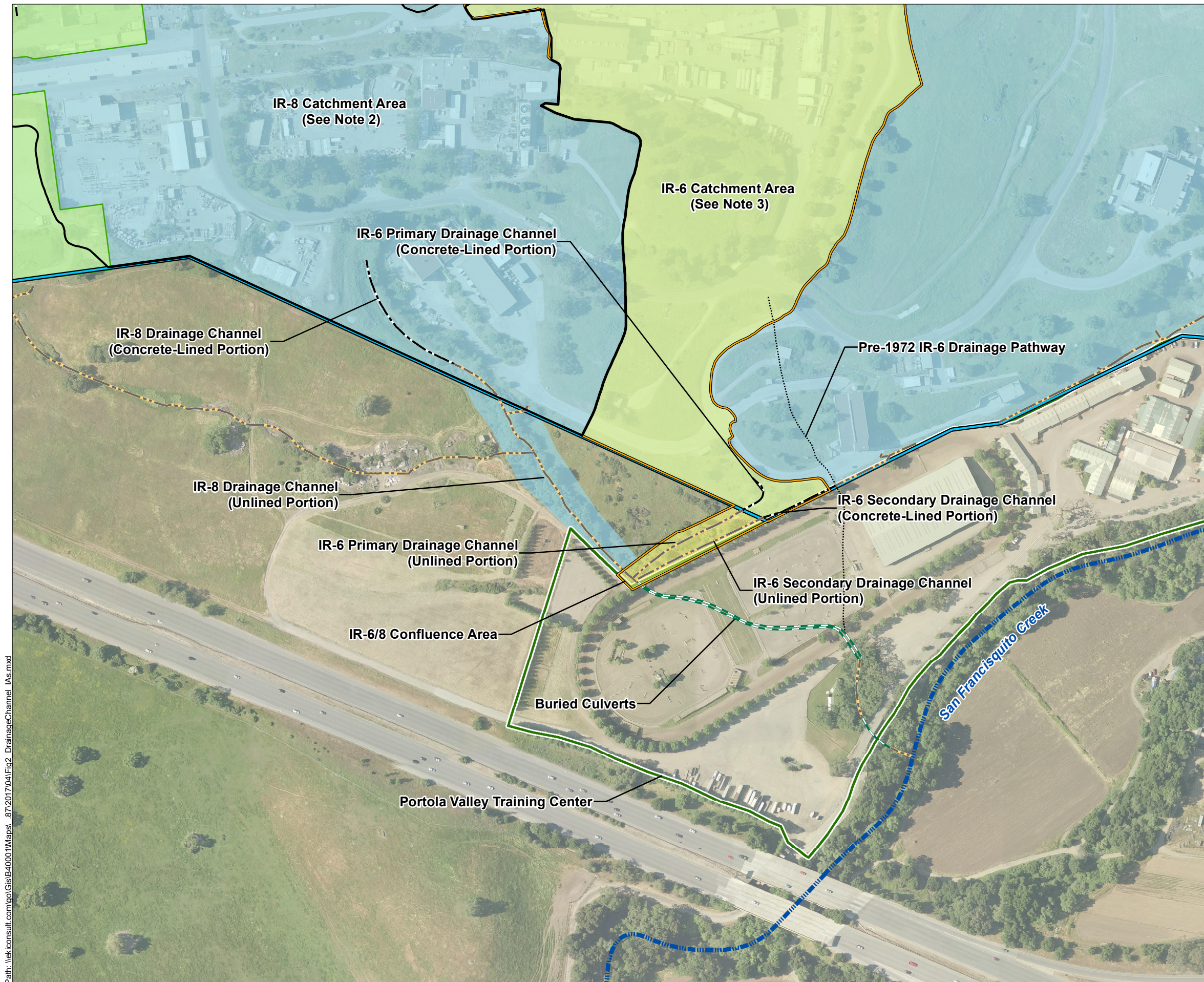


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Regional Map

SLAC National Accelerator Laboratory  
 Menlo Park, CA  
 April 2017  
 EKI B40001.87  
 Figure 1

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- Legend**
- SLAC National Accelerator Laboratory
  - Subunit
  - Groundwater VOC OU
  - Research Yard-SSRL / IR-6 Drainage Channel OU
  - West SLAC / Campus Area / IR-8 Drainage Channel OU
  - Channel - Lined
  - Channel - Unlined
  - Creek
  - Culvert

- Abbreviations**
- IR = Interaction Region
  - OU = Operable Unit
  - SLAC = SLAC National Accelerator Laboratory
  - SSRL = Stanford Synchrotron Radiation Lightsource
  - VOC = volatile organic compound
  - West SLAC = West SLAC/ Campus Area/ IR-8 Drainage Channel

- Notes**
1. All locations are approximate.
  2. The IR-8 Catchment Area is the area from which surface water runoff drains to the IR-8 drainage channel.
  3. The IR-6 Catchment Area is the portion of the Research-Yard-SSRL/IR-6 OU upstream of the IR-6 drainage channel.

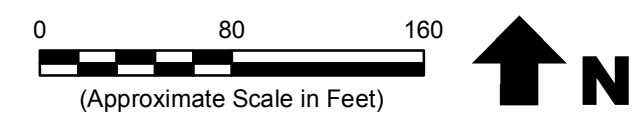
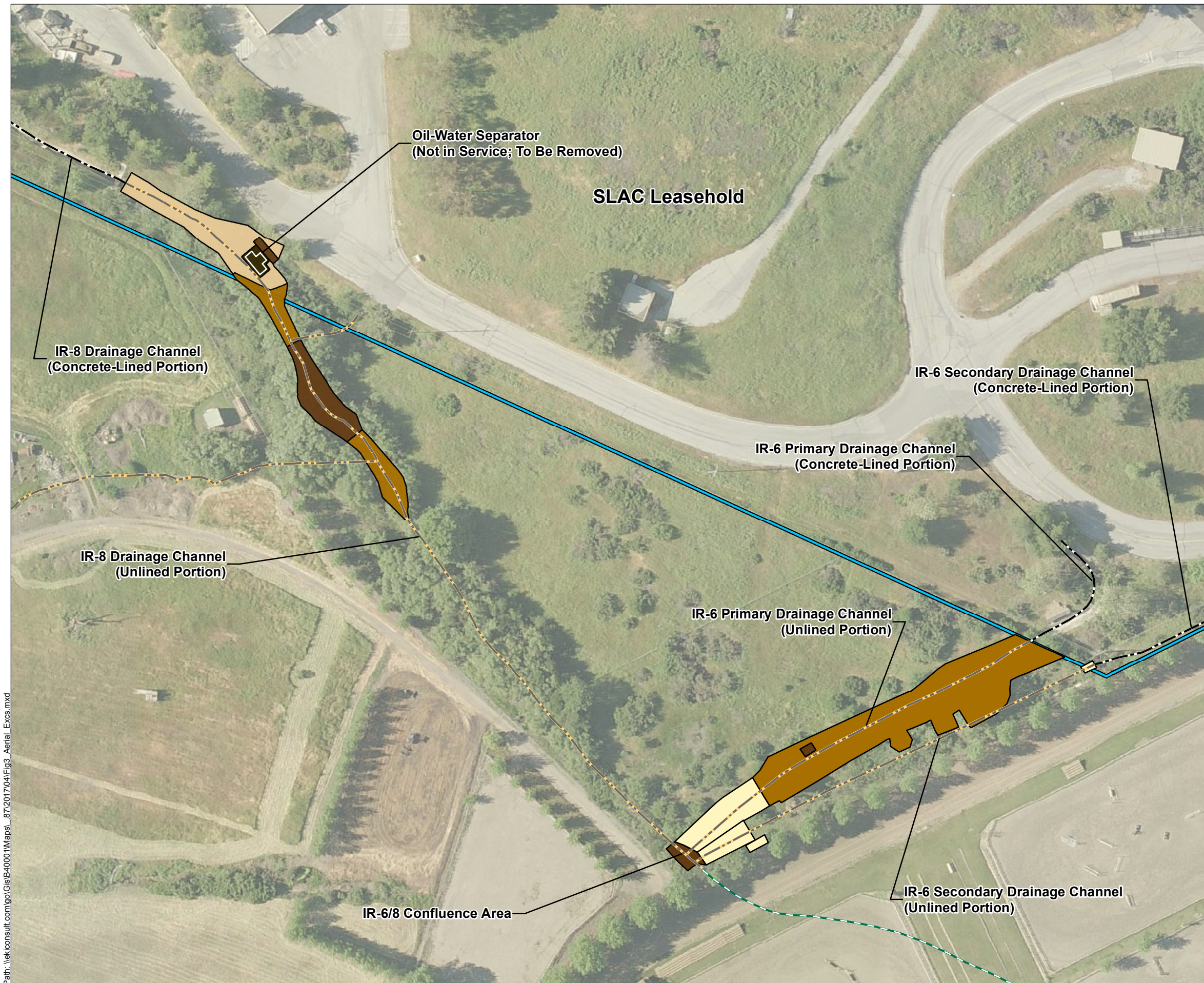
**Sources**  
 Aerial photograph provided by URS Corporation (March 2011), date unknown.

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Location of IR-6 and IR-8 Drainage Channels

SLAC National Accelerator Laboratory  
 Menlo Park, CA  
 April 2017  
 EKI B40001.87  
 Figure 2

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**Legend**

- SLAC National Accelerator Laboratory
- Channel - Lined
- Channel - Unlined
- Culvert
- Planned Excavation Area**
- 1 ft bgs
- 2 feet below rip-rap
- 2 ft bgs
- 3 ft bgs
- 5 ft bgs

**Abbreviations**

- ft bgs = feet below ground surface
- IR = Interaction Region
- SLAC = SLAC National Accelerator Laboratory

**Notes**

- 1. All locations are approximate.

**Sources**

Aerial photograph provided by URS Corporation (March 2011), date unknown.

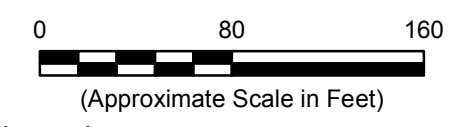
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Proposed Excavation Areas at  
IR-6 and IR-8 Drainage Channels

SLAC National Accelerator Laboratory  
Menlo Park, CA  
April 2017  
EKI B40001.87

**Figure 3**

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**Legend**

- SLAC National Accelerator Laboratory
- Channel
- Wetland
- Riparian Area

**Planned Excavation Area**

- 1 ft bgs
- 2 feet below rip-rap
- 2 ft bgs
- 3 ft bgs
- 5 ft bgs

**Abbreviations**

- ft bgs = feet below ground surface
- IR = Interaction Region
- SLAC = SLAC National Accelerator Laboratory

**Notes**

- 1. All locations are approximate.

**Sources**

Aerial photograph provided by URS Corporation (March 2011), date unknown.

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## Existing Vegetation and Proposed Excavation Areas at IR-6 and IR-8 Drainage Channels

SLAC National Accelerator Laboratory  
Menlo Park, CA  
April 2017  
EKI B40001.87

**Figure 4**

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