

# CHAPTER 2

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## Project Description

### 2.1 Overview

Together, Hanson Permanente Cement, Inc., and Lehigh Southwest Cement Company (referred to collectively in this document as “Lehigh”) propose to restore and modify approximately 9,000 linear feet of Permanente Creek (135.6 acres) in accordance with the provisions of the Amended Consent Decree between the Sierra Club and Lehigh/Hanson Permanente Cement, Inc., dated May 11, 2016 (Amended Consent Decree), a copy of which is provided in **Appendix B**. The subject segments of Permanente Creek are located within the Permanente Creek watershed along the southern edge of Lehigh’s property both within and outside of the existing Reclamation Plan boundary of Lehigh’s Permanente Quarry. See **Figure 2-1, Project Location**, and **Figure 1-1, Permanente Creek**. The creek restoration requirements, set forth in paragraphs 33–42 of the Amended Consent Decree, reflect restoration duties imposed on Lehigh that originally stem from San Francisco Bay Regional Water Quality Control Board (RWQCB) Cleanup and Abatement Order No. 99-018. Those requirements led to the development of a draft 2011 Creek Restoration Plan, a portion of which was described and analyzed in the 2012 Reclamation Plan Amendment Environmental Impact Report (2012 EIR) as part of the “Permanente Creek Restoration Area” or “PCRA.”

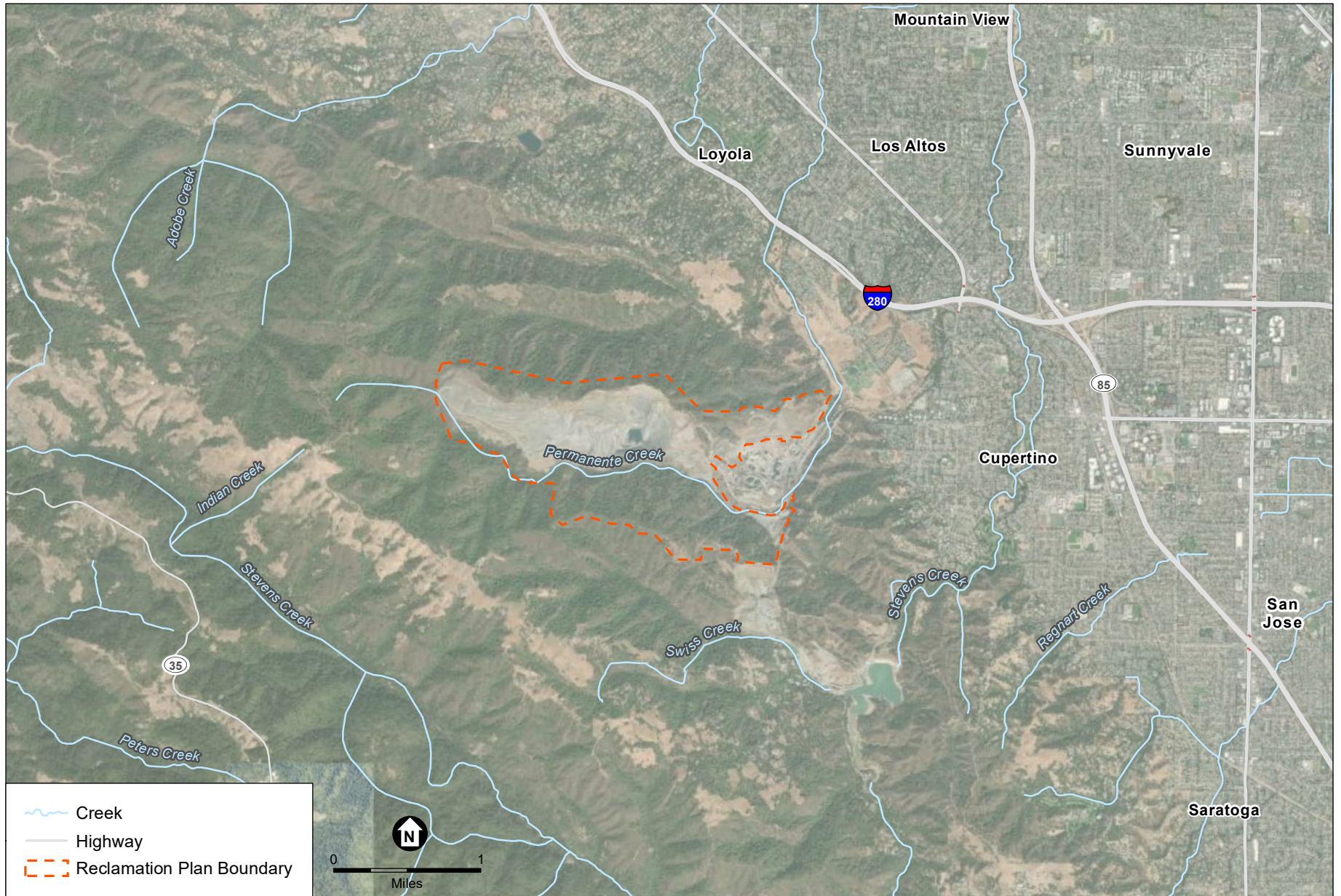
Pursuant to the Amended Consent Decree, the currently proposed creek restoration plan is called the Permanente Creek Restoration Plan (PCRP). The PCRP is described in the Lehigh *Permanente Creek Restoration Plan Updated 90% Level Submittal Design Basis Technical Memorandum* (90% Design Memo), prepared in August 2022 by Waterways Consulting Inc. (**Appendix C**), and is illustrated in detail on **Figure 2-2, PCRP Overview**.

Section 2.2 identifies Lehigh’s objectives for the PCRP. Section 2.3 explains the focus of this supplemental environmental impact report (SEIR) and Section 2.4 describes the correlation between the 2012 EIR’s analysis of the draft 2011 Creek Restoration Plan and the PCRP. Section 2.5 details the PCRP’s proposed activities on a reach-by-reach basis.<sup>1</sup> Section 2.6 summarizes the permits and approvals expected to be required.

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<sup>1</sup> The U.S. Geological Survey (USGS) defines “reach” as “a section of a stream or river along which similar hydrologic conditions exist, such as discharge, depth, area, and slope. It can also be the length of a stream or river (with varying conditions) between two stream gages, or a length of river for which the characteristics are well described by readings at a single stream gage. In practical use, a reach is just any length of a stream or river. The term is often used by hydrologists when they’re referring to a small section of a stream or river rather than its entire length.” (USGS 2021.)

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SOURCE: Benchmark Resources, 2021

Permanente Creek Restoration Plan Supplemental Environmental Impact Report



**Figure 2-1**  
Project Location





## 2.2 Project Objectives

As stated in Section IV.A.33 of the Amended Consent Decree and Section 1.2 of the 90% Design Memo, Lehigh’s objectives for the PCRP are as follows:

- (a) Increase quantity and quality of resident rainbow trout habitat through creation of pools, increased channel complexity (e.g., cascade and step channeling, floodplain roughness with floodplain logs, boulders, planting pockets, live stake trench packs), increased channel cover, and fish passage through and between reaches consistent with a geomorphically stable, self-sustaining channel unless California Department of Fish and Wildlife (CDFW) California Salmonid Stream Habitat Restoration Manual (CDFW Restoration Manual, CDFW 2010) hydraulic design criteria cannot be met due to: (1) the gradient of the reach, or (2) bedrock grade controls confirmed by an independent geologist.
- (b) Improve riparian habitat, including improvement to channel and stream bank stability and ecological/geomorphic function.
- (c) Remove mining-related fill and sediments in the bed, banks, and adjacent slopes.
- (d) Remove or alter human-made structures so as to improve riparian habitat.
- (e) Layback creek banks and adjacent hill slopes to provide stable slopes sufficient to prevent overburden/fill from entering the creek.
- (f) Require restoration that is no less stringent than any restoration that is approved or required by any agency,<sup>2</sup> including but not limited to the County of Santa Clara Department of Planning and Development (County Planning Department), the CDFW, and the RWQCB, and that is to be performed in a period of time no greater than any restoration that is approved or required by any agency, including but not limited to the County Planning Department, the CDFW, and the RWQCB.

These objectives are consistent with and supplemental to the project objectives stated in the 2012 EIR. Consistent with California Environmental Quality Act (CEQA) Guidelines Section 15126.6(a), the County Planning Department will consider Lehigh’s objectives as part of its screening criteria for evaluating potential alternatives to the PCRP as proposed. See Section 4.2, *Screening Methodology*, of the 2012 EIR for additional details.

## 2.3 Focus of the Supplemental EIR

The PCRP is the “Project” being analyzed in this SEIR under CEQA, and is a component of the overall activities referenced and evaluated in the 2012 EIR. Pursuant to the PCRP, creek restoration activities would be implemented within an area of up to 135.6 acres. This area consists of the 120.2-acre PCRA described and analyzed in the 2012 EIR (49.2 acres of the 120.2-acre PCRA would be disturbed for restoration purposes); a 12.9-acre portion of the existing Reclamation Plan boundary where creek restoration activities were not described and analyzed in the 2012 EIR; and an additional 2.5 acres beyond the existing Reclamation Plan boundary where

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<sup>2</sup> For purposes of the analysis, this SEIR understands “restoration that is no less stringent than any restoration that is approved or required by any agency” to mean that the creek restoration activities can be no less stringent than set forth in permits or other approvals issued by regulatory agencies for the proposed Project.



restoration work would occur pursuant to the PCRCP. See Figure 2-2, *PCRCP Overview*; see also Figure 2-3, *Correlation of PCRA Subareas and PCRCP Reaches*. The 135.6-acre area where the PCRCP would be implemented is the “Project site” for purposes of this SEIR.

Section 2.6.7 of the December 2011 draft of the 2012 EIR (the “Draft 2012 EIR”) specifically describes the 49.2-acre portion of the PCRA within which restoration-related disturbance would occur as the area “along Permanente Creek and the adjacent hillsides that have been affected by mining activities, erosion events, and activities to control erosion in that area.” This characterization of the PCRA as an area within the existing Reclamation Plan boundary for Lehigh’s Permanente Quarry remains accurate. Within the PCRA, the draft 2011 Creek Restoration Plan focused on the long-term removal of structures in and adjacent to the creek and the restoration of the creek’s riparian zone. In turn, the PCRCP would restore and modify specific segments of Permanente Creek located in an area of up to 135.6 acres that lies partly within and partly outside of the existing Reclamation Plan boundary. Consistent with the draft 2011 Creek Restoration Plan, the PCRCP also focuses on the removal of structures in and adjacent to the creek and the restoration of the creek’s riparian zone.

Because only minor additions or changes would be necessary to make the 2012 EIR apply to the Project in the changed situation, the County Planning Department is preparing an SEIR. The SEIR will determine whether the PCRCP, including its revisions to the draft 2011 Creek Restoration Plan, would cause new significant impacts or more significant impacts than disclosed in the 2012 EIR. To do this, the analysis in Chapter 3, *Project Impacts and Mitigation Measures*, will focus on three things:

- (a) PCRCP areas that are located outside of the existing Reclamation Plan boundary.
- (b) PCRCP areas located within the Reclamation Plan boundary and within the 120.2-acre PCRA but outside of the PCRA’s 49.2-acre disturbance area.
- (c) More generally, whether the PCRCP proposes work within the PCRA at greater intensity than previously considered in the 2012 EIR.

Based on this approach, **Table 2-1**, *Specific Areas of Focus for the Supplemental EIR*, identifies Reaches 6–13 and Reaches 17 and 18 as key areas of focus.

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**TABLE 2-1  
SPECIFIC AREAS OF FOCUS FOR THE SUPPLEMENTAL EIR**

Amended Consent Decree Reach	Summary of Proposed Restoration per PCRP	In the Existing Reclamation Plan Boundary?	In the 2012 EIR PCRA?	Subject to Grading Approval?	A Focus of this SEIR?	
Reaches 1–5	The PCRP proposes no work in Reaches 1–5.	No	No	No	No, because the PCRP proposes no work in Reaches 1–5.	
Reach 6 and Reach 7	Reach 6 is identified as the “Concrete Channel Area.” Proposed work in Reach 6 includes: <ul style="list-style-type: none"> <li>• Encouragement of the development of a mature riparian canopy along the southern bank to shade the concrete channel to reduce solar heat gain on instream flow and discourage the establishment of tules.</li> <li>• Preservation of existing native vegetation.</li> <li>• Removal of non-native species and suppression of weeds around existing native seedlings and smaller native plants to encourage their establishment.</li> <li>• Installation of native vegetation.</li> </ul>	No	No	Yes	Yes. Although the 2012 EIR described and analyzed revegetation south of Permanente Creek (see, e.g., Draft 2012 EIR Table 2-6, pages 2-30 and 2-31), it did not contemplate activities in these proposed locations. As a result, work proposed in Reach 6 and Reach 7 was not covered by the 2012 EIR.	
Reach 8	Reaches 8–12 are identified as part of the “Channel Widening Area.” Proposed work includes: <ul style="list-style-type: none"> <li>• Removal of concrete road segments.</li> <li>• Construction of floodplain bench areas with habitat elements and reduction of access road width.</li> </ul>	No	No	Yes	Yes, because the PCRP proposes restoration work outside the existing Reclamation Plan boundary that, as a result, was not covered by the 2012 EIR.	
Reach 9	<ul style="list-style-type: none"> <li>• Removal of 260 linear feet of culverts, including a road crossing, and daylighting of the creek to improve fish passage conditions and ecological complexity.</li> <li>• Installation of large woody debris at the Culvert 7 and Culvert 8 removal sites.</li> <li>• Removal of old tractor tires along streambanks at a culvert removal site.</li> <li>• Removal of imported sediment from the bed and banks of a tributary reach.</li> <li>• Select removal of rock slope protection and concrete rubble bank protection at an area that now has adequate mature riparian vegetation that is providing root reinforcement to bank soils.</li> <li>• Removal of the idled Rock Plant conveyor system and associated infrastructure.</li> <li>• Installation of native vegetation.</li> </ul>	Yes	No, Reaches 9–11 were not included in the 2012 EIR’s PCRA boundary.	No, because any grading proposed to implement the PCRP would occur within the existing Reclamation Plan boundary.	Yes. Although the 2012 EIR analyzed the types of activities proposed to be implemented in Reaches 9–11, it did not analyze related potential impacts in these locations.  The 2012 EIR analyzed the impacts of restoration proposed in Reaches 12 and 13. The SEIR will evaluate whether any changes in the types or methods of restoration activities in Reaches 12 and 13 would cause a new significant impact or a substantial increase in the severity of a previously identified significant impact, relative to the impacts identified in the 2012 EIR.	
Reach 10						
Reach 11						
Reach 12						
Reach 13	The Channel Widening Area includes the “Rock Pile Area,” which consists of Reaches 11 and 12 and Pond 13, which is in Reach 13. The “Rock Pile” is referred to in the 2012 EIR as the “Surge Pile.” While the terms are synonymous, this SEIR uses the term “Rock Pile Area” for consistency with the Amended Consent Decree and Grading Approval application. Proposed work includes: <ul style="list-style-type: none"> <li>• Removal of concrete road segments and road-related fill material.</li> <li>• Removal of 930 linear feet of culverts and daylighting of the creek that would help improve fish passage conditions and ecological complexity.</li> <li>• Construction of a new channel with floodplain bench areas with habitat elements that would help improve fish passage conditions and ecological complexity.</li> <li>• Removal of Rock Pile and idled Rock Plant conveyor system and associated infrastructure.</li> <li>• Removal of Pond 13 dam infrastructure.</li> <li>• Construction of a restored channel through abandoned Pond 13.</li> <li>• Installation of native vegetation.</li> </ul>	Yes	Yes, Reaches 14–16 were included in Subarea 6 and Subarea 7.	No, because any grading proposed to implement the PCRP would occur within the existing Reclamation Plan boundary and because no change to previously analyzed work is proposed in these locations.	No, because the PCRP proposes no change to previously analyzed activities within Reaches 14–16.	
Reach 14	The PCRP proposes no change to previously analyzed activities within Reaches 14–16.	Yes	Yes, Reaches 14–16 were included in Subarea 6 and Subarea 7.	No, because Reaches 14–16 are within the existing Reclamation Plan boundary and because no change to previously analyzed work is proposed in these locations.	No, because the PCRP proposes no change to previously analyzed activities within Reaches 14–16.	
Reach 15						
Reach 16						
Reach 17	Reach 17 is identified as containing the “Old Crusher Foundation.” Proposed work includes cutting back the concrete block that is projecting into the channel to better conform to the natural creek bank.	Reaches 17 and 18 are identified as the “Material Removal Area.” Proposed work includes: <ul style="list-style-type: none"> <li>• Removal of overburden/fill and a relic concrete structure, and relocation of the north toe of slope northward (Pond 4A has been decommissioned; Pond 1250 and the Upper Facility Treatment System (Upper FTS) would be relocated as needed).</li> <li>• Construction of a new channel with floodplain bench areas with habitat elements that would help improve fish passage conditions and ecological complexity.</li> <li>• Installation of native vegetation.</li> </ul>	Yes	Yes, Reaches 17 and 18 and part of Reach 19 are located within Subareas 4 and 5.	No, because any grading proposed to implement the PCRP would occur within the existing Reclamation Plan boundary.	Yes. The 2012 EIR analyzed the impacts of restoration proposed in Reaches 17 and 18. The SEIR will evaluate whether any changes in the types or methods of restoration activities in these reaches would cause a new significant impact or a substantial increase in the severity of a previously identified significant impact, relative to the impacts identified in the 2012 EIR.
Reach 18						
Reaches 19–22	The PCRP proposes no change to previously analyzed activities within Reaches 19–22.	Yes	Yes, Reaches 19–22 are located within Subareas 1, 2, 3, and 4.	No, because any grading proposed to implement the PCRP would occur within the existing Reclamation Plan boundary.	No, because the PCRP proposes no change to previously analyzed activities within Reaches 19–22.	

NOTES: 2012 EIR = certified 2012 Reclamation Plan Amendment Environmental Impact Report; Amended Consent Decree = amended consent decree between the Sierra Club and Lehigh/Hanson Permanente Cement, Inc., dated May 11, 2016; PCRA = Permanente Creek Restoration Area; PCRP = Permanente Creek Restoration Plan

SOURCE: 2012 EIR; Lehigh 2021



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## 2.4 Correlation between the 2012 EIR PCRA and the PCRCP

### 2.4.1 The PCRA

The 2012 EIR divided the PCRA into seven subareas for mapping and illustrative purposes. Section 2.7.8 of the Draft 2012 EIR described the specific reclamation and restoration treatment to occur within each subarea. Briefly, creek restoration–related activities were described to include removal of overburden<sup>3</sup> materials and facilities from the Permanente Creek channel, channel widening, restoration of a more natural creek alignment,<sup>4</sup> replacement of the instream Pond 13 outflow and downstream half-culvert with a wider and more natural creek channel, catch basin improvements, erosion control and revegetation, road work, and monitoring and maintenance. The work was proposed to be conducted mostly by light vehicles and foot crews to avoid damage and destabilization to the channel and slopes adjacent to the creek. Additional details were included in the Reclamation Plan Amendment Revegetation Plan (WRA 2011a) and the engineering drawings and details provided with the 2012 EIR.

The 2012 EIR prescribed reclamation and restoration treatments as follows:

- (a) PRCA Subarea 1 Reclamation Treatments (Draft 2012 EIR Table 2-3)
- (b) PRCA Subarea 2 Reclamation Treatments (Draft 2012 EIR Table 2-4)
- (c) PRCA Subarea 3 Reclamation Treatments (Draft 2012 EIR Table 2-5)
- (d) PRCA Subarea 4 Reclamation Treatments (Final 2012 EIR Table 2-6)
- (e) PRCA Subarea 5 Reclamation Treatments (Final 2012 EIR Table 2-7)
- (f) PRCA Subarea 6 Reclamation Treatments (Draft 2012 EIR Table 2-8)
- (g) PRCA Subarea 7 Reclamation Treatments (Final 2012 EIR Table 2-9)

Performance standards were identified in Final 2012 EIR Table 2-17, *Proposed Five-Year Performance Standards for Revegetation in the PCRA*. The descriptions and prescribed treatments provided in the 2012 EIR (including in Section 2.7.8 of the Draft 2012 EIR) remain accurate except as clarified and supplemented below by restoration actions identified in the PCRCP. Performance standards and mitigation measures identified in the 2012 EIR remain in place and are being implemented as part of the current, baseline condition.

### 2.4.2 The PCRCP’s Relationship to the PCRA

The PCRCP uses different nomenclature following the convention established in the Amended Consent Decree: It refers to specific segments of the creek as “reaches.” The location of each reach is identified in **Table 2-2**, *Amended Consent Decree Reach Locations*. The 2012

<sup>3</sup> In the quarry context and as defined in the Draft 2012 EIR (p. ES-3), “overburden” refers to rock materials that are not suitable for use as limestone or aggregate.

<sup>4</sup> Additional details regarding the proposed restoration toward a more natural creek are provided in Section 2.5, and in Sections 2.2 through 2.5 of the *Permanente Creek Restoration Plan Updated 90% Level Submittal Design Basis Technical Memorandum*.

Reclamation Plan Amendment<sup>5</sup> PCRA subareas analyzed in the 2012 EIR and the PCRCP reaches analyzed in this SEIR relate to one another as shown in **Table 2-3, 2012 EIR Subarea Restoration Details and Correlation with Amended Consent Decree Reaches**, and **Figure 2-3, Correlation of PCRA Subareas and PCRCP Reaches**. Work required in the PCRA by the 2012 Reclamation Plan Amendment outside the scope of the PCRCP will be performed as part of Lehigh’s separate reclamation obligations under the Surface Mining and Reclamation Act (SMARA).

**TABLE 2-2  
AMENDED CONSENT DECREE REACH LOCATIONS**

Reach	Reach Boundary	Survey Marker*	
		Latitude	Longitude
1	I/(2–3B)	37.32411111	122.08348564
2	2/3A	37.32372222	122.08319439
3	(3A–3B)/4	37.32302778	-122.08397139
4	4/5	37.32258333	-122.08427219
5	5/6	37.32227778	-122.08436153
6	6/7	37.31513889	-122.08907528
7	7/8	37.31397222	-122.08994808
8	8/9	37.31316667	-122.09482547
9	9/10	37.31419444	-122.09728333
10	10/11	37.31563889	-122.09885892
11	11/12	37.31608333	-122.10045472
12	12/13	37.31641667	-122.10164806
13	13/14	37.31702778	-122.10300819
14	14/15	37.31725000	-122.10435689
15	15/16	37.31766667	-122.10726281
16	16/17	37.31713889	-122.11072903
17	17/18	37.31750000	-122.11611706
18	18/19	37.31747222	-122.11741150
19	19/20	37.31647222	-122.12272900
20	20/21	37.31877778	-122.12545628
21	21/22	37.32005556	-122.13101986

## NOTE:

\* Field stake "Carsonite" marker location coordinates.

SOURCE: Lehigh 2021

<sup>5</sup> In this SEIR, the “2012 Reclamation Plan Amendment” refers to the 2012 amendment to the 1985 Permanente Quarry Reclamation Plan.



**TABLE 2-3**  
**2012 EIR SUBAREA RESTORATION DETAILS AND CORRELATION WITH AMENDED CONSENT DECREE REACHES**

Amended Consent Decree Reaches	2012 EIR PCRA Subarea Restoration Details	
1–11	Not applicable (off-site).	
12, 13, 14, 15 (part)	Subarea 7 is described in Draft 2012 EIR Section 2.7.8.7, <i>PCRA Subarea 7</i> .	
	North of Creek Revegetation	Hydroseeding of disturbed areas with a specified seed mix and hand-planting of riparian vegetation at the toe of the slope in areas where sufficient hydrology exists to support it. (2012 Draft EIR, page 2-32.)
	Slope BMPs	Staking in place of fiber rolls, spaced at 15-foot intervals in disturbed areas where the slope angle is 2.0:1.0 (H:V) or flatter, and at 10-foot intervals in disturbed areas that are steeper than 2.0H:1.0V. Removal by hand (where possible) of silt collected at the toe of the slope. (Draft 2012 EIR Table 2-9, page 2-32.)
	Monitoring and Maintenance	Monitoring and maintenance of revegetation and erosion controls added to treatment areas on the northern side of the creek, according to the reclamation performance standards set forth in Section 2.8 of the Draft 2012 EIR (Table 2-9, page 2-32).
	Creek Restoration	<p>(a) Removal of the Pond 13 outflow and replacement of the downstream half-culvert with a wider and more natural creek channel. The removal of the Pond 13 outflow would involve the following restoration measures: Re-contouring of the pond floor and sides to establish a new bankfull bench and stable channel; removal of pond infrastructure and any accumulated sediment; installation of step pools, drop structures, and other stream control devices as needed for a stable channel; and revegetation of riparian areas. (Draft 2012 EIR Table 2-9, page 2-32.)</p> <p>(b) Replacement of the downstream half-culvert, involving the following restoration measures: Removal of the half-culvert and surrounding fill material; establishment of a new bankfull bench and floodplain; installation of step pools, drop structures, and other stream control devices as needed for a stable channel; and revegetation of riparian areas. (Draft 2012 EIR Table 2-9, page 2-32.)</p> <p>(c) Implementation of BMPs for removing limestone boulders from Permanente Creek as identified in the 2012 Reclamation Plan Amendment. (Draft 2012 EIR Section 2.7.8.8, page 2-32, citing Enviromine 2011 [Attachment J]).</p>
15 (part), 16 (part)	Subarea 6 is described in Draft 2012 EIR Section 2.7.8.6, <i>PCRA Subarea 6</i> . Details are not summarized here because no work related to the PCRCP is proposed in Subarea 6.	
16 (part), 17 (part)	Subarea 5 is described in Draft 2012 EIR Section 2.7.8.5, <i>PCRA Subarea 5</i> . Details are not summarized here because no work related to the PCRCP is proposed in Subarea 5.	
17 (part), 18, 19 (part)	Subarea 4 is described in Draft 2012 EIR Section 2.7.8.4, <i>PCRA Subarea 4</i> .	
	North of Creek Revegetation	Hydroseeding of disturbed areas with specified seed mix and hand-planting of riparian vegetation at the toe of the slope in areas where sufficient hydrology exists. (Draft 2012 EIR Table 2-6, page 2-30.)
	South of Creek Revegetation	Seeding of areas of mining disturbance on the south side of the creek, using a broadcast seeder or hand-seeding, in areas above the ordinary high-water mark. (Draft 2012 EIR Table 2-6, page 2-30.)
	Slope BMPs	Placement of erosion blankets across the slope for erosion control. Staking in place of fiber rolls, spaced at 15-foot intervals, in disturbed areas where the slope angle is 2.0:1.0 (H:V) or flatter, and at 10-foot intervals in disturbed areas steeper than 2.0H:1.0V. Removal—by hand by work crews, where possible—of silt collected at the toe of the slope. (Draft 2012 EIR Table 2-6, page 2-30.)

**TABLE 2-3 (CONTINUED)**  
**2012 EIR SUBAREA RESTORATION DETAILS AND CORRELATION WITH AMENDED CONSENT DECREE REACHES**

Amended Consent Decree Reaches	2012 EIR PCRA Subarea Restoration Details	
17 (part), 18, 19 (part) (cont.)	Monitoring and Maintenance	Monitoring and maintenance of revegetation and erosion controls added on the northern and southern sides of the creek, according to the reclamation performance standards set forth in Section 2.8 of the Draft 2012 EIR (Table 2-6, page 2-30).
	Creek Restoration	Removal of overburden and silts, including the following (Draft 2012 EIR Table 2-6, pages 2-30 and 2-32, citing Enviromine 2011 [Attachment JJ]): <ul style="list-style-type: none"> <li>(a) Removal of overburden material and sediment deposits.</li> <li>(b) Creation of a stable channel, subject to geotechnical and groundwater investigations as needed to determine the location of bedrock and other constraints on channel design.</li> <li>(c) Establishment of a new bankfull bench and floodplain.</li> <li>(d) Installation of step pools, drop structures, and other stream control devices as needed for a stable channel.</li> <li>(e) Revegetation of riparian areas.</li> <li>(f) Implementation of BMPs for removing limestone boulders from Permanente Creek as identified in the 2012 Reclamation Plan Amendment.</li> </ul>
19 (part)	Subarea 3 is described in Draft 2012 EIR Section 2.7.8.3, <i>PCRA Subarea 3</i> .	
	Geotechnical Work	Soil treatment, specifically: To prepare the steep slopes for revegetation, a winched sheepsfoot (tethered to a bulldozer) would be lowered from above and tracked across disturbed portions of the slope to create a textured slope that resists erosion and better holds hydroseeded material. Disturbed areas located downslope of areas the sheepsfoot would traverse would be prepared with silt fencing to be installed at the toe of the slope. (Draft 2012 EIR Table 2-5, page 2-29.)
	North of Creek Revegetation	Hydroseeding of disturbed areas with specified seed mix and hand-planting of riparian vegetation at the toe of the slope in areas where sufficient hydrology likely exists. (Draft 2012 EIR Table 2-5, page 2-29.)
	Road Treatment	Removal of the uppermost fills and any sources of erosion for the reclaimed lower slopes. (Draft 2012 EIR Section 2.7.8.3, page 2-29.)
	Slope BMPs	Staking in place of fiber rolls, spaced at 15-foot intervals, in disturbed areas where the slope angle is 2.0:1.0 (H:V) or flatter, and at 10-foot intervals in disturbed areas steeper than 2.0H:1.0V. Removal—by hand by work crews, where possible—of silt collected at the toe of the slope. (Draft 2012 EIR Table 2-5, page 2-29.)
	Monitoring and Maintenance	Monitoring and maintenance of revegetation and erosion controls according to the reclamation performance standards set forth in Section 2.8 of the Draft 2012 DEIR (Table 2-5, page 2-29).
19 (part), 20, 21 (part)	Subarea 2 is described in Draft 2012 EIR Section 2.7.8.2, <i>PCRA Subarea 2</i> . Details are not summarized here because no work related to the PCRP is proposed in Subarea 2.	
	Basin Improvements	Basin outlets and flow control work that would include installation of two new sedimentation basins (numbered 40B, 40C) at the southern edge of the West Materials Storage Area once the West Materials Storage Area has been excavated to its final contours. The basins would release flows to existing drainages located in the PCRA. The outlets would extend to the bottom of the slope and the outfall pipes would release to engineered flow dissipaters (grouted riprap pads) to be installed within the existing drainages. The grouted riprap would dissipate the outflow energy, would provide an armored blanket that protects the ravines from erosion, and would be used to direct the outflow to the existing rock drainage to minimize the potential for erosion. (Draft 2012 EIR Table 2-4, page 2-28.)
	Geotechnical Work	Soil treatment, specifically: To prepare steep slopes for revegetation, a winched sheepsfoot (tethered to a bulldozer) would be lowered from above and tracked across disturbed portions of the slope. This would create a textured surface that resists erosion and better holds hydroseeded material. Disturbed areas located downslope of areas the sheepsfoot would traverse would be protected by silt fencing. (Draft 2012 EIR Table 2-4, page 2-28.)

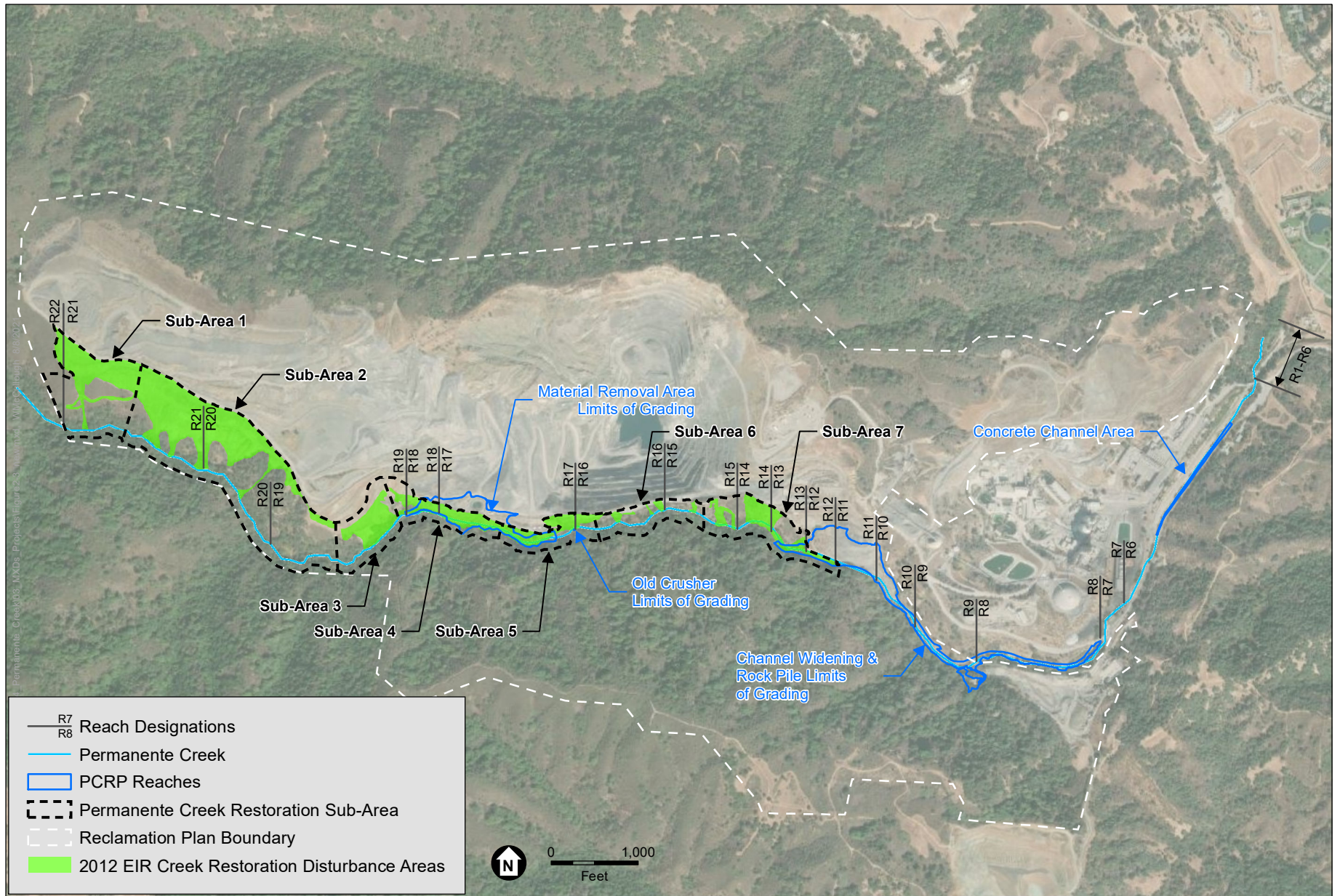
**TABLE 2-3 (CONTINUED)**  
**2012 EIR SUBAREA RESTORATION DETAILS AND CORRELATION WITH AMENDED CONSENT DECREE REACHES**

Amended Consent Decree Reaches	2012 EIR PCRA Subarea Restoration Details	
19 (part), 20, 21 (part) (cont.)	North of Creek Revegetation	Hydroseeding of disturbed areas with the specified seed mix and hand-planting of riparian vegetation at the toe of the slope in areas where sufficient hydrology exists. (Draft 2012 EIR Table 2-4, page 2-28.)
	Slope BMPs	Staking in place of fiber rolls, spaced at 15-foot intervals, in disturbed areas where the slope angle is 2.0:1.0 (H:V) or flatter, and at 10-foot intervals in disturbed areas steeper than 2.0:1.0 (H:V). Removal—by hand by work crews, where possible—of silt collected at the toe of the slope. (Draft 2012 EIR Table 2-4, page 2-28.)
	Monitoring and Maintenance	Monitoring and maintenance of revegetation and erosion controls according to the reclamation performance standards set forth in Section 2.8 of the Draft 2012 EIR (Table 2-4, page 2-28).
21 (part), 22	Subarea 1 is described in Draft 2012 EIR Section 2.7.8.1, <i>PCRA Subarea 1</i> . Details are not summarized here because no work related to PCRP is proposed in Subarea 1.	

NOTES: 2012 EIR = certified 2012 Reclamation Plan Amendment Environmental Impact Report; 2012 Reclamation Plan Amendment = the 2012 amendment to the 1985 Permanente Quarry Reclamation Plan ; Amended Consent Decree = amended consent decree between the Sierra Club and Lehigh/Hanson Permanente Cement, Inc., dated May 11, 2016; BMP = best management practice; Draft 2012 EIR = December 2011 draft of the 2012 Reclamation Plan Amendment Environmental Impact Report; H:V = horizontal to vertical; PCRA = Permanente Creek Restoration Area; PCRP = Permanente Creek Restoration Plan

SOURCES: Lehigh 2021 and as otherwise cited.





SOURCE: Benchmark Resources, 2021

Permanente Creek Restoration Plan Supplemental Environmental Impact Report

**Figure 2-3**  
Correlation of PCRA Subareas and PCRPs

## 2.5 Permanente Creek Restoration Plan

Restoration activities would occur during the dry seasons (i.e., April through October) over a period of up to 6 years. These activities would require hand-operated equipment and hand labor, as well as the use of heavy construction equipment, including excavators, a dozer, a water truck, a hydroseeding truck, other heavy trucks (e.g., haul trucks, dump trucks), a compactor, and loaders. Daily restoration crew sizes may range between six and 12 workers depending on the activity being conducted (Lehigh 2023). The specific restoration activities that would occur under the PCRCP by reach are described below.

### 2.5.1 Concrete Channel (Reach 6)

The “Concrete Channel Area” is within Reach 6 as described in Section 2.7.1 of the 90% Design Memo (**Appendix C**). Pursuant to Amended Consent Decree Section VI.A.40, Lehigh is to plant native riparian vegetation and trees on the southern bank along the concrete channelized portion of Permanente Creek at locations devoid of needed native vegetation, thus providing improved shading and reducing vegetation growth within the channel to improve sediment transport and enhance fish passage.<sup>6</sup> Appendix C (Sheet L1) includes details about the planting that would occur in this area.

As further described in Section 1.2.1 and Section 2.7.1 of the 90% Design Memo, Lehigh’s efforts in this area would encourage the development of a mature riparian canopy along the southern bank of the creek in the upland slopes above the concrete channel, on property owned by Lehigh. The objectives of developing the mature riparian canopy would be to shade the concrete channel to reduce solar heat gain on instream flow and discourage the establishment of cattails; preserve existing native vegetation, including oak seedlings; remove non-native species and suppress weeds around existing native seedlings and smaller native plants to encourage their establishment; and install native riparian plantings.

No other work is currently proposed within the concrete channelized portion of the creek, as the Union Pacific Railroad—and not Lehigh—owns the property upon which the concrete channel is located.

### 2.5.2 Channel Widening Area (Reaches 8–13)

Amended Consent Decree Section VI.A.39 describes Reaches 8–10, Section VI.A.38 describes Reaches 11 and 12, and Section VI.A.37 describes Reach 13. Reaches 8–12 are identified as the “Channel Widening Area” in Section 2.7.2 of the 90% Design Memo. These reaches encompass the “Rock Pile Area.” Amended Consent Decree Sections VI.A.39 and VI.A.38 and Section 1.2.1 of the 90% Design Memo identify the activities Lehigh would implement to restore this area with a naturalized channel, improve channel stability, and enhance ecological function by removing concrete road segments and decommissioning or narrowing dirt roads, removing 1,190 linear feet

<sup>6</sup> Additional details regarding fish passage hydrology, including CDFW’s prescribed upper and lower fish passage design flows for rainbow trout, and the proposed approach to the PCRCP’s fish passage evaluation are provided in Section 2.1.2 and Section 2.3, respectively, of the 90% Design Memo (Appendix C).

of culverts (including a road crossing), establishing an enlarged creek channel, and enhancing the potential for any resident trout passage through these reaches consistent with a geomorphologically stable, self-sustaining channel.

Channel widening is proposed in several places to more closely mimic historical conditions, consisting of a bankfull channel with floodplains of varying size. For example, as described in additional detail below, Permanente Creek is artificially channelized downstream of the instream Pond 13 dam in an open corrugated half-pipe that conveys flow to a buried full culvert. That infrastructure would be removed; an open, natural channel would be restored through a widened corridor with floodplains to provide channel complexity and allow the creek to adjust in response to flood flows and sediment inputs. Additional complexity is proposed for the Channel Widening Area in the form of floodplain roughness with logs, boulders, planting pockets, and live stake trench packs (Sheet C35). In addition, an operational road adjacent to the creek within the downstream portion of the Channel Widening Area was historically constructed to be wide enough for large haul trucks, thereby constraining the space available for the creek. This section of road would be narrowed, and floodplain would be created and widened where present to create channel complexity and provide room for the creek to adjust in response to flood flows and sediment inputs. In addition, culverts that historically provided vehicular access over the creek and confined the channel would be removed.

To provide more room for a natural streambed and banks, Lehigh would set back and narrow the road and accompanying vehicle barrier, reducing the road's total width to no greater than 20 feet at any point, as measured from the toe of the inside slope to the top of the creekside vehicle barrier. The existing vehicle barriers along the Channel Widening Area range from approximately 2.5 to 3.5 feet tall, with slopes ranging from 1.3 to 3.6 horizontal (H) to 1 vertical (V). The proposed vehicle barrier height would be 1.5 feet tall, and the slope of the creekside vehicle barrier would be no steeper than 1.5:1 (H:V) (67 percent slope). Regarding vehicle barrier and road work details, see, e.g., Appendix C, Sheets C11, C12, C13, C14, C15, C17, C18, C19, C20, C21, and C38. Lehigh would control drainage along the modified road segments by outsloping the roadway and constructing reverse grade dips to direct runoff from the road. Four-to-five-foot openings would be left within vehicle barriers every 50–60 feet to allow for unobstructed drainage off of roadways (Appendix C, Sheet C38). To implement these improvements, Lehigh would complete the following actions:

- (1) Excavate the north bank to form a floodplain bench at the estimated bankfull (1.5-year) water surface elevation.<sup>7</sup>
- (2) Remove the existing aggregate rock pile, conveyor system, and associated infrastructure.
- (3) Remove approximately 1,190 linear feet of culverts (including Culverts 7–10 and the half-culvert [Culvert 11] immediately downstream of existing Pond 13), riprap, and the road on top of the creek (concrete ramp).

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<sup>7</sup> For additional details regarding the geomorphic design basis, including bankfull width and depth, and an evaluation of geometry data from four nearby “reference” channel reaches, where the channel is considered to be “natural,” see Section 2.2 of the 90% Design Memo.



Lehigh’s proposed riprap revetment design would be implemented consistent with the Federal Highway Administration’s hydraulic engineering guidance (FHWA 1989).

When flood flows occur, the constructed floodplain in this area would provide a depositional zone for fine sediment and smaller coarse material that could be mobilized from areas formerly referenced as the “Rock Pile Area” and “Material Removal Areas” during the first couple of years after their construction, as floodplain and riparian vegetation become established (Section 2.3.3 of the 90% Design Memo).

The restored course of Permanente Creek in Reaches 11–13 would follow exposed bedrock and/or the “pre-disturbance” streambed as identified by uncovering large boulders, cobbles, and sands and gravels not sourced from limestone-containing mine wastes or overburden. Where either bedrock or the historical creek alignment are not uncovered during excavation, a natural channel would be constructed as shown on Appendix C, Sheet C19. The channel would be protected with engineered streambed material (ESM).<sup>8</sup>

As part of existing regulatory permits and the 2012 Reclamation Plan Amendment, Lehigh will take measures to prevent further mining-related sediment and material from this drainage from reaching Permanente Creek in the future. Specific measures and procedures are outlined in the 2012 Reclamation Plan Amendment, and as appropriate, will be incorporated into the existing facility Operations, Maintenance, and Contingency Plan (OM&C Plan) and Stormwater Pollution Prevention Plan (SWPPP).<sup>9</sup> Lehigh completes routine facility inspections, including standard observations, and containment inspections based on the OM&C Plan and SWPPP. Lehigh would revegetate the floodplain and ephemeral channel with native vegetation. Reach-by-reach details are provided below.

### 2.5.2.1 Reaches 8 and 9

Amended Consent Decree Section VI.A.39 describes Reaches 8–10 as requiring improved channel stability and enhanced ecological function (Appendix B). Responsive work described in the 90% Design Memo (Appendix C) for Reaches 8 and 9 is summarized in this section.

In Reach 8, Culvert 7 is an 11.5-foot-diameter culvert with fill placed over the top of the culvert. Culvert 7 would be entirely removed and the area restored with a floodplain bench to be incorporated along the northern bank. Biomechanical bank stabilization treatments (including the installation of vegetated rock slope protection) would be installed along the southern bank to support the toe of the hillslope where the culvert and associated fill are proposed for removal. A pool that would include the installation of a large woody debris structure in the Culvert 7 removal

<sup>8</sup> The 90% Design Memo uses “engineered streambed material (ESM)” as a term derived from the CDFW Design Guidelines to refer to a well-graded mixture of boulders, cobble, gravel, sand, and fines, proportioned in a way that is stable under design flood flows and still meets habitat enhancement goals. See Section 2.4.1 of the 90% Design Memo (Appendix C) for additional details.

<sup>9</sup> A SWPPP prepared pursuant to the Construction General Stormwater National Pollutant Discharge Elimination System (NPDES) Permit has not yet been prepared for the Project but will encompass standard construction best practices and is required under the Construction General Stormwater NPDES Permit. The SWPPP will address particular site characteristics, phasing of the work, and the potential variations on final geometry and surface materials (e.g., bedrock vs. alluvium in channel banks) (Appendix C, Section 2.4.5, *Project Best Management Practices [BMPs]*).

area would provide habitat and cover for aquatic species (Appendix C). Lehigh would use redwood or fir for the large woody debris structures. See Section 2.4.3 of the 90% Design Memo (Appendix C) for details about vegetated rock slope protection, and Appendix C, Section 2.5 and Sheet C35, for details about the proposed large woody debris structure. The log structures would be designed to remain stable during the 100-year flow and would be expected to remain in place for decades. Specifically, regarding work proposed in Reaches 8 and 9, see Appendix C, Table 3, *Proposed Channel Dimensions for Constructed Reaches*, and Appendix C, Sheet C11.

Reach 9 is referred to in the 90% Design Memo as the “Sediment Removal Area.” In Reach 9, Culvert 8 would be entirely removed and the area restored with a floodplain bench incorporated along the northern bank. A pool that would include the installation of a large woody debris structure in the Culvert 8 removal area would provide habitat and cover for aquatic species. Lehigh would use redwood or fir for the large woody debris structures. See Section 2.5 (and Sheet C35) of Appendix C for details about the proposed large woody debris structure. The log structures would be designed to remain stable during the 100-year flow and would be expected to remain in place for decades. Accumulated sediments and fill materials would be removed from within the Sediment Removal Area as necessary to restore pre-disturbance geometry within the tributary channel and adjacent floodplain area. The access road and existing storage area would be revegetated. Final grades would be dependent upon subsurface conditions (i.e., the location of bedrock). All disturbed areas would be revegetated with native riparian species. See Appendix C, Sheets C14, C15, and C16.

In Reaches 8 and 9, fish passage design criteria for depth and velocity would be met when compared to the hydraulic design parameters established under the hydraulic design approach described in Appendix C.

### **2.5.2.2 Reach 10**

Amended Consent Decree Section VI.A.39 describes Reaches 8–10 as requiring improved channel stability and enhanced ecological function (Appendix B). Responsive work described in the 90% Design Memo (Appendix C) for Reach 10 is summarized in this section.

Culvert 9 consists of an existing 60-inch-diameter corrugated metal pipe that is perched above the channel in the south bank within Reach 10. Under existing conditions, stream flow velocities are high. Stream flows do not pass through Culvert 9 and rock slope protection is exposed along the channel margins. Cobbles and boulders present along the channel bed provide sufficient armoring to resist erosion, and the mature riparian vegetation present along the channel banks provides rooting strength to bank soils. See Appendix C (Sheet C18), which shows the existing average bank slope near the creek in this area.

With implementation of the PCRP, Culvert 9 would be entirely removed and the bank restored in the culvert removal area. Biomechanical bank stabilization treatments would likely be required to restore the southern streambank where the culvert is removed unless bedrock is exposed during demolition. Biomechanical treatment work, if needed, would include the installation of vegetated rock slope protection. Substantial vegetation pruning and disturbance of roots would be required; however, the proposed implementation design anticipates that there would be limited impacts on

the channel bed and existing vegetation during the culvert removal work, and that the native alders and willows would rebound quickly to provide shade and rooting strength to any disturbed bank soils, as stated by Lehigh.<sup>10</sup>

### 2.5.2.3 Reaches 11 and 12 (the “Rock Pile” Area)

Amended Consent Decree Section VI.A.38 describes Reaches 11 and 12 as containing “the Rock Pile,” a large existing stockpile of aggregate material that consists primarily of mining overburden and artificial fills, as well as some natural landslide deposits. These materials have been placed along the creek margin (where the creek is culverted) and up the hillside to a height of more than 200 vertical feet, with an estimated thickness ranging up to 100 feet. See Section 7.5 of **Appendix G1**, *Geotechnical and Geomorphic Assessment of Permanente Creek, Lehigh Hanson Permanente Quarry, Santa Clara County, CA*. See also **Appendix G5**, *Permanente Creek Restoration – Regional Hydraulic Geometry and Analogue Channel Assessment*.

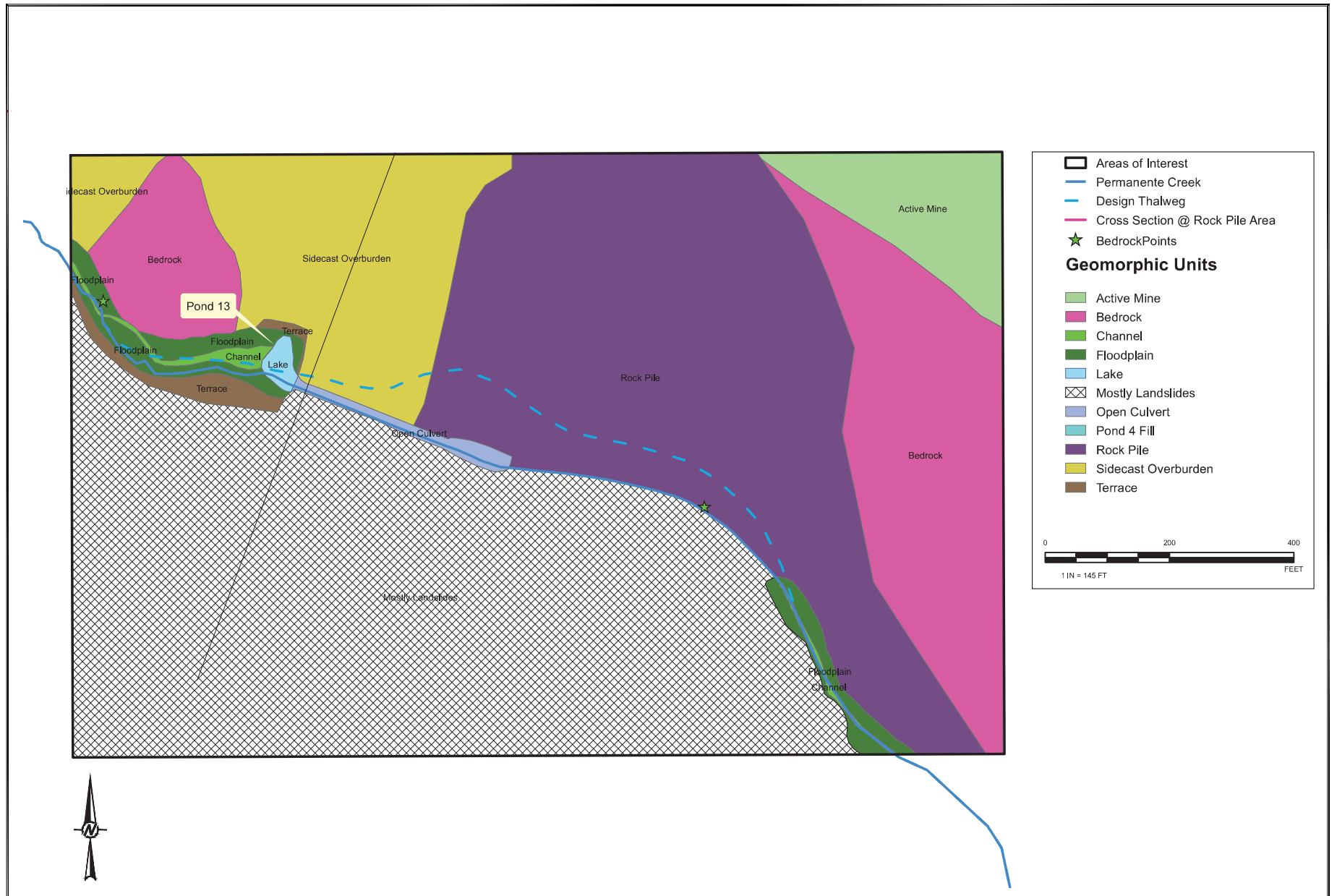
The Rock Pile material would be removed via aggregate or other processing and/or removal (Appendix G1). In Reaches 11 and 12, the PCRCP proposes extensive channel realignment and reconstruction, including removal of the Rock Pile as well as Culverts 10 and 11 and riprap near the Culvert 10 outlet. For Project details for the Rock Pile Area, see Appendix C, Sheet C20 and Sheet C34. Pre-Project modification of these reaches has resulted in existing conditions that reflect a flattened profile downstream of Pond 13 at Culvert 11 (a half-culvert) and a very steep profile through Culvert 10. The geomorphology of the Rock Pile Area is shown in **Figure 2-4**, *Geomorphic Map of the Rock Pile Area*.

The PCRCP proposes to optimize fish passage conditions through these reaches and to help maintain sediment transport continuity and channel stability through the Rock Pile Area by reconstructing the channel profile with a minimum slope of 4 percent and a maximum of 12 percent unless bedrock is encountered and a steeper historical profile is present (Section 2.3.3 of Appendix C). Cuts 30–40 feet deep may be required. Steps and pools would be incorporated into the Rock Pile Area as shown on the Typical Cascade and Step-Pool Reach Details in Appendix C (Sheet C34). Additional complexity would be added to the Rock Pile Area by creating floodplain roughness with logs, boulders, planting pockets, and live stake trench packs (Sheet C35). The head of large pools would be reinforced with boulder weirs<sup>11</sup> to promote plunging flow into the pool and provide profile grade control. Boulder weirs would be keyed into adjacent floodplain armor. See Appendix C (Sheet C36). The boulder weirs would extend 5–7 feet into the floodplain armor to protect against flanking.<sup>12</sup> The newly excavated floodplain benches would be

<sup>10</sup> During site inspections in 2022, it appeared that most of the alders shown on the drawings mapped during 2013–2015 have died and been replaced by willow volunteers.

<sup>11</sup> A notch or depression in a levee, dam, embankment, or other barrier across or bordering a stream, through which the flow of water is measured or regulated; a barrier constructed across a stream to divert fish into a trap; a dam (usually small) in a stream to raise the water level or divert its flow.

<sup>12</sup> Flanking is the process of erosion along the lateral edge or around the end of an instream feature or structure. If flanking were to occur at a boulder weir, the main flow path would follow the area of erosion around the weir rather than over it. Keying the weir boulders into the floodplain armor will help prevent this undesirable process from occurring.



SOURCE: GOLDBERGER, 2019

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**Figure 2-4**  
Geomorphic Map of the Rock Pile Area

lined with a mixture of coarse alluvial materials sized to resist mobilization, but able to adjust and reorganize in response to significant flood flows. Floodplain roughness elements (e.g., log structures and/or boulder sills) would be incorporated to minimize channel migration into the benches until vegetation becomes well established. See Section 2.4.1 of the 90% Design Memo for additional details about the steps and pools proposed in this area, Section 2.4.2 of the 90% Design Memo for additional details about the proposed floodplain armor, and Appendix C (Sheets C19 and C20).

The Rock Pile and associated infrastructure would be removed to accommodate the lowered and widened channel. See Appendix C (Sheet C21). An 18-foot-wide, dirt access road would be constructed for the maintenance of Pond 13B. The road width would include a concrete K-rail vehicle barrier with a 2-foot base width, leaving a clear travel way of 16 feet. Upland hillslopes disturbed by PCRPs activities, the constructed channel, and floodplains would be vegetated with native species. To ensure the geotechnical stability of the slope exposed below the Rock Pile and the proposed access road, Lehigh proposes to have these areas inspected by the geotechnical engineer or Project geologist to evaluate the nature and stability of the exposed material and provide recommendations, as necessary.

#### **2.5.2.4 Reach 13 (Pond 13)**

Amended Consent Decree Section VI.A.37 and Sections 1.2.1 and 2.7.7 of the 90% Design Memo (Appendix C) describe the activities Lehigh would implement in Reach 13. Activities include removal of the dam infrastructure at Pond 13, replacement of the dam with a boulder weir grade control structure (if the upper limit of potential design channel invert is constructed), construction of a restored channel through the abandoned Pond 13, removal of impounded fine sediments so the material is not transported downstream following restoration, and installation of native vegetation.

Within Reach 13, Lehigh would establish a new, enlarged creek channel that includes increased channel complexity with a defined floodplain and restored vegetation. The horizontal dimensions of the new channel would be determined by the extent of excavation within the “grading envelope” shown in Appendix C (Sheet C20). Lehigh would provide for enhanced ecological function and passage by resident trout consistent with a geomorphically stable, self-sustaining channel unless the CDFW Restoration Manual’s hydraulic design criteria cannot be met due to (1) the gradient of the reach, or (2) bedrock grade controls confirmed by an independent geologist.

Lehigh would reconstruct the channel at a lowered profile, aligning the channel within the “grading envelope,” and would excavate to the lower limit of the potential design channel invert shown in the 90% Design Memo. If excavation work encounters bedrock before reaching the lowest elevation at any location within the grading envelope, an independent professional geologist would assess and make a final determination of the existence and extent of any such bedrock. The course of the restored Permanente Creek would follow exposed bedrock and/or the “pre-disturbance” streambed (i.e., exposed large boulders, cobbles, sands and gravels not sourced

from limestone-containing mine wastes or overburden) uncovered during excavation. A new, enlarged creek channel upstream of Pond 13 would be constructed.

The limits and thickness of existing, accumulated sediment have not been surveyed. However, fine sediment currently impounded within Pond 13 would be removed below elevation 805.0 feet until alluvial material (i.e., sand, gravel/cobble) or bedrock is encountered. Engineered fill would be placed to raise grades, where necessary, and a channel would be constructed through the previously ponded area to restore an open channel.

### 2.5.3 Reaches 14–16

As noted above, Reaches 14–16 are within the existing Reclamation Plan boundary and no change to previously analyzed work under the 2012 Reclamation Plan Amendment is proposed in these locations associated with the PCR. <sup>13</sup>

### 2.5.4 Material Removal Area (Reaches 17 and 18)

Reaches 17 and 18 are referred to in Section 2.7.8 and Section 2.7.9 of the 90% Design Memo as the “Material Removal Area,” which includes the “old crusher foundation” in Reach 17. See Appendix C, Sheets C10 and C22, specifically regarding the Old Crusher Foundation; see Sheets C23, C24, C25, and C26 more generally for Material Removal Area details. See also **Appendix G5, *Permanente Creek Restoration – Regional Hydraulic Geometry and Analogue Channel Assessment***, which provides additional restoration details about the Material Removal Area.

These reaches have been modified by the placement of material within and adjacent to the creek channel: Lehigh proposes to remove the material by excavating it to establish a more uniform profile gradient, then reconstructing the channel profile with a minimum slope of 4 percent and a maximum of 12 percent unless bedrock is encountered and a steeper historical profile is present. <sup>14</sup> The PCR would establish an enlarged creek channel and floodplain, the horizontal dimensions of which would be determined by the extent of excavation within the “grading envelope.” The October 31, 2021, geologic and geomorphic assessment for the PCR conducted by Golder and Associates indicates that bedrock throughout the Material Removal Area is close to the surface except in a few localized places where depths may be in the range of 15–20 feet below ground surface (Appendix G1, Section 6.2.1). The course of the restored creek would follow exposed bedrock, and/or large boulders, cobbles, sands, and gravels not sourced from limestone-containing mine wastes or overburden, if such materials are encountered before reaching the “lower limit of potential design channel invert” shown on Sheets C23 and C24.

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<sup>13</sup> The woody debris installations originally prescribed for these reaches in paragraph 36 of the Amended Consent Decree have been moved to other locations within the Project footprint to ensure stability and to fulfill ecological purpose (Appendix C).

<sup>14</sup> While fish passage of potential rainbow trout species is an objective of the proposed restoration of Reaches 17 and 18, studies show that adult anadromous salmonids (not present here) are able to navigate steeper slopes than resident rainbow trout (California State Coastal Conservancy 2004). Thus, successful fish passage cannot be guaranteed due to site constraints, the majority of which exceed CDFW’s estimated limit to anadromy, which is a sustained slope of over 8 percent.



More specifically, Amended Consent Decree Section VI.A.35 describes Lehigh’s proposed restoration work in Reaches 17 and 18 as including the excavation and permanent export of overburden and mining-related sediment from the creek bed and banks—and from upland slopes to the extent that upland slope materials pose a risk of entering Permanente Creek—with the goals of reestablishing the approximate pre-disturbance creek alignment and slopes and facilitating above-grade flows. Work in these reaches would enhance ecological function and passage by resident trout consistent with a geomorphically stable, self-sustaining channel unless the CDFW Restoration Manual’s hydraulic design criteria cannot be met due to (1) the gradient of the reach, or (2) bedrock grade controls confirmed by an independent geologist.

Lehigh would reconstruct the channel at a lowered profile (at the depth of bedrock), with the maximum extent of excavation being the Lower Limit of Potential Design Channel shown in Appendix C, Sheets C23 and C24, unless bedrock or the “pre-disturbance” streambed is encountered at a higher elevation within the “grading envelope.” To inform the understanding of existing conditions as well as the proposed restoration design, a seismic refraction analysis was performed to estimate the depth to bedrock (see Appendix G1). Based on the results of the seismic refraction analysis, the proposed design reflects the anticipated best fit to bedrock elevations. There is some uncertainty regarding the exact extent and depth of bedrock given the limited subsurface data, and identifying more precise locations of bedrock would require extensive subsurface exploration such as drilling or trenching. To accommodate this uncertainty, a grading envelope was developed that includes an Upper and Lower Limit of Potential Design Channel Invert to guide Project construction (Appendix C, Sheets C23 and C24). The Lower Limit of Potential Design Channel Invert is shown in profile and represents the lowest grade at which the channel invert would be constructed if bedrock or the “pre-disturbance” streambed is not encountered.<sup>15</sup> The Upper Limit of Potential Design Channel Profile is also shown in profile and reflected in the grading plan shown in Appendix C, Sheets C23 and C24. Proposed cuts extend to depths of 30–40 feet below the existing ground level. If bedrock or the “pre-disturbance” streambed is not encountered at the Material Removal Area and the profile representing the Lower Limit of Potential Design Channel Invert is constructed, then the maximum depth of excavation below existing ground would be approximately 48 feet. The Upper Limit of Potential Design Channel Invert includes profile grades ranging from 7.1 percent to 22.7 percent. These grades assume that the restored channel would follow the peaks of the subsurface bedrock profile as informed by the seismic refraction analysis. Ultimately, final grades would be determined in the field to best fit bedrock exposures encountered during excavation and could vary from those shown on the design drawings.

The County of Santa Clara (County) understands that the regulatory agencies have requested, and the 90% Design Memo includes, plans for the existing Upper FTS to be relocated if still necessary to treat water generated from the quarry pit.

The proposed centerline of the creek was established by extending the existing southern hillside slope down at 1.5:1 (H:V) to meet the new profile grade, and then leaving room for a bench that varies in width at bankfull elevation. The newly excavated floodplain benches would be lined with a

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<sup>15</sup> Design drawings for the Lower Limit of Potential Design Channel Invert that include a grading plan and cross sections are included on Figures 1–4 in Appendix L of the Updated 90% Level Design Memorandum (Appendix C to this SEIR).

mixture of coarse alluvial materials sized to resist mobilization, but able to adjust and reorganize in response to significant flood flows. Steps and pools would be incorporated into the Material Removal Area channel profile as shown on the Typical Cascade and Step-Pool Reach Details in Appendix C (Sheet C34). Additional complexity would be added to the channel by creating floodplain roughness with logs, boulders, planting pockets, and live stake trench packs (Sheet C35). As would occur in the Rock Pile Area, the head of large pools in the Material Removal Area would be reinforced with boulder weirs to promote plunging flow into the pool and provide profile grade control. Boulder weirs would be keyed into adjacent floodplain armor. See Appendix C (Sheet C36). The weir boulders would extend 5–7 feet into the floodplain armor to protect against flanking. Floodplain roughness elements (such as log structures and/or boulder sills) would be incorporated to minimize channel migration into the benches until vegetation becomes well established. See Section 2.4.1. of the 90% Design Memo for additional details about the steps and pools proposed in this area.

Lehigh would lay back and regrade the north overburden slope to provide a stable slope no steeper than 2:1 (50 percent grade) and remove sufficient material to relocate the north toe of the slope northward by 25 feet, except at the downstream end of the reach where the relocation of the north toe of slope would be less than 25 feet to accommodate the Upper FTS and existing access road.

“Relic concrete structures” are shown in Appendix C (Sheet C24). This includes two large concrete remnants along the left bank of the stream channel. Lehigh would remove both structures as part of the PCRP grading operation to facilitate construction of a restored channel with floodplains. Pending the location and orientation of bedrock exposed during channel excavation, Lehigh would construct weirs and steps to help dissipate energy and provide channel complexity using material with a minimum size meeting the D50 of the specified material and boulder sills would be incorporated using boulders with a minimum size meeting the D84<sup>16</sup> (Appendix G1).

The “old concrete crusher foundation” is located approximately 250 feet downstream of the Material Removal Area. Lehigh would cut back the portion of the concrete block that served as the “old concrete crusher foundation” that is currently located in the creek so that it would match the natural direction and slope of the creek and bank. The foundation currently buried within the hillside slope would remain in place to support the bank. The proposed removal of the “old concrete crusher foundation” would be performed using hand-operated equipment and hand labor, including small equipment with materials and spoils lowered and raised via a constant rate descender or equivalent. The concrete foundation would likely be broken into fragments by drilling holes into it and using an expanding epoxy or similar compound to break apart the concrete. Concrete fragments would be placed in 5-gallon buckets or similar and carried by hand, with assistance from the constant rate descender, to the top of the slope. All concrete fragments would be disposed of off-site.

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<sup>16</sup> The term “D50” is an important parameter characterizing particle size. It means the median diameter or the medium value of the particle size distribution, and is the value of the particle diameter at 50 percent in the cumulative distribution. The term “D84” also is a statistical parameter that can be read directly from the cumulative particle size distribution; it indicates the size below which 84 percent of all particles are found.

The Upper FTS infrastructure (including the 1250 Pond, associated facilities, and road) that has been installed to remove selenium from water removed from the Quarry Pit is located along the top of the creek bank in the Material Removal Area. This infrastructure is presently needed to comply with the facility's National Pollutant Discharge Elimination System (NPDES) permit (RWQCB Order R2-2019-0024, NPDES No. CA0030210), which requires treatment by the Upper FTS of the first 450 gallons sought to be discharged from the Quarry Pit at Discharge Point 001 each dry season (May 1 through October 31), after which all remaining Quarry Pit flows can be routed to the Final Treatment System–Lower (Lower FTS) for discharge at Discharge Point 007. As reclamation activities continue per the 2012 Reclamation Plan, the Lower FTS will become unnecessary, as discharge from the Quarry Pit will no longer occur. Notes regarding removal and relocation of the existing infrastructure associated with the Upper FTS are shown in Appendix C (see Sheet C23 and Sheet C24).

Any relocation of the Upper FTS and associated infrastructure would be considered when determining construction sequencing. Work at the Material Removal Area may be sequenced to occur after other portions of the Project are constructed, in which case the Upper FTS and Pond 1250 would remain in their current location at the start of Project implementation. These facilities may be relocated in the localized area to accommodate changes to the slope if the facilities are necessary for post-Project facility operations associated with quarry dewatering and reclamation. The location of Pond 1250 is shown in Appendix C (Sheet C28).

All disturbed areas would be revegetated with native species appropriate to the site as indicated in the proposed revegetation plan (see Appendix C, Sheets L2, L3, L4, L5, and L6). A riparian vegetation impact assessment for the Project prepared by Waterways Consulting, Inc. confirms that the number of trees and shrubs to be installed as part of Project implementation far exceeds the number of trees and shrubs to be removed (a copy of the assessment is provided in **Appendix E3**). The revegetation plans would be updated, as necessary, as part of future permitting tasks to ensure that tree and shrub replacement ratios are appropriate for the PCR. The specific monitoring obligations that would also be associated with the revegetation plan would be addressed via future permitting tasks for the Project.

### 2.5.5 Reaches 19–22

No work is being proposed in these reaches.<sup>17</sup>

### 2.5.6 Vegetation and Erosion Protection

Lehigh proposes vegetation as an essential component not only of erosion control on slopes above the limits of floodplain armor (i.e., 10-year water surface), but also of the proposed protection of habitat value on excavated slopes, constructed floodplains, and the reconstructed channel banks.

Flow velocities along the lateral margin of floodplain areas above the limits of proposed floodplain armor average less than 3 feet per second during the 100-year flood. Revegetated soils

<sup>17</sup> The woody debris installations originally prescribed for these reaches in paragraph 34 of the Amended Consent Decree have been moved to other locations within the Project footprint to ensure stability and to fulfill ecological purpose.

can resist flow velocities of 4–6 feet per second. With implementation of the PCRCP, these areas would be seeded and planted. Mulch and/or erosion control fabric would be provided as appropriate pending constructed geometry, with fabric preferred on slopes steeper than 2.5:1 (H:V).

All areas disturbed during construction would be revegetated with native species appropriate to the setting. Planting would include “live staking,” container planting, and seeding. See Appendix C (Sheets L2, L3, L4, L5, and L6), which shows proposed planting areas and provides details about the proposed species, container sizes, on-center spacings, seed quantities, and other installation information. Planting tables are included for each work area (e.g., Rock Pile Area) for both floodplain and riparian areas. For revegetation purposes, the “riparian” planting zone has been defined as the areas extending 10 vertical feet up the channel bank from the toe of slope at the edge of constructed floodplain benches at the Rock Pile Area and Material Removal Area and along the bank leading up to the narrowed road through the Channel Widening Area. Revegetation would occur in floodplain areas with live willow stakes and container plants, and by seeding mix. Revegetation would occur via container plant installation and by seeding at the riparian planting areas. All disturbed areas not receiving rock treatments would be seeded with a mixture of native species to provide a diversity of riparian and upland species throughout the Project area (Lehigh 2022).

The included seed mix tables in Appendix C (Sheet L2) identify the seed mixes that would be applied to areas disturbed by PCRCP implementation. The seed is expected to help provide short-term erosion control through establishment of a ground cover including grasses and herbaceous species. Woody species and container plantings are proposed to contribute to long-term erosion control and habitat value. Container plants would be installed in planting pockets, and live stakes would be installed throughout the floodplain armor and engineered streambed material at floodplain and streambank areas at the spacings shown in the planting tables and relevant details. Live stake trench packs and live willow transplants also would be installed throughout floodplain areas. Information about trench pack and willow transplant installation and spacing is provided in Appendix C (Sheets C35, C36, and C37).

An irrigation system would be employed to maintain installed plantings during their establishment period. The irrigation plan would consist primarily of drip emitters at container plants, and may include overhead sprinklers to irrigate seeds during initial establishment only. The source of irrigation water would be either treated water from the facility or potable water. Piping would be installed above ground. Approximately 13.35 acre-feet of water would be required, which assumes that installed plants would receive three full seasons of irrigation following the year of construction.

The specific monitoring and maintenance obligations associated with vegetation and erosion protection would be addressed via future permitting for the Project.

### 2.5.7 Construction Sequencing

Pursuant to the Amended Consent Decree, Lehigh initially intended to complete work within five work-window dry seasons (i.e., May through October) from when final permits for the

PCRP are issued, with the schedule to be extended as needed to comply with permit requirements. For purposes of the analysis, this SEIR assumes that Lehigh would implement the PCRP over a 6-year period, following the sequencing recommendations set forth in Section 3.1 of the 90% Design Memo. See **Table 2-4, PCRP Construction Schedule**. Seeding would occur before the onset of winter rains. However, plant installation may occur outside the dry season to help ensure successful establishment of the plants. As shown in drawings included in Appendix C (Sheets C29, C30, C31, C32, and C33) and as described in Section 2.4.5 of Appendix C, implementation of the PCRP would be phased within each work window. Lehigh would limit the diversion of flows each year to those areas where work is occurring. The work window dates for construction activities within the creek channel would be in accordance with the work period included in permits received for the Project from the resource agencies.

**TABLE 2-4  
PERMANENTE CREEK RESTORATION PLAN CONSTRUCTION SCHEDULE**

Year	Activity
Year 1	<ul style="list-style-type: none"> <li>• <i>Concrete-Lined Channel</i>: Install native riparian vegetation along the southern bank at locations void of native species along approximately 1,575 linear feet of channel. (Appendix C, Sheet L1.)</li> <li>• <i>Channel Widening Area (Phase 1)</i>: Perform approximately 1,450 linear feet of grading to create an inset floodplain bench and reduce the existing road width. (Appendix C, Sheets C11, C12, C13, and L2.)</li> <li>• Remove Culvert #7 and construct an open channel segment.</li> <li>• Remove sediment from tributary and fan along the southern bank of Permanente Creek. (Appendix C, Sheets C14 and L3.)</li> <li>• Revegetate all areas disturbed by construction during Year 1.</li> </ul>
Year 2	<ul style="list-style-type: none"> <li>• <i>Rock Pile Area (Phase 1)</i>: Perform demolition and rough grading for approximately 800 linear feet. Pond 13 and Culverts #10 and #11 to remain. (Appendix C, Sheets C19, C20, C21, C34, C35, and C36.)</li> <li>• Revegetate all areas disturbed by construction during Year 2.</li> </ul>
Year 3	<ul style="list-style-type: none"> <li>• <i>Rock Pile Area (Phase 2)</i>: Remove Culverts #10 and #11 and the Pond 13 infrastructure. Construct a maximum of 1,345 linear feet of restored channel. (Appendix C, Sheets C19, C20, C21, C34, C35, and C36.)</li> <li>• Revegetate all areas disturbed by construction during Year 3.</li> </ul>
Year 4	<ul style="list-style-type: none"> <li>• <i>Channel Widening (Phase 2)</i>: Perform 1,775 linear feet of grading to create an inset floodplain bench and reduce the existing road width. (Appendix C, Sheets C11, C14, C15, C16, and C18.)</li> <li>• Remove Culverts #8 and #9 and construct open channel segments. (Appendix C, Sheets C14, C15, C16, and C18.)</li> <li>• Revegetate all areas disturbed by construction during Year 4.</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>• Partially remove Old Crusher Foundation. (Appendix C, Sheets C5 and C22.)</li> <li>• <i>Material Removal Area (Phase 1)</i>: Perform mass grading to lower the haul road and Pond 4 access road for approximately 1,100 linear feet. Construct access road down to the channel to locate bedrock at critical locations along the design alignment. (Appendix C, Sheets C23, C24, C25, and C26.)</li> <li>• Revegetate all areas disturbed by construction during Year 5.</li> </ul>
Year 6	<ul style="list-style-type: none"> <li>• <i>Material Removal Area (Phase 2)</i>: Construct a maximum of 1,945 linear feet of restored channel. (Appendix C, Sheets C23, C24, C25, and C26.)</li> <li>• Revegetate all areas disturbed by construction during Year 6.</li> </ul>

SOURCE: Waterways Consulting 2021

## 2.5.8 Monitoring and Adaptive Management

### 2.5.8.1 Monitoring

Creek restoration activities within the existing Reclamation Plan boundary would be monitored pursuant to the requirements of SMARA and the County's 2012 Reclamation Plan Amendment's conditions of approval, including the mitigation monitoring program developed as part of the 2012 CEQA process. SMARA's reclamation requirements govern wildlife habitat; backfilling, regrading, slope stability, and recontouring; revegetation; drainage, diversion structures, waterways, and erosion control; building, structure, and equipment removal; stream protection, including surface water and groundwater; topsoil salvage, maintenance, and redistribution; and mine waste management. Applicable requirements are described on a resource-by-resource basis throughout Chapter 4 of the Draft 2012 EIR, as modified by the Final 2012 EIR, and would continue to apply to creek restoration under the PCRCP within the existing Reclamation Plan boundary. Monitoring in areas outside the reclamation boundary would occur in accordance with conditions of the County's Grading Approval and Lehigh's future Monitoring and Adaptive Management Plan (MAMP) developed in accordance therewith, which is described further below in Section 2.5.8.2. The specific types and length of monitoring and maintenance obligations would be addressed via future permitting for the PCRCP.

### 2.5.8.2 Adaptive Management

Because it is not possible to predict all future adjustments that may (or may need to) occur to achieve the goal of restoring natural channels, the PCRCP includes the adaptive management provisions described in Section 4 of the 90% Design Memo and summarized below.

With implementation of the PCRCP, the reconstructed channel and floodplains would be protected with engineered streambed material and floodplain armor. It is anticipated that the engineered streambed material, floodplain armor, and boulder sills would perform as designed to protect against erosion from large flooding events that may occur in the initial years after Project construction while vegetation is becoming established. However, adjustments or areas of erosion could occur that require attention to ensure that the Project evolves and functions as intended.

The creation of inset floodplain benches is proposed to allow for substantial sediment storage within the Project reaches, or for the low-flow channel to adjust laterally without consequence in most instances. However, sediment mobilized from Project areas or from areas outside the influence of Project construction may accumulate in undesirable locations within the reconstructed channel segments. Lehigh's restoration engineers would evaluate areas of substantial aggradation and corrective measures would be proposed as necessary. Areas exceeding 100 square feet with 18 inches or greater of sediment deposition would be considered substantial for monitoring purposes. In the initial years after Project implementation, it would be important to ensure that sediment/debris does not accumulate at locations that may direct future flood flows in a manner that could affect Project stability.

Lehigh selected the plants proposed for the revegetation effort based on experience revegetating other areas of the Project site. Although a certain percentage of die-off is typical with any native



revegetation effort, it is expected that the selected species would do well in the proposed locations. If Lehigh's restoration specialists determine that the revegetation effort is not meeting the Project's performance standards, Lehigh would evaluate the cause and either use alternative species or increase the species that are performing well to ensure that the PCRCP meets required performance standards for vegetation establishment. Monitoring is anticipated to occur following each phase of revegetation. Performance standards and monitoring requirements would be included in a MAMP to be prepared by Lehigh.

Each work area described in Section 2.5 would be inspected during the first year after construction after storms delivering 1.5 inches or more of rainfall have occurred. If erosion or sedimentation does occur,<sup>18</sup> then Lehigh would evaluate the cause of the issue and, if determined appropriate in consultation with the RWQCB or the County,<sup>19</sup> would develop further adaptive management practices to help stabilize the area. Potential adaptive management approaches would vary depending on the type and severity of erosion or sedimentation and may include raking to remove rills; removal of accumulated sediments; mulching using straw or wood chips; seeding and/or installation of container plants or live stakes; installation of fiber rolls or biodegradable erosion control fabric; grading to control drainage; or installation of rock armoring. The default approach at areas of erosion would be to install additional vegetation where this approach is a viable solution to help halt erosion. Should Lehigh's restoration engineers determine that the area of erosion is substantial and installing additional vegetation is not a potential solution, then an approach would be developed and the resource agencies would be engaged if heavy equipment is involved.

During the permitting process, a MAMP would be prepared for review and approval by the resource agencies. The MAMP would establish monitoring protocols, performance criteria, the monitoring period, and reporting requirements; it also would discuss potential adaptive management strategies and approaches. Ultimately the MAMP would be a tool for helping to ensure long-term channel stability and successful establishment of the revegetation effort. Informed by permit requirements, Lehigh will consider including provisions in the MAMP related to the duration of and protocols for specific monitoring efforts (e.g., for bats, fish, or geological or other conditions) and the extent of survey radii, and/or wildlife behavior-based buffers.

<sup>18</sup> Erosion that would trigger evaluation of the cause and potential adaptive management measures includes: Hillslopes with erosional rills exceeding a depth of 8 inches for a length of 10 feet or greater; streambed or floodplain areas exceeding 100 square feet with 18 inches or greater of erosion/scour; and incision along the streambed or within a floodplain area exceeding 18 inches for a length of 10 feet or greater. Sedimentation that would trigger evaluation of the cause and potential adaptive management measures includes: streambed or floodplain areas with sediment accumulation exceeding 100 square feet with a depth of 18 inches or greater.

<sup>19</sup> For example, the restoration design anticipates that Permanente Creek would continue to be dynamic and that it would be allowed to evolve within reasonable parameters. Erosion and sedimentation thresholds triggering an evaluation of cause may not warrant remedial actions in all cases (e.g., redistribution of stream sediments may be more acceptable than hillslope erosion). Lehigh and the County would reach consensus on the remedial actions, if any, to be taken, including whether supplemental environmental review would be required.

## 2.5.9 Best Management Practices and Applicant-Proposed Measures

Project proponents frequently identify best management practices (BMPs) or applicant-proposed measures (APMs) as part of a proposal to help to avoid or reduce anticipated construction-related or other environmental impacts. BMPs and APMs properly are considered elements of the project and are not mitigation measures for purposes of CEQA. Lehigh has proposed to incorporate standard construction BMPs (e.g., as would be required by the Construction General Stormwater Permit) and other measures to help avoid or reduce anticipated environmental impacts.

### 2.5.9.1 Best Management Practices

As described in more detail in Section 2.4.5 of the 90% Design Memo (Appendix C), the primary BMPs for the PCRCP include the following:

**BMP-1: Construction Fencing.** Construction fencing would be installed along limits of disturbance before grading activities begin. Access to project areas would be along existing quarry access roads. See Appendix C (Sheets C27 and C28).

**BMP-2: Equipment Fueling.** Equipment would be staged and refueled within established staging areas. See Appendix C (Sheet C27).

**BMP-3: Dust Control.** Continuous dust control would be provided throughout construction in accordance with the dust control notes shown in Appendix C (Sheet C27), which consist of the following: “1) the contractor shall be responsible for continuous dust control, throughout the construction, in accordance with the permit conditions of approval, the contractor shall be responsible for the regular cleaning of all mud, debris, etc., from any and all adjacent roads and sidewalks, at least once every 24 hours when operations are occurring; 2) all disturbed areas, including unpaved access roads or storage piles, not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover; 3) all ground-disturbing activities (e.g., clearing, grubbing, scraping, and excavation) shall be effectively controlled of fugitive dust emissions utilizing application of water or by pre-soaking; 4) all materials transported offsite shall be covered or effectively wetted to limit dust emissions; 5) following the addition of materials to, or the removal of materials from, the surfaces of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant; 6) onsite vehicle speed on unpaved surfaces shall be limited to 15 mph; [and] 7) disturbed areas shall be seeded prior to October 15<sup>th</sup> or earlier as required by the applicable permit conditions.”

**BMP-4: Dewatering.** Dewatering would occur at all sites where surface water is present and grading is proposed along the channel bed, or where access across the channel is required (i.e., at the Culvert 9 removal area in Reach 10). Approximate temporary diversion dam locations are shown in Appendix C (Sheets C29, C30, C31, and C32), with a typical dewatering plan and details shown on Sheet C33. Block nets would be installed upstream/downstream of the area to be dewatered, and fish and other aquatic organisms would be removed and relocated by a qualified biologist prior to the installation of dewatering facilities. Where removal of seepage water is required within an isolated construction area, the water would be pumped to a depression or temporary basin either to infiltrate or be detained until it is routed through a sediment treatment facility, as needed. Any

pumping of surface water with the potential to entrain aquatic organisms would be screened using a mesh with a maximum opening size of 5 millimeters. The screen would be checked regularly to ensure it is functioning as intended and that animals are not becoming entrapped.

**BMP-5: Discharge Controls.** Turbid waters would be prevented from discharging into Permanente Creek.

**BMP-6: Sediment Removal.** At the end of construction, all accumulated sediment would be removed from the dewatered work area, characterized, and, if appropriate, placed elsewhere within the 2012 Reclamation Plan boundary in a manner that would not result in erosion or mobilization of sediment to Permanente Creek, and that would be performed consistent with Waste Discharge Requirements (WDRs) Order No. R2-2018-0028. The placement of material also would adhere to the requirements set forth in those WDRs including but not limited to the Facility Operations and Maintenance plan protocols.

**BMP-7: Erosion Control.** Lehigh proposes the following BMPs to control erosion:

- a) **Fiber rolls.** Fiber rolls would be installed around staging areas and a sediment barrier fence<sup>20</sup> would be installed along the creek-side edge of the proposed floodplain bench excavation areas at the Channel Widening Area. Lehigh would coordinate with U.S. Fish and Wildlife Service (USFWS) staff to develop fiber roll specifications where it would be used as a barrier to prevent sediment and debris from entering the creek during floodplain bench excavation at the Channel Widening Area. The analysis in this SEIR assumes that the fiber rolls would be placed so as to trap mobilized sediment in the event there is rain during construction, and that the sediment barrier fence would act as a barrier to any loose material during floodplain bench excavation. Sediment barrier fence details and fiber roll spacing details are provided in Appendix C (Sheet C38).
- b) **Rock mixtures and/or vegetation.** Constructed channel areas and bank slopes would be protected from erosion using the rock mixtures and/or vegetation shown on the restoration plan drawings. Erosion control fabric would be utilized if needed. Fiber rolls would be installed across excavated slopes as shown in Appendix C (Sheets C29, 30, 31, and C32). Prior to revegetating slopes, the areas would be track-walked to ensure drainage in the intended direction and to provide smooth transitions to undisturbed slopes. Fiber rolls and container plants would be installed where specified, and the slopes would be hydroseeded with the specified seed mix. The hydroseed mixture would include hydromulch, amendment/fertilizer, and tackifier to assist with erosion control and seed establishment.
- c) **Erosion and Sediment Control Plan.** A detailed erosion and sediment control plan will be prepared as part of the Construction General Stormwater NPDES Permit/SWPPP before construction documents are finalized.
- d) Additional erosion control notes, including those protecting Permanente Creek from discharges of earthen materials and imposing seasonal and weather forecast-specific activities to prevent erosion, also are described in Appendix C (Sheet C40).

**BMP-8: Time of Year Restriction.** Lehigh shall conduct construction only during the summer months when Permanente Creek flow and precipitation is typically at a seasonal low,

<sup>20</sup> Lehigh would coordinate with USFWS staff during the Section 7 Consultation to identify an appropriate fabric for use as a sediment barrier.

reducing the potential for storm runoff–based erosion and the transport of sediment to downstream waters.

**BMP-9: Hazardous Materials Controls and Planning.** A hazardous materials controls and spill prevention plan and a spill prevention and countermeasure plan would be developed in accordance with the Access and Staging Area notes shown in Appendix C (Sheet C27).

### 2.5.9.2 Applicant-Proposed Measures

Lehigh has identified an additional suite of measures to help avoid or reduce anticipated environmental impacts of the PCR. The APMs set forth below are consistent with the voluntary measures proposed and analyzed as part of the 2012 EIR (although APM-BIO-1, APM-BIO-3, APM-BIO-4, and APM-BIO-5 have been updated to reflect comments received by CDFW and USFWS) and would be implemented as part of the PCR both within and outside of the existing Reclamation Plan boundary.

1. **APM-BIO-1: Nesting Birds.** Vegetation removal will be conducted outside the bird nesting season to the extent feasible. During the breeding season (defined for purposes of this SEIR as January 15 to September 15), two surveys for active bird nests will be conducted by a qualified biologist (with at least 2 seasons of bird nest surveys/monitoring experience) within 14 days prior to the beginning of Project construction; the second survey will be conducted within 48 hours of beginning Project construction. Surveys will be conducted for all suitable nesting habitat within the work area and the following minimum radii surrounding the work area: i) 250 feet for passerines; ii) 500 feet for small raptors such as accipiters; and iii) 1,000 feet for larger raptors such as buteos. If the qualified biologist documents active nests within the Project area or in nearby surrounding areas, an appropriate buffer between the nest and active construction will be established. The buffer will be clearly marked and maintained until the young have fledged and are foraging independently or the nest is otherwise no longer active. Before construction begins, the qualified biologist will conduct baseline monitoring of the nest to characterize “normal” bird behavior and establish a buffer distance that allows the birds to continue normal behavior. The buffer will be determined by the species of nesting bird, topography, slope, aspect, surrounding vegetation, nest stage, etc. The qualified biologist will monitor the nesting birds daily during construction activities and modify the buffer if the birds show signs of unusual or distressed behavior (e.g., defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If implementation of an effective buffer is not possible to allow work to continue in the area, then the qualified biologist or construction foreman will have the authority to cease all construction work in the area until the young have fledged or the nest is otherwise no longer active.
2. **APM-BIO-3: Roosting Bats, Non-hibernation and Non-maternity Roosting Seasons.** Where evidence of roosting (e.g., guano, culled insect parts) is observed within or immediately adjacent to the work area during the non-hibernation and non-maternity roosting seasons (defined for purposes of the 2012 EIR and this SEIR as September 1 to October 31), non-essential Project activities will be halted within an appropriately-sized exclusion buffer to be determined by a qualified bat biologist (with at least 2 seasons of bat surveys/monitoring experience). If bats are roosting in trees that must be removed, branches and trunks that contain cavities, cracks, crevices, or deep bark fissures that provide roosting habitat will be gently lowered to the ground, under the supervision of a qualified biologist and left undisturbed for 48 hours before being removed from the work area.

3. **APM-BIO-4: Roosting Bats, Hibernation Season.** During hibernation season (defined for purposes of the 2012 EIR and this SEIR as November 1 to March 31), surveys (inspection for guano and culled insect parts, visual inspection for roosts, night-time evening emergence surveys, and/or acoustic surveys) will be conducted within suitable roosting habitat to identify hibernation roosts in and within 100 feet of Project work areas before Project construction begins. All active roosts identified during surveys will be protected by an appropriately sized exclusion buffer to be determined by a qualified bat biologist and in coordination with CDFW.
4. **APM-BIO-5: Roosting Bats, Maternity Roosting Season.** During maternity roosting season (defined for purposes of the 2012 EIR and this SEIR as April 1 to August 31), surveys (inspection for guano and culled insect parts, visual inspection for roosts, night-time evening emergence surveys and/or acoustic surveys) will be conducted within suitable roosting habitat to identify bat maternity roosts in and within 100 feet of Project work areas before Project construction begins. All active roosts identified during surveys will be protected by an appropriately-sized buffer to be determined by a qualified biologist and in coordination with CDFW. The buffer will be determined by the type of bat observed, topography, slope, aspect, surrounding vegetation, sensitivity of roost, type of potential disturbance, etc. A qualified biologist will monitor and may modify the buffer depending on site-specific conditions, species, and behavior of the breeding adults or young. Each exclusion zone would remain in place until the end of the maternity roosting season. If no active roosts are identified then activities may commence as planned. Survey results are valid for 30 days from the survey date. Should work commence later than 30 days from the survey date, surveys should be repeated.
5. **APM-BIO-6: San Francisco Dusky-Footed Woodrat.** Active woodrat stick nests will be flagged and avoided whenever feasible. If avoidance is not feasible, then the stick nests shall be dismantled and reconstructed by hand under the supervision of a biologist. If young are encountered during the dismantling process, the material will be placed back on the nest and the nest will remain unmolested for two to three weeks in order to give the young enough time to mature and leave the nest on their own accord. After two to three weeks, the nest dismantling process may begin again. Nest material will be moved to suitable adjacent areas (oak woodland, scrub, or chaparral) that will not be disturbed.
6. **APM-BIO-7: Plant Pathogen Avoidance.** Lehigh will incorporate the best management practices identified by the Working Group for Phytophthoras in Native Habitats to minimize the potential for the introduction and spread of plant pathogens by minimizing the use of nursery-grown container plants unless the nursery can demonstrate best management practices that ensure that the nursery-grown container plants and soils are free of *Prytophthora*.
7. **APM-GEO-1: Geotechnical Slope Inspection and Recommendations.** Lehigh will require the Project Geotechnical Engineer and/or Project Engineering Geologist to conduct ongoing geotechnical inspection of interim alluvial/overburden slopes or final bedrock slopes during implementation of the PCR. This measure includes the inspection of the native bedrock slopes following the removal of the Rock Pile. The Geotechnical Engineer and/or Engineering Geologist must be registered in the State of California, possess a comprehensive understanding of the geotechnical issues at Lehigh's property in Cupertino, California, and have experience with slope stability issues associated with Franciscan Complex bedrock and mining overburden. If field inspection determines that slopes or portions of slopes are not adequately stable, the engineer/geologist must recommend to Lehigh remedial measures to

improve slope stability. Geotechnical remedial measures could include the removal of additional material, slope laybacks and benching, engineered drainage controls, or slope buttresses comprised of compacted rockfill. Field observations and recommendations, if any, must be provided in weekly reports to the County of Santa Clara Department of Planning and Development during the duration of the PCRCP.

## 2.6 Permits and Approvals

Permits and approvals would be required to implement the PCRCP, potentially including those identified in **Table 2-5, Summary of Permits and Approvals**.

**TABLE 2-5  
SUMMARY OF PERMITS AND APPROVALS**

Agency	Permit/Approval
<b>Local</b>	
County of Santa Clara Department of Planning and Development	Certification of the SEIR and issuance of Grading Approval by the Planning Official for the concrete channel work proposed in Reach 6.
<b>State</b>	
State Water Resources Control Board and/or Regional Water Quality Control Board	Clean Water Act Section 401 certification.
California Department of Fish and Wildlife	Streambed alteration agreement (Fish and Game Code Section 1600 et seq.) for the creek and adjacent riparian vegetation.
<b>Federal</b>	
U.S. Army Corps of Engineers	Clean Water Act Section 404 Nationwide Permit.
U.S. Fish and Wildlife Service	Federal Endangered Species Act Section 7 consultation with U.S. Army Corps of Engineers regarding effects on federally listed species.

## 2.7 References

California Department of Fish and Wildlife (CDFW), 1998. *California Salmonid Stream Habitat Restoration Manual*, 4th Edition, Volume I. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=22610&inline>. February 1998.

CDFW, 2003. *California Salmonid Stream Habitat Restoration Manual*, 4th Edition, Volume II. Part XI: Riparian Habitat Restoration. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=22612&inline>. October 2003.

CDFW, 2004. *California Salmonid Stream Habitat Restoration Manual*, 4th Edition, Volume II. Part IX: Fish Passage Evaluation at Stream Crossings. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=22612&inline>. March 2004.

CDFW, 2006. *California Salmonid Stream Habitat Restoration Manual*, 4th Edition, Volume II. Part X: Upslope Erosion Inventory and Sediment Control Guidance. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=22612&inline>. March 2006.

- CDFW, 2009. *California Salmonid Stream Habitat Restoration Manual*, 4th Edition, Volume II. Part XII: Fish Passage Design and Implementation. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=22612&inline>. July 2009.
- California State Coastal Conservancy, 2004. *Inventory of Barriers to Fish Passage in California's Coastal Watersheds*.
- Chang Consultants, 2011. *Drainage Report for the Permanente Quarry*. November 30, 2011.
- Enviromine Inc., 2011. Reclamation Plan Amendment for Permanente Quarry, State Mine ID #91-43-0004. December 13, 2011. Available: [https://stgenpln.blob.core.windows.net/document/Lehigh\\_RPA\\_20111213\\_AmendedMainDoc.pdf](https://stgenpln.blob.core.windows.net/document/Lehigh_RPA_20111213_AmendedMainDoc.pdf). Appendix J, "Best Management Practice for Removal of Limestone Boulders from Permanente Creek," also available: [https://stgenpln.blob.core.windows.net/document/Lehigh\\_RPA\\_20111213\\_AttJ\\_BMPforBoulderRemoval.pdf](https://stgenpln.blob.core.windows.net/document/Lehigh_RPA_20111213_AttJ_BMPforBoulderRemoval.pdf).
- Federal Highway Administration (FHWA), 1989. *Design of Riprap Revetment*. Hydraulic Engineering Circular No. 11 Publication No. FHA A-IP-89-016. March 1989.
- Lehigh Southwest Cement Co. (Lehigh), 2015. Permanente Creek Restoration Project Army Corps of Engineers Inter Agency Review Meeting. July 8, 2015.
- Lehigh, 2021. *Permanente Creek Restoration Project 2012 EIR Subarea and Consent Decree Reach Correlation*.
- Lehigh, 2023. Updated Equipment Data Form. Provided to County of Santa Clara Department Planning and Development by Nicole Granquist, January 24, 2023.
- U.S. Fish and Wildlife Service (USFWS), 2014. *Programmatic Biological Opinion for Issuance of Permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, including Authorizations under the 22 Nationwide Permits for Projects that May Affect the Threatened California Red-Legged Frog in Nine San Francisco Bay Area Counties, California*. Available: [https://www.fws.gov/sacramento/es/Consultation/Programmatic-Consultations/Documents/Programmatic\\_BO\\_CRLF\\_9\\_San\\_Francisco\\_Bay\\_Area\\_Counties.pdf](https://www.fws.gov/sacramento/es/Consultation/Programmatic-Consultations/Documents/Programmatic_BO_CRLF_9_San_Francisco_Bay_Area_Counties.pdf). June 18.
- USFWS, 2017. Information Request for the Permanente Creek Restoration Project near the City of Cupertino, Santa Clara County, California (U.S. Army Corps of Engineers file number 2008-00356). August 9, 2017.
- U.S. Geological Survey (USGS), 2021. What is a Reach? Available: [https://www.usgs.gov/faqs/what-a-reach?qt-news\\_science\\_products=0#qt-news\\_science\\_products](https://www.usgs.gov/faqs/what-a-reach?qt-news_science_products=0#qt-news_science_products). Accessed June 4, 2021.
- URS Corporation, 2010. *Storm Water Pollution Prevention Plan, Lehigh Southwest Cement Company, Cupertino, California*. March 4, 2010.
- Waterways Consulting, Inc., 2021. Permanente Creek Restoration Plan—Construction Schedule. April 20, 2021.



Working Group for Phytophthoras in Native Habitats, 2017. *Guidance for Environmental Regulators to Reduce the Risk of Phytophthora and Other Plant Pathogen Introductions to Restoration Sites*. June 1, 2017. Available: <https://www.suddenoakdeath.org/wp-content/uploads/2017/06/PWG-regulator-white-paper-FINAL-060217.pdf>.

WRA Environmental Consultants (WRA), 2011a. *Revegetation Plan, Permanente Quarry*. December 2011.

WRA, 2011b. *Biological Resources Assessment, Lehigh Permanente Quarry*. December 12, 2011.