Reclamation Plan Amendment

for

Permanente Quarry

State Mine ID # 91-43-0004

Submitted to:

Santa Clara County

Prepared for:

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Attachments

Unbound Attachment	Oversize Reclamation Plan Exhibits
Attachment A	Legal Description
Attachment B	Revegetation Plan
Attachment C	Geotechnical Report
Attachment D	Geotechnical Report for EMSA and CMSA
Attachment E	Biological Resources Assessment
Attachment F	Hydrologic Investigation
Attachment G	Drainage Report
Attachment H	Water Quality Analysis
Attachment I	Environmental Noise and Vibration Assessment
Attachment J	Air Quality Technical Analysis
Attachment K	Archaeology Inventory Survey
Attachment L	1985 Reclamation Plan
Attachment M	2009 Reclamation Plan Amendment

1.0 Introduction

This Reclamation Plan Amendment (hereinafter, Amendment) updates the existing reclamation plan for the Permanente Quarry (Quarry). The Quarry is a limestone and aggregate mining operation located in the unincorporated foothills of Santa Clara County (County) west of the city of Cupertino (Figures 1.0-1 thru 1.0-4). Mining activities have occurred at the Quarry since as early as 1903 and have been in continuous operation since the 1930s. Mining at the Quarry is subject to the Surface Mining and Reclamation Act (SMARA), which requires mining operations to have a lead agency-approved reclamation plan. Santa Clara County (County) is the lead agency for the Quarry. Hanson Permanente Cement, Inc. owns the Quarry and Lehigh Southwest Cement Company is the operator (collectively, Lehigh).

The County approved the current reclamation plan for the Quarry (1985 Reclamation Plan, Attachment L) in March 1985. The 1985 Reclamation Plan encompasses 330 acres, representing certain areas that in 1985 supported active mining and material stockpiling. The 1985 Reclamation Plan did not encompass all mining disturbance present in 1985, including certain rock processing facilities, access roads and other material storage sites. The scope of the 1985 Reclamation Plan was generally consistent with how SMARA's requirements were then interpreted. The 1985 Reclamation Plan also did not include the adjacent cement plant facility, a separately-permitted industrial use that is not subject to SMARA's requirements.

In 2009, Lehigh submitted a Reclamation Plan Amendment (2009 Amendment, Attachment M) to the County covering approximately 89 acres that addresses the placement of overburden materials in the East Materials Storage Area (EMSA). This Amendment references the EMSA and incorporates the 2009 Amendment in order to provide a complete reclamation plan for the Quarry (Figure 1.0-5). The reclamation requirements for the EMSA are contained solely in the attached 2009 Amendment, and are referenced at times in this Amendment.

This Amendment adopts reclamation requirements under SMARA, and the County's surface mining and land reclamation standards, for an approximately 1,105-acre area (hereinafter, the RPA Area). The RPA Area currently consists of approximately 537 acres that have been disturbed by mining activities. This area also consists of an additional 251 acres that are scheduled for mining activities over an estimated 20-year period. All such existing and planned disturbance will be reclaimed as described herein. The remaining portion of the RPA Area, consisting of approximately 317 acres, is primarily undisturbed and will not be affected by this Amendment (Figure 1.0-6).

Figure 1.0-1 Regional Location Map

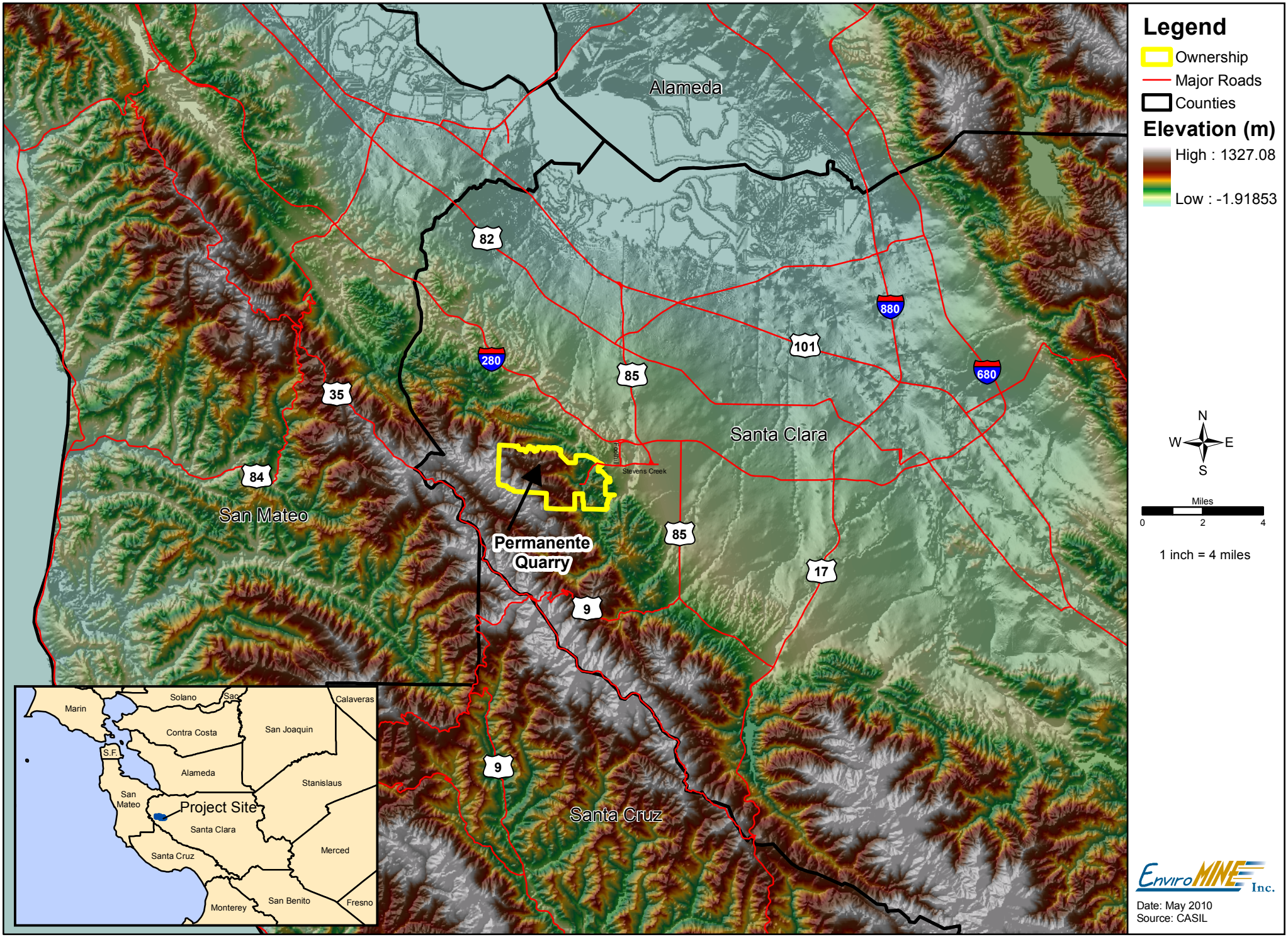
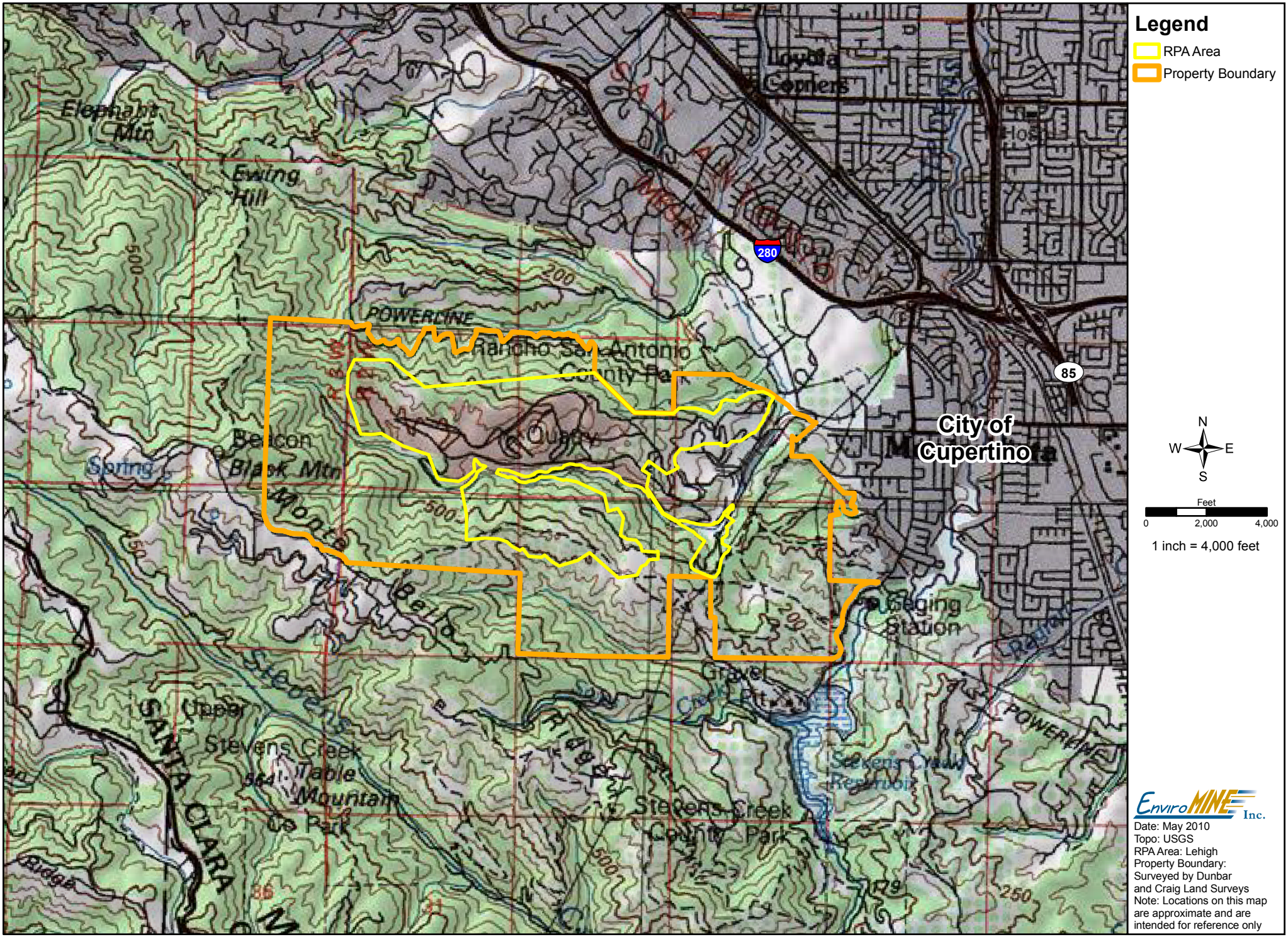


Figure 1.0-2 USGS Vicinity Map



Enviro MINE Inc.

Date: May 2010
Topo: USGS
RPA Area: Lehigh
Property Boundary: Surveyed by Dunbar and Craig Land Surveys
Note: Locations on this map are approximate and are intended for reference only

Figure 1.0-3 Quarry Location

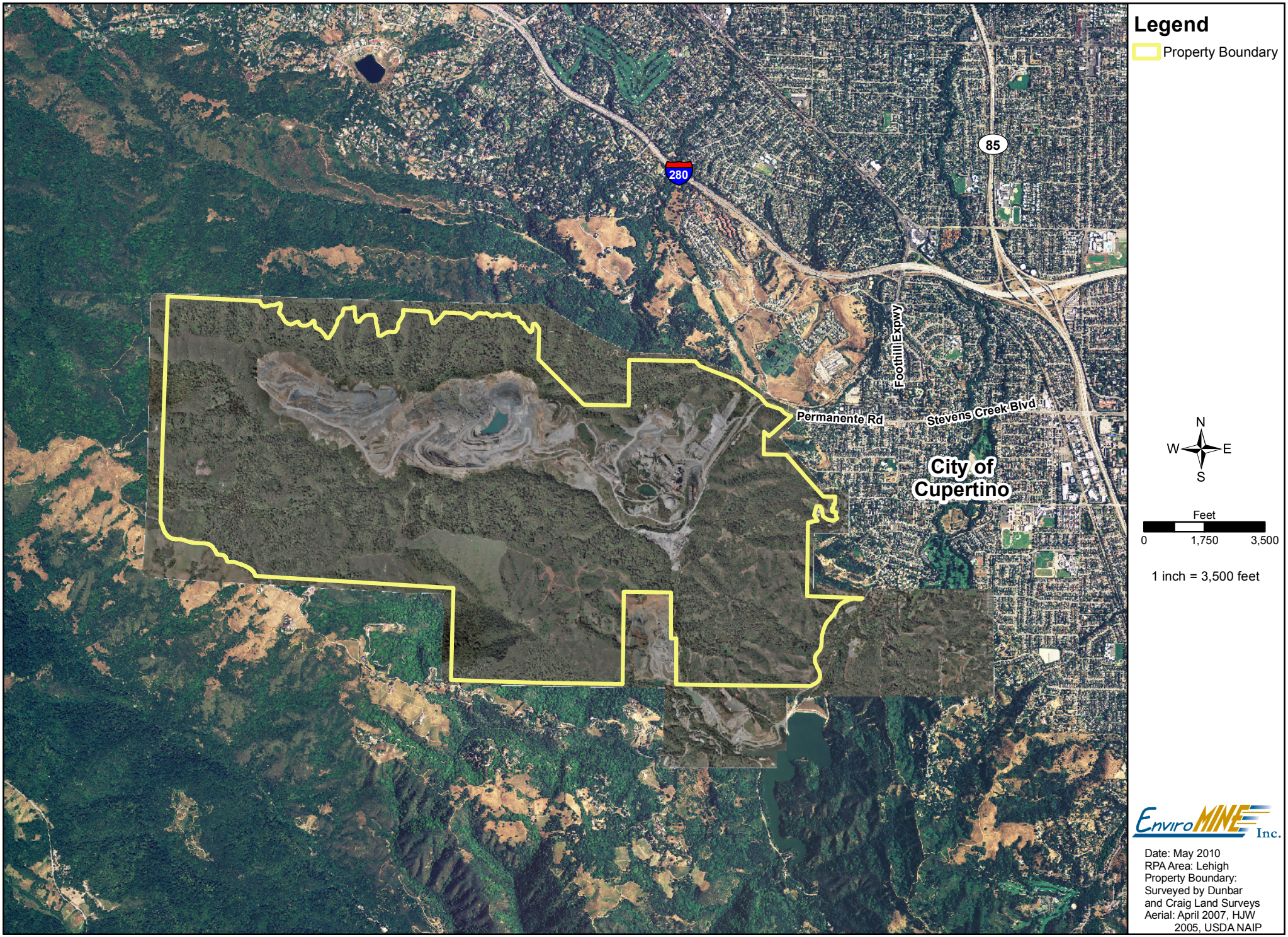


Figure 1.0-4 Quarry Parcels

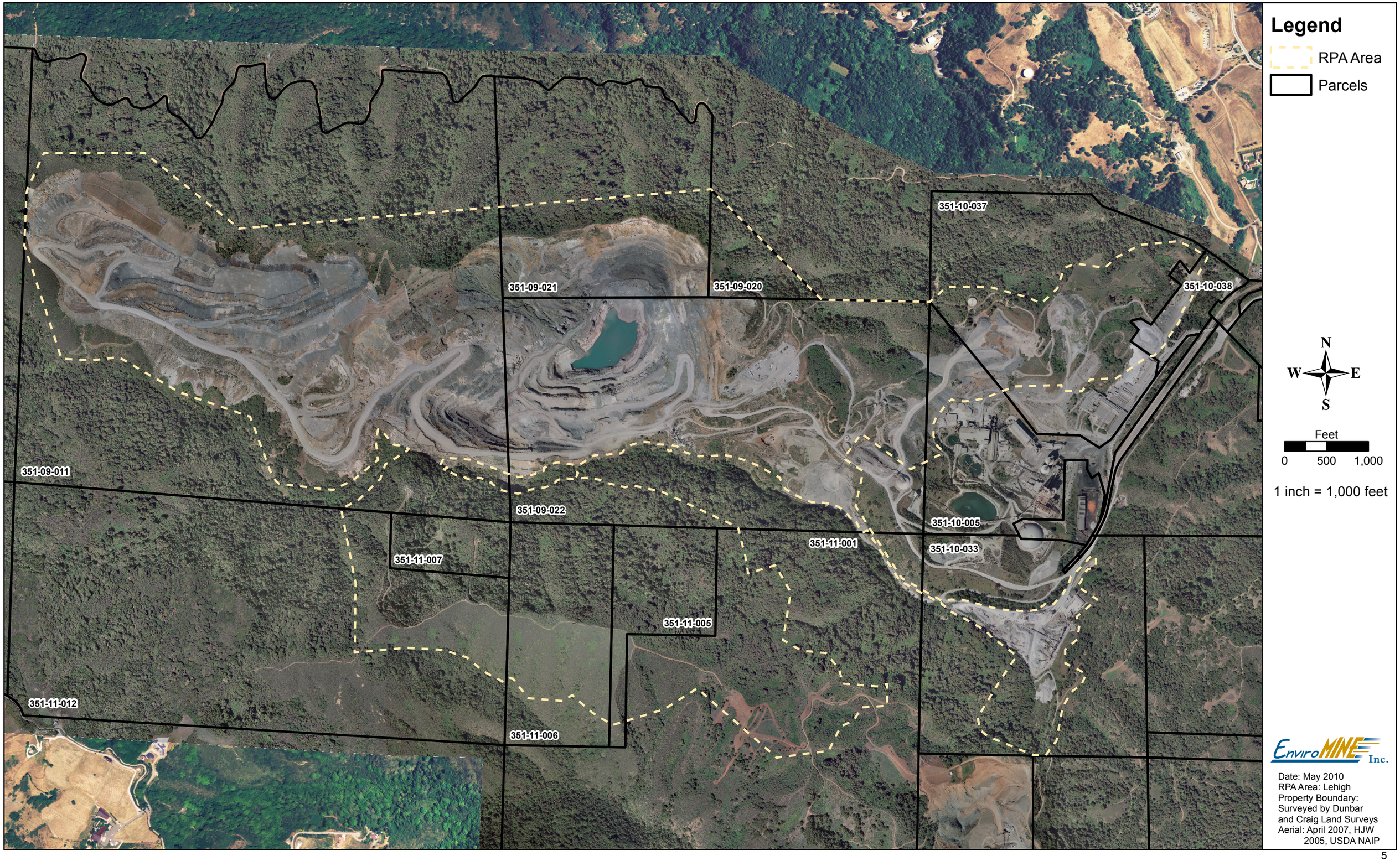


Figure 1.0-5 Reclamation Plan Boundaries

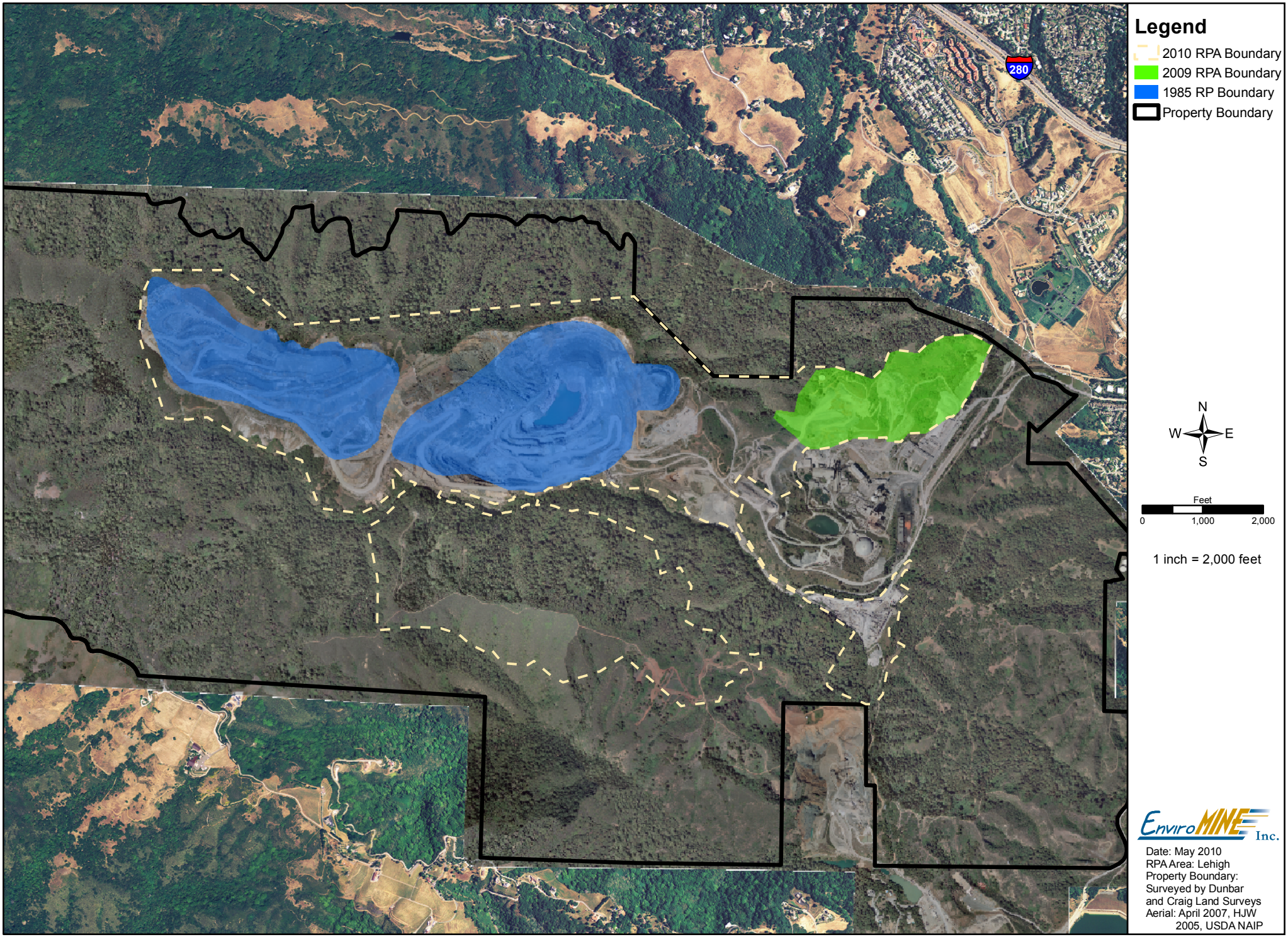
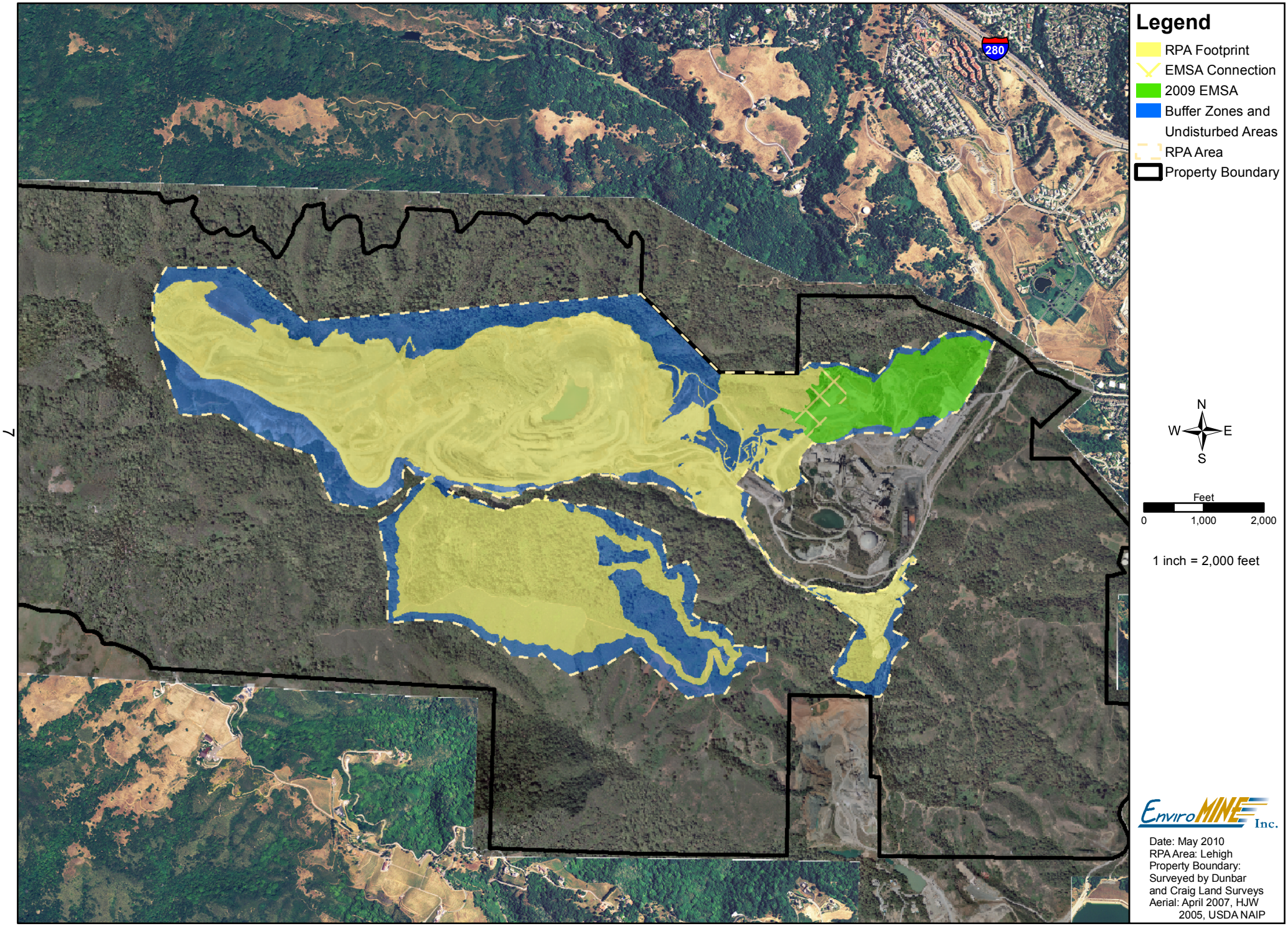


Figure 1.0-6 RPA Area



2.0 Environmental Setting

2.1 RPA Location

The area subject to this Amendment is referred to herein as the RPA Area. The RPA Area comprises approximately 1,105 acres and encompasses existing and scheduled disturbance at the site. The RPA Area is situated within the larger Lehigh ownership totaling approximately 3,510 contiguous acres. The Quarry is located in an unincorporated area of the western foothills of Santa Clara County near the city of Cupertino, approximately 2.0 miles west of Cupertino and 3.0 miles west of the intersection of Interstate 280 and Highway 85. The majority of Lehigh's land holdings are not incorporated into this Amendment and will remain undisturbed (See Figure 1.0-6). Quarry access is provided by Stevens Creek Boulevard and Foothill Expressway, continuing to the western terminus of Permanente Road.

2.2 Legal Description

The legal descriptions for parcels affected by the Amendment are provided in Attachment A.

2.3 Land Use and Zoning

Mining activity at the Quarry began by 1903. Surface mining activities have been continuous since at least 1939.

RPA Area

The RPA Area is located within unincorporated County land. The majority of the RPA Area is designated under the County General Plan as Hillsides (HS) with a small portion designated as Other Public Open Lands (OPOL). The remainder has no County General Plan designation because it is within the City of Cupertino's Urban Service Area (See Figure 2.3-1). The entire RPA Area is subject to the County zoning ordinance, and is classified as Hillside (HS), Agricultural (A-d1) and General Use (A1-d1 and A1-20s-d1) (See Figure 2.3-2). The Cupertino General Plan designation for land within the Urban Service Area is Very Low Density Residential, and recognizes the existing quarrying uses within the Urban Service Area.

Uses of Surrounding Lands

The uses immediately surrounding the RPA Area are owned and controlled by Lehigh and function as a buffer between mining operations and other land uses (Figure 2.3-3). In many areas, these buffers are substantial. The nearest non-owned land-use to the west of the RPA Area is approximately 0.5 miles away and is utilized as open space. To the south, the nearest non-owned land-use is another mining operation. Other non-owned land uses to the south, including some rural residential properties and small agricultural operations are over 0.5 miles away. Existing uses of non-owned lands to the north include the Rancho San Antonio County Park and lands of the Mid Peninsula Regional Open Space District (MPROSD). Non-owned lands to the east include the Rancho San Antonio County Park, a cemetery and residential

subdivisions. The nearest residence is located approximately 2,000 feet to the northeast of the RPA Area. Surrounding lands are generally subject to the General Plans and zoning ordinances of Santa Clara County, the City of Cupertino (to the east) and the City of Palo Alto (to the west).

2.4 Climate

The RPA Area lies within a semi-arid Mediterranean climate zone characterized by warm summer and mild winter temperatures with a substantial slope effect contributing to vegetative community differences on north- and south-facing slopes. Rainfall occurs mainly from November through April. Average annual rainfall is about 22 inches; however, precipitation can range widely from year to year. On north-facing slopes, conditions are moister and less warm than on south-facing slopes as evidenced by the dramatic differences in vegetative communities. The RPA Area contains both north-facing and south-facing slopes.

Typically, winds tend to blow from the mountains toward the valley in a general southwest to northeast direction. Winds are light averaging between 6 to 10 mph. During the summer, winds shift to blow from the north and northeast. Summer wind speeds range from 5 to 10 mph.

Temperatures range from the low 40's to about 60 degrees Fahrenheit from November through April. During the remainder of the year, temperatures range from the high 40's to the high 80's.

2.5 Geology

The geologic structure underlying the RPA Area and vicinity are detailed in the Geotechnical Evaluations and Design Recommendations (Geotechnical Reports) under Attachment C and Attachment D. In general, the regional geologic structure is dominated by the Coast Range structural province, consisting primarily of large-scale northwest/southeast-trending structures. The San Andreas fault zone, located approximately three miles west-southwest of the Quarry, is the major tectonic feature of the province displaying this trend. The Sargent-Berrocal fault zone is located to the east. This fault zone subdivides into two subsidiary fault zones, the southwestern-most Berrocal Fault Zone and the northwestern-most Monte Vista Fault Zone. The Berrocal Fault Zone trends northwest, dips steeply northeast and bisects the larger Quarry property. A northerly trending splay fault off of the Berrocal Fault Zone (whose existence is uncertain and inferred) trends to the south of the RPA Area. The Monte Vista Fault Zone is composed of two closely spaced subparallel fault strands trending northwest along the foothills-alluvial plain interface. The Monte Vista Fault Zone passes approximately 500 feet northeast of the property boundary. The principal rock types in the vicinity belong to the Franciscan Assemblage, which underlies most of the property. The predominant Franciscan rock type is the Calera Member Limestone. This limestone unit grades from a dark to black, bituminous limestone member to a gray to white, high-chert-content limestone member.

Figure 2.3-1 General Plan

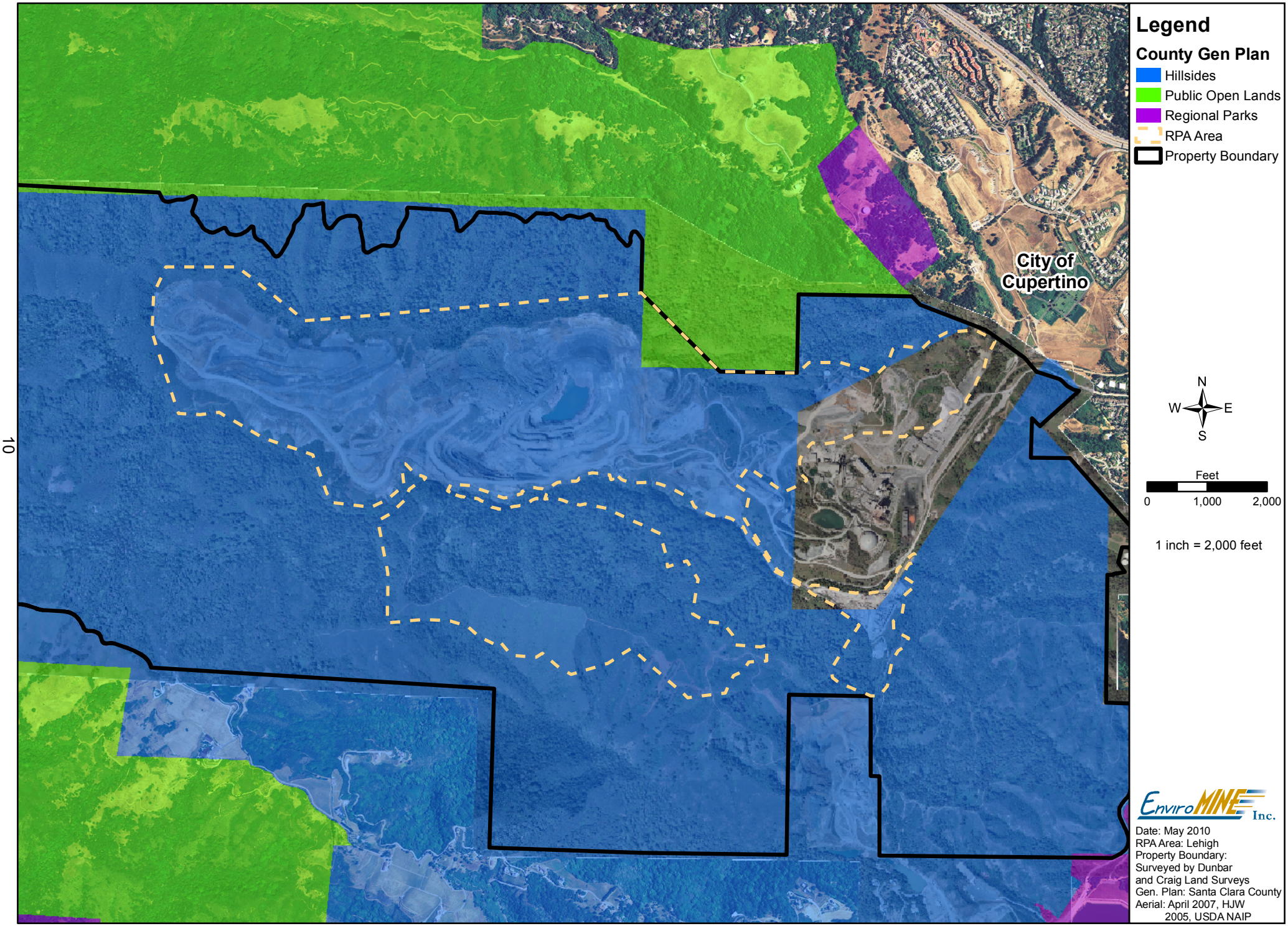


Figure 2.3-2 Zoning

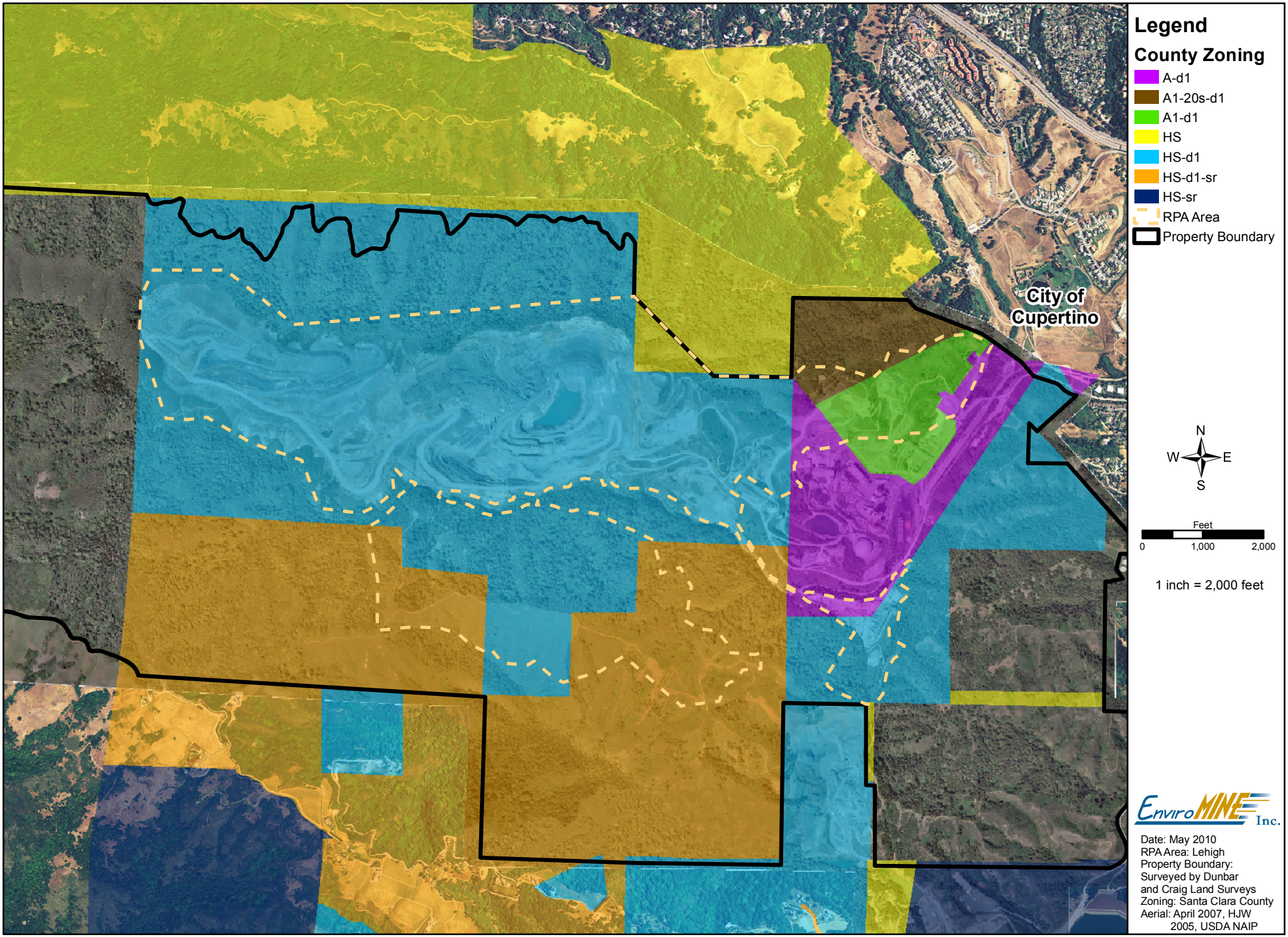
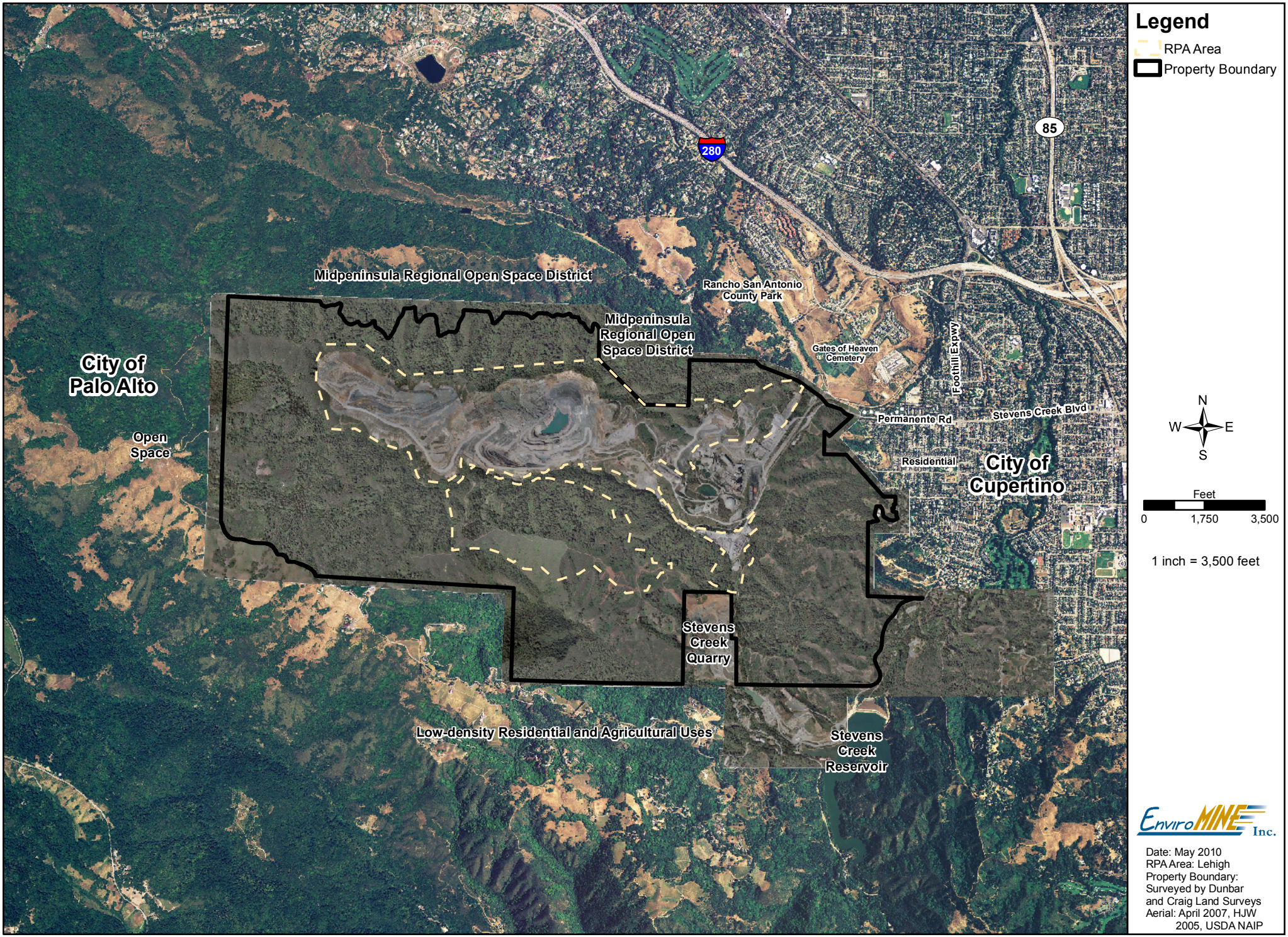


Figure 2.3-3 Surrounding Land Uses



2.6 Soil Types

The USDA *Soil Survey of Santa Clara Area, California* (USDA 1958) indicates that the RPA has nine native soil types (map units) and depicts excavated Quarry areas as a "Pit" map unit. These map units are described in detail below. According to the soil survey, the native soils of the RPA were subject to erosion and gullying, were generally quite shallow, and hosted a plant community almost wholly dominated by scrub. Although historical Quarry activities have disturbed the native soils, previous successful restoration plantings at the Quarry have shown that plant communities and soil characteristics may be restored.

Pit (Ec) - This map unit consists of areas large enough to map where excavations have been made and where the original soil has been removed. Excavations in this area have been principally for limestone and aggregate production.

Azule silty clay, 20-30 percent slopes (At) - Azule silty clay surface soil consists of brown or pale-brown silty clay that normally varies from 8 to 15 inches in depth. The surface soil overlies a brown or pale-brown slightly compact subsoil of silty clay texture. The underlying material occurs at depths of 20 to 45 inches and is light-brown or light yellowish brown unconsolidated material of clay loam or silty clay loam texture. In a few places a small amount of gravel occurs in the profile. The native vegetation is mostly brush, but there are some areas of this soil type in grassland and woodland.

Los Gatos clay loam, 20-35 percent slopes (La) - The Los Gatos surface soils are brown and become nearly reddish brown when moist. They grade into brown or reddish brown subsoil of clay loam texture. In most places some rock fragments occur in the subsoils. The number and size of fragments increase with depth. The soils are underlain by hard but generally broken or shattered metamorphosed sedimentary rock at depths of 26 to 38 inches.

Los Gatos clay loam, slightly eroded, 20-35 percent slopes (Lc) - This soil differs from the noneroded Los Gatos clay loam described above mainly in degree of erosion. In a number of places, the exposed soil is somewhat redder and somewhat finer textured than typical, because of partial or complete removal of the surface soil and mixture with subsoils.

Los Gatos - Maymen stony soils, undifferentiated, 50+ percent slopes (Lf) – This map unit consists of very steep and stony areas of Los Gatos and Maymen soils. Slopes are steep, and in most places rock outcrops are numerous. The vegetation is a dense growth of brush. The Los Gatos soils predominate, but in some places fairly large areas of Maymen soils occur. The Los Gatos surface soils are brown and become nearly reddish brown when moist. They grade into brown or reddish brown slightly compact subsoils of finer texture than the surface soils. In most places some rock fragments occur in the subsoils. The number and size of fragments increase with depth. The soils are underlain by hard but generally broken or shattered shale or sandstone that has undergone varying degrees of metamorphosis. Maymen surface soils are light brown or pale brown. They overlie light brown or light reddish brown medium textured subsoils. In most places rock fragments occur in the subsoils and

in the surface soils. The subsoils grade irregularly at shallow depths into hard sandstone or conglomerate bedrock.

Maymen loam, moderately eroded, 20-35 percent slopes (Mc) - This soil differs from the noneroded Maymen loam soils described above mainly in degree of erosion. Moderately eroded Maymen loams are associated with other Maymen soils and with soils of the Los Gatos series, mainly on Monte Bello

Permanente stony soils, undifferentiated, 50+ percent slopes (Pa) - These very steep areas of Permanente soils are very shallow and stony. The surface soils are brown (becoming nearly reddish brown when moist), medium textured, stony, and generally non-calcareous. In most places fragments of bedrock are mixed with the surface soils, which grade irregularly at very shallow depths into light-gray or white hard limestone bedrock. The natural vegetation is almost entirely brush.

Soper gravelly loam, 20-35 percent slopes (Sm) - The surface soil is a brown or light-brown, slightly or medium acid gravelly loam to depths of 8 to 13 inches. The surface soil grades into a slightly more reddish-brown, moderately compact, weakly blocky subsoil of gravelly clay loam texture. The subsoil retards drainage somewhat and causes waterlogging of the surface soil during heavy rains. At depths of 23 to 32 inches the subsoil grades into a noncalcareous moderately or weakly consolidated conglomerate bedrock that is somewhat more permeable than the subsoil.

Soper gravelly loam, 35-50 percent slopes (So) - This soil is normally somewhat shallower than that on less steep slopes. The natural vegetation is a thick growth of brush. The typical slopes of Soper soils usually range from 20 to 35 percent, but steep slopes are more common in this area. The surface soils are brown or light brown, medium textured, and generally gravelly. The surface soils grade into slightly more reddish-brown, moderately compact, weakly blocky subsoils of gravelly clay loam texture. The subsoils in most places are dense enough to retard drainage to a moderate degree. The subsoils grade into brown or yellowish-brown noncalcereous, moderately or weakly consolidated conglomerate bedrock.

2.7 General Physiography

Topography in the RPA Area and surrounding lands consists of gentle to steep terrain. These areas contain a series of ridges and valleys trending in a general east-west direction. Steep slopes predominate, with flatter terrain occurring within some previously disturbed areas. Elevations within the larger Quarry ownership generally increase from west to east, ranging from about 500 feet mean sea level (msl) near the entrance to the Quarry to about 2,640 feet msl at the western and southwestern property boundaries. Elevations within the RPA Area range from approximately 500 feet msl at the eastern edge to approximately 2,000 feet msl at the southwestern corner and at the western edge (See Figure 2.7-1).

2.8 Surface and Groundwater

Surface Water

Natural hydrological sources for the RPA Area include direct precipitation, groundwater seepage, and limited surface run-off from adjacent lands. The RPA Area contains a portion of Permanente Creek and its tributaries and a tributary to Monte Bello Creek. The Biological Resources Assessment (Attachment E) contains a complete description of surface water features. Overland flows from most of the RPA Area drain into Permanente Creek through natural drainages or various storm water facilities. Overland flows originating in the far northern portion of the RPA Area drain to the north, and enter Permanente Creek via an unnamed USGS blue-line steam to the north of the RPA Area. After leaving Lehigh's property, Permanente Creek flows generally northwards where it receives flows from Hale Creek in Mountain View before reaching Mountain View Slough and South San Francisco Bay.

Groundwater

The RPA Area lies within the Santa Clara subbasin of the Santa Clara Valley groundwater basin. The Santa Clara subbasin totals approximately 240 square miles occupying a structural trough parallel to the northwest trending Coast Ranges. The Diablo Range bounds it on the east and the Santa Cruz Mountains form the basin boundary on the west. It extends from the northern border of Santa Clara County to the groundwater divide near the town of Morgan Hill approximately 25 miles southeast of the RPA Area. The dominant geohydrologic feature is a large inland valley east of the RPA Area. The valley is drained to the north by tributaries to San Francisco Bay including Coyote Creek, the Guadalupe River, and Los Gatos Creek.

The depth to groundwater varies based on the location within the RPA Area. A complete description of groundwater, seeps, and springs located within the RPA Area are discussed in the attached Geotechnical Reports (Attachments C and D) and Hydrological Investigation (Attachment F).

2.9 Biological Resources (§3703)

Existing Plant Communities

The majority of the RPA Area has been disturbed as a result of operations beginning in 1939 or earlier. The Biological Resources Assessment (Attachment E) contains a full description of the existing plant communities in the RPA Area. In summary, seventeen vegetation types were identified within the RPA Area (see Figure 2.9-1).

Table 1 summarizes the area of each biological community type or other habitat observed within the RPA Area. Biological communities were further classified based on specific vegetation alliances observed within each community. Seventeen (17) distinct biological communities are located within the RPA Area. Non-sensitive biological communities include: 1) ruderal herbaceous grassland, 2) mixed scrub, 3) northern mixed chaparral, 4) chamise chaparral, 5) oak chaparral, 6) poison oak

scrub, 7) non-native annual grassland, 8) California bay forest, 9) California buckeye woodland, 10) rock outcrop, 11) revegetated areas, 12) active quarry, 13) disturbed areas, and 14) settling ponds and operational water features. Sensitive biological communities include: 15) willow riparian forest and scrub, 16) oak woodland, and 17) streams and ponds. Table 1 shows the extent of the biological communities within each of the individual RPA Areas.

Non-Sensitive Biological Communities

Ruderal herbaceous grassland - Ruderal herbaceous grassland is not described by Holland (1986) but includes habitats previously disturbed and/or reclaimed which have been inactive long enough to recruit a plant community dominated by herbaceous weeds and non-native grasses. Species typical of this plant community in California include brome grasses (*Bromus* spp.), wild oats (*Avena* spp.), Italian thistle (*Carduus pycnocephalus*), wild mustard (*Brassica* sp.), and filaree (*Erodium* sp.). This community is widespread throughout California.

Within the RPA Area, ruderal herbaceous grassland primarily occurs on slopes between quarry roads, or in areas adjacent to quarry activities. Areas identified as ruderal herbaceous grassland have predominantly been disturbed by historic quarry activities. Species typical of this biological community within the RPA Area include Italian thistle, field mustard (*Brassica rapa*), lupine (*Lupinus* sp.), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), yellow star thistle (*Centaurea solstitialis*), oleander (*Nerium oleander*), and slender wild oats (*Avena barbata*). Wildlife observed in this plant community include Dark-eyed Junco (*Junco hyemalis*), Ring-necked Snake (*Diadophis punctatus*), and California Towhee (*Pipilo crissalis*).

Mixed scrub - Mixed scrub includes shrub-dominated communities dominated by coyote brush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), and California buckwheat (*Eriogonum fasciculatum*) partially described as Diablan Sage Scrub by Holland (1986). This community occurs on shallow rocky soils, typically on hot southern exposures of the coast range from Oregon to Central California in areas out of the range of coastal fog incursion.

Mixed scrub was mapped in the eastern portion of the RPA Area on southern exposures. Additionally, small patches of this community type were mapped throughout the RPA Area where coyote brush or California buckwheat is the dominant shrub type. Within the RPA Area, mixed scrub is characterized as dense to moderately open stands to 1.5 meters tall dominated by coyote brush, California sagebrush, and/or California buckwheat with little to no understory vegetation. Associated species include sticky monkey flower (*Mimulus auranticaus*), poison oak (*Toxicodendron diversilobum*), deerweed (*Lotus scoparius*), black sage (*Salvia mellifera*), golden yarrow (*Eriophyllum confertiflora*), and California cudweed (*Gnaphalium californica*). Within the RPA Area, this community type intergrades with chaparrals and oak woodlands. Wildlife observed in this community type include Hermit Thrush (*Catharus guttatus*), Northern Pacific Rattlesnake (*Crotalus viridis oreganus*), and Wrentit (*Chamaea fasciata*).

Table 1. Biological Communities within the RPA Area

Biological Community	South Quarry (acres)	WMSA (acres)	North Quarry (acres)	Office / Crusher (acres)	CMSA (acres)	EMSA (acres)	Surge Pile (acres)	Rock Plant (acres)	Topsoil (acres)	Total (acres)
Active Quarry	0.05	104.68	231.08	23.16	21.29	65.61	8.67	14.87	2.26	**471.68**
Buckeye Woodland	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.78**
California Bay Forest	54.52	2.99	2.25	0.00	0.00	0.00	0.00	0.00	0.00	**59.75**
Chamise Chaparral	62.60	21.31	7.87	0.00	10.93	0.00	0.00	0.00	0.00	**102.70**
Disturbed	20.93	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.71	**22.64**
Mixed Scrub	7.61	0.27	1.87	8.28	1.64	0.73	0.73	0.12	0.17	**21.43**
Non-native Annual Grassland	4.61	0.81	1.05	0.00	0.00	1.16	0.00	0.89	1.51	**10.04**
Northern Mixed Chaparral	35.39	1.18	12.32	8.25	12.12	0.00	0.00	0.73	0.03	**70.01**
Oak Chaparral	46.95	13.58	1.31	0.00	0.00	0.00	0.00	0.00	0.00	**61.84**
Oak Woodlands and Forests	44.59	17.90	36.65	0.21	3.18	3.64	0.21	1.04	11.68	**119.10**
Operational Water Holding Feature	0.00	0.00	6.60	0.00	0.00	0.00	0.00	0.00	0.00	**6.60**
Poison Oak Scrub	24.11	0.29	0.81	0.09	1.38	0.81	0.00	0.00	1.88	**29.37**
Reclaimed Area	0.00	38.88	18.80	7.82	0.22	0.45	0.00	0.00	1.57	**67.74**
Rock Outcrop	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.06**
Ruderal Herbaceous Grassland	0.68	13.87	21.08	16.85	3.86	1.74	1.05	0.52	0.54	**60.17**
Sediment Ponds	0.00	0.00	0.08	0.12	0.00	0.00	0.00	0.33	0.00	**0.52**
Streams and Ponds	0.24	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.07	**0.34**
Willow Riparian Forest and Scrub	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	**0.14**

Northern mixed chaparral - Northern mixed chaparral is a community of broadleaved sclerophyll shrubs two to four meters tall forming dense often impenetrable stands dominated by chamise (*Adenostoma fasciculatum*), scrub oak (*Quercus berberidifolia*), various manzanitas (*Arctostaphylos* spp.), and various members of the genus *Ceanothus* (Holland 1986). This community type occurs on dry, rocky, steep, typically south-facing slopes with thin to little soil. It usually occurs below 3,000 feet elevation in Northern California. It is widely distributed throughout the mountain ranges of California.

Within the RPA Area, northern mixed chaparral was mapped in various locations on east and south-facing slopes. Northern mixed chaparral forms dense impenetrable stands two to three meters tall with high species diversity in the shrub strata. It intergrades with oak woodlands and oak chaparrals on deeper soils, and chamise chaparral on southern exposures. Within the RPA Area, species typical of this community type include chamise, scrub oak, Eastwood's Manzanita (*Arctostaphylos glandulosa* ssp. *glandulosa*), jimbrush (*Ceanothus oliganthus* var. *sorediatus*), buckbrush (*Ceanothus cuneatus*), birch-leaf mountain mahogany (*Cercocarpus betuloides*), poison oak, yerba santa (*Eriodictyon californicum*), white pitcher sage (*Lepichinia calycina*), coffeeberry (*Rhamnus californicus*), and redberry (*Rhamnus crocea*). There is little to no understory, but where present include Indian warrior (*Pedicularis densiflorus*), Pacific sanicle (*Sanicula crassicaulis*), coyote mint (*Monardella villosa* ssp. *villosa*), and Indian paintbrush (*Castilleja affinis*). Wildlife observed in this community type includes Brush Rabbit (*Sylvilagus bachmani*), California Thrasher (*Toxostoma redivivum*) and California Quail (*Callipepla californica*).

Chamise chaparral - Chamise chaparral is a one to three meter-tall chaparral community dominated by chamise with associated species contributing little to overall cover and mature stands containing very little herbaceous understory (Holland 1986). Associated species typically include Manzanita species, scrub oak, buckbrush, birch-leaf mountain mahogany, yerba santa, sage (*Salvia* sp.), and California buckwheat. It has a general distribution similar to northern mixed chaparral, but is more abundant in southern California.

Within the RPA Area, chamise chaparral dominates southern exposures with shallow soils. Chamise chaparral ranges from 0.5 to three meters tall forming impenetrable stands with no herbaceous understory. It intergrades with northern mixed chaparral on eastern exposures, and abruptly borders oak woodland and oak chaparral at ridgelines. Occasional associates include scrub oak, toyon (*Heteromeles arbutifolia*), and madrone (*Arbutus menziesii*). Wildlife observed in this community type includes Spotted Towhee (*Pipilo maculatus*), Bewick's Wren (*Thryomanes bewickii*), and Anna's Hummingbird (*Calypte anna*).

Oak chaparral - Oak chaparral includes plant communities described in Holland (1986) as scrub oak chaparral and undescribed plant communities dominated by canyon live oak (*Quercus chrysolepis*) under four meters tall. Oak chaparral is a dense, evergreen chaparral dominated by oak shrubs (*Quercus berberidifolia*, *Q. chrysolepis*, and *Q. agrifolia*) with considerable cover of birch-leaf mountain mahogany and accumulated leaf litter in the understory. It ranges from Tehama County to Baja California in the western Sierra Nevada and Coast Ranges.

Within the RPA Area, oak chaparral was mapped on various north and east-facing slopes where conditions are slightly more mesic than other slopes. It intergrades with northern mixed chaparral on northern exposures, chamise chaparral on eastern exposures, and oak woodlands on flatter north-facing slopes. Species typical of this community include scrub oak, bush interior live oak (*Quercus wislizeni* var. *frutescens*), coffeeberry, madrone, chaparral pipestem (*Clematis lasiantha*), poison oak, and birch-leaf mountain mahogany. Wildlife observed in this community type include Hutton's Vireo (*Vireo huttoni*), Blue-gray Gnatcatcher (*Polioptila caerulea*), and Fox Sparrow (*Passerella iliaca*).

Poison oak scrub - Briefly described in Holland (1986), poison oak scrub is a shrub-dominated community maintained by frequent fires or other disturbance and completely dominated by poison oak. Within the RPA Area, poison oak scrub contains extremely dense, monotypic stands of poison oak to two meters tall. There are no other species associated with this community type. Wildlife observed in this community type includes Ruby-crowned Kinglet (*Regulus calendula*), Wrentit, and San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*).

Non-native annual grassland - Non-native annual grassland is described in Holland (1986) as a dense to sparse cover of annual grasses and herbs 0.2 to 0.5 meters high. Characteristic species include wild oats, soft chess (*Bromus hordeaceus*), filaree (*Erodium botrys*, *E. cicutarium*), Italian ryegrass (*Lolium multiflorum*), small fescue (*Vulpia microstachys*), and various native and non-native herbs and wildlfowers. This community type is distributed throughout the valleys and foothills of most of California below 3,000 feet.

Non-native annual grassland was mapped within the RPA Area in various landscape positions. Non-native annual grassland intergrades with chaparrals and oak woodlands on slopes and ridgelines. Species typical of this community type include wild oats, ripgut brome (*Bromus diandrus*), soft chess, Italian ryegrass, filaree, small fescue, California poppy (*Eschscholzia californica*), bird vetch (*Vicia cracca*), and birdfoot trefoil (*Lotus corniculatus*). Wildlife observed in this plant community include Western Meadowlark (*Sturnella neglecta*), Bobcat (*Lynx rufus*), and Violet-green Swallow (*Tachycineta thalassina*).

California bay forest - California bay forest is described in Holland (1986) as similar to a mixed evergreen forest but typically consisting entirely of California bay to 30 meters tall. It usually occurs on moist, north-facing slopes and intergrades with redwood forests in moister canyons and mixed chaparral on drier, rockier slopes. This community type is usually very dense and supports little or no understory. Characteristic species include jimbrush, dogwood (*Cornus* sp.), blackberries (*Rubus* sp.), and snowberry. It is distributed along the coast ranges from the Oregon border to northern San Luis Obispo County below 3,000 feet, with patchy occurrences of stands usually limited to a few acres.

Within the RPA Area, this community type occurs on north-facing slopes and in the protected valley bottoms. This community type consists of dense, monotypic stands of California bay with little to no understory. Reproduction is primarily vegetative with many stems arising from a single root system. Wildlife observed in this plant

community include Stellar's Jay (*Cyanocitta stelleri*), Chestnut-backed Chickadee (*Poecile rufescens*), and Mule Deer (*Odocoileus hemionus*).

California buckeye woodland - California buckeye woodland is not described in Holland (1986), but includes areas of open woodland dominated by California buckeye. Within the RPA Area, California buckeye woodlands usually contain moderate cover of California buckeye with associated elderberry (*Sambucus mexicana*) and coast live oak. The understory is dominated by native grasses and herbs such as California melic grass (*Melica californica*), small-flowered needlegrass (*Nassella lepida*), California buttercup (*Ranunculus californicus*), and pacific sanicle as well as non-native grasses such as Italian ryegrass, soft chess, and ripgut brome. Wildlife observed in this plant community include Chestnut-backed Chickadee, American Robin (*Turdus migratorius*), and Red-breasted Sapsucker (*Sphyrapicus ruber*).

Rock outcrop - Rock outcrop includes areas that host little to no soil or plant cover. Within the RPA Area, they are primarily vertical exposures of various rock types amidst chaparral communities on all aspects. Many small rock outcrops are scattered throughout the RPA Area, but were primarily too small to map in this effort. The largest rock outcrop is on the southern side of Permanente Creek, partially within the RPA Area. This rock outcrop supports sparse coverage of bigleaf maple (*Acer macrophyllum*) saplings and pacific stonecrop (*Sedum spathulifolium*).

Reclaimed areas - Reclaimed areas are defined here as historically disturbed slopes that have been reclaimed by grading to a final contour, planted with native grass species, and/or planted at a low to moderate density with native shrubs and trees including coyote brush, chamise, and oaks from locally collected cuttings and acorns. Irrigation has been applied to some of the more recent, large-scale revegetated areas to encourage the establishment of planted trees and shrubs, and protective cages have been installed around most container plantings to reduce damage from deer browsing. Generally, these areas are dominated by grass species including wild oats, brome grasses, small fescue, and Italian rye-grass with some establishment of yellow star thistle throughout the open areas. Wildlife observed in this plant community include Grasshopper Sparrow (*Ammodramus savannarum*), Bewick's Wren, and Spotted Towhee.

Active quarry - Within the RPA Area, areas identified as active quarry have been disturbed by quarry activities and in some locations host a very small number of weedy and/or native plant species including yellow star thistle, coyote brush, chamise, wild oats, sweet fennel (*Foeniculum vulgare*), and field mustard. Generally, plant cover in these areas is very sparse due to the lack of topsoil. This community offers little habitat for plants or animals.

Disturbed areas - Within the RPA Area, certain areas identified as disturbed have been recently disturbed by non-quarry activities such as plowing for fuel breaks and construction and maintenance of dirt roads and clearing of hiking trails. Disturbed areas generally have highly compacted soils and provide little habitat for plants or animals.

Settling ponds and operational water features - Settling ponds for quarry runoff and operational water ponds were identified within and adjacent to the RPA Area as identified in the Biological Resources Assessment.

Sensitive Communities

Willow riparian forest and scrub - Willow riparian forest and scrub is not described in Holland (1986), but is characterized as a riparian community dominated by various willow species (*Salix* spp.). Species typical of this community type include arroyo willow (*Salix lasiolepis*), red willow (*S. laevigata*), and black willow *(S. gooddinggii*). The overstory ranges from dense to open, and heights range from one to six meters. Associated understory species include short spike hedge nettle, stinging nettle, poison oak, California blackberry (*Rubus ursinus*), and western creek dogwood (*Cornus sericea* ssp. *occidentalis*). It occurs along flat areas adjacent to Permanente Creek and wet tributaries. Wildlife observed in this plant community include Lincoln's Sparrow (*Melospiza linconii*), Wilson's Warbler (*Wilsonia pusilla*), and Great Blue Heron (*Ardea herodias*).

Oak woodland – Several oak woodland community types are described in more detail in Holland (1986), but were lumped in this vegetation mapping effort due to the lack of dominance of one oak species in most of the woodlands encountered within the RPA Area. The RPA Area's oak woodlands are described as Blue Oak Woodland and Coast Live Oak Woodland in Holland (1986) but also contain oak woodland communities dominated by canyon live oak, and mixed oak woodlands. Species characteristic of these oak woodland types include blue oak (*Quercus douglasii*), coast live oak, canyon live oak, California buckeye, grey pine (*Pinus sabiniana*), California bay, elderberry, toyon, madrone, coffeeberry, poison oak, gooseberries (*Ribes* spp.), and manzanitas. These oak woodland types are distributed throughout California typically in protected valleys and north-facing slopes, intergrading with chaparrals on drier sites and mixed evergreen forests on moister sites.

Oak woodlands were mapped within the RPA Area primarily along north-facing slopes and in valley bottoms. Oak woodlands within the RPA Area are predominantly characterized as coast live oak and blue oak woodlands. A few small pockets of oak woodland dominated by interior live oak (northern portion of the Permanente Property) are also present. Oak woodlands within the Permanente Property have dense and diverse overstories containing madrone, tanbark oak (*Lithocarpus densiflorus*), and California bay with occasional grey pine, and douglas-fir (*Pseudotsuga menziesii*). Species characteristic of the understory include poison oak, coffeeberry, ocean spray (*Holodiscus discolor*), elderberry, toyon, and gooseberries. Wildlife observed in this plant includes Cooper's Hawk (*Accipiter cooperii*), Oak Titmouse (*Oak Titmouse*), and California Deer Mouse (*Peromyscus californicus*).

Streams and ponds - Streams and ephemeral drainages were mapped within the RPA Area. The most prevalent of these is Permanente Creek, a perennial stream that flows across the RPA Area from its headwaters in the west to the northeastern boundary of the site. Portions of the creek typically convey surface water for only a few weeks during annual peak rains. Approximately 500 linear feet of Permanente Creek are located within the RPA Area. Tributaries to Permanente Creek as well as tributaries to Ohlone Creek to the north and to Monte Bello Creek to the south of the

RPA Area were mapped and are described in detail in a jurisdictional determination report submitted to the U.S. Army Corps of Engineers in January 2010. A complete description of all vegetation communities and wildlife identified on-site can be found in the Biological Resources Assessment (Attachment E).

Figure 2.6-1 Soil Types

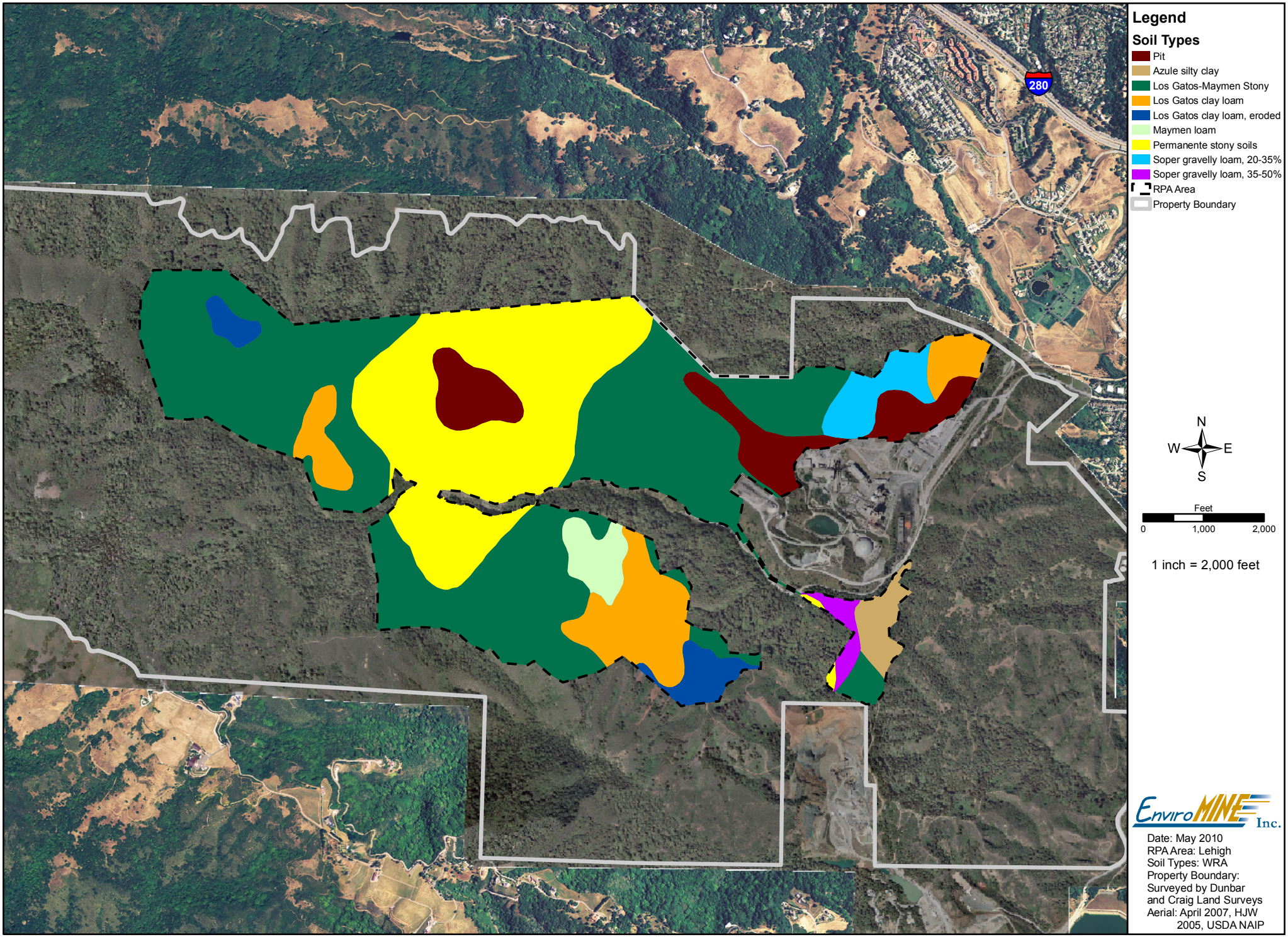
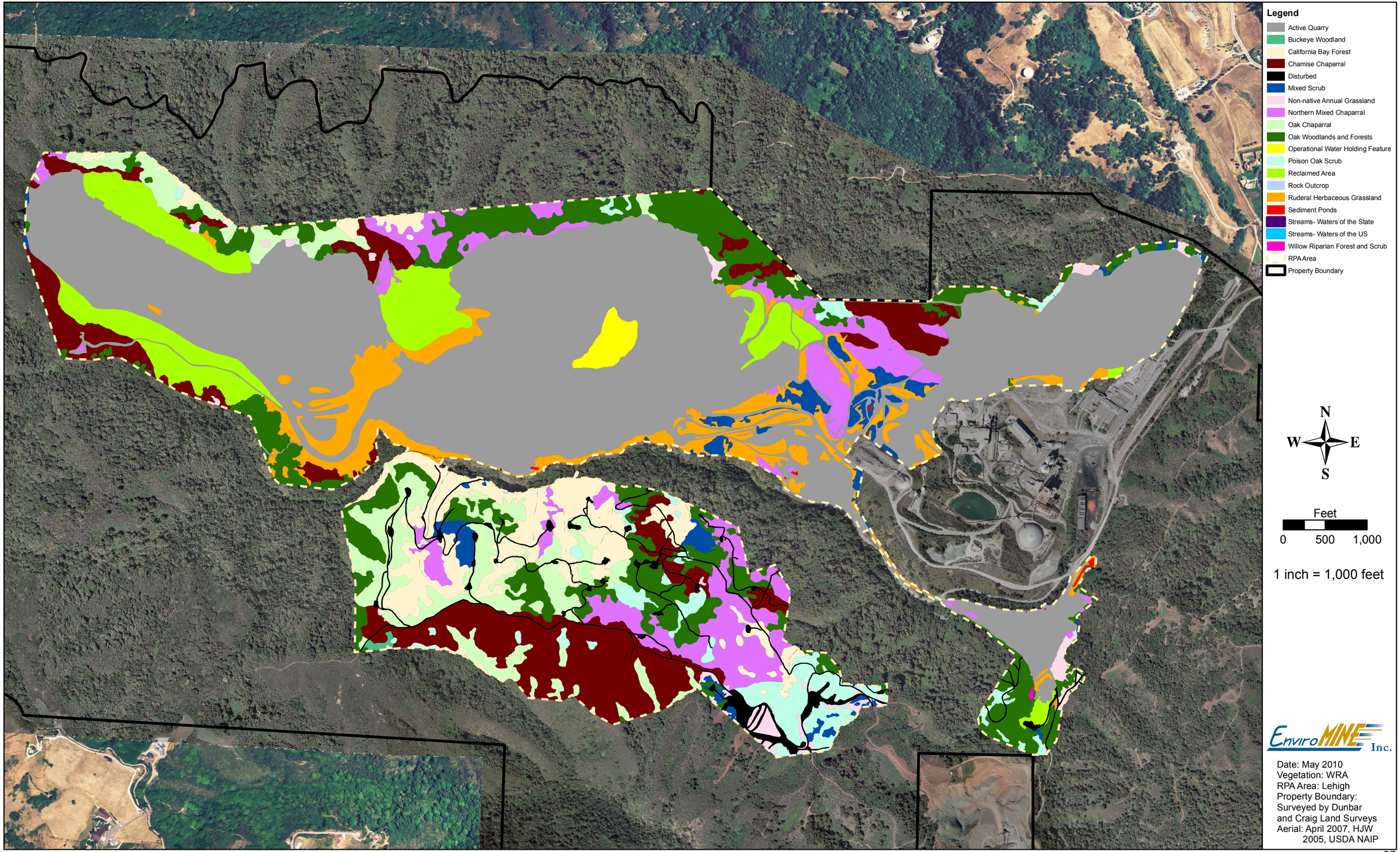


Figure 2.7-1 Existing Topography

Figure 2.9-1 Vegetation Communities



3.0 Reclamation Plan

3.1 Owner/Operator/Agent

Owner:

Hanson Permanente Cement, Inc.
300 E. John Carpenter Freeway #1645
Las Colinas, TX 75062

Operator:

Lehigh Southwest Cement Company
12667 Alcosta Blvd., Suite 400
San Ramon, CA 94583

Site Contact:

Henrik Wesseling, Plant Manager
24001 Stevens Creek Blvd.
Cupertino, CA 95014-5659

3.2 Operations Data

The Amendment incorporates approximately 1,105 acres (RPA Area) of the greater 3,510 acre ownership. Of this 1,105 acres, 788 acres represents existing and scheduled mining and reclamation activities. Approximately 537 acres of this area is currently disturbed; approximately 251 acres are scheduled for disturbance under this Amendment. The remaining 317 acres of the RPA Area are primarily undisturbed and will not be affected by this Amendment (Figure 1.0-6).

The aggregate processing facility will continue to operate. No change in production levels are incorporated into this Amendment, other than those that would naturally occur due to rising and falling market demand.

Mineral Commodity

The Quarry primarily produces limestone for cement production and low calcium carbonate limestone for construction aggregate uses. In this document, "limestone" refers to cement-grade limestone, and "aggregate" means other limestone grades and greenstone suitable for use in construction aggregate products. "Overburden" refers to overburden and rock materials that are not suitable for use as limestone or aggregate.

Starting Date of Operations

The Quarry is currently active and has been in continuous operation since the early 1900s.

Estimated Life of Operation

The life of the operation described in this Amendment is estimated at 20 years plus an additional time period to complete reclamation. Based on the anticipated start date, the termination date would be January 1, 2040.

Total Anticipated Production

The total anticipated production of aggregate and limestone is estimated at 65-million tons.

3.3 Operational Characteristics

This Amendment updates the existing reclamation plan to include existing disturbed lands identified for reclamation in this Amendment, and lands scheduled for disturbance as part of the future mining and overburden storage activities at the Quarry. The primary feature of the Amendment, as follows below, is the backfilling of the existing primary extraction area (North Quarry) with overburden generated from the scheduled extraction area (South Quarry).

The RPA Area contains the following main components: the North Quarry, South Quarry, Central Materials Storage Area (CMSA), East Materials Storage Area (EMSA), West Materials Storage Area (WMSA), Office/Crusher Area, Surge Pile, Rock Plant, Topsoil Storage Area and Buffer Zones. The North Quarry, WMSA, EMSA, Office/Crusher Area, Surge Pile and Rock Plant are existing operational areas. The South Quarry, CMSA and Topsoil Storage Area will be developed and reclaimed under this Amendment (Figure 3.3-1). These components are summarized by acreage in the following table and described in more detail below.

Table 2. Quarry Components

Component	**Acreage**
North Quarry	274
South Quarry	207
Central Materials Storage Area	52
East Materials Storage Area	63
West Materials Storage Area	117
Office and Crusher Area	39
Surge Pile	9
Rock Plant	16
Topsoil Storage Area	11
Buffer Zones	317
Total RPA Area	1,105

North Quarry: The North Quarry, located north of Permanente Creek, is where mineral extraction currently takes place. The North Quarry will encompass approximately 274 acres at buildout. The North Quarry currently features elevations ranging from approximately 750 feet msl to 1,750 feet msl. Existing slope angles in the North Quarry are 1.0H:1.0V overall. Under this Amendment, mineral extraction

in the North Quarry will continue for a limited time, and thereafter the North Quarry will serve as a permanent storage site for overburden generated mainly by mining in the South Quarry. This process will completely backfill the North Quarry, and establish final elevations between 990 and 1,950 feet msl. Backfilling will create gentler slope angles at a maximum of 2.5H:1.0V that will be generally consistent with the surrounding topography and which will provide permanent support for reclaimed North Quarry slopes.

South Quarry: The South Quarry, located south of Permanente Creek, is where future mineral extraction activities will be focused. The South Quarry covers approximately 207 acres and is mostly undeveloped except for several unpaved access roads. The South Quarry will be developed in elevations that range from 1,100 to 2,000 feet msl, with varying slope inclinations ranging from 3.0(H):1.0(V) at higher elevations (above elevation 1,240 feet msl) to steeper inclinations up to 1.0(H):1.0(V) in the lower portions of the South Quarry where geologic conditions permit. Mining in the South Quarry will occur in 5 phases over an estimated 20-year period, with reclamation and revegetation efforts following mining activities in each phase. Limestone and aggregate will be transported by haul truck to the existing primary crusher via a planned bridge crossing over Permanente Creek. Overburden will be hauled to the Central Materials Storage Area during the initial phase of mining. Thereafter, overburden will be delivered to the North Quarry for permanent storage.

South Quarry Bridge Crossing: Under this Amendment, an additional access road will be developed in order to access the South Quarry. This will connect the main access road on the south side of the North Quarry with the South Quarry through a planned bridge crossing Permanente Creek. The area of the bridge crossing is considered part of the South Quarry.

Central Materials Storage Area (CMSA): The CMSA is a planned overburden storage area located east of the North Quarry and just west of the East Materials Storage Area. The CMSA includes approximately 52 acres and ranges in elevation from approximately 775 to 1,270 feet msl. Overall slope angles will be 2.6(H):1.0(V) or flatter. The CMSA will accept overburden materials in the initial stage of mining (refer to phasing discussion below) and subsequently will be reclaimed as described in this Amendment. The CMSA's eastern edge connects to the flat pad at the west end of the EMSA over an approximately 11-acre area. The linkage of the CMSA and East Materials Storage Area has been designed to minimize any interference with reclamation activities in the EMSA.

East Materials Storage Area (EMSA): The EMSA is currently the main overburden storage site for mining operations. The EMSA is located near the eastern border of the RPA Area and is adjacent to the CMSA on the west. Operations and reclamation in the EMSA are addressed in the 2009 Amendment. To the extent that minor portions of the EMSA will be affected by the connection with the CMSA, those areas will be considered part of the CMSA for reclamation purposes.

West Materials Storage Area (WMSA): The WMSA is an overburden storage area located to the west of the North Quarry. The WMSA includes approximately 117 acres with elevations ranging from approximately 1,500 to 1,975 feet msl. The

WMSA is nearing the final elevations and contours described in the 1985 Reclamation Plan. The Amendment proposes a minor change to the existing WMSA design compared to the existing 1985 Reclamation Plan. Lehigh has initiated reclamation of this area according to the requirements of the 1985 Reclamation Plan. Lehigh retains the option to complete reclamation of the WMSA as described in the 1985 Reclamation Plan. Alternatively, the WMSA may be reclaimed as described in this Amendment. Overall slope angles in the WMSA reach a maximum gradient of 3.0(H):1.0(V).

Office and Crusher Area: The Office and Crusher Area is an existing area which contains primary and secondary crushing stations, Quarry offices and maintenance areas. The Office and Crusher Area is located to east of the North Quarry and to the west of the CMSA. This part of the Quarry totals approximately 39 acres and serves as a general support area for ongoing operations.

Surge Pile: The Surge Pile is an existing stockpile of crushed aggregate located southeast of the North Quarry. The Surge Pile covers approximately 9 acres, and holds aggregate materials pending further processing at the Rock Plant to the southeast. Material is transported from the Surge Pile to the Rock Plant via conveyor belts.

Rock Plant: The Rock Plant is an existing rock processing facility. The Rock Plant is located to the north of the Topsoil Storage Area and southeast of the Surge Pile. The facility occupies approximately 16 acres and gentle slopes ranging from approximately 580 to 770 feet msl. The Rock Plant is a collection of crushing, conveying, screening and washing facilities that processes rock into an assortment of types and grades of aggregate products. Aggregate products are stored in silos or stockpiles until picked up by customers' haul trucks. The Amendment incorporates new reclamation requirements for the Rock Plant, which was not addressed by the 1985 Reclamation Plan.

Topsoil Storage Area: The Topsoil Storage Area is a planned topsoil storage site that will provide temporary storage for topsoil removed by the mining process until it is applied during reclamation. The Topsoil Storage Area is located to the south of the Rock Plant, covering approximately 11 acres with elevations between 680 and 960 feet msl. The Topsoil Storage Area is designed to hold up to 540,000 cubic yards of topsoil, with slope angles of 2.0(H):1.0(V) or flatter. The design capacity is conservatively large and is unlikely to be reached at any time. This is because the Amendment seeks to directly apply salvaged topsoil to areas in active reclamation rather than place topsoil in storage. Direct placement reduces topsoil haul distances and preserves biological values beneficial to the reclamation process. When direct placement of topsoil is not possible, topsoil will be hauled directly from extraction areas to the Topsoil Storage Area. The Topsoil Storage Area will be returned to original grade as part of the reclamation process.

Access Roads: On-site haul roads currently link the North Quarry, CMSA, EMSA, WMSA, Office and Crusher Area, Surge Pile and the Rock Plant. Under the Amendment, additional access roads will be developed to access the South Quarry. This will connect the main access road on the south side of the North Quarry with a planned bridge crossing Permanente Creek. This access road will not be visible from

off-site locations. Other access roads will link the upper, middle and lower elevations of the South Quarry. Generally, the locations of haul roads vary depending on the geographic area of the quarry that is being mined or used for overburden storage; thus, the location of haul roads will vary through the Quarry's lifespan. The acreage for access roads is incorporated into the totals for other Quarry components.

Buffer Zones: The Amendment will maintain approximately 317 acres of Buffer Zones within the RPA Area. Buffer Zones are primarily undeveloped lands and are characterized at the site mostly by steep hillsides and thick vegetation. The primary function of Buffer Zones is to protect the Quarry from land use encroachment. Buffer Zones also protect nearby land uses from the visual effects, noise effects and other characteristics of mining activity. Buffer Zones are not planned for disturbance under this Amendment. To the extent that Buffer Zones contain mineral reserves, Lehigh may develop those areas for mineral production in the future.

Most of Lehigh's 3,510-acre property is not covered by this Amendment. These land holdings contain primarily undeveloped lands characterized mostly by steep hillsides and thick vegetation. Such lands provide for a separation between the Quarry and land use encroachment, and protect nearby land uses from the effects of mining activity. To the extent that Lehigh's property outside of the RPA Area contains mineral reserves, Lehigh may develop those areas for mineral production in the future.

General Description of Mining and Processing

Topsoil and overburden will be generated in the process of uncovering limestone and aggregate resources. As mining progresses within the South Quarry, areas will be cleared of vegetation, topsoil and overburden. Cleared vegetation will be chipped and incorporated into the salvaged topsoil for use in the reclamation process. Due to the existing state of disturbance in the North Quarry, mining will require little or no vegetation and topsoil removal. Salvaged topsoil from the South Quarry will either be directly applied to areas in active reclamation or temporarily stockpiled for later use. Overburden generated by mining activities will be permanently stored in the CMSA or the North Quarry. Topsoil and overburden will be transported by haul trucks and deposited by end-dumping to the angle of repose in a series of lifts and phases. Materials are subsequently keyed into existing slopes and rough-graded according to geotechnical recommendations.

Following the removal of topsoil and overburden, the mining process involves a drill and blast program to fracture and loosen the in-place rock. Fractured rock will be loaded onto off-road haul trucks for transportation to the primary crusher located at the southeast edge of the North Quarry. After being crushed, these materials are transported by conveyor belts either to the Rock Plant or Lehigh's adjacent cement plant (Figures 3.3-2 and 3.3-3).

Conventional heavy earth moving equipment will be used to extract material from the North Quarry and South Quarry and to place material within the overburden storage sites. Typical equipment will include front end loaders, dozers, excavators, off-road haul trucks, scrapers, rock drills, water trucks and conveyor systems. Quarry operations will continue to take place 24 hours per day, 365 days per year.

Figure 3.3-1 Quarry Components

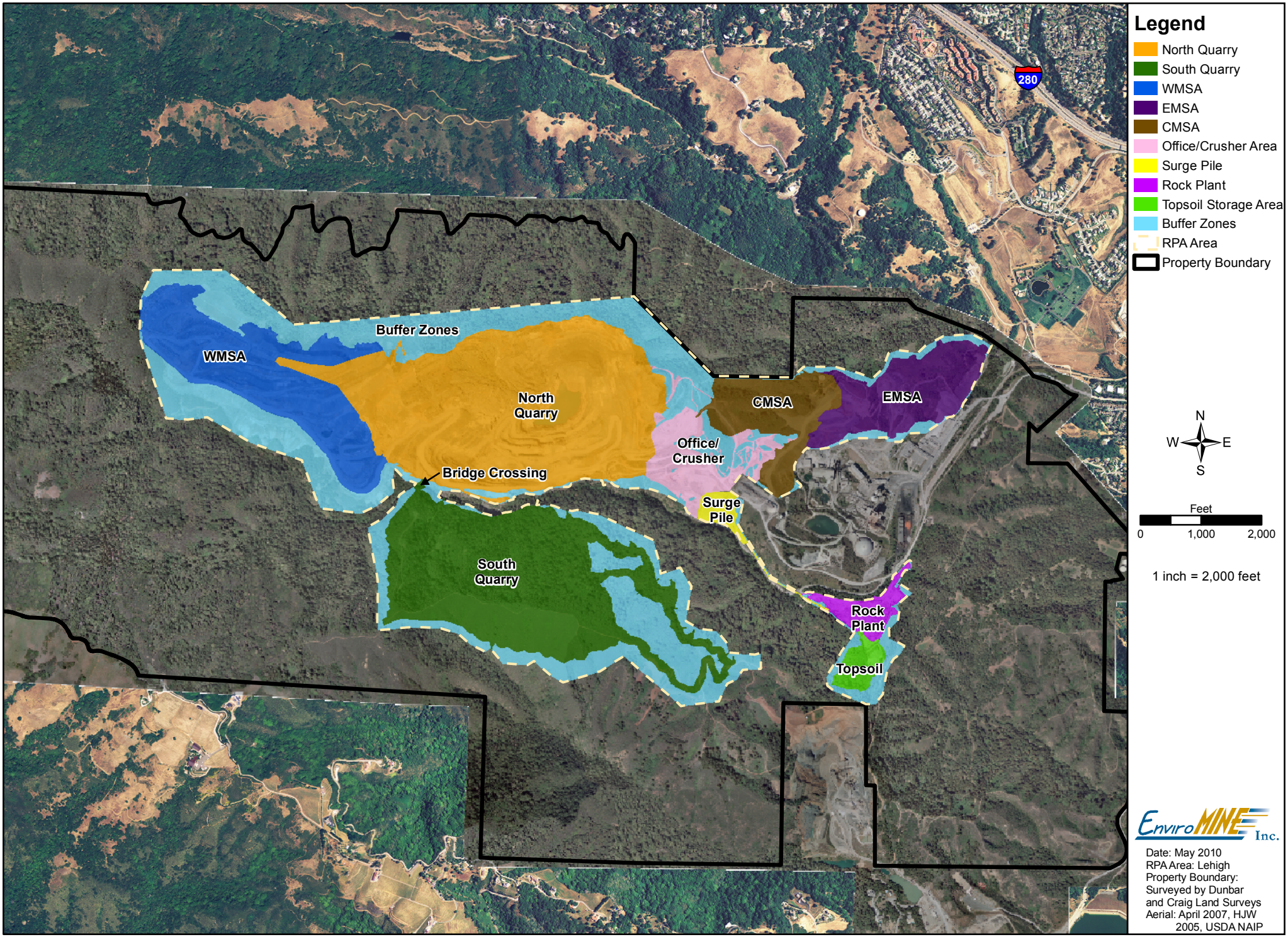
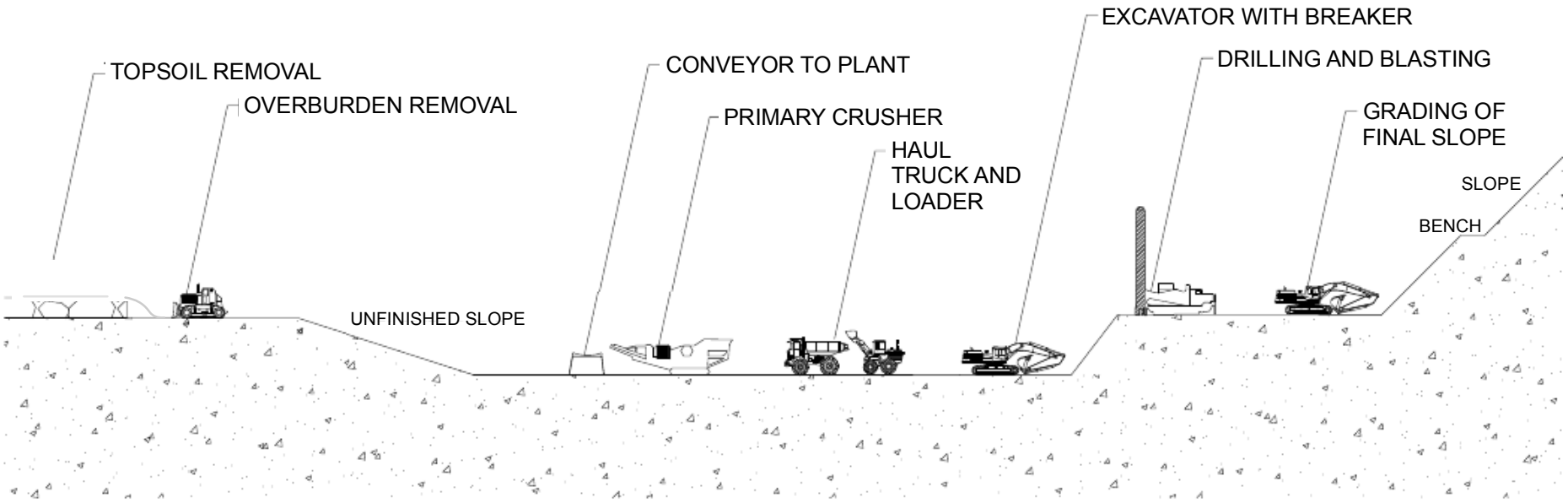


Figure 3.3-2 Mining Process



Not to Scale

EnviroMINE Inc.

Date: May 2010

Figure 3.3-3 Quarry Conveyor Circuit

3.4 RPA Phasing

Mining and overburden storage areas will be completed in phases to allow reclamation to occur at the earliest possible time and to clearly define Quarry operations. Activities described in this Amendment are scheduled to proceed in a total of five phases (Phases 1 through 5). Existing conditions are shown in Figure 3.4-1. A Final Reclamation phase is also included to describe ultimate site conditions at the completion of reclamation activities. Phases may overlap in time and extent depending on market demand and conditions encountered in the field.

The table below identifies the type and amount of disturbance in each phase. The attached Reclamation Plan Exhibits include maps detailing the progression of development for each part of the RPA Area. These areas include the North Quarry, South Quarry, WMSA, CMSA and Topsoil Storage Area. These maps show conditions at the conclusion of each phase for a given area. Figures 3.4-1 through 3.4-7 provide an overview of the progression of activities described by this Amendment, from existing conditions to the ultimate site configuration.

Table 3. Phasing Progression[1]

Phase	Disturbance at Beginning of Phase	New Disturbance[2]	Active Reclamation[2]	Disturbance at End of Phase[3]	Total Reclaimed[2]
Existing	537	0	0	537	20
Phase 1	537	106	154	490	20
Phase 2	490	63	34	519	164
Phase 3	519	53	48	524	193
Phase 4	524	11	43	492	238
Phase 5	492	37	193	336	259
Final	336	0	336	0	452

[1] This table summarizes the acreages for areas affected by mining and reclamation activities described under this Amendment. Approximately 40 acres of existing reclaimed lands and 33 acres of existing disturbance occur outside the mining and reclamation footprint but within the Amendment boundary. These areas are not included in the mining and reclamation activities described under this Amendment.

[2] Areas classified as active reclamation or total reclaimed may be redisturbed by mining and overburden storage activities

[3] Totals may not match due to rounding

Figure 3.4-1 Existing Operations

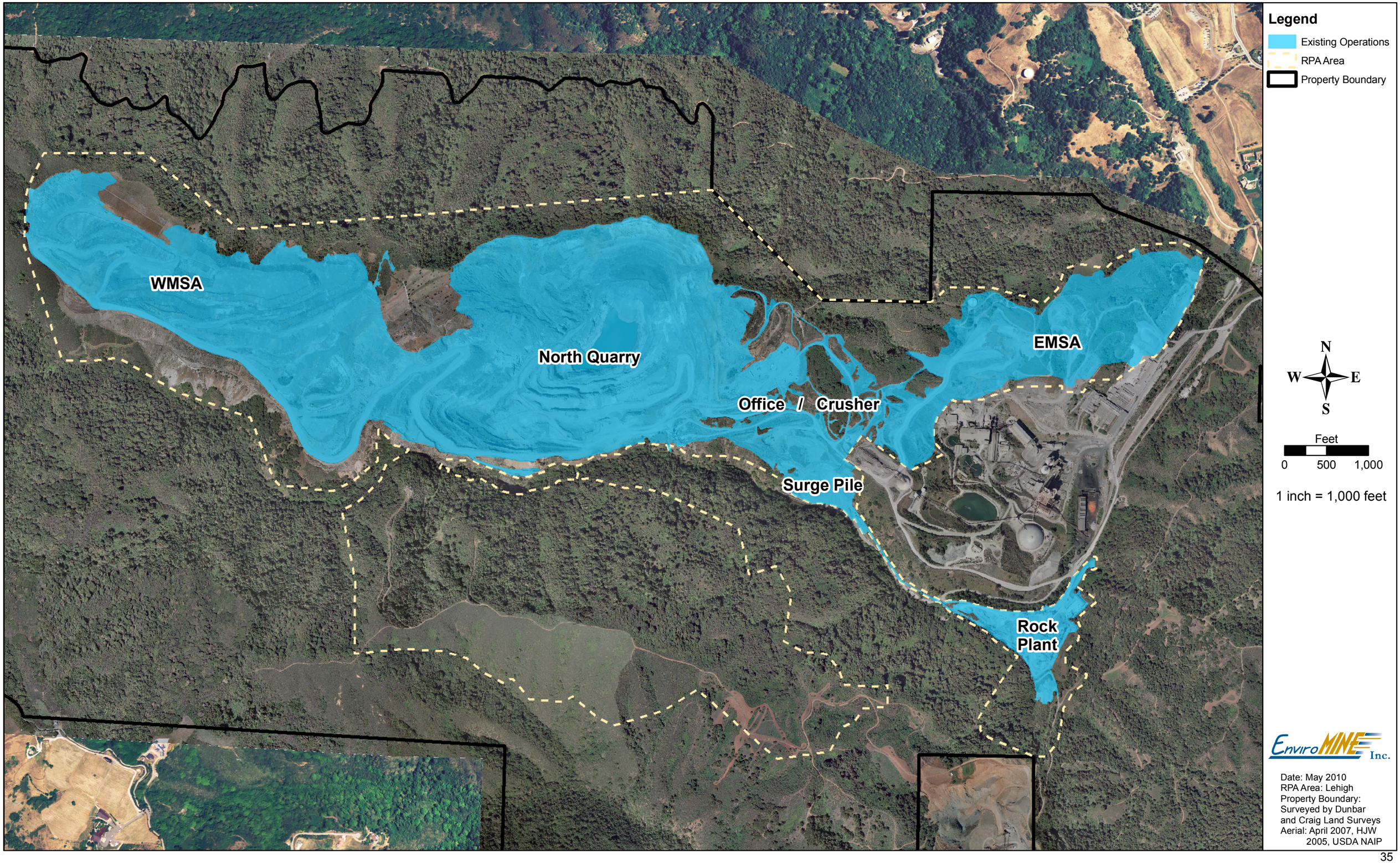


Figure 3.4-2 Mining and Reclamation Phase 1

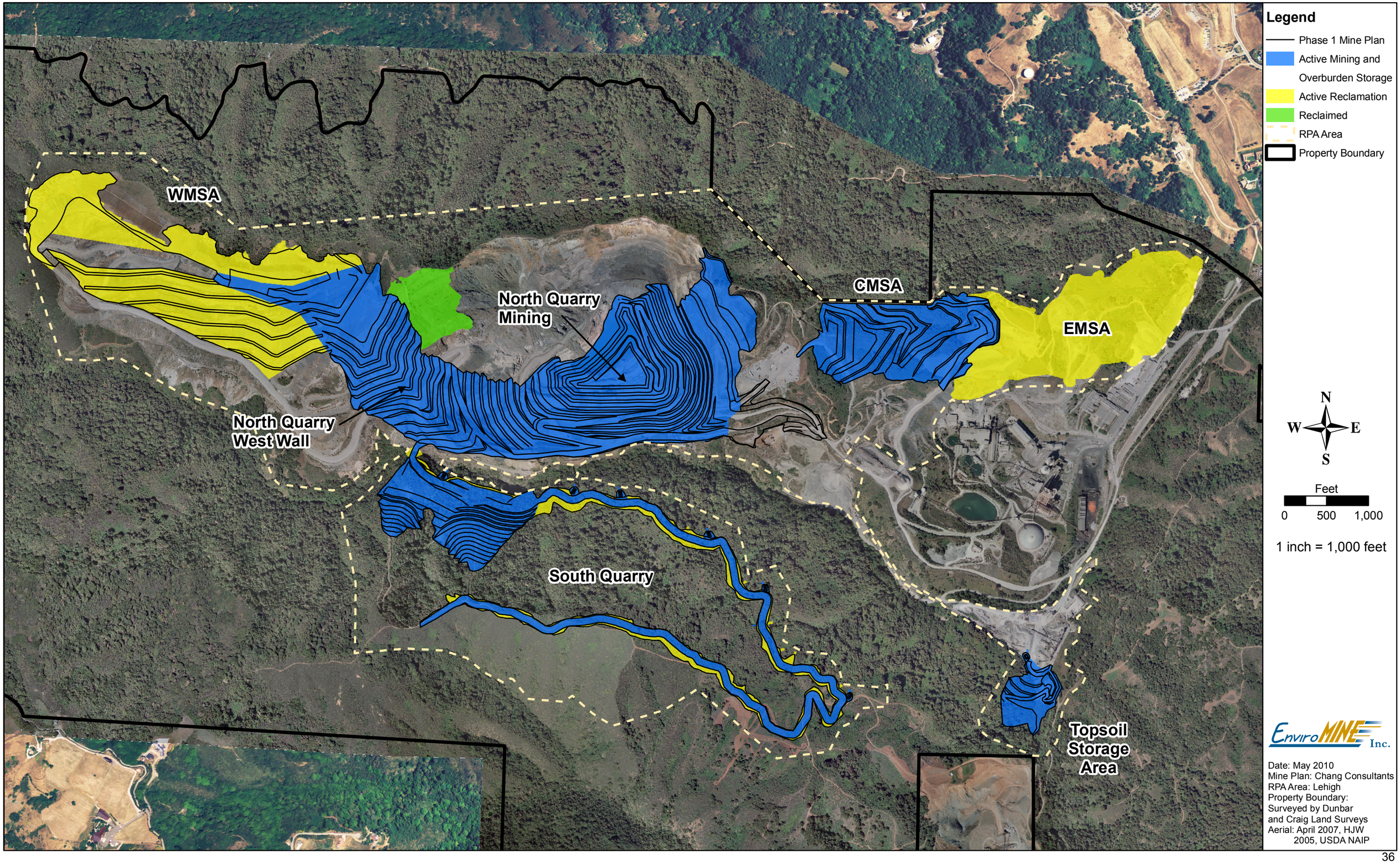


Figure 3.4-3 Mining and Reclamation Phase 2

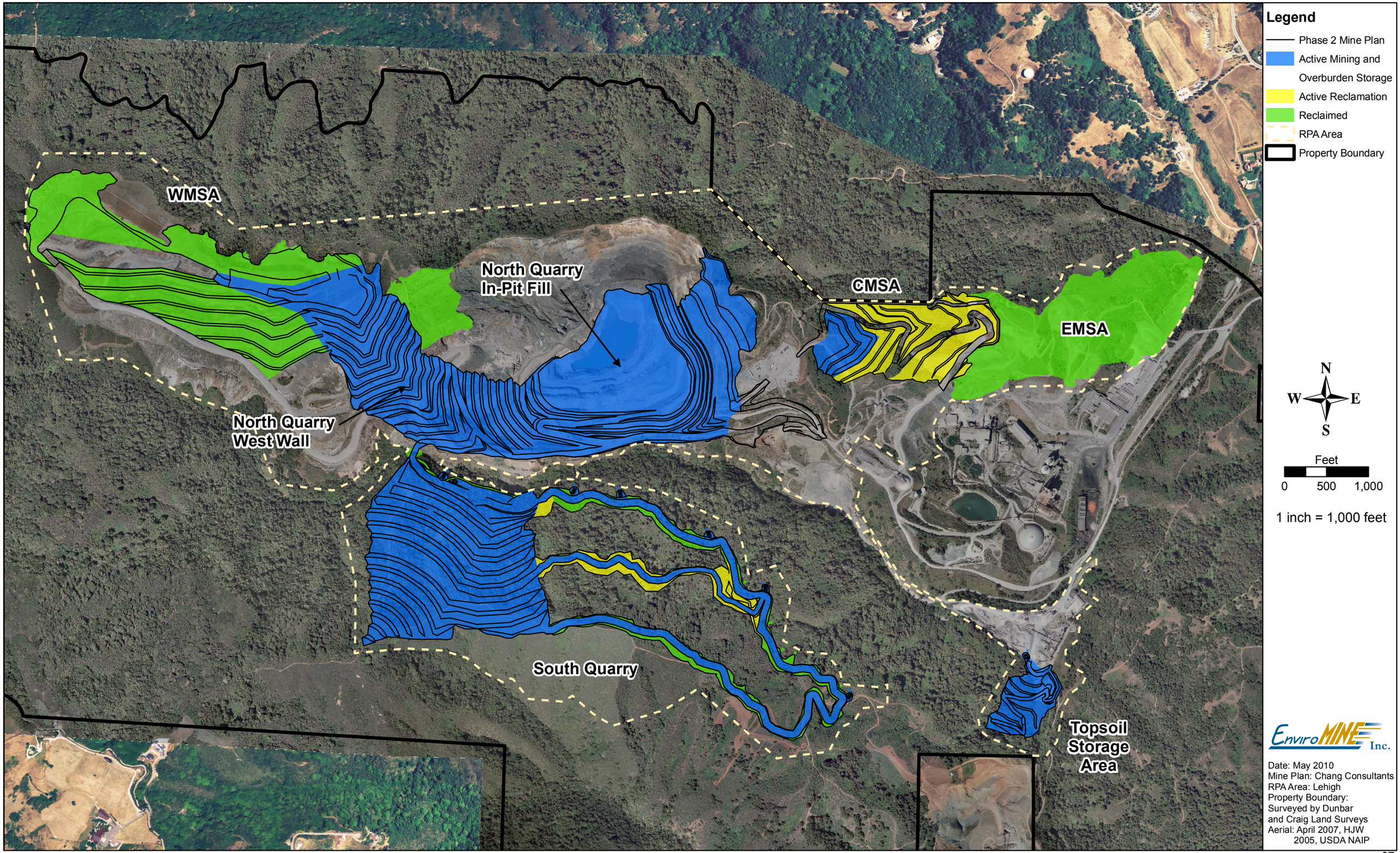


Figure 3.4-4 Mining and Reclamation Phase 3

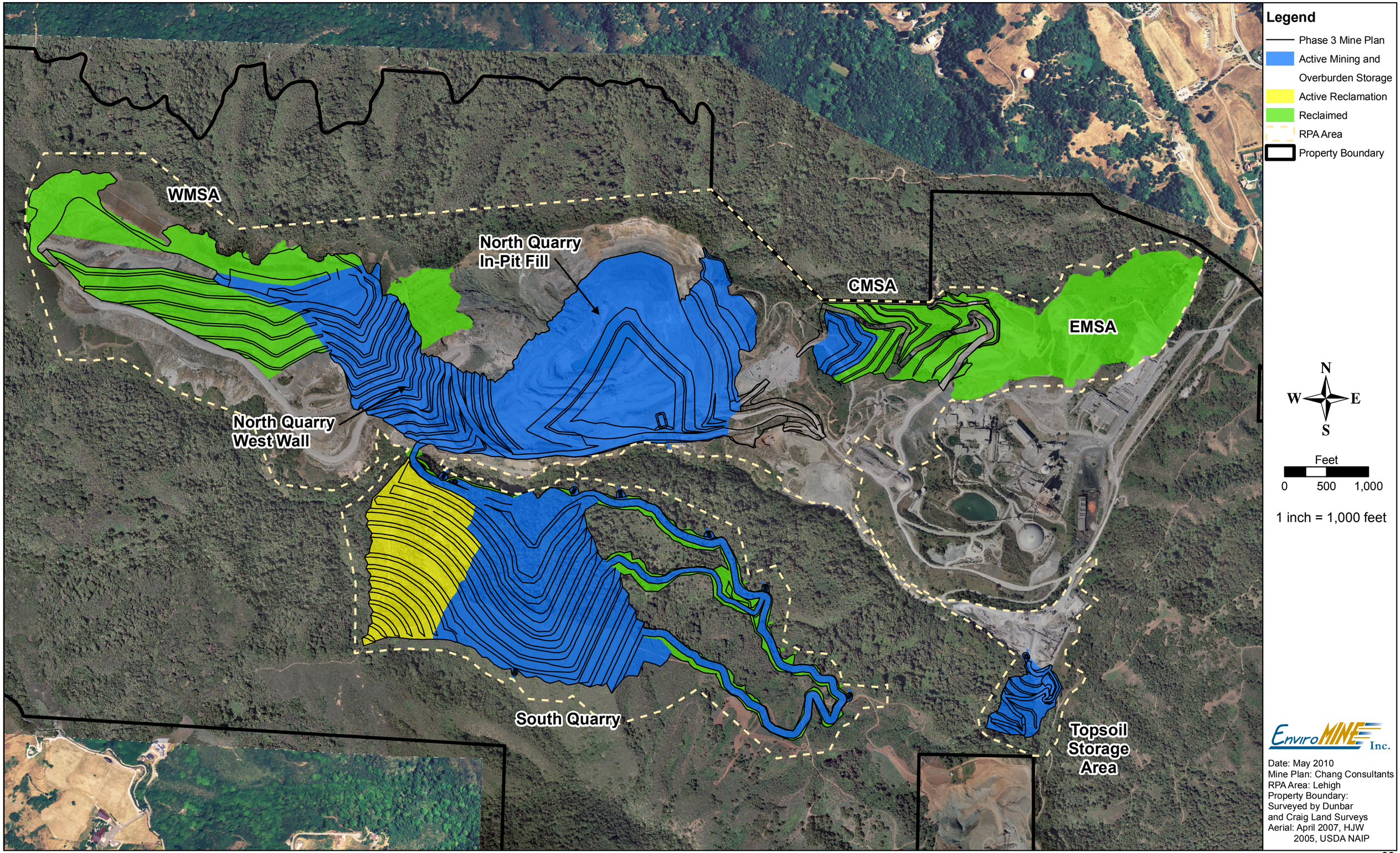


Figure 3.4-5 Mining and Reclamation Phase 4

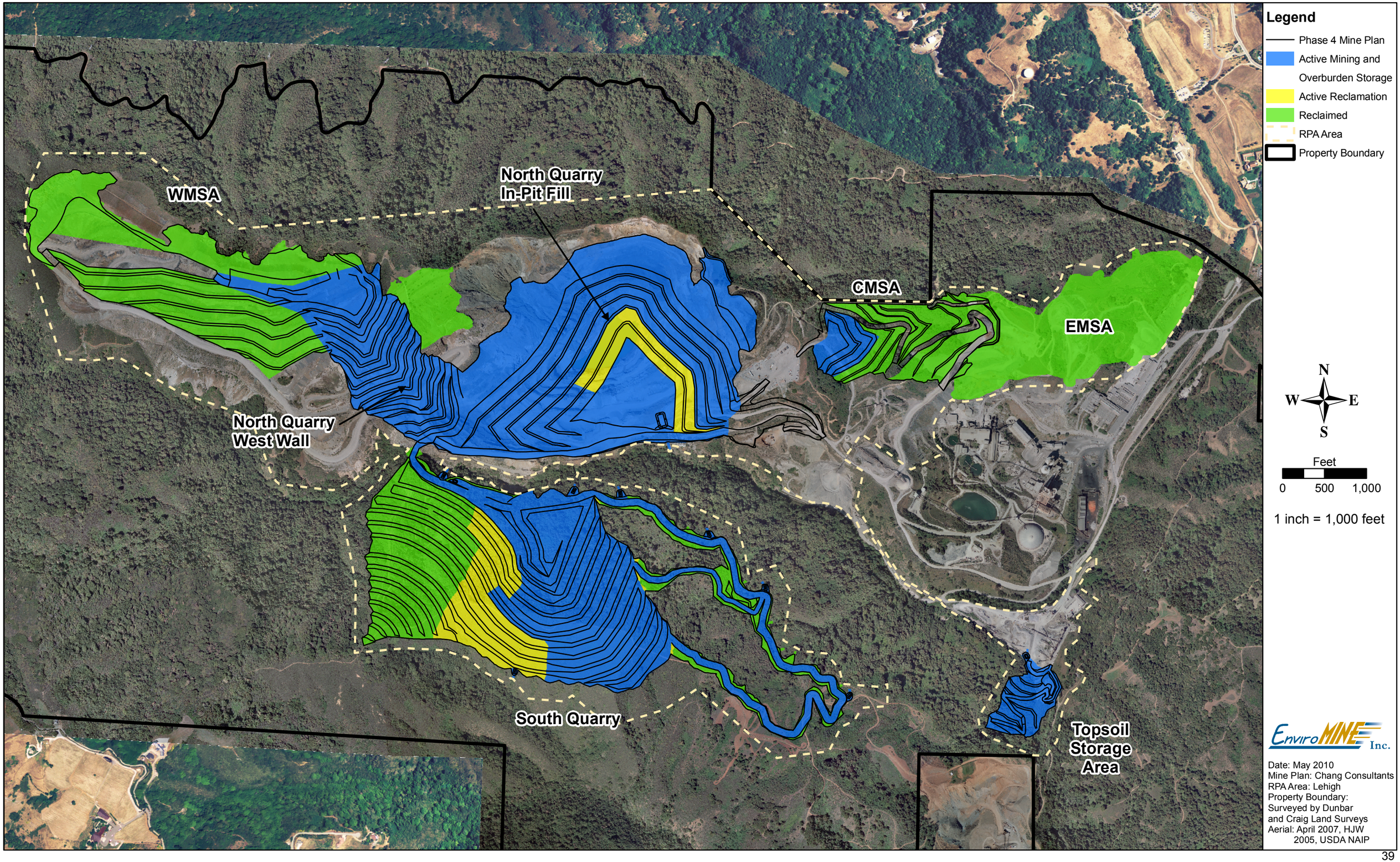


Figure 3.4-6 Mining and Reclamation Phase 5

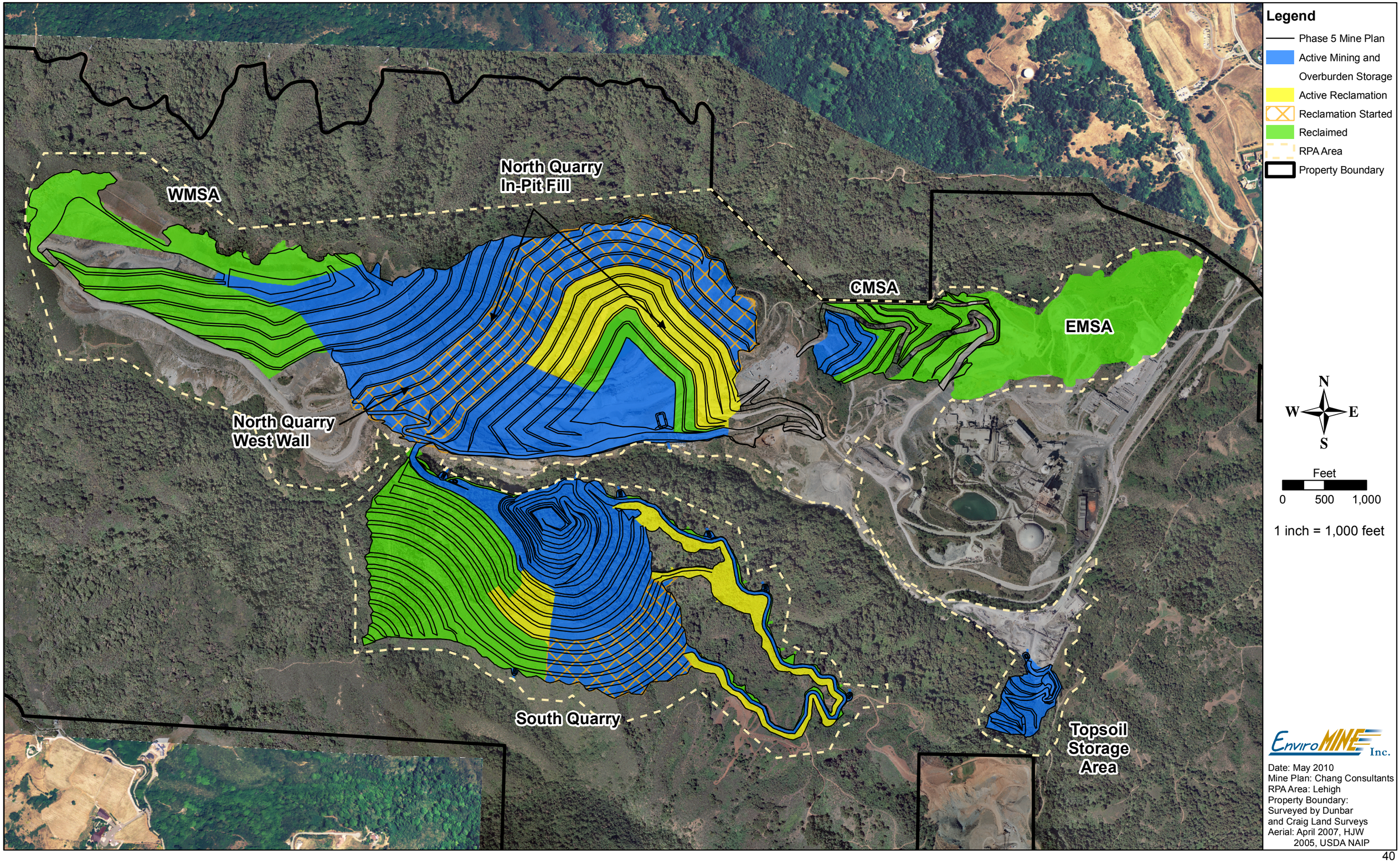
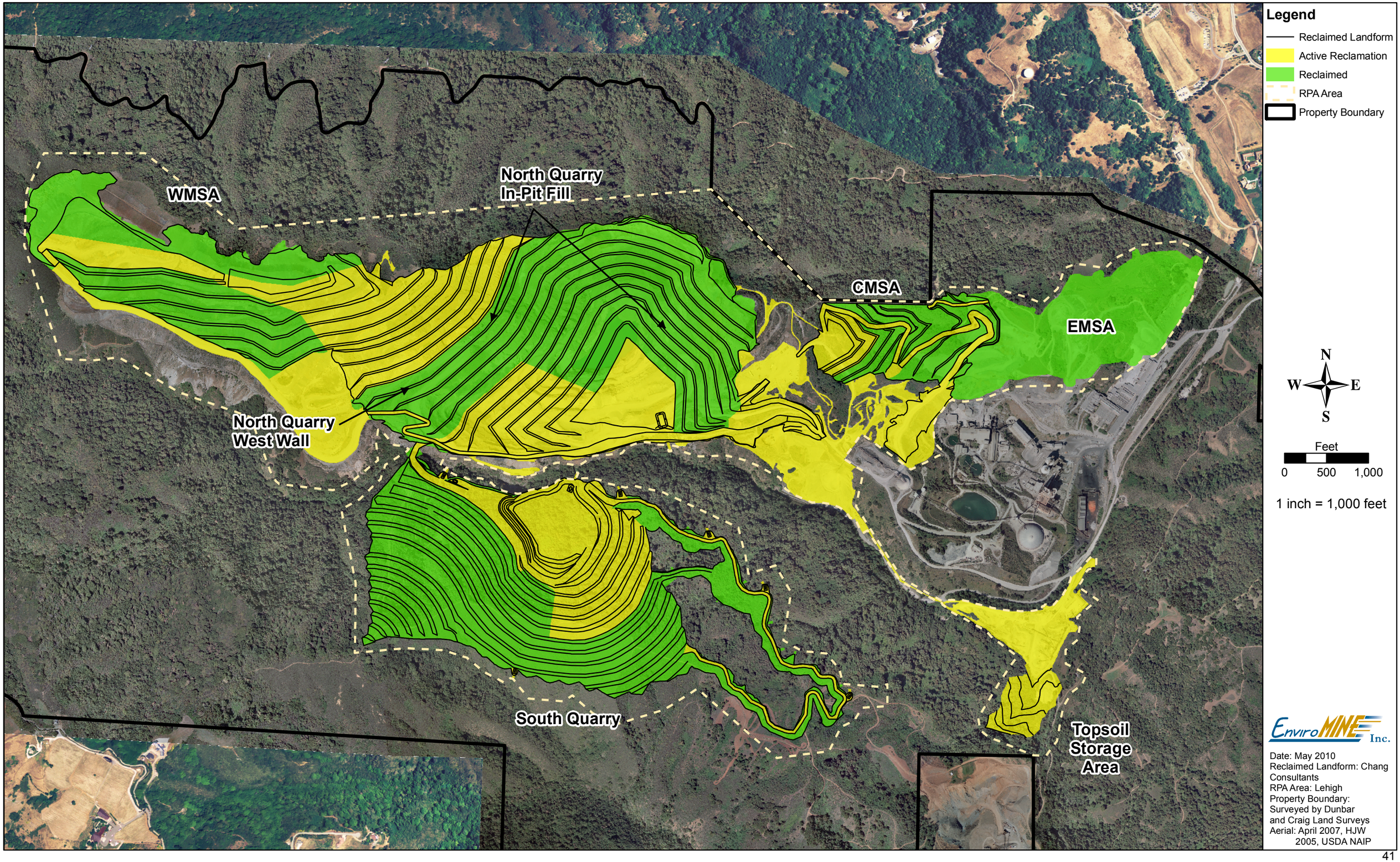


Figure 3.4-7 Final Reclamation



The following sections present an overview of the activities that in each phase. A detailed discussion of the reclamation process is found in Sections 3.16 through 3.18 of this Amendment and the Revegetation Plan.

Phase 1

Phase 1 is characterized by the initiation of mining activities within the South Quarry (Figure 3.4-2). This phase begins with the construction of the bridge crossing over Permanente Creek to link the North Quarry with the South Quarry. Once the crossing is established, vegetation and topsoil removal will occur in the South Quarry. Topsoil salvaged from the South Quarry will be temporarily stockpiled in the Topsoil Storage Area prior to use in reclamation. Topsoil will also be salvaged from areas that will be disturbed within the Topsoil Storage Area. Overburden will then be removed from the South Quarry and permanently stockpiled in the CMSA and the North Quarry west wall area. During this phase, the west wall area will be backfilled to approximately 1,840 feet msl and will effectively link the western edge of the North Quarry with the eastern portions of the WMSA. Sedimentation basins and erosion control features for the South Quarry and Topsoil Storage Area will be installed during this phase.

Phase 1 will include the development of the main South Quarry access road linking the upper and lower elevations of the South Quarry. The creation of the access road will require areas of cut and fill along the hillsides in the eastern portion of the South Quarry. Because the hillsides may be visible to some public views, revegetation of the cut and fill areas will begin immediately following road construction to minimize, or eliminate visual impacts of road development.

Mineral extraction in the North Quarry is expected to conclude during this phase as extractive activities transition to the South Quarry. The CMSA will be filled to capacity, with the exception of elevations above 1,200 feet msl which may be used for temporary topsoil storage until final reclamation. No mining activity will occur in the WMSA. The WMSA will be in the active reclamation process with the exception of areas affected by the North Quarry and west wall backfill.

Phase 2

Phase 2 continues mining in the South Quarry in an easterly and southerly direction. This phase also includes development of the mid-level access road in the South Quarry. Cut and fill slopes created during the development of this access road will be immediately revegetated following road construction (See Figure 3.4-3).

The North Quarry will serve, during this phase and all subsequent phases described under this Amendment, as the primary overburden storage area for the Quarry. As overburden storage activities continue in the North Quarry, overburden will be placed within the in-pit fill area to tie into the west wall established during Phase 1. During Phase 2, the backfill in the North Quarry will raise the depth of the North Quarry pit from approximately 440 feet msl to 840 feet msl. Additional overburden placement will occur above the 1,840 foot msl elevation within the west wall of the North Quarry.

With the exception of topsoil storage activities in the upper elevations of the CMSA, material storage in the CMSA will have concluded in Phase 1 with reclamation of finished slopes in progress. The WMSA haul road will remain to support backfilling activities in the North Quarry. Reclamation in all other areas of the WMSA will be complete apart from any monitoring and maintenance activities. The Topsoil Storage Area will continue to be used for storing topsoil from active extraction areas, to the extent that direct placement of salvaged topsoil is not practicable.

Phase 3

Phase 3 is marked by the continuation of South Quarry mining in an easterly direction. All overburden generated during this phase will be used to backfill the North Quarry. Reclamation efforts will have been initiated in the western portions of the South Quarry and will continue to progress to the east as mined areas are brought to final grade. During this phase, vegetation should become more established on cut and fill slopes associated with South Quarry access roads (See Figure 3.4-4).

In Phase 3, North Quarry backfilling will raise the floor to its final elevation of 990 feet msl and extend the in-pit fill area to connect with the west wall up to 1,090 feet msl. Once the final elevation for the North Quarry floor is established, a portion of the North Quarry floor will be used for temporary stockpiling of topsoil for use in the North Quarry reclamation process.

The Topsoil Storage Area will continue to receive salvaged topsoil that cannot immediately be used for reclamation, or that is not transported to the North Quarry floor for temporary storage until used for reclamation purposes in the North Quarry. Reclamation activities in the WMSA and CMSA will consist of monitoring and maintenance necessary to achieve performance standards for revegetation.

Phase 4

During Phase 4, extraction in the South Quarry will continue in an easterly progression as slopes at final grade are reclaimed. All overburden generated during this phase will be used to backfill the North Quarry. In general, the western portion of the South Quarry will either be reclaimed or in the reclamation process (See Figure 3.4-5).

The continued placement of overburden in the North Quarry will add to the substantial buttress created during Phases 1 through 3 and expand the support for North Quarry walls. Overburden placed within the North Quarry in-pit fill area will reach approximately 1,290 feet msl. Except for areas to be used for temporary overburden storage activities, North Quarry slopes between 990 and 1,090 feet msl will be reclaimed during this phase.

The Topsoil Storage Area may continue to receive salvaged topsoil that cannot immediately be used for reclamation, or that is not transported to the North Quarry floor for temporary storage until used for reclamation purposes in the North Quarry. Reclamation activities in the WMSA and CMSA will consist of monitoring and maintenance necessary to achieve performance standards for revegetation.

Phase 5

Phase 5 represents the completion of mining and overburden placement activities described under this Amendment. During this phase, the North Quarry will be backfilled to its final elevation. The backfill will establish a more natural down-slope that is consistent with the surrounding topography. Overburden placement within the North Quarry will reach approximately 1,840 feet msl, completely connecting the west wall and in-pit fill area. Except for areas to be used for temporary overburden storage activities, reclamation efforts will continue in the middle elevations of the North Quarry, primarily between 1,090 and 1,290 feet msl. Reclamation efforts will also be initiated within the North Quarry between elevations 1,290 and 1,540 feet msl after final slopes are established during this phase. In the early stages of Phase 5, a temporary stockpile of overburden material will be developed on the southwest corner of the North Quarry floor, for later use in backfilling the South Quarry floor to its final reclaimed elevation.

The South Quarry will be mined to its maximum depth of 925 feet msl in the early stages of Phase 5 (See Figure 3.4-6). After the South Quarry reaches its ultimate depth, the temporary overburden stockpile in the North Quarry floor will be depleted in order to backfill the South Quarry floor to a final elevation of 1,110 to 1,120 feet msl. Backfilling the South Quarry pit to this elevation is designed to provide positive drainage to Permanente Creek. The South Quarry access roads will be reduced to 40 feet in width during this phase. As part of this process, slopes above the South Quarry access roads will generally be reduced to create a more natural gradient. These newly created slopes and a central area within the South Quarry will be reclaimed.

Reclamation in the CMSA will be completed by depleting any remaining temporary topsoil stockpiles at the uppermost elevations of the CMSA, to serve reclamation efforts. Portions of the CMSA previously used for temporary topsoil stockpiling will then be recontoured and reclaimed. Reclamation monitoring and maintenance activities will continue in the WMSA and CMSA, if necessary. By the end of Phase 5, all topsoil stored within the Topsoil Storage Area will have been used in the reclamation process.

Final Reclamation

Final reclamation refers to the process of bringing areas in active reclamation to conclusion, according to the reclamation performance standards set forth in the Amendment (refer to Section 3.18). The following is a brief discussion of the areas involved in Final Reclamation. A complete description of reclamation activities can be found in Sections 3.16 through 3.18 of this Amendment and the Revegetation Plan.

Following the completion of backfilling activities, the North Quarry will be reclaimed. Active reclamation within the eastern portions of the South Quarry and the South Quarry Pit will be completed during this phase. Any disturbance resulting from recontouring the upper elevations of the CMSA will also be reclaimed. The WMSA haul road and Yeager Yard located to the southeast of the WMSA will be reclaimed. During this reclamation phase, all of the topsoil stored within the Topsoil Storage

Area will be used in the reclamation process allowing the Topsoil Storage Area to be reclaimed.

When no longer needed for storm water and erosion control, all basins will be allowed to fill in with sediment and naturally revegetate. Where no longer necessary, access roads will be reduced in width and reclaimed. A sufficient road network will remain in all areas of the Quarry to provide access for monitoring and maintenance activities. Monitoring and maintenance of reclaimed areas will continue until performance standards are met as described in Section 3.18 of this Amendment and the Revegetation Plan.

3.5 Topsoil and Overburden Management

The mining process begins with the removal of vegetation, topsoil and overburden. Following vegetation removal activities, mining operations will proceed with the phased removal and stockpiling of topsoil and overburden (see Section 3.4 for a discussion of phasing). Direct placement of topsoil will be implemented whenever possible to utilize microorganisms and other beneficial properties in the soil that will aid the revegetation process. When direct placement of topsoil is not possible, topsoil salvaged from the South Quarry will be transported by haul trucks to the Topsoil Storage Area for temporary storage for later use in reclamation activities. Topsoil will also be stripped from the base of the Topsoil Storage Area and placed into storage there along with topsoil from the South Quarry. The majority of topsoil salvaged from the CMSA is expected to be directly placed on areas within the CMSA. Other topsoil salvaged from the CMSA will be temporarily stored within the CMSA prior to use in reclamation. Beginning in Phase 3, topsoil may also be stored within the North Quarry to support reclamation efforts in the North Quarry. The Revegetation Plan contains a complete description of methods for salvaging and storing topsoil to provide the greatest benefit to reclamation efforts.

Following the removal of topsoil, mining operations will continue with the removal of overburden to access useable grades of aggregate and limestone. During Phase 1, overburden generated from mining activities within the North Quarry will be transported to the CMSA via haul truck for permanent storage. In the first phase, overburden generated from the South Quarry will also be transported via haul truck to the CMSA, and in subsequent phases to the North Quarry west wall and in-pit fill area, for permanent storage. Beginning in Phase 3, overburden may also be temporarily stored on the North Quarry floor prior to use as backfill for the ultimate pit created in the South Quarry during Phase 5.

The amount of overburden that will actually be removed and stored each year will depend on extraction rates which are in turn based on product demand and the quality of rock encountered.

3.6 Blasting

The existing mine operations utilize blasting to loosen rock for extraction and processing. Blasting currently occurs in the North Quarry at the rate of between one to two “shots” per week, depending on market demand and geologic factors encountered. Under this Amendment, blasting will typically occur within the same

range of frequency used for existing operations. In certain phases of the South Quarry, the rate of blasting will increase compared to the number of shots in the North Quarry, due to the large amount of unmarketable material that is believed present in some areas to gain access to marketable rock. A licensed blasting contractor is responsible for performing and supervising all blasting activities, including the following:

- Drilling pattern design
- Pre-blast inspection
- Load explosives
- Pre-blast notifications
- Detonation procedures including safety meetings, site security, and warning signals
- Post-blast inspection and re-entry procedures
- Maintenance of the blasting record

Blasting will generally occur Monday through Saturday from 10:00 a.m. until 6:00 p.m. No blasting will occur after sunset. No explosives are, or will be, stored on-site. Explosives are transported to the site as needed by a licensed and permitted explosives delivery contractor. Upon arrival, mine safety personnel inspect the transport vehicles for compliance with regulations and escort vehicles to the blast site. Ground vibration and air overpressure are monitored in each "shot" for compliance with the limits provided by the Office of Surface Mining Reclamation and Enforcement and the U.S. Bureau of Mines. Blasting activities are conducted in strict compliance with applicable Federal, State, and County requirements. Blasting in the South Quarry will maintain the same safety and operational protocols currently used in the North Quarry.

3.7 In-Pit Material Loading

Blasted rock will be loaded into Quarry haul trucks by front-end loaders. Overburden will be hauled to the CMSA or North Quarry. Limestone and aggregate will be delivered to the primary crusher. After crushing, limestone and aggregate will be transported by conveyor belts to the Rock Plant or adjacent cement plant for further processing as described below.

3.8 Material Processing

The processing of mined rock begins with its removal from active extraction areas. Blasted rock is loaded into 100-ton or 150-ton off-road haul trucks by front-end loaders. Aggregate and limestone are delivered to the primary crusher located to the southeast of the North Quarry.

From the primary crusher, oversized rock is fed to a secondary crusher. From this secondary station, material is transported via belt conveyors to the Rock Plant or the adjacent cement plant, depending on the type of rock being processed. Material destined for the Rock Plant is conveyed approximately 2,450 feet east (through a 550-foot tunnel) to a conveyor junction, then diverted south another 1,000 feet before discharging into the Surge Pile. Material placed in the Surge Pile is fed

through vibrating screens to a conveyor belt, and transported southeast approximately 2,750 feet to the Rock Plant.

Material destined for the cement plant follows the same initial path from the primary crusher to the conveyor junction, but is diverted before reaching the Surge Pile to an alternative route into the adjacent cement plant (Figure 3.3-3 Quarry Conveyor Circuit).

The Rock Plant occupies approximately 16 acres of the Quarry. The Rock Plant consists of equipment and facilities that screen, wash, sort and temporarily store processed materials prior to distribution off-site. The Rock Plant consists of the following equipment as shown on Figure 3.8-1 Rock Plant Facilities:

- Secondary and tertiary crushing units
- Series of vibrating screens and rock washing units
- Conveyors linking processing facilities with stockpiles
- Finished material stockpiles
- Imported sand stockpile
- Storage silos for customer loadout
- Access roads and customer loadout lanes
- Clarifying water basin and water storage tank

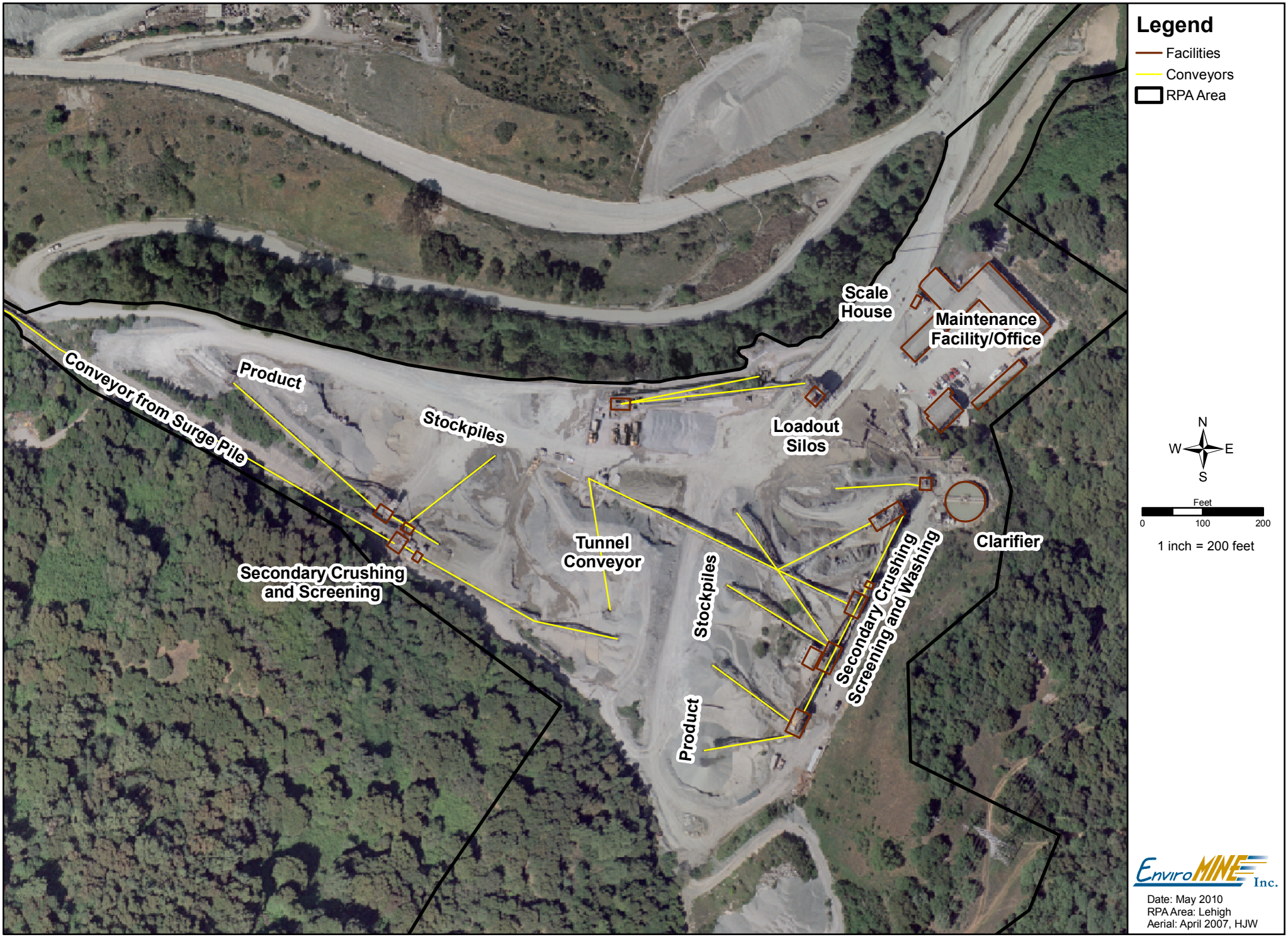
At the Rock Plant, material conveyed from the Surge Pile arrives at an initial crushing and screening station, then is distributed into a series of additional crushing and screening facilities, belt conveyors, and stockpiles. Crushed rock is screened and sorted to create the desired products. Crushing and screening units are enclosed and vented to particulate collection systems, known as baghouses, for dust control; water is sprayed at crushing units and conveyor transfer points to control dust.

The Rock Plant makes various sizes of aggregate products stored in a series of stockpiles. The Rock Plant imports a limited amount of sand that is blended with on-site sand to customer specifications. The Rock Plant does not include asphalt or concrete ready-mix facilities, nor are asphalt or concrete ready-mix facilities planned under this Amendment.

Aggregate products are placed onto customer trucks utilizing front-end loaders, or by positioning trucks underneath the Rock plant's four storage silos via fully-enclosed loading bins. Scales ensure that trucks are accurately loaded. Dust control measures, such as watering the aggregate materials, are employed when front-end loaders load aggregates directly to customer trucks from stockpiles.

All crushing, conveying and processing units currently operate according to Permits to Operate issued by the Bay Area Air Quality Management District (BAAQMD). Lehigh complies with all BAAQMD rules and regulations, including requirements for the control of fugitive dust. These requirements include the use of best available control technology (BACT), which includes enclosures, water sprays, and baghouses to reduce or eliminate dust emissions.

Figure 3.8-1 Rock Plant Facilities



Under this Amendment, the use and operation of the Quarry's material processing facilities (the primary crusher, Office and Crusher Area, Surge Pile and Rock Plant) will not change. These facilities will operate as they do currently, and merely accept material from a different location. No new rock processing facilities are planned under this Amendment.

3.9 Operational Water and Dust Control

Water is used at the Quarry for dust control, and for washing aggregate rock products at the Rock Plant. If necessary, water will be used for irrigation purposes as part of the revegetation process. Water used at the Quarry comes from two sources, the City of Cupertino municipal source and from water stored in the bottom of the North Quarry. As the North Quarry is backfilled and ceases to hold water, a sump will be constructed within the North Quarry for storm water and erosion control purposes (See Section 3.10). Water stored in this sump will be used to support Quarry operations.

The Rock Plant uses water obtained from the City of Cupertino municipal source for dust control and materials washing as described in Section 3.8. The Rock Plant recycles approximately 90 percent of its water. Process water used during material processing at the Rock Plant is collected and pumped to a clarifier located within the Rock Plant site. Solids settle and are periodically excavated and disposed of in a material storage area. Cleaned water is then reused. Water utilized for dust control at the primary crusher and for haul truck washing is also supplied by the City of Cupertino municipal source. No change to these operations is scheduled under this Amendment.

Water from the North Quarry is used for controlling dust on unpaved Quarry access roads and other active areas within the Quarry by adequately moistening the areas to minimize visible dust emissions. Watering intervals for dust control will be dependent on weather conditions, but is generally anticipated multiple times per day. The Quarry uses up to seven 12,000-gallon water trucks, depending on the level of Quarry operations. The North Quarry pit usually holds water year-round. This water will be obtained from the North Quarry pit, initially, and thereafter from a sump located within the North Quarry as the North Quarry is backfilled and ceases to hold water. An incremental increase in water requirements for these purposes is expected due to the additional access roads and increased area of disturbance scheduled under this Amendment.

The Revegetation Plan is designed to provide appropriate conditions for native species so that they are not dependent upon irrigation. The need for irrigation during initial establishment will be assessed during the test plot monitoring and adaptive management reclamation efforts. If monitoring during the first five years of the early revegetation stages and test plots indicate losses of plant material that threaten the achievement of performance standards, the need for irrigation will be reevaluated. If necessary, water used for irrigation purposes would be provided by the City of Cupertino municipal source.

3.10 Storm Water and Erosion Control

Activities described in this Amendment are designed to control surface runoff to protect surrounding land and water resources in accordance with the Porter-Cologne Water Quality Control Act, the Federal Clean Water Act, and other applicable local, state and federal requirements. These goals are achieved through a series of Best Management Practices (BMPs) pursuant to the Drainage Report (Attachment G) and Storm Water Pollution Prevention Plan (SWPPP). Drainage and erosion controls apply at all stages of operation and reclamation, and are designed to exceed the 20-year storm event.

Lehigh has developed and currently maintains a SWPPP as required by the existing NPDES (National Pollutant Discharge Elimination System) permit requirements. The SWPPP covers all existing operations including the North Quarry, WMSA, EMSA, Office and Crusher Area, Surge Pile and Rock Plant. Twenty-five (25) sediment basins (also known as "ponds") currently provide stormwater detention and sediment control over the property. The number and use of these basins varies over time according to Lehigh's operational needs. Basins are maintained according to the site's SWPPP and applicable NPDES permits. Not all basins are in the RPA Area. A description of existing and planned basins exists further below in this section. Lehigh monitors and reports on stormwater discharges to the S.F. Bay Regional Water Quality Control Board, as required by the terms of its SWPPP.

Following approval of this Amendment, the SWPPP would be revised to incorporate nine additional sedimentation basins planned under this Amendment. This will increase the total number of sedimentation basins on Lehigh's Permanente property from 25 to 34. Table 4 below lists all existing and planned sedimentation basins.

Seven of these additional basins are planned for the South Quarry area to control storm runoff and manage sedimentation in Permanente Creek. These basins have been designed to deliver flow to existing drainages. As the South Quarry is developed, the central mining pit will form a stormwater collection point. Stormwater will be pumped from this collection point to Basin 40B at the base of the South Quarry before discharging. When South Quarry basins are no longer necessary for erosion control, maintenance will cease, allowing natural reclamation of these areas.

One additional sedimentation basin, Basin 50A, will be built on the floor of the North Quarry once the North Quarry floor is raised to its final elevation. Basin 50A will collect storm flows from the North Quarry and portions of the WMSA and allow sediment to settle out before stormwater discharges to Permanente Creek. Drainage channels to be constructed within the North Quarry west wall backfill area will direct storm flows to Basin 50A. Stormwater will be delivered from Basin 50A to Permanente Creek via an engineered drainage channel. Basin 50A will be maintained until North Quarry reclamation progresses to the stage that Basin 50A is unnecessary for sediment control. At that time, maintenance will cease, allowing natural reclamation of the basin. Introducing wetland and riparian vegetation during the reclamation process will help to reclaim this feature to a permanent wetland and riparian area. Sections 3.16 through 3.18 of this Amendment and the Revegetation Plan contain a complete description of reclamation for Basin 50A.

One additional sedimentation basin will be installed at the toe of the Topsoil Storage Area, which will collect stormwater flows from the stockpile. The basin will discharge flows to existing drainage contours and into Permanente Creek. The Topsoil Storage Area also will rely on a similar system of bench contours and sedimentation control basin to manage storm flows.

No new sedimentation basins are planned for the CMSA. Runoff in the CMSA will be directed longitudinally by intra-bench ditches to a perimeter series of ditches and routed through swales and downdrains to the series of seven downgradient basins serving the EMSA. The EMSA basins will route flows to a final basin located at the toe of the EMSA, where flows are delivered to an existing drainage to Permanente Creek. When EMSA basins are no longer necessary for erosion control, maintenance will cease, and reclamation will occur as described in the 2009 Amendment.

Additionally, during the North Quarry reclamation process, as the North Quarry pit floor is progressively filled with overburden, stormwater will be managed by the installation of a sump and sump pump on the North Quarry floor. The sump and sump pump will collect and dewater the North Quarry floor of stormwater to maintain a dry work surface for reclamation activities. Dewatering during this period will utilize the existing system of stormwater discharge, involving pumping to Pond 4a and subsequent discharge into Permanente Creek.

Sedimentation basins related to quarrying operations will be maintained until areas of disturbance are revegetated sufficiently to provide for self-sustained erosion control. Basins will then be allowed to naturally reclaim over a period of years by allowing basins to accumulate sediment and vegetation. Basin 50A at the bottom of the North Quarry will be actively revegetated with wetlands vegetation to serve as eventual wetland habitat as described in Sections 3.16 through 3.18 of this Amendment and the Revegetation Plan.

Swales and downdrains will be constructed within the south slopes of the WMSA for stormwater and erosion control purposes. Portions of the WMSA are currently vegetated. For areas where vegetation has not yet been established, existing Best Management Practices (BMPs) collect and deliver runoff along the primary haul road and into the North Quarry. Stormwater management in the North Quarry is described above.

In addition to the measures described above, other temporary erosion control measures will be used in the RPA Area during the course of mining and reclamation activities and immediately following reclamation. These measures will focus on control of sediment, the primary water quality pollutant with the potential to be generated from the RPA Area. These measures include desiltation basins, drainage ditches, down drains, silt fencing and hydroseeding. Other temporary erosion control measures may be used if determined to be effective. Temporary erosion control measures will be removed, recontoured and/or revegetated when no longer needed for sediment control due to the establishment of vegetative cover. These temporary erosion control measures will be installed within the RPA Area as described in the SWPPP and the Revegetation Plan.

Table 4. Sedimentation Basins

Basin	Description/Location
Existing Basins	
4A	Southern portion of the site, near former rock crusher adjacent to creek access road
4B	Southern portion of site, east of Pond 4A
4C	Southern portion of site, east of Pond 4B
5	Located in North Quarry
Basin E (formerly Pond 6)	Adjacent to Primary Crusher
9	North of Screen Tower 4 (Rock Plant)
11	Main cement plant area
13	Central portion of site, south of Pond 13A and Pond 13B
13A	Central portion of site, north of Pond 13 and 13B
13B	Central portion of site, north of Pond 13 and south of Pond 13A
14	Northeast corner of site, north of Pond 22
Dinky Shed Basin (formerly Pond 16)	North of Pond 17
17	Southeast portion of site, northeast of Screen Tower 4 (Rock Plant)
18	East of cement plant, near rail spur
19	East of cement plant, near rail spur
20	East of cement plant, near rail spur
21	East of cement plant, near rail spur
22	Northeast corner of site, south of Pond 14
30A	Final basin at toe of EMSA
30B	Eastern slope north of 30A
30C	Northern slope west of 30B
30D	Northern slope west of 30C
30E	Northern slope west of 30D
31B	Southern slope southwest of 30A
31C	Southern slope west of 31B
Planned Future Basins	
40A	Northern boundary of South Quarry, southeast of bridge crossing
40B	Northern boundary of South Quarry, east of 40A
40C	Northern boundary of South Quarry, east of 40B
40D	Northern boundary of South Quarry, east of 40C
40E	Eastern boundary of South Quarry, southeast of 40D
40F	Eastern boundary of South Quarry, southeast of 40E
40G	Southern boundary of South Quarry, south of 40A
50A	North Quarry final floor
60A	Toe of Topsoil Storage Area

The manner of topsoil placement has been designed to ensure a stable reclamation surface. Soil development includes the blending of topsoil with the overburden substrate to establish a stable reclamation surface which minimizes the potential for soil instability and surficial erosion. Hydroseeding will be used on reclaimed slopes, benches and pads. Prior to final reclamation, a preliminary erosion control stage will be incorporated consisting of the native seed mix shown in Section 3.18 and the Revegetation Plan. The mix includes species that have proven successful in other revegetation efforts at the Quarry, and are recommended to provide erosion control and initial establishment of native grasses and herbaceous species.

Long-term revegetation includes hydroseeding of finished slopes with a mixture of native grasses, herbaceous plants, and shrubs providing surface cover and erosion control for finished slopes. Tree and shrub planting areas will generally be located on benches of areas to be revegetated to encourage the long-term development of an oak savannah on north-facing slopes, or native scrub community on south-facing slopes. The Revegetation Plan contains a complete description of revegetation activities scheduled within the RPA Area.

Maintenance and monitoring will include identification and repair of erosion damage. Remedial measures will be applied as identified below. Performance criteria and slope treatment for erosion control are based on the qualitative descriptions and remedial measures described in Tables 5 and 6 below. Field investigation will determine the need for remedial measures based on visual observations. In general, areas receiving an average score of Class 3, 4 or 5 will receive slope treatment. Any observable reason for failure will be noted and the appropriate remedial measure stated as part of the annual monitoring report.

Table 5. Qualitative Descriptions of Soil Surface Status

CLASS 1:	No soil loss or erosion; topsoil layer intact; well-dispersed accumulation of litter from past year's growth plus smaller amounts of older litter.
CLASS 2:	Soil movement slight and difficult to recognize; small deposits of soil in form of fans or cones at end of small gullies or fills, or as accumulations back of plant crowns or behind litter; litter not well dispersed or no accumulation from past year's growth obvious.
CLASS 3:	Soil movement or loss more noticeable; topsoil loss evident, with some plants on pedestals or in hummocks; rill marks evident, poorly dispersed litter and bare spots not protected by litter.
CLASS 4:	Soil movement and loss readily recognizable; topsoil remnants with vertical sides and exposed plant roots; roots frequently exposed; litter in relatively small amounts and washed into erosion protected patches.
CLASS 5:	Advanced erosion; active gullies, steep sidewalls on active gullies; well-developed erosion pavement on gravelly soils, litter mostly washed away.

Table 6. Remedial Measures for Erosion Control

CLASS 1:	No action necessary.
CLASS 2:	Monitor to see if any further deterioration and action is required.
CLASS 3:	Any rills or gullies in excess of 8 square inches in cross sectional area and more than 10 linear feet located on finished slopes shall be arrested using straw mulch or the equivalent.
CLASS 4:	Replant and cover with straw mulch and install silt fences. If necessary, regrade and compact with equipment.
CLASS 5:	Replant and cover with straw mulch and install silt fences. If necessary, regrade and compact with equipment.

3.11 Process Fines

Processing activities at the Rock Plant will generate some process fines that are not suitable for sale as aggregate products. These fines will be transported to the CMSA and the North Quarry for permanent storage. Alternatively, process fines may be blended with topsoil and overburden to support the revegetation effort, as described in the Revegetation Plan. Process fines have a clay loam texture and contains a substantially greater amount of silt and clay compared to the overburden rock. Blending the Rock Plant fines material with the overburden rock improves soil texture conditions.

3.12 Site Security and Safety

Consistent with existing operations, Quarrying activities will continue to take place 24 hours per day, 365 days per year under this Amendment.

Public health and safety are protected in accordance with SMARA and the County's standards for undeveloped land. Lehigh's property is located generally in an isolated area with limited access. The steep slopes and rugged terrain limit the potential for the public to trespass onto the property, which is privately owned, with the exception of the Mid-Peninsula Regional Open Space District (MPROSD) land to the north. In most areas, Buffer Zones and the Quarry Buffer provide appropriate distance between mining activities and adjacent non-owned lands.

A guard house controls vehicular access to the site at the western terminus of Stevens Creek Boulevard. Portions of the property boundary have been fenced near the MPROSD border where unauthorized access may be a problem. Elsewhere, the risk of unauthorized access is considered low and the property boundaries are posted with warning signs. Security fencing consists of 6-foot chain link fence with angle iron and barbed wire. All MSHA standards will be employed to protect both the public in general and onsite employees in particular.

Night lighting is employed within the Rock Plant and at strategic locations around the Quarry. Night lighting is designed to minimize glare onto neighboring areas, and to comply with the County Zoning Code, which requires the use of certain types of light fixtures on non-residential properties to minimize the amount of light cast on adjoining properties and to the night sky. Generally, pole-mounted sodium, metal halide, or fluorescent lighting are employed to minimize energy use and, in

combination with cut-offs, to reduce light pollution. Nighttime activities in the South Quarry will, consistent with existing operations, utilize the types of light fixtures identified above.

All of the foregoing security or safety practices will be maintained under this Amendment.

3.13 Visual Representation of Mining and Reclamation

The various elements described under this Amendment are visible from a wide area in the Quarry vicinity. Depending on the location of the viewer, the visibility of mining and overburden storage activities varies from strong, for near-area view points, to weak for mid-to-long range view points. Visibility of mining and overburden storage activities will also change through time as extraction and overburden placement are completed. These changes will be incremental with visual contrast growing as extractive operations proceed, and then reduced incrementally over time as reclamation is completed.

Changes in the visual signature of the Quarry result from vegetation clearing and exposure of fresh geologic materials to the surface. The color of topsoil and overburden materials ranges from dark brown, to tan, to light gray. In most cases, the changes in surface color contrast with existing colors of the natural vegetation (generally deep green). As a result, during the early phase of mining and overburden placement, the change in visibility is readily noticeable.

Over the course of time, as overburden storage areas reach capacity, phased reclamation of these areas is commenced. The reclamation process includes final grading of the site to blend the existing landscape with the surrounding terrain. This is followed by the placement of topsoil and growth media over the graded surface and then revegetation using native species typical of the Quarry's surrounding area. As the revegetated slopes grow to maturity, the visual prominence of the site will be gradually reduced.

3.14 Utilities

Existing facilities for all major utilities including water, electrical, sewer and telecommunications are part of existing operations and will continue to serve operations at the Quarry. No new electrically-powered facilities will be installed under this Amendment. Except as dictated by market demand and the quality of resource encountered, the Quarry's demand for utilities is not expected to change under this Amendment.

Scheduled activities within the South Quarry and Topsoil Storage Area will not affect the infrastructure of existing utilities. Any infrastructure supporting mining and reclamation activities will be properly dismantled or abandoned in-place once their functionality for serving the Quarry has ended.

Water

Water is used at the Quarry for dust control, for washing aggregate rock products at the Rock Plant, and for potable uses. Water is obtained from the City of Cupertino's municipal source or pumped from the North Quarry. Water requirements for operations described under this Amendment are provided in Section 3.9.

Electrical Use

The Quarry receives electricity from Pacific Gas and Electric (PG&E). This electrical supply powers the following equipment, facilities and structures:

- Primary crusher
- Secondary crusher
- Quarry conveyor
- Rock Plant conveyor
- Rock Plant (secondary and tertiary crushers, screens, conveyors)
- Quarry offices
- Quarry lighting of certain access roads, conveyors and processing facilities

Except as dictated by market demand and the quality of resource encountered, no changes in the use of electricity or the physical transmission facilities are planned under this Amendment.

Sewage Disposal

Sewage generated from the Quarry offices, comprised of two portable trailers located immediately east of the North Quarry, is disposed into a septic system. Portable toilets are stationed throughout the Quarry as needed. The septic system and portable facilities are properly maintained and cleaned with hand-wash stations provided at each portable facility. The amount of sewage generated by the Quarry and the types of facilities used to dispose of this sewage are not expected to change as a result of activities described in this Amendment.

3.15 Off-Site Traffic

Mining activities at the Quarry generate off- and on-site traffic. Generally, traffic occurs in one of the following categories:

- Customer haul trucks to Rock Plant
- Quarry employees
- Deliveries of materials and supplies
- Contractor visits
- Reclamation work crews

Customer haul trucks visiting the Rock Plant utilize Stevens Creek Boulevard, Foothill Boulevard, Highway 280, and the Foothill Expressway. There is a staffed guard house at the entrance to the property at the western terminus of Stevens Creek Boulevard. Upon entry through the main gate, haul trucks proceed to the

south along a private road to the Rock Plant. Loaded haul trucks depart along the reverse course. Other types of traffic, including employees, delivery vehicles, contractors and reclamation crews, enter the property in the same fashion and travel to various areas of the Quarry using the existing road network.

Activities described in this Amendment is expected to have a negligible effect on the types and amount of traffic associated with the Quarry. The operation of the Rock Plant and associated haul truck traffic will remain consistent with existing operations. Accordingly, customer loading and transport of aggregate products is expected to continue in-line with historical averages and peak production is expected to occur consistent with historical peak periods.

A minor increase in off-site traffic to the Quarry can be expected for reclamation activities scheduled under this Amendment. This would include the delivery of materials, contractor visits and work crews. Reclamation-related traffic is expected to result in approximately 300 trips per year, with a peak of an estimated 12 additional daily vehicle trips during the fall months when most revegetation activities would occur. This additional traffic is expected to be imperceptible compared to existing conditions.

The entrance to the Quarry at the terminus of Stevens Creek Boulevard also serves operations at the adjacent cement plant facility. However, the cement plant facility is not part of the Quarry and is not included in this Amendment.

3.16 Reclamation Overview

The post-reclamation land condition will be suitable for open space uses. This use is consistent with the applicable land-use policies and zoning requirements for the RPA Area. Accordingly, the reclamation objectives are to 1) visually integrate the post-extraction landform with surrounding areas 2) stabilize the post-extraction landform and control erosion, and 3) establish native species on revegetated areas using plant materials capable of self-regeneration without continued dependence on irrigation, soil amendments or fertilizer.

An important function of this Amendment is to provide a reclamation solution for slope instabilities in the North Quarry. As described in more detail below, and in the attached Geotechnical Report, the North Quarry currently features certain areas of recognized slope instability. This Amendment would reclaim the North Quarry, and finally resolve the areas of instability, by backfilling the North Quarry with overburden material. Backfilling will establish a fill buttress against the existing North Quarry walls, as well as gentler slope angles that are better suited for reclamation and are more consistent with the surrounding topography. The overburden materials that would be used in the backfilling process will be generated during the progression of South Quarry mining activity.

Reclamation also involves stabilizing slopes throughout the RPA Area by planting native grasses, shrubs and trees. Interim erosion control planting may be used to provide temporary protection for disturbed areas until such time that they may be reclaimed to the approved end use. Successful reclamation of the RPA Area will establish oak woodland, chaparral and grassland communities similar to naturally

occurring conditions in proximity to the RPA Area. The surrounding areas include north-facing slopes with scrub and woodland communities and scattered high meadows, and dry south-facing slopes vegetated with chaparral and scrub species. The restoration of these natural community types will enhance the biological resource value of historically disturbed areas within the RPA Area over the existing conditions and provide habitat for native wildlife species. Reclamation within areas of new disturbance, such as the South Quarry, is intended to equal the existing biological resource value.

In general, revegetation efforts will involve establishing native species through hydroseeding and tree and shrub plantings. Hydroseeding of the finished slopes with a mixture of native grasses, herbaceous plants, and shrubs will provide surface cover and erosion control for finished slopes. Tree and shrub planting areas will be located on contoured benches and riparian drainages to encourage the long-term development of an oak savannah or forest on north-facing slopes, native scrub on south-facing slopes, and a suitable riparian canopy in drainages. Complete planting methods and verifiable monitoring standards are established by the Revegetation Plan (Attachment B) to assure vegetative success.

3.17 Reclamation Phasing

This Amendment utilizes concurrent, phased reclamation to ensure that reclamation occurs at the earliest possible time. Reclamation will be phased to allow revegetation as areas are sloped to final grade. The revegetation strategy will vary based on a number of factors which include slope aspect, visibility from public vantages, and the type of growth medium available. In general, reclamation consists of establishing final contours, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring. Where mining activities have resulted in the compaction of soil, ripping, discing or other means will be used to establish a suitable rooting zone in preparation for planting.

Growth medium within the RPA Area will consist of native topsoil. As described in the Revegetation Plan, a test plot program has been established on-site to determine which revegetation techniques are best suited for conditions in the RPA Area. The test plot program will help to identify whether fertilizer, organic materials or other soil amendments should be utilized to improve revegetation success. The test plot program also is being used to identify blends of overburden rock and native topsoil that could be used to expand the volume of growth medium available for reclamation purposes if necessary.

Following the application of growth medium, areas to be revegetated will be seeded by means of hydroseeding. When hydroseeding is not possible, broadcast seeding will be used. A complete description of the application of growth medium and the revegetation process can be found in Section 3.18 of this Amendment and the Revegetation Plan.

Reclamation will occur in multiple phases for each area, as described below and depicted in Figures 3.17-1 through 3.17-7. As described in Section 3.4, the overall reclamation of the entire RPA Area is grouped into five numbered phases that correspond with the five numbered mining phases. This section identifies

reclamation phases by letter for each major area of the RPA Area to further clarify and track the reclamation process. Final reclamation of the RPA Area is also described in this section. As identified above, major areas include the WMSA, CMSA, North Quarry, South Quarry and Topsoil Storage Area. Mining and reclamation phases described by this Amendment may overlap in time and extent.

The timing of reclamation depends upon the rate of extraction and overburden storage, which as noted is variable. The dates provided for reclamation phases below are estimates and may change subject to market demand and the quality of resource encountered during the mining process. Reclamation efforts are described in detail for each quarry component and generally as they relate to mining phases. The following discussion provides a general description of reclamation phases as they relate to mining phases and the anticipated beginning and ending dates for each reclamation phase.

An overview of reclamation phases is provided in Figure 3.17-1.

Table 7. Phasing Timeline

Phase	Years	Start Date	End Date
Phase 1	8	January 1, 2015	December 31, 2022
Phase 2	3	January 1, 2023	December 31, 2025
Phase 3	4	January 1, 2026	December 31, 2029
Phase 4	2	January 1, 2030	December 31, 2031
Phase 5	3	January 1, 2032	December 31, 2034
Final Rec	5	January 1, 2035	December 31, 2039

Phase 1 is estimated to occur over an approximate 8-year period beginning January 1, 2015, and concluding December 31, 2022. Phase 1 includes:

- Reclamation of the WMSA, excluding the WMSA haul road (see WMSA Reclamation Phase A and Phase B on Figure 3.17-2).
- Reclamation of certain slopes associated with South Quarry access roads (see South Quarry Reclamation Phase A on Figure 3.17-4).
- Interim revegetation of other slopes associated with South Quarry access roads (see Figure 3.4-2).

Phase 2 phase is estimated to occur over an approximate 3-year period beginning January 1, 2023 and concluding December 31, 2025. Phase 2 includes:

- Reclamation of CMSA, excluding upper elevations of the CMSA and CMSA haul roads (see CMSA Reclamation Phase A on Figure 3.17-3).
- Interim revegetation of slopes associated with the mid-level access road in the South Quarry (see Figure 3.4-3).
- Backfilling the North Quarry to approximately 840 feet msl (see Figure 3.4-3).

Phase 3 is estimated to occur over an approximate 4-year period beginning January 1, 2026 and concluding December 31, 2029. Phase 3 includes:

- Reclamation of the western portion of the South Quarry (see South Quarry Reclamation Phase B on Figure 3.17-4).
- Backfilling of the North Quarry to approximately 1,090 feet msl (see Figure 3.4-4).

Phase 4 is estimated to occur over an approximate 2-year period beginning January 1, 2030 and concluding December 31, 2031. Phase 4 includes:

- Continued reclamation of the western portion of the South Quarry (see South Quarry Reclamation Phase C on Figure 3.17-4).
- Backfilling of the North Quarry to approximately 1,290 feet msl (see Figure 3.4-5).
- Reclamation of elevations in the North Quarry between 990 and 1,090 feet msl that will not be used for temporary overburden storage (see North Quarry Reclamation Phase A on Figure 3.17-5).

Phase 5 is estimated to occur over an approximate three-year period beginning January 1, 2032 and concluding December 31, 2034. Phase 5 includes:

- Reclamation of a central portion of the South Quarry (see South Quarry Reclamation Phase D on Figure 3.17-4).
- Reclamation of a southeastern portion of the South Quarry (see South Quarry Reclamation Phase E on Figure 3.17-4).
- Reduction in width of South Quarry access roads and reclamation of associated slopes (see South Quarry Reclamation Phase D on Figure 3.17-4).
- Reclamation of elevations in the North Quarry between 1,090 and 1,290 feet msl that will not be used for temporary overburden storage (see North Quarry Reclamation Phase B on Figure 3.17-5).
- Backfilling of the North Quarry to its final landform up to approximately 1,840 feet msl (see Figures 3.4-6 and 3.17-5).
- Reclamation of elevations in the North Quarry between 1,290 and 1,540 feet msl that will not be used for temporary overburden storage (see North Quarry Reclamation Phase C on Figure 3.17-5).
- Backfilling of the South Quarry pit to a final minimum elevation of approximately 1,100 feet msl (see Figure 3.17-4).

Final Reclamation is estimated to occur over an approximate 5-year period beginning January 1, 2035 and concluding December 31, 2039. Final Reclamation includes:

- Reclamation of the eastern portion of the South Quarry (see South Quarry Reclamation Phase F on Figure 3.17-4)
- Reclamation of North Quarry elevations at or above 1,540 feet msl and elevations below 1,300 feet msl that have not been reclaimed (see North Quarry Reclamation Phase D on Figure 3.17-5)
- Reclamation of the WMSA haul road (see WMSA Reclamation Phase C on Figure 3.17-2)

- Reclamation of the upper elevations of the CMSA
  (see CMSA Reclamation Phase B on Figure 3.17-3)
- Reclamation of the Topsoil Storage Area
  (see Topsoil Storage Area Reclamation Phase A on Figure 3.17-6)
- Reclamation of the Office and Crusher Area, Surge Pile, and Rock Plant
  (see Figure 3.17-7)
- Reclamation of the Yeager Yard (see Figure 3.17-2)

Additional time periods may apply to each phase to allow for maintenance and monitoring of revegetation activities until the reclamation goals and standards described below and in the Revegetation Plan are met.

The following discussion provides a detailed description of the reclamation process for each Quarry component.

West Materials Storage Area (WMSA)

Final overall slope angles in the WMSA will not exceed 3.0(H):1.0(V). A portion of the northern slopes of the WMSA are currently at final grade and have been revegetated. Completing the reclamation of the WMSA will generally involve three phases, A, B and C as detailed in Figure 3.17-2. WMSA Phase A generally involves north-facing slopes located to the north of the WMSA haul road. WMSA Phase B consists of south-facing slopes located to the south of the WMSA haul road. WMSA Phase C includes the WMSA haul road.

The eastern portions of the WMSA will be affected by the reclamation of the North Quarry, beginning in Phase 1, and continuing into later phases described under this Amendment. This results initially from the development of the west wall backfill area within the North Quarry, and in later phases, from the reclamation backfill in the in-pit fill area that will bring the North Quarry to its final reclaimed elevations. For reclamation purposes, the extension of the west wall backfill into the WMSA is considered part of the North Quarry, and not the WMSA.

Reclamation will generally proceed on a lift by lift basis. After each lift is graded to final contours, revegetation will occur as described in the Revegetation Plan. In general, reclamation will consist of grading fill slopes to final contours, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring. Where mining activities have resulted in the compaction of soil, ripping, discing or other means will be used to establish a suitable rooting zone in preparation for planting.

Figure 3.17-1 Reclamation Phasing Overview

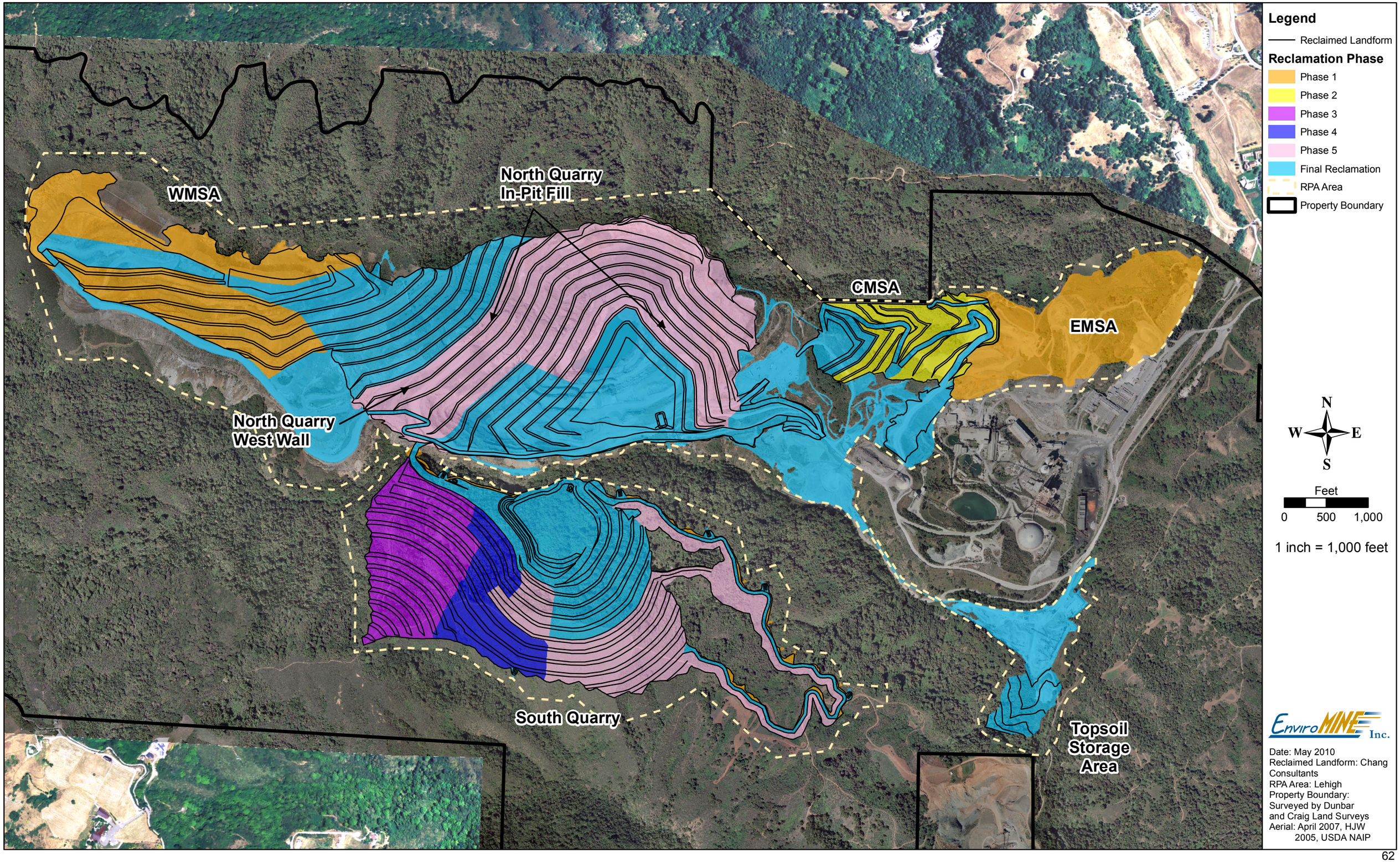


Figure 3.17-2 WMSA Reclamation Phases

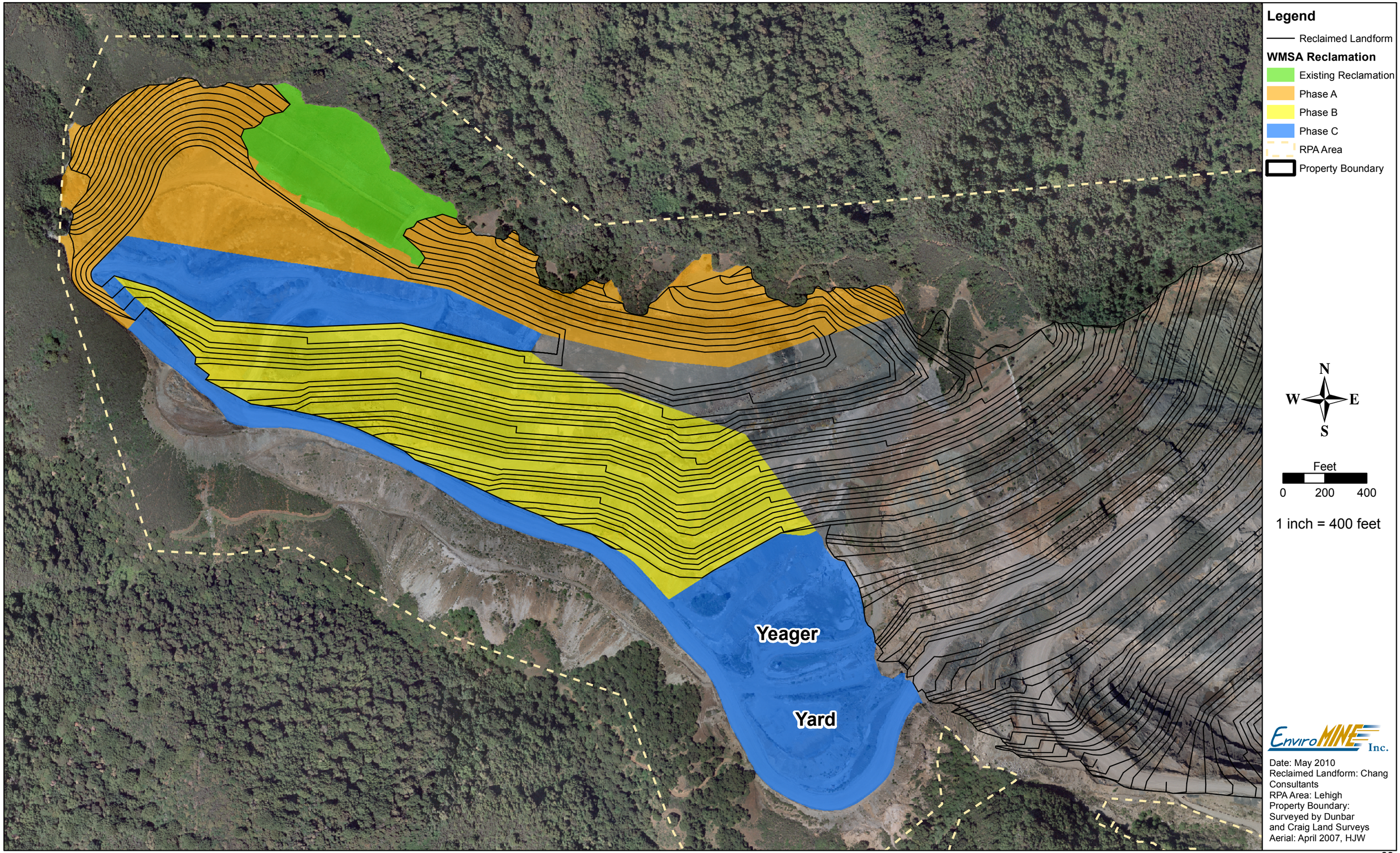


Figure 3.17-3 CMSA Reclamation Phases

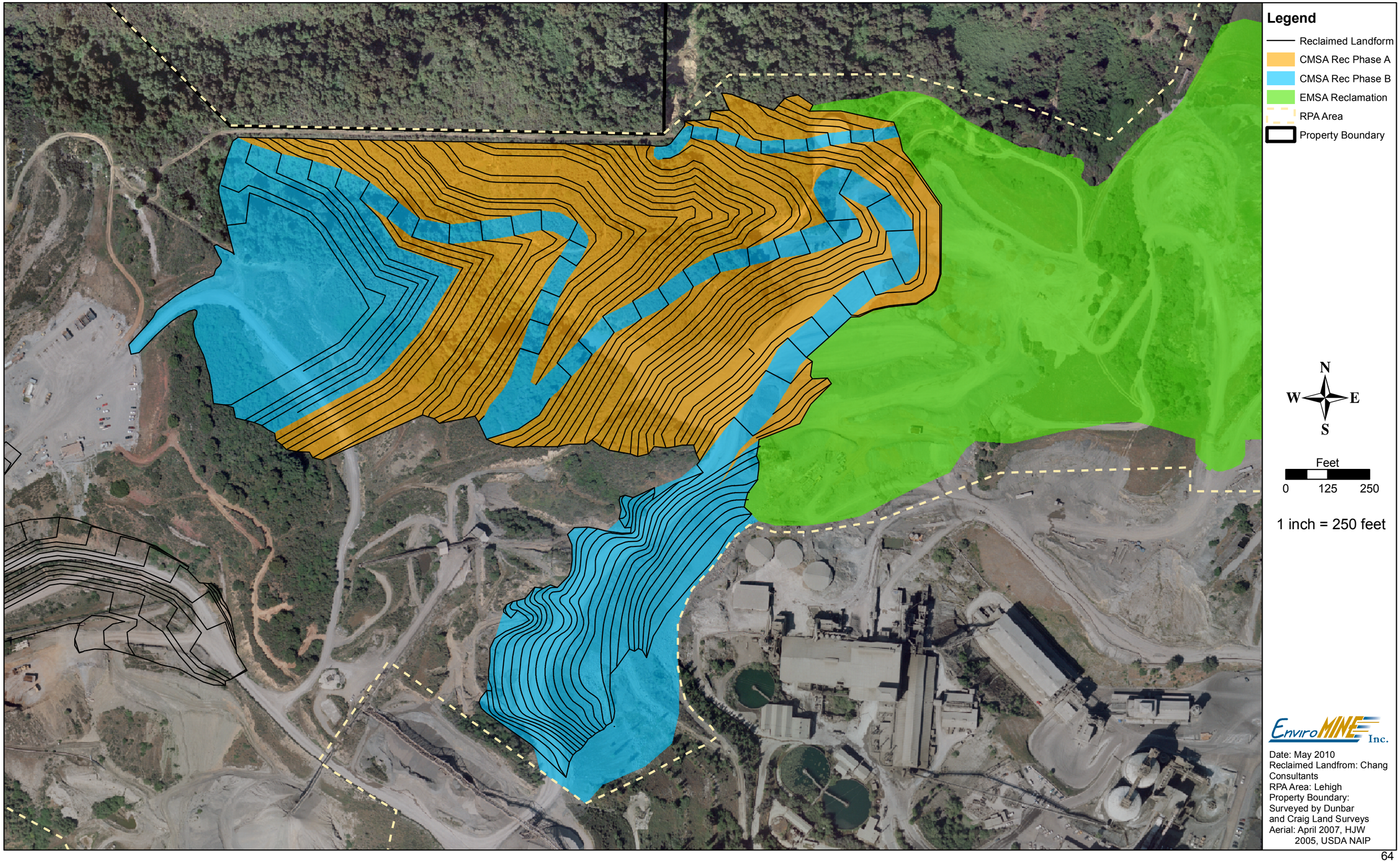


Figure 3.17-4 South Quarry Reclamation Phases

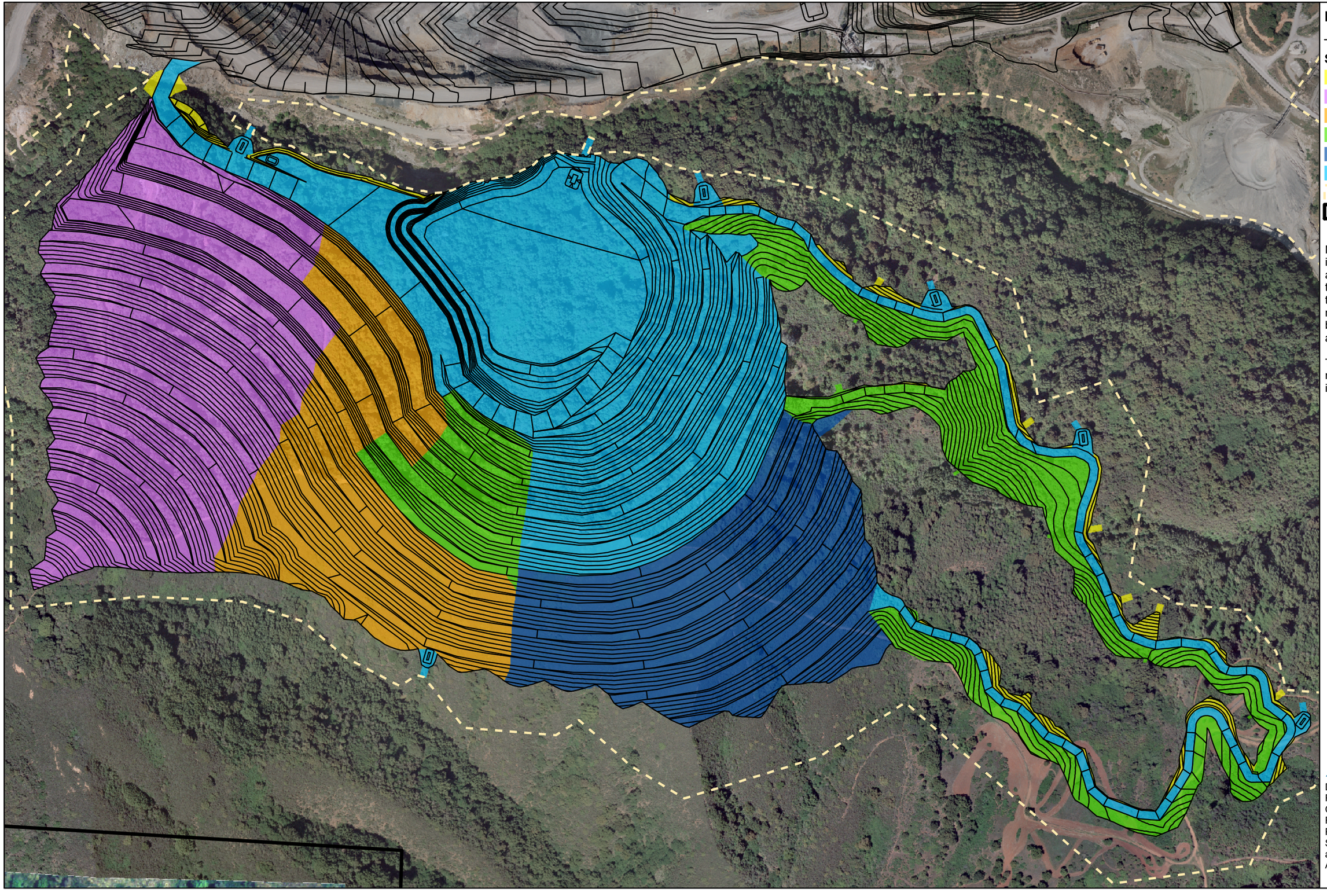


Figure 3.17-5 North Quarry Reclamation Phases

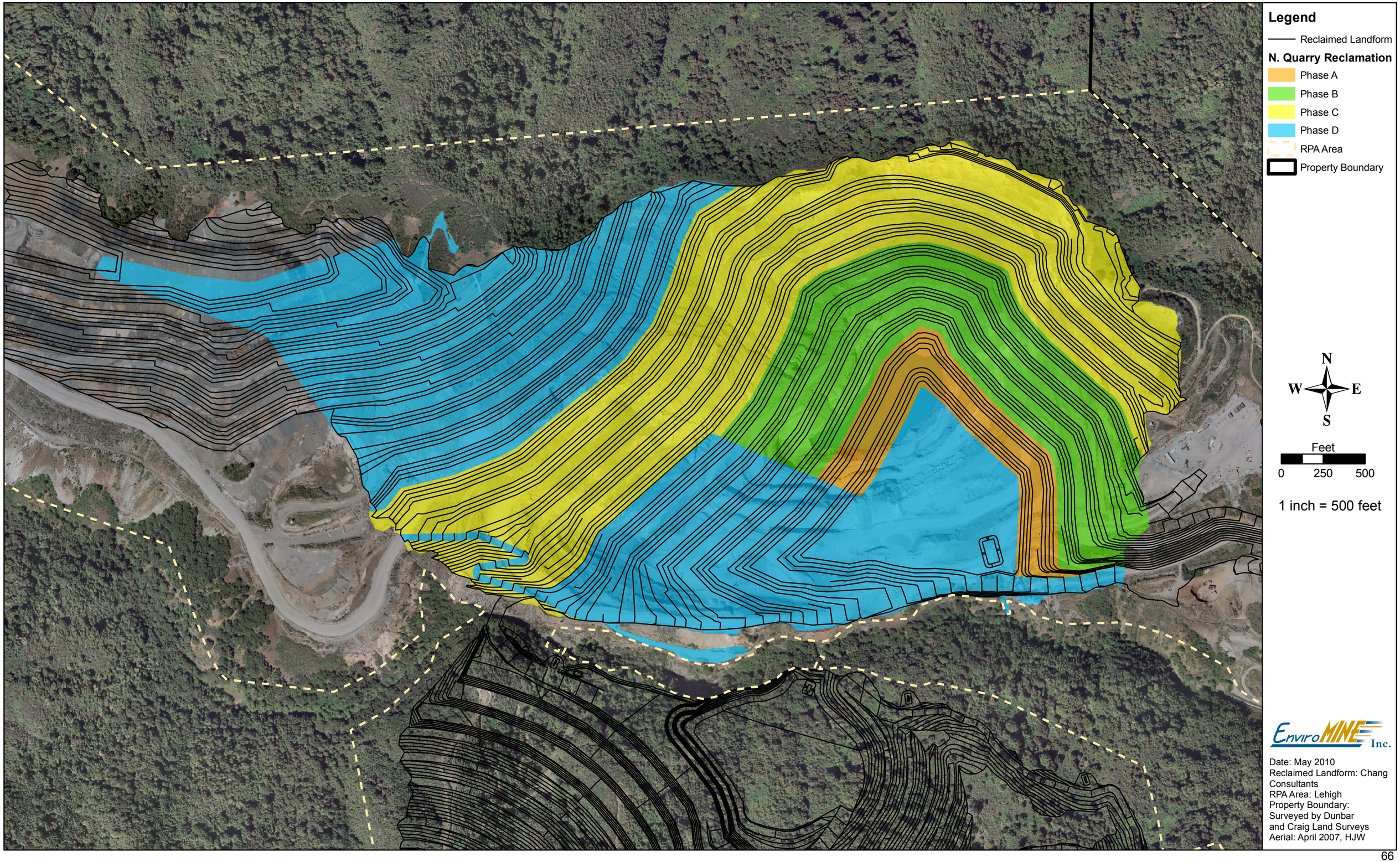


Figure 3.17-6 Topsoil Storage Area Reclamation

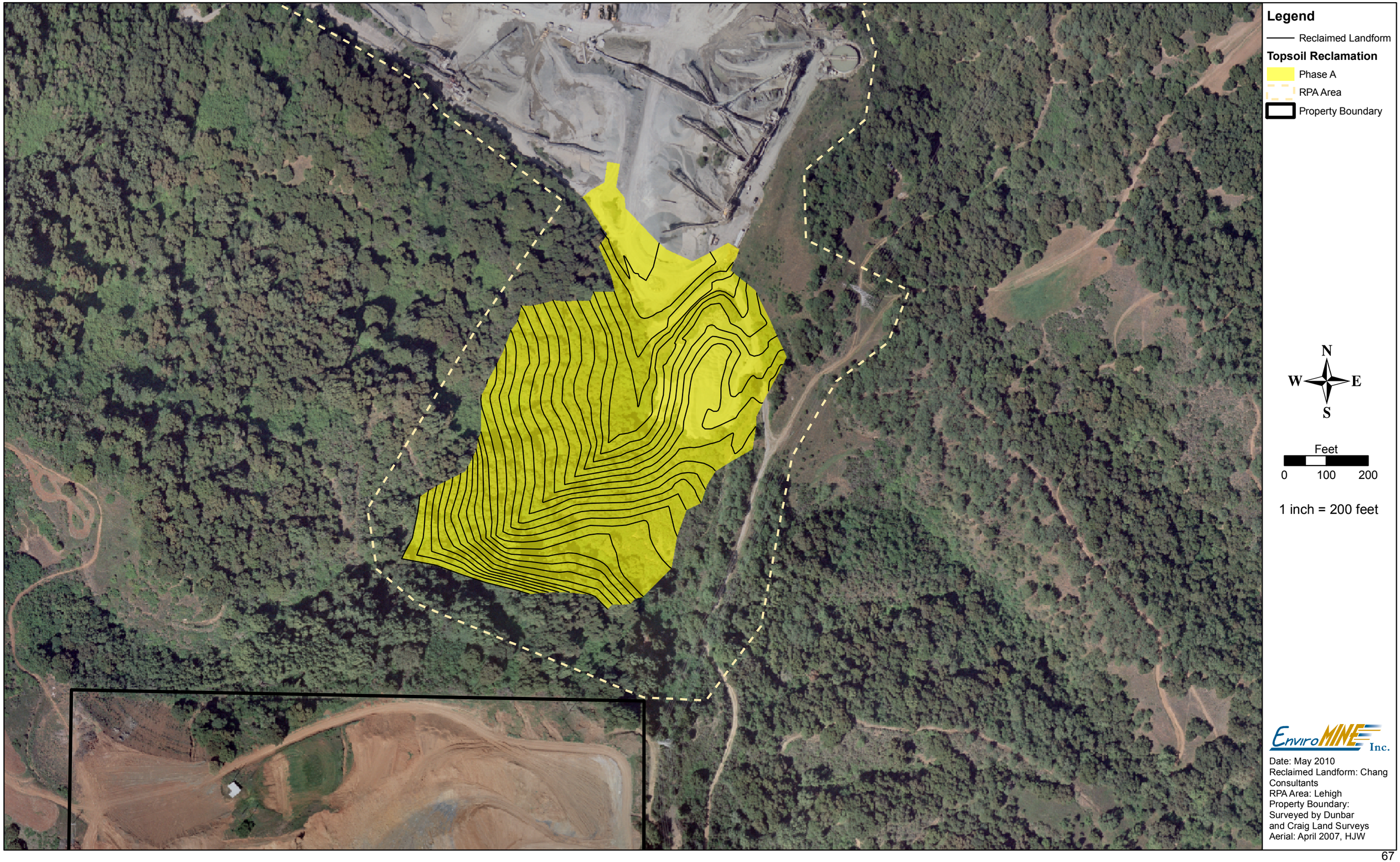


Figure 3.17-7 Final Reclamation: Office and Crusher Area, Surge Pile and Rock Plant

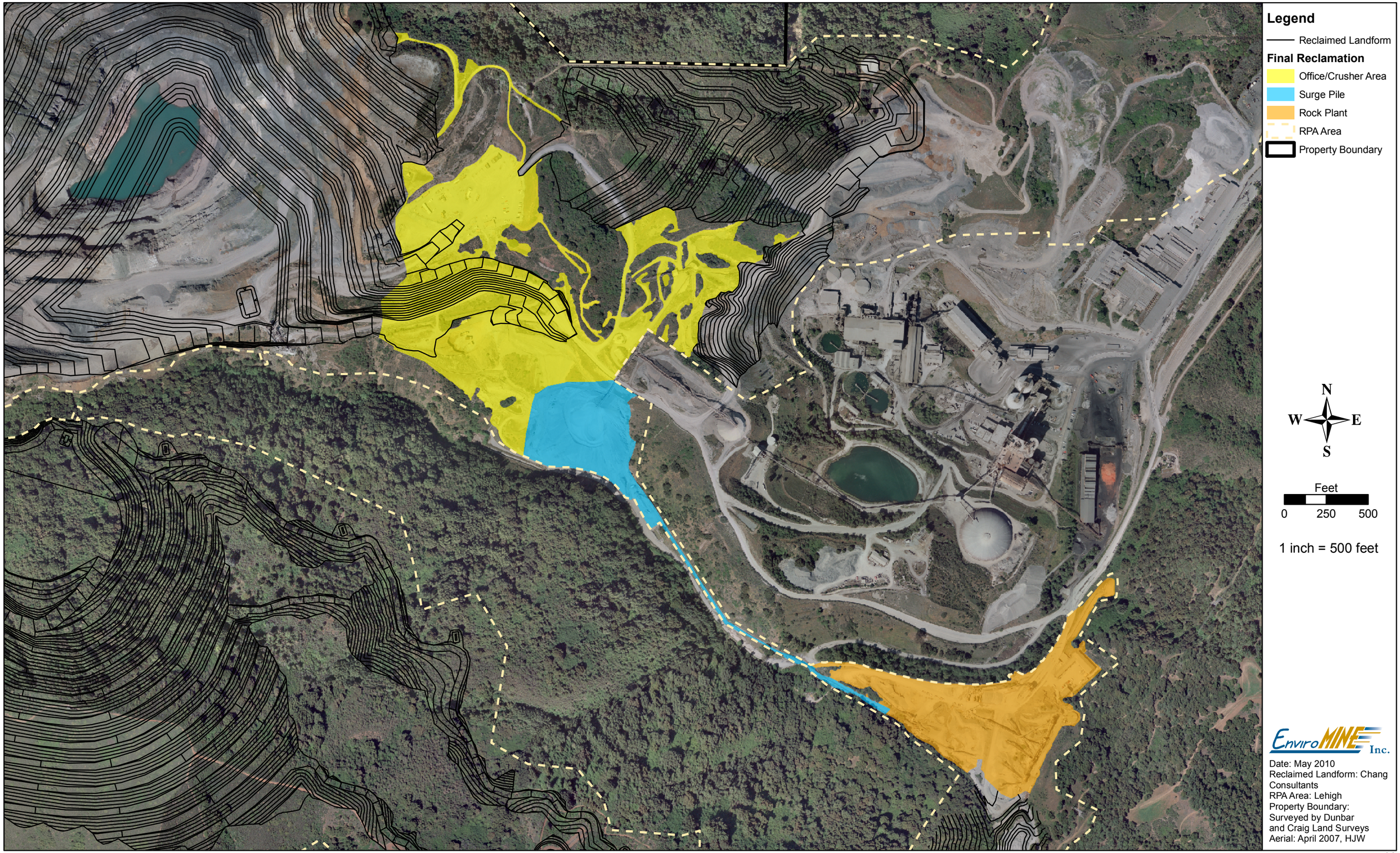
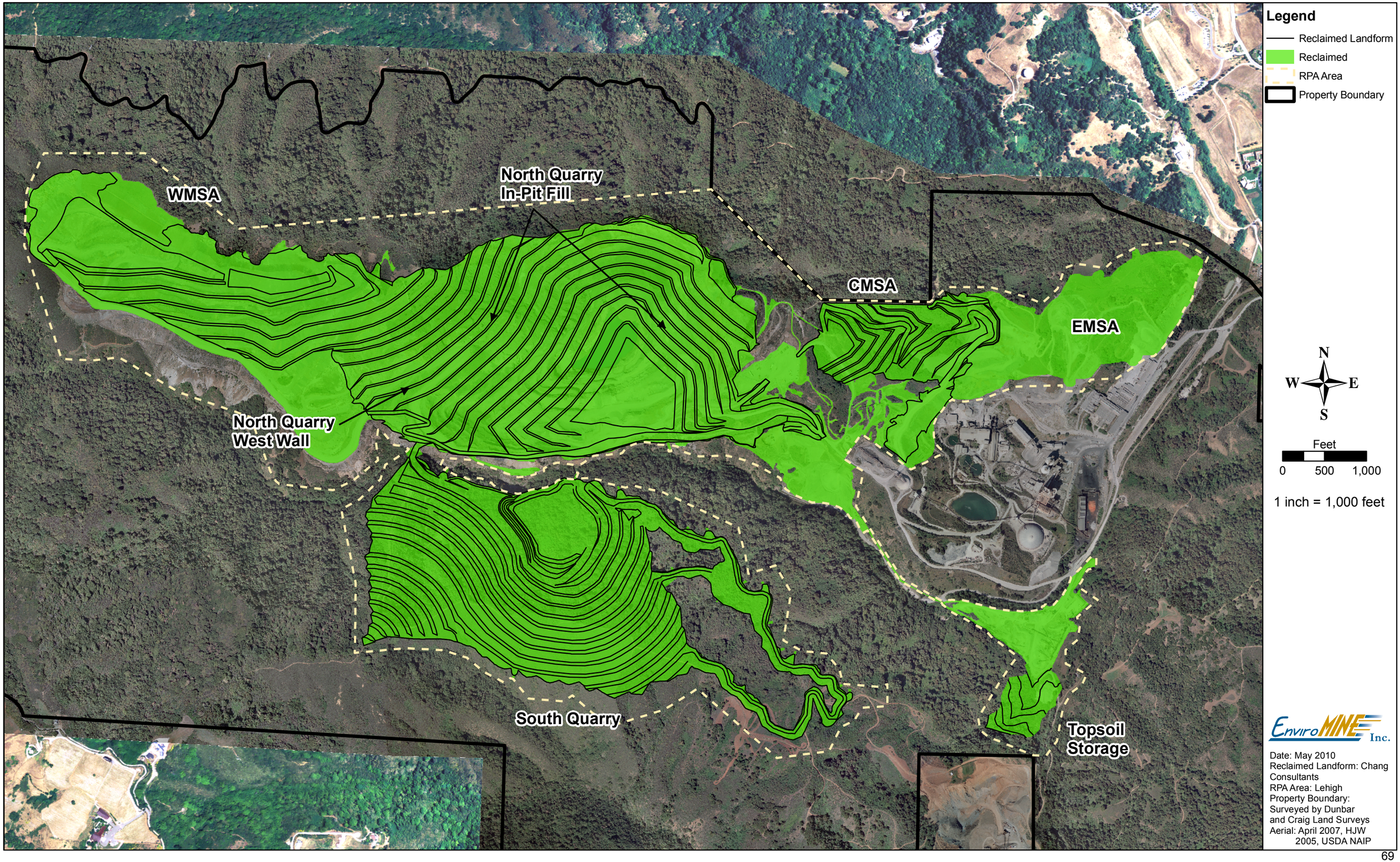


Figure 3.17-8 Ultimate Reclaimed Condition



Central Materials Storage Area (CMSA)

Final overall slopes in the CMSA will not exceed 2.6(H):1.0(V). Reclamation of the CMSA will generally occur in two phases, A and B, as detailed in Figure 3.17-3. CMSA Reclamation Phase A generally involves the eastern portion of the CMSA below 1,200 feet msl. CMSA Reclamation Phase B includes the upper elevations of the CMSA, as necessary to address the reclamation of any areas used for temporary topsoil storage, and haul roads. The CMSA's eastern section connects with the EMSA's western edge. The reclamation plan for the CMSA described in this Amendment includes any portions of the EMSA that are affected by this connection.

Reclamation will generally proceed on a lift by lift basis. After each lift is graded to final contours, revegetation will occur as described in the Revegetation Plan. In general, reclamation will consist of grading fill slopes to final contours, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring. Where mining activities have resulted in the compaction of soil, ripping, discing or other means will be used to establish a suitable rooting zone in preparation for planting.

East Materials Storage Area (EMSA)

The EMSA will be reclaimed according to the 2009 Amendment (see Attachment M). The western edge of the EMSA will connect with the lower elevations of the CMSA. To the extent that minor portions of the EMSA are affected by the connection with the CMSA, those areas will be considered part of the CMSA for reclamation purposes.

South Quarry

The South Quarry will be developed in elevations that range from 1,100 to 2,000 feet msl, with varying slope inclinations ranging from 3.0(H):1.0(V) at higher elevations (above elevation 1,240 feet msl) to steeper inclinations up to 1.0(H):1.0(V) in the lower portions of the South Quarry where geologic conditions permit. The South Quarry will be reclaimed in six phases, A, B, C, D, E and F as shown in Figure 3.17-4. South Quarry Phase A includes sections of the access road slopes and other minor slopes that will not be redisturbed by continuing development of the South Quarry. South Quarry Phase B includes the westernmost portion of the South Quarry. South Quarry Phase C consists of an extension of South Quarry Phase B to the east. South Quarry Phase D includes reducing South Quarry access roads to 40 feet in width. As part of this process, slopes above the South Quarry access roads will generally be reduced to create a more natural gradient. These newly created slopes and a central area within the South Quarry will be reclaimed during South Quarry Phase D. South Quarry Phase E will include a southeastern section ranging from approximately 1,410 to 1,700 feet msl. As part of the reclamation process, the South Quarry pit will be backfilled from a maximum depth of 925 feet msl to a minimum elevation of 1,110 feet msl. South Quarry Phase F will include the revegetation of the pad created by backfilling activities and final reclamation of the South Quarry including the eastern portion of the South Quarry and haul roads that were not previously reclaimed.

Reclamation of the South Quarry will involve final cut slopes being established by blasting the working faces to a safe gradient that will allow natural revegetation or revegetation with an applied growth medium. After blasting, an excavator or bulldozer will work the final slope to dislodge any loose material. There will be a small area within the lower elevations of the South Quarry with final inter-bench slope gradients in excess of 2.0(H):1.0(V). In order to minimize the potential for erosion, hard rock exposures in the final reclaimed landform with slope gradients in excess of 2.0H:1.0V will not be revegetated. Slopes with a maximum 2.0H:1.0V gradient and all benches will be prepared for revegetation and seeded with native species common to the area. Where mining activities have resulted in the compaction of soil, ripping, discing or other means will be used to establish a suitable rooting zone in preparation for planting. Preparing the ground for revegetation will include the application of growth medium.

North Quarry

Reclamation of the North Quarry includes backfilling of the North Quarry pit with overburden generated from mining activities in the South Quarry (see Figures 3.4-3 through 3.4-6). Revegetation of the North Quarry will generally occur in four phases, A, B, C and D, as shown in Figure 3.17-5. North Quarry Phase A will include elevations between 990 and 1,090 feet msl that will not be used for temporary overburden storage. North Quarry Phase B will involve elevations between 1,090 and 1,290 feet msl that will not be used for temporary overburden storage. North Quarry Phase C will include elevation between 1,290 and 1,540 feet msl that will not be used for temporary overburden storage. North Quarry Phase D will involve elevations at or above 1,540 feet msl and areas below 1,300 feet msl that have not been reclaimed.

The North Quarry reclamation strategy is designed to achieve long-term slope stability in areas previously marked by instability on the North Quarry pit's northern and western slopes. Reclamation also is designed to prevent degradation of the ridgeline on the North Quarry's northern rim and preserve ridgeline views from public vantage points situated to the north of the Quarry.

The central feature of North Quarry reclamation, and means to achieving the foregoing objectives, is the permanent placement of a large volume of overburden within the North Quarry pit. South Quarry mining would provide the source of this fill material. As rock is mined in the South Quarry, overburden will be transported to the North Quarry for permanent placement. As described in this Amendment, the progressive storage of overburden in the North Quarry will transform the existing mining depression to a downward-sloping hillside that is generally consistent with the surrounding natural topography.

Lehigh’s long-term slope stability objectives will address four distinct areas of slope instability in the North Quarry. These include the Main Slide on the northwest wall; the Scenic Easement Slide in the upper portion of the northeast wall; the Mid-Peninsula Slide in the upper benches of the eastern wall; and an area of potential slope instability recognized within the North Quarry’s west wall. Each of these areas, and the measures scheduled to achieve long-term slope stability, are described in the Geotechnical Report (Attachment C).

The North Quarry will be reclaimed to maximum slope angles of 2.5(H):1.0(V) overall. Reclamation will generally proceed on a lift by lift basis as backfilling activities are complete in a given area of the North Quarry. After each lift is graded to final contours, revegetation will occur as described in the Revegetation Plan. In general, reclamation will consist of grading fill slopes to final contours, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring.

Topsoil Storage Area

Following the distribution of topsoil to other reclaimed areas of the site, the Topsoil Storage Area will be at or near the original grade as shown on Figure 3.17-6. Revegetation will occur as described in the Revegetation Plan. In general, reclamation will consist of finish grading, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring.

Final Reclamation

Final Reclamation will involve reclamation of the Office and Crusher Area, Surge Pile, Rock Plant (see Figure 3.17-7) and Yeager Yard (see Figure 3.17-2).

Final Reclamation also includes the following phases as described above:

- WMSA Phase C
- CMSA Phase B
- South Quarry Phase F
- North Quarry Phase D
- Topsoil Storage Area Phase A

Final Reclamation includes removing all equipment and temporary/portable structures from the Quarry, unless necessary for reclamation. Equipment required for reclamation purposes will remain onsite until reclamation is complete. All surplus equipment and supplies stored within the RPA Area will be transported off-site. Any junk equipment left on-site will be cut up, if necessary, and disposed of for salvage value.

In general, reclamation will consist of finish grading, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring. Where mining activities have resulted in the compaction of soil, ripping, discing or other means will be used to establish a suitable rooting zone in preparation for planting.

When no longer needed for storm water and erosion control purposes, sedimentation basins within the RPA Area that directly support Quarry operations will be allowed to fill with sediment and naturally revegetate. Additionally, Basin 50A on the North Quarry floor will be planted with wetland and riparian vegetation to help reclaim this feature to a permanent wetland and riparian area.

Yeager Yard

Final Reclamation of the Yeager Yard will involve removing all equipment and temporary/portable structures. Reclamation will consist of finish grading, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring. Where mining activities have resulted in the compaction of soil, ripping, discing or other means will be used to establish a suitable rooting zone in preparation for planting. Revegetation will occur as described in the Revegetation Plan.

Office and Crusher Area

Reclamation of the Office and Crusher Area will involve the dismantling and demolition of structures as required. The scrap will be sold for salvage value or removed from the site. Facilities located within the Office and Crusher Area include the primary crusher, secondary crushers and an equipment maintenance facility. A small amount of hazardous materials such as fuels, oils and other vehicle fluids are stored at the equipment maintenance facility. Containers holding these materials will be transported off-site by an approved carrier per State and Local regulations. The Quarry offices are portable and will be removed from the site. The above ground fuel tank located adjacent to the Quarry offices will be emptied, cleaned and tested per State and Local regulations prior to transporting offsite by an approved carrier.

Reclamation will consist of finish grading, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring. Where mining activities have resulted in the compaction of soil, ripping, discing or other means will be used to establish a suitable rooting zone in preparation for planting. Revegetation will occur as described in the Revegetation Plan.

Surge Pile

Materials stored in the Surge Pile will be transported to the Rock Plant via conveyor belts or haul trucks. These materials may also be transported directly off-site from the Surge Pile. Following removal off all materials from the Surge Pile, structures including vibrating screens and conveyor belts will be dismantled and transported off-site. The scrap will be sold for salvage value or removed from the site.

Reclamation will consist of finish grading, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring. Where mining activities have resulted in the compaction of soil, ripping, discing or other means will be used to establish a suitable rooting zone in preparation for planting. Revegetation will occur as described in the Revegetation Plan.

Rock Plant

Reclamation of the Rock Plant will involve the dismantling and demolition of structures as required. The scrap will be sold for salvage value or removed from the site. In addition to the processing plant structures, facilities located at the Rock

Plant include a light vehicle maintenance facility and truck tire wash facility. A small amount of hazardous materials such as fuels, oils and other vehicle fluids are stored at the light vehicle maintenance facility. Containers holding these materials will be transported off-site by an approved carrier per State and Local regulations.

Reclamation will consist of finish grading, applying growth medium, installation of erosion control measures, reseeding and planting activities, and maintenance and monitoring. Where mining activities have resulted in the compaction of soil, ripping, discing or other means will be used to establish a suitable rooting zone in preparation for planting. Revegetation will occur as described in the Revegetation Plan.

3.18 Reclamation Standards

SMARA requires that reclamation plans incorporate verifiable standards to assure adequate completion of reclamation plan objectives. The verifiable reclamation standards have been adopted by the State Board of Mining and Geology as regulations to implement these requirements. (See Code of Regulations, Title 14, 3700 et seq.) The Amendment references these adopted reclamation standards and how they are addressed. Specific reclamation standards that are not relevant to the Amendment are not referenced.

3.18.1 Wildlife Habitat (§3703)

Reclamation is intended to establish wildlife habitat in the RPA Area in a condition that is equal or superior to current conditions. Areas of new disturbance and existing disturbed areas identified for reclamation by this Amendment will be reclaimed with native vegetation representative of oak woodland, chaparral and grassland communities similar to naturally occurring conditions in proximity to the RPA Area (see Section 3.18.3.2). For north-facing slopes, the objective of revegetation is to establish shrub and herbaceous species present in adjacent undisturbed communities, with "islands" of shrub and tree plantings on the benches that eventually will contribute to the regeneration of scrub, woodland, and forest. For south-facing slopes, the objective of revegetation is to mimic the scrub communities present on south-facing slopes in the adjacent open space areas by seeding with native shrubs and grasses that will eventually contribute to the establishment of scrub communities. No wetlands currently exist in the RPA Area or will be affected by the activities described in this Amendment.

The Amendment incorporates protective measures to avoid impacts to special status avian species from mining and reclamation activities. These measures are summarized below and described in greater detail in the Biological Resources Assessment (Attachment E):

1. Non-breeding season: If nesting birds are encountered during mining or reclamation activities in the non-breeding season, defined as approximately September 1 to January 31, activities within a minimum of 50 feet of the nest will be postponed. Activities within this area will remain halted until the nest is abandoned or the young birds have fledged.

2. Breeding season: During the breeding season (approximately February 1 to August 31), pre-activity surveys will be conducted by a qualified biologist prior to ground disturbance activities. Surveys will be conducted for all suitable nesting habitat within 250 feet of potentially affected areas. All active non-status passerine nests identified will be protected by a 50-foot radius minimum exclusion zone. Active raptor or special status species' nests will be protected by an exclusion buffer with a minimum radius of 200 feet. A minimum 500 foot buffer will be established around active White-tailed Kite nests. Exclusion zones will remain in place until the nest is abandoned or the young have fledged. Should ground disturbance commence later than 14 days from the survey date, surveys will be repeated.

The Amendment also incorporates protective measures to avoid impacts to roosting bats. These measures are described in greater detail in the Biological Resources Assessment:

1. Non-roosting season (approximately September 1 to October 31): Where evidence of roosting is observed within or immediately adjacent to the RPA Area, activities will be halted within an appropriately-sized exclusion buffer to be determined by a qualified bat biologist.

2. Hibernation season (approximately November 1 to March 31): No activities will take place within 100 feet of identified hibernation areas, unless a qualified bat biologist has determined that a given area does not provide suitable hibernating conditions and that bats are unlikely to be present in the area.

3. Maternity roosting season (approximately April 1 to August 31): Pre-activity surveys (night-time evening emergence surveys and/or internal searches) will be conducted within large tree cavities to determine the presence of bat maternity roosts within areas identified in the Biological Resources Assessment. All active roosts identified during surveys will be protected by an appropriately-sized buffer to be determined by a qualified bat biologist. The buffer will be determined by the type of bat observed, topography, slope, aspect, surrounding vegetation, sensitivity of roost, type of potential disturbance, etc. 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.

The Amendment also incorporates protective measures to avoid impacts to the San Francisco Dusky-footed Woodrat. These measures are described in greater detail in the Biological Resources Assessment:

1. Active woodrat houses should be flagged and avoided when possible. If avoidance is not feasible, the houses shall be dismantled by hand under the supervision of a biologist. If young are encountered during the dismantling process, the material will be placed back on the house and the house will remain unmolested for two to three weeks in order to give the young enough time to mature and leave the house 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.

3.18.2 Backfilling, Regrading, Slope Stability and Recontouring (§3704)

SMARA's reclamation standards provide that reclaimed slopes shall not exceed 2.0H:1.0V except when based on a site-specific engineering and geologic analysis. A geotechnical analysis of the final landform to be created by mining and overburden storage activities described under this Amendment is included as Attachment C and Attachment D. The final landform that will be created by activities described in this Amendment have been determined to be stable under static and seismic loading conditions and are suitable for the end use.

Final overall slope angles in the WMSA will not exceed 3.0(H):1.0(V). Final overall slopes in the CMSA will not exceed 2.6(H):1.0(V). The North Quarry will be reclaimed to maximum slope angles of 2.5(H):1.0(V) overall. The South Quarry will be developed in elevations that range from 1,100 to 2,000 feet msl, with varying slope inclinations ranging from 3.0(H):1.0(V) at higher elevations (above elevation 1,240 feet msl) to steeper inclinations up to 1.0(H):1.0(V) in the lower portions of the South Quarry where geologic conditions permit. The Topsoil Storage Area is designed with overall slope angles of 2.9(H):1.0(V) or flatter. As reclamation of the RPA Area progresses, all topsoil stored in the Topsoil Storage Area will be distributed to various areas throughout the Quarry as part of the revegetation process, returning the Topsoil Storage Area to the approximate original grade. All final reclaimed slopes will have a minimum factor of safety appropriate to the planned end use as described in the Geotechnical Report.

Reclaimed slopes will conform to the surrounding hillside topography. The topography in the RPA Area and surrounding area is variable but consistently rise in elevation in the east to west direction. In the final landform, fill slopes will be predominantly located within the WMSA, CMSA and North Quarry, while cut slopes will be predominantly located within the South Quarry. Current elevations within the RPA Area range from approximately 500 feet to 2,000 feet msl. Reclaimed slopes will be generally consistent with the natural contours. Figure 3.4-7 and 3.17-7 show the reclaimed elevations.

Reclaimed fill slopes will occur over an appropriate foundation pursuant to the recommendations within the Geotechnical Report. Any refuse in the RPA Area will be collected in approved trash bins and hauled to the nearest approved landfill for disposal. Equipment and materials will be dismantled, if necessary, and moved to an alternate onsite or offsite location.

3.18.3 Revegetation (§3705), Topsoil Salvage, Maintenance, and Redistribution (§3711)

The ultimate goal for revegetation efforts in the RPA Area is restoration of native vegetation types. This refers to the reclamation of disturbed lands to a self-sustaining community of native species as described in the Reclamation Standards. Revegetation will be sufficient to stabilize the surface against the effects of long-term erosion and is designed to meet the post-extractive land use goals of the RPA Area. Interim erosion control planting may be used to provide temporary protection for disturbed areas until such time that they may be reclaimed to the approved end use.

The planned end use for the RPA Area is open space. As a result, revegetation should visually integrate with the surrounding open space areas and provide for permanent soil protection. The surrounding areas include north-facing slopes with scrub and woodland communities and scattered high meadows, and dry south-facing slopes vegetated with chaparral and scrub species.

The objective of revegetation for north-facing slopes is to establish shrub and herbaceous species present in adjacent undisturbed communities, with "islands" of shrub and tree plantings on the benches that eventually will contribute to the regeneration of scrub, woodland, and forest. Shrub cover on north-facing slopes should provide shade and appropriate growing conditions for natural recruitment of tree species in the future. Since oak tree establishment is difficult and oak trees are very slow growing, native grey pine will be planted in some more visible bench areas; these visible bench areas also favor grey pine as a hardier and faster-growing species due to solar exposure that is not optimal for oak tree establishment.

For south-facing slopes, the objective of revegetation is to mimic the scrub communities present on south-facing slopes in the adjacent open space areas by seeding with native shrubs and grasses that will eventually contribute to the establishment of scrub communities. Small portions of the RPA will include constructing channels that connect ephemeral drainages with receiving waters. These areas may be reclaimed using native riparian species where channel hydrology can support these species.

Reclamation tasks described in this document and the Revegetation Plan will provide native vegetative cover for final contours, thus controlling erosion and stabilizing slopes. Revegetation efforts will utilize plant materials capable of self-regeneration without continued dependence on irrigation, soil amendments, or fertilizer in accordance with the Reclamation Standards. Hydroseeding of the finished slopes with a mixture of native grasses, herbaceous plants, and shrubs will provide surface cover and erosion control for the new slopes. Tree and shrub planting areas will be located on contoured benches and riparian drainages to encourage the long-term development of an oak savannah or forest on north-facing slopes, native scrub on south-facing slopes, and a suitable riparian canopy in drainages. The Revegetation Plan describes a test plot program, soil treatment and plant installation, maintenance and adaptive management guidelines, and verifiable monitoring standards to achieve the goals and objectives listed above.

The Amendment incorporates the revegetation measures specified in the Revegetation Plan, which describes soil development and preparation, revegetation techniques, the test plot program, and performance standards for the maintenance and monitoring of revegetation. With respect to test plots, the Amendment also incorporates the Revegetation Test Plot Program As-built Report which is included as an attachment to the Revegetation Plan (Attachment B). Sections 3.18.3.1 through 3.18.3.5 summarize the revegetation process.

3.18.3.1 Soil Development and Topsoil Salvage

Areas to be reclaimed in the RPA Area include cut slopes consisting primarily of bedrock and fill slopes consisting primarily of overburden rock, which do not provide an ideal substrate for vegetation growth. Slopes scheduled to undergo revegetation will be graded to a final contour no steeper than 2:1. Topsoil and potentially other soil materials will be added to the overburden rock surface to improve the substrate's texture, structure, and nutrient availability and to promote faster soil development.

Where continuing Quarry operations disturb native soils, topsoil will be harvested and moved directly to an area of active revegetation whenever possible. If the harvested soils must be stored for some time prior to use in revegetation, those soils will be stockpiled and clearly labeled. While the margins of stockpiled soil may need to be compacted for stabilization, in general harvested topsoil will be compacted as little as possible and will only be moved or worked when it is dry. Stockpiles of topsoil or other growth medium intended for use in revegetation efforts will be protected from erosion and weed establishment through the use of hydroseeding with a native erosion control mix and tackifiers, mulches, erosion control blankets, wattles, silt fences, or other soil protection measures.

Where mining activities have resulted in compaction of the soil, ripping, discing, or other means will be used in revegetation areas to establish a suitable rooting zone in preparation for planting. Where access roads, haul roads, or other traffic routes are to be revegetated, all road-base materials shall be stripped from the road, the substrate shall be ripped or disced as needed to promote establishment of an appropriate root zone, a soil mix containing topsoil or compost will be spread to promote plant growth, and the area will be revegetated.

To provide information on soil conditions for the soil development program, several soil samples were collected. The soil samples included a representative sample of the overburden rock which will be the underlying substrate throughout the RPA Area, as well as samples from twenty-five undisturbed reference sites, three existing revegetation sites, and five potential supplemental material sources.

Soil development measures are based on soil samples collected from the RPA Area and other locations in the Quarry. Samples were subjected to laboratory analysis to assess the following characteristics: pH, Total Exchangeable Cations, salinity, Sodium content, Sulfate content, Sodium Adsorption Ratio (SAR) Value, Boron, macronutrients (Nitrogen, Phosphate, Potassium, Calcium, Magnesium, Sulfur), Micronutrients (Iron, Manganese, Copper, Zinc), United States Department of Agriculture (USDA) Soil Textural Classifications, and Organic Matter Content (Percent Dry Weight). The Amendment incorporates the recommendations made in

the Revegetation Plan for achieving soil characteristics (soil texture, organic matter content, soil chemistry and nutrient levels) in the RPA Area likely to support native plant communities.

Soil preparation will involve preparing the surface for revegetation activities as well as incorporating soil and topsoil materials, compost, and soil amendments as needed to provide suitable plant growth media for revegetation activities. Different soil treatments may be used for the various portions of the RPA Area, depending on the target plant community and general aspect of each area.

Topsoil will be harvested from appropriate areas within the RPA Area. General guidelines for harvesting and stockpiling topsoil are described below and in the Revegetation Plan.

Prior to topsoil harvest, the RPA Area will be cleared of woody vegetation and root balls using chainsaws and an excavator. Plant debris will be chipped in place and spread on the topsoil, so that this organic matter is blended with the topsoil during harvest.

After topsoil is stripped, it will be hauled and stored within the RPA Area if it cannot be used at that time for concurrent reclamation activities. Topsoil will be moved directly to an area of active revegetation whenever possible. If harvested topsoil must be stored prior to use in revegetation, it will be stockpiled and clearly labeled. Harvested topsoil will be compacted as little as possible and will only be moved or worked when it is dry. Stockpiles of topsoil or other growth medium intended for use in revegetation efforts will be protected from erosion and weed establishment through the use of hydroseeding with a native erosion control mix and tackifiers, mulches, erosion control blankets, wattles, silt fences, or other soil protection measures.

Soil used for revegetation will be prepared by mixing salvaged topsoil blended with overburden material and other materials available onsite as detailed in the Revegetation Plan. The ratio of salvaged topsoil, overburden material, and other materials in the blended growth medium will be dependent on the area to be revegetated. Likewise, the depth to which growth medium is applied will be dependent on the area to be revegetated. A complete description of soil development and topsoil salvage methods can be found in the Revegetation Plan.

3.18.3.2 Replanting and Reseeding

This section describes plant installation planned for the RPA Area, with a future revegetation area of approximately 705 acres. Revegetation will focus on returning disturbed areas within the RPA Area to a native plant dominated habitat similar to surrounding natural areas. Revegetation efforts will be implemented in stages following completion finish grading of final slopes and soil preparation. Planting and maintenance will be conducted using an adaptive management approach, based on revegetation test plots that were initiated in 2008. A preliminary erosion control stage may be incorporated prior to the revegetation tasks listed below, to allow for specific site revegetation plans to be developed based on the most current test plot results. The native seed mix shown in Table 8 includes species that have proven successful in other revegetation efforts on the Quarry property and is recommended to provide

erosion control and initial establishment of native grasses and herbaceous species as needed in temporarily disturbed areas or where final revegetation plans are still being developed.

Table 8. Erosion Control Seed Mix

SCIENTIFIC NAME	COMMON NAME	PURE LIVE SEED (lbs / acre)
Bromus carinatus	California brome	16.00
Elymus glaucus	blue wildrye	10.00
Lupinus nanus	sky lupine	5.00
Nassella pulchra	purple needlegrass	8.00
Plantago erecta	California plantain	3.00
Trifolium wildenovii	tomcat clover	3.00
Vulpia microstachys	three weeks fescue	8.00
	TOTAL	**53.00**

The Revegetation Plan provides an extensive list of native species observed in undisturbed portions of the Quarry property, which may be or have previously been used in revegetation planting or seeding at the Quarry. Propagule availability, lead time needed for nursery production, and results of test plots will help to refine this list. The general plan for revegetation is to establish grasses, forbs, and shrubs on slopes with tree and shrub container plantings installed in deeper soils on the benches (See Revegetation Plan Figure 4). The cooler north- and east-facing benches will support the most diverse tree plantings while some of the south-facing benches will contain grey pine which can tolerate more extreme conditions.

Hydroseeding

In the RPA Area, contoured surfaces will be covered with native grass, herb, and shrub species via hydroseeding a homogenous slurry of mulch, fertilizer, seed, and a binding agent over the areas to be revegetated. Drainage ditches and access roads will be left bare until the completion of the contouring and slope hydroseeding, at which time unneeded roads will be revegetated. Local seed suppliers have developed appropriate native seed mixes for reclamation and are testing several mixes in the test plots (see Revegetation Plan Section 5.0). A preliminary hydroseed mix of shrubs and grasses is shown in Table 9, which includes species known to thrive in undisturbed adjacent habitats or observed to perform well in previous revegetation areas and preliminary test plot results. These species should be used, pending availability, for the earliest stages of scheduled reclamation activities. Test plot results will be used to further refine and expand the species selection.

Table 9. Preliminary Species for General Hydroseeding

SCIENTIFIC NAME	COMMON NAME	PURE LIVE SEED (lb / acre)	BULK SEED (lb / acre)
SHRUBS			
Artemisia californica	California sagebrush	1.4	16
Baccharis pilularis	coyote brush	0.2	20
Eriogonum fasciculatum	California buckwheat	1.0	20
Salvia leucophylla	purple sage	0.7	2
Salvia mellifera	black sage	1.1	3
GRASSES AND HERBS			
Achillea millefolium	yarrow	1.7	2
Artemisia douglasiana	mugwort	0.1	1
Bromus carinatus	California brome	4.6	6
Elymus glaucus	blue wildrye	4.6	6
Eschscholzia californica	California poppy	1.2	2
Heterotheca grandiflora	telegraph weed	0.2	1
Lotus purshianus	Spanish clover	0.7	1
Lotus scoparius	deerweed	1.5	2
Lupinus nanus	sky lupine (innoc.)	0.8	1
Melica californica	California melic	1.3	2
Nassella pulchra	purple needlegrass	2.9	4
Poa secunda	One-sided bluegrass	1.3	2
Trifolium willdenovii	Tomcat clover	1.4	2

Tree and Shrub Plantings

Trees and shrubs will be planted as container plants or seeds in the revegetation areas. Tree and shrub container plantings will occur on the benches where a deeper layer of topsoil and/or soil-building materials is applied to ensure adequate space for root development. To the extent feasible, trees and shrubs to be planted will be obtained from seeds collected from the Quarry property or from local sources. Approximately 92 acres of the total restoration area will be planted as tree and/or shrub planting areas (see Revegetation Plan Figure 4). Shrubs will be planted at approximately 4.5-foot spacing and trees at 9-foot spacing in the designated planting areas. The remaining slopes and benches will be covered with shallower topsoil and/or soil-building materials and hydroseeded with a grass/herb/shrub seed mix, without containerized tree and shrub plantings.

The north- and east-facing benches can support a wider variety of tree and shrub species since they have less solar radiation and higher soil moisture (see Revegetation Plan Figure 2). These north-facing and east-facing benches will be revegetated with approximately 38 acres of oak-dominated plantings along with

hydroseed. A target quantity of approximately 10,000 oak trees is scheduled to be planted in these areas, in addition to other native tree species. The oaks will be a mixture of acorn and container plantings. South-facing benches will be hydroseeded and 54 acres of these benches will also be planted with over 21,000 grey pine (*Pinus sabiniana*), a native tree species that is tolerant of drier conditions, along with shrub plantings.

The need for herbivory protection for specific species will be evaluated based on the results of test plots and early stages of scheduled reclamation activities. Weed mats or several inches of mulch may be placed around planted trees and shrubs to reduce competition and retain moisture. The benefit of mulch applications are currently being tested in the test plot program.

The Revegetation Plan is designed to provide appropriate conditions for native species so that they are not dependent upon irrigation. The need for irrigation during initial establishment will be assessed during the test plot monitoring and adaptive management reclamation efforts. By planting a large number of acorns without irrigation, a more drought-tolerant stand of oaks may be established, increasing the chances of their survival. However, if monitoring during the first five years of the early revegetation stages and test plots indicate losses of plant material that threaten achievement of performance standards, the need for irrigation will be reevaluated.

As with hydroseeding, adaptive management will be used to determine which tree and shrub species will be planted, the most effective spacing and location, and species to use in replacement plantings if necessary. A preliminary list of trees and shrubs to be planted on benches of the RPA Area is provided in Table 10. Species selection and numbers will depend on propagule collection and availability, as well as on test plot results.

Table 10. Preliminary Trees and Shrubs for Planting on RPA Benches.

SCIENTIFIC NAME	COMMON NAME
TREES	
Arbutus menziesii	Pacific madrone
Pinus sabiniana	grey pine
Quercus agrifolia	coast live oak
Quercus chrysolepis	canyon live oak
Quercus douglasii	blue oak
Quercus lobata	Valley oak
Quercus wislizenii	interior live oak
SHRUBS	
Cercocarpus betuloides	mountain mahogany
Heteromeles arbutifolia	toyon
Quercus berberidifolia	scrub oak
Rhamnus californica	California coffeeberry
Rhamnus crocea	redberry
Ribes californicum	hillside gooseberry
Ribes malvaceum	chaparral currant

* Shrub species selection may change based on the success of seeded shrubs in test plots. If seed germination and establishment success of some shrub species is poor in the test plots, these shrub species may be tested as container plants.

Riparian Revegetation

The RPA includes several ephemeral channels that lead to the perennial Permanente Creek. The drainages included in the RPA will be revegetated primarily with willows (as poles or container stock) where the hydrology is appropriate. The narrow riparian corridors along these drainages will support many of the same species utilized in tree and shrub plantings, particularly the oaks, toyon, and coffeeberry, in addition to California buckeye. As the drainages approach Permanente Creek, there may be opportunities to plant flatter wetland benches as well. Table 11 lists species that may be appropriate for planting or seeding along the drainages.

Table 11. Preliminary Species for Planting Along Ephemeral Drainages and Wetland Benches

SCIENTIFIC NAME	COMMON NAME
TREES	
Aesculus californica	California buckeye
Quercus agrifolia	coast live oak
Quercus chrysolepis	canyon live oak
Quercus lobata	Valley oak
Quercus wislizenii	interior live oak
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
SHRUBS	
Heteromeles arbutifolia	toyon
Rhamnus californica	California coffeeberry
Rosa californica	California rose
Sambucus mexicana	blue elderberry
GRASSES AND HERBS	
Artemisia douglasiana	mugwort
Carex barbarae	valley sedge
Carex praegracilis	field sedge
Cyperus eragrostis	tall flatsedge
Hordeum brachyantherum	meadow barley
Juncus effusus	bog rush
Juncus patens	common rush
Leymus triticoides	creeping wildrye

Timing

All hydroseeding should be performed and completed between September 1 and December 1 to take advantage of warm soil temperatures and winter rains for successful germination and establishment. Container planting should be performed during the winter season and completed by approximately the end of January to improve plant establishment.

3.18.3.3 Test Plot Program

A test plot program has been established in the RPA Area to determine appropriate materials and techniques to improve revegetation success throughout areas to be reclaimed. The specific objectives of the test plots are to assess the response of native seed mixes and container tree and shrub plantings to various soil blends and depths, using the available materials evaluated in the Revegetation Test Plot Program As-built Report and summarized in the Revegetation Plan.

Sixteen test plots were constructed on top of bare graded overburden rock at two locations within the RPA Area in the fall of 2008. Plots 1-12 and 16 were constructed at the relatively flat "Yeager Yard" site, and plots 13-15 were constructed at a sloped location within the EMSA (See Revegetation Plan Figure 5). To test the response of the seed mixes and plantings to various soil treatments, the test plots each differ by soil composition and depth of soil. The soil treatments consisted of a combination of materials, including overburden rock, North Quarry fine greenstone material, rock plant fines, and imported compost. Each test plot was divided into four equal quadrants upon which four different native seed mixes were applied, followed by straw mulch and a hydroslurry of fertilizers and a tackifier. In addition, container plantings were installed in the 24-inch depth test plots (11, 12, and 16) in November 2009.

A summary of the test plot program is provided in the Revegetation Plan. Additional details on design, construction, maintenance, and monitoring can be found in the Revegetation Test Plot Program As-built Report included as an attachment to the Revegetation Plan. A five year monitoring program will evaluate the performance of each soil blend and planting palette, to inform future revegetation efforts.

3.18.3.4 Maintenance

Maintenance of revegetated areas shall consist of reseeding or replanting unsuccessful revegetation efforts, weed control to limit the extent of noxious weeds, and repair of erosion damage. If any large rills or gullies are noticed in the RPA Area, remedial actions will include reseeding of the area with an approved erosion control seed mix, and if necessary, slope stabilization measures will be undertaken.

If revegetation efforts are not successful with regard to the performance standards identified in the Revegetation Plan within five years following initial seeding, the under-performing areas will be reevaluated to determine the measures necessary to improve performance. If necessary, these areas will be reseeded and/or replanted with methods modified as needed. This may include the use of container stock and irrigation or simply additional seeding during a wet winter season. Prior to reseeding,

the operator shall evaluate previous revegetation practices to identify cultural methods to benefit the overall revegetation effort. If, after a site is reseeded, revegetation efforts still do not yield satisfactory results, additional reseeding or other intervention methods may be required.

Weed control is necessary to reduce the occurrence of undesirable non-native species of plants that may invade the RPA Area where disturbance has removed the native plant cover and where active and natural revegetation is taking place. Weeds (non-native, and usually invasive, species) can compete with native plant species for available moisture and nutrients and consequently interfere with revegetation efforts. However, many weeds are common in both the surrounding active Quarry and adjacent natural open space lands.

As described in the Revegetation Plan, species listed by Cal-IPC (2006) as highly invasive will be considered problematic and will be targeted during maintenance of this revegetation effort if they exceed the designated threshold of ten percent cover. Invasive plant species typically found in the RPA and in surrounding lands include yellow star thistle (*Centaurea solstitialis*, annual), black mustard (*Brassica nigra*, annual), stinkwort (*Dittrichia graveolens*, annual), pampas grass (*Cortaderia* spp., perennial), and fennel (*Foeniculum vulgare*, perennial).

Weed control methods may include chemical and mechanical removal techniques depending on the species and number of individuals encountered. Priorities in weed abatement should focus on those species listed as highly invasive, in addition to other weeds that directly threaten the successful establishment and survival of native species. The percent cover of weeds, abatement measures recommended and undertaken, and other observations on weed control will be included in vegetation monitoring reports. Weed abatement responsibilities may cease once performance standards have been met for each phase of revegetation efforts, unless invasive species in completed revegetation areas are deemed a threat to nearby efforts still in progress.

3.18.3.5 Monitoring

Installation Monitoring

To ensure adherence to the guidelines included in the Revegetation Plan, implementation of revegetation activities will be monitored by a qualified individual. Records will be kept of soil-building treatments applied, addition of soil amendments as determined to be necessary, and all plant and seed installation. Hydroseed records will include identification of the date of application and a description and map of the location where various seed mixes are applied. Additionally, installation of tree and shrub plantings will be documented to identify the location and approximate area planted, and the number of trees or shrubs planted or seeded.

Vegetation Monitoring

Monitoring must be performed to document revegetation success. Contouring and revegetation will be conducted in stages; therefore, monitoring of each stage will be stratified, commencing in a particular revegetation area upon completion of

installation. Each stage will be monitored at least three times during the following five year period after installation, and until the area meets performance standards for two consecutive years without intervention. Revegetation sites shall be identified on a map and monitored to assure that standards are adequately achieved to within a minimum 80 percent confidence level as required by the reclamation standards identified in the Revegetation Plan.

Tree and Shrub Planting Areas – Randomly selected plots will be monitored in planting areas, with the number of plots sampled suitable to attain 80 percent confidence in data results. In addition, both north- and south-facing areas should be represented in sampling. All container planting areas will be sampled using a nested approach as utilized in reference site data collection; other sampling methods may be used but will require appropriate conversion of native species richness standards. The nested approach means that once a plot center is randomly selected, trees are assessed within a ten meter radius, shrubs within a five meter radius, and herbs within a one meter radius from the plot center. Monitors will identify and count all trees and shrubs surviving in their respective plots. Cover of all tree, shrub, and herb species within each layer will be estimated within each respective plot, and all species will be identified to the extent possible.

Hydroseed areas – Sampling plots will be selected randomly throughout the areas hydroseeded with grasses, herb species. As with the planting areas, sampling will occur in nested plots, with shrubs assessed within five meter radius and herbs within a one meter radius from the plot center. The number of plots for each installation stage will be selected in order to achieve an 80 percent confidence level in the performance results. Stratification of sampling areas may be necessary if the mix of shrubs and herbs varies greatly in different areas either due to variation in hydroseed applications or soil or other site conditions. For example, areas strongly dominated by herbs and grasses may instead be monitored using smaller sampling plots appropriate to grasslands.

Revegetated areas will be monitored in late spring or early summer to ensure that most plants will be identifiable to the species level. Monitoring will be conducted by a qualified biologist with experience in plant identification. After monitoring data has been collected, a report summarizing the success of revegetation efforts, comparison of data to Year 5 performance standards, any observed obstacles to achieving performance standards, and any remedial actions recommended will be prepared and submitted to Lehigh by October 15 of that year. This will allow for proper timing of remedial plantings and/or seeding if determined to be necessary.

Performance Standards

Performance standards describe the minimum targets for species richness and percent cover for hydroseed and planting areas. Performance standards represent anticipated conditions five years after installation, based on a study of reference sites in the vicinity and preliminary test plot results. SMARA requirements state that performance standards must be met for two consecutive years without consistent human intervention prior to release of financial assurances. Revegetation in the RPA Area is intended to meet performance standards as identified in Table 12 below. Planting areas on south-facing benches of the RPA Area would be dominated by

shrubs while planting areas on north- and east-facing benches will eventually be dominated by trees and shrubs.

Reference site data were used to create a science-based and achievable set of performance standards (Table 12). Native species richness targets have been chosen to reflect data collected from the reference sites and preliminary test plot results. These densities and percent cover values reflect the expected growth of trees and shrubs in the first five years of the revegetation areas.

Reference data values for percent cover and density of trees and shrubs describe mature woody communities that have not seen extensive disturbance in decades. While the target plant communities of the revegetation areas should eventually blend with these mature communities, they cannot be expected to achieve similar characteristics over only five years of growth. Instead, shrub and tree planting areas are designed to mimic pioneering plant communities that will continue to develop and dominate the benches and slopes over several decades through tree growth and natural regeneration.

Table 12. Five-Year Performance Standards for Revegetation

	Oak Woodland (north-facing and east-facing benches)			Pine Woodland (south-facing benches)			Hydroseed Areas shrub/grassland mix		
	Tree	Shrub	Herb	Tree	Shrub	Herb	Tree	Shrub	Herb
Richness *(avg. native species per plot)***	2	3	3	1	3	3	0	3*	3*
Canopy Cover	10%	15%	20%	10%	15%	20%	0%	15%*	20%*
Density *(avg. individuals per acre)*	70	400	-	75	270	-	-	-	-

* Performance standards for hydroseed areas may need to be adjusted to reflect five-year results of the species mix ultimately selected based on test plot results and early revegetation efforts during the reclamation period. In particular, the balance between shrub and herbaceous species cover may vary.
** Richness standards are based on plot sizes used in reference data collection and described in the Revegetation Plan: 10m-radius plots for trees, 5m-radius plots for shrubs, and 1m-radius plots for herbs/grasses.

Performance Standards for Weed Control

In addition to biannual vegetation monitoring to assess the success of revegetation efforts, the density of weeds (non-native invasive plants) will be assessed as part of vegetation sampling described in the Revegetation Plan.

Reference plots were surveyed in undisturbed natural grassland habitat in and adjacent to the Quarry property to assess native and non-native species richness and cover. The reference plots contained 28 species, 13 of which were non-native, and an additional 8 are listed invasive species in the California Invasive Plant Council's (Cal-IPC) Inventory (Cal-IPC 2006). Although two of the seven native species recorded had the highest cover, the next ten species with the highest cover were non-native or invasive species. Non-native and invasive species accounted for over 50 percent of the vegetative cover. Therefore performance standards were developed that took this information into account.

For the purposes of maintenance and monitoring, non-native plants listed in the Cal-IPC Inventory (2006) as highly invasive will be considered invasive weeds subject to control and performance standards. If invasive weeds are found to exceed a combined 10 percent relative cover over all sampled quadrats, weed abatement activities will commence. The following species should be included as subject to this performance standard: yellow star thistle (*Centaurea solstitialis*, annual), black mustard (*Brassica nigra*, annual), stinkwort (*Dittrichia graveolens*, annual), pampas grass (*Cortaderia* spp., perennial), and fennel (*Foeniculum vulgare*, perennial). Some of these species are only listed as moderately invasive by Cal-IPC, but they should be managed promptly because they are currently present in large numbers in the RPA Area and will impede establishment of native cover.

Adaptive Management

The operators responsible for revegetation within the RPA Area have seen success with adaptive strategies. The strategy described in the Revegetation Plan may prove to be less efficient than other strategies developed at a later date. The revegetation strategy is dynamic and is based on the ongoing revegetation efforts and test plot programs and may be changed to maximize the potential for revegetative success.

3.19 Drainage, Diversion Structures, Waterways and Erosion Control (§3706), and Stream Protection, Including Surface and Groundwater (§3710)

Activities described in this Amendment are designed to control surface runoff to protect surrounding land and water resources in accordance with the Porter-Cologne Water Quality Control Act, the Federal Clean Water Act, and other applicable local, state and federal requirements. These goals are achieved through a series of Best Management Practices (BMPs) pursuant to Drainage Report (Attachment G) and Storm Water Pollution Prevention Plan (SWPPP). Drainage and erosion controls apply at all stages of operation and reclamation, and are designed to exceed the 20-year storm event.

Lehigh has developed and currently maintains a SWPPP as required by the existing NPDES (National Pollutant Discharge Elimination System) permit requirements. The SWPPP covers all existing operations including the North Quarry, WMSA, EMSA, Office and Crusher Area, Surge Pile and Rock Plant. Twenty-five (25) sediment basins (known as "ponds") currently provide stormwater detention and sediment control over the property. The number and use of these basins varies over time according to Lehigh's operational needs. Basins are maintained according to the site's SWPPP and applicable NPDES permits. Not all basins are in the RPA Area. Lehigh monitors and reports on stormwater discharges to the S.F. Bay Regional Water Quality Control Board, as required by the terms of its SWPPP.

Following approval of this Amendment, the SWPPP would be revised to incorporate nine additional sedimentation basins planned under this Amendment. This will increase the total number of sedimentation basins on Lehigh's Permanente property from 25 to 34. Table 4 above lists all existing and planned sedimentation basins.

Seven of these additional basins are planned for the South Quarry area to control storm runoff and manage sedimentation in Permanente Creek. These basins have been designed to deliver flow to existing drainages. As the South Quarry is developed, the central mining pit will form a stormwater collection point. Stormwater will be pumped from this collection point to Basin 40B at the base of the South Quarry before discharging. When South Quarry basins are no longer necessary for erosion control, maintenance will cease, allowing natural reclamation of these areas.

One additional sedimentation basin, Basin 50A, will be built on the floor of the North Quarry once the North Quarry floor is raised to its final elevation. Basin 50A will collect storm flows from the North Quarry and portions of the WMSA and allow sediment to settle out before stormwater discharges to Permanente Creek. Drainage channels to be constructed within the North Quarry west wall backfill area will direct storm flows to Basin 50A. Stormwater will be delivered from Basin 50A to Permanente Creek via an engineered drainage channel. Basin 50A will be maintained until North Quarry reclamation progresses to the stage that Basin 50A is unnecessary for sediment control. At that time, maintenance will cease, allowing natural reclamation of the basin. Introducing wetland and riparian vegetation during the reclamation process will help to reclaim this feature to a permanent wetland and riparian area. Sections 3.16 through 3.18 of this Amendment and the Revegetation Plan contain a complete description of reclamation for Basin 50A.

One additional sedimentation basin will be installed at the toe of the Topsoil Storage Area, which will collect stormwater flows from the stockpile. The basin will discharge flows to existing drainage contours and into Permanente Creek. The Topsoil Storage Area also will rely on a similar system of bench contours and sedimentation control basin to manage storm flows.

No new sedimentation basins are planned for the CMSA. Runoff in the CMSA will be directed longitudinally by intra-bench ditches to a perimeter series of ditches and routed through swales and downdrains to the series of seven downgradient basins serving the EMSA. The EMSA basins will route flows to a final basin located at the toe of the EMSA, where flows are delivered to an existing drainage to Permanente Creek. When EMSA basins are no longer necessary for erosion control, maintenance will cease, and reclamation will occur as described in the 2009 Amendment.

In the WMSA, swales and downdrains will be constructed for stormwater and erosion control purposes. Portions of the WMSA are currently vegetated. For areas where vegetation has not yet been established, existing Best Management Practices (BMPs) collect and deliver runoff along the primary haul road and into the North Quarry. Stormwater management in the North Quarry is described above.

Additionally, during the North Quarry reclamation process, as the North Quarry pit floor is progressively filled with overburden, stormwater will be managed by the installation of a sump and sump pump on the North Quarry floor. The sump and sump pump will collect and dewater the North Quarry floor of stormwater to maintain a dry work surface for reclamation activities. Dewatering during this period will utilize the existing system of stormwater discharge, involving pumping to Pond 4a and subsequent discharge into Permanente Creek.

In addition to the measures described above, other temporary erosion control measures will be used in the RPA Area during the course of mining and reclamation activities and immediately following reclamation. These measures will focus on control of sediment, the primary water quality pollutant with the potential to be generated from the RPA Area. These measures include desiltation basins, drainage ditches, down drains, silt fencing and hydroseeding. Other temporary erosion control measures may be used if determined to be effective. Temporary erosion control measures will be removed, recontoured and/or revegetated when no longer needed for sediment control due to the establishment of vegetative cover. These temporary erosion control measures will be installed within the RPA Area as described in the Drainage Report, the SWPPP, and the Revegetation Plan.

Desiltation basins and silt fencing will be installed around the perimeter of the South Quarry, CMSA and Topsoil Storage Area as described above and detailed in the Drainage Report. Desiltation basins are sized according to local and state requirements. The majority of runoff from the RPA Area will be conveyed to one of the existing storm water facilities or planned perimeter desiltation basins by a series of ditches and down drains. Where ditches and down drains have a steep gradient, they will be lined with riprap or other erosion-resistant material to prevent erosion. Planned drainage facilities have been sized to convey the tributary 100-year flow.

The manner of topsoil placement has been designed to ensure a stable reclamation surface. Soil development includes the blending of topsoil with the overburden substrate to establish a stable reclamation surface which minimizes the potential for soil instability and surficial erosion. Hydroseeding will be used on reclaimed slopes, benches and pads. Prior to final reclamation, a preliminary erosion control stage will be incorporated consisting of the native seed mix shown in Section 3.18 and the Revegetation Plan. The mix includes species that have proven successful in other revegetation efforts at the Quarry, and are recommended to provide erosion control and initial establishment of native grasses and herbaceous species.

Long-term revegetation includes hydroseeding of finished slopes with a mixture of native grasses, herbaceous plants, and shrubs providing surface cover and erosion control for finished slopes. Tree and shrub planting areas will generally be located on benches of areas to be revegetated to encourage the long-term development of an oak savannah on north-facing slopes, or native scrub community on south-facing slopes. The Revegetation Plan contains a complete description of revegetation activities scheduled within the RPA Area.

Prior to the release of financial assurances, disturbed slopes in the RPA Area must meet revegetation and erosion control performance standards. These standards have been designed to minimize the potential for stormwater runoff and erosion.

Maintenance and monitoring will include identification and repair of erosion damage. Remedial measures will be applied as identified below and in the Drainage Report. Performance criteria and slope treatment for erosion control are based on the qualitative descriptions and remedial measures described in Tables 5 and 6 in Section 3.10 of this Amendment. Field investigation will determine the need for remedial measures based on visual observations. In general, areas receiving an

average score of Class 3, 4 or 5 will receive slope treatment. Any observable reason for failure will be noted and the appropriate remedial measure stated as part of the annual monitoring report.

3.20 Building, Structure and Equipment Removal (§3709)

With the exception of equipment required for reclamation purposes, all equipment and structures will be removed from the RPA Area prior to final reclamation. This includes all rolling stock such as loaders, dozers, excavators, haul trucks, storage vans and water trucks. This also includes all buildings and facilities such as conveyors, crushers, trailers, maintenance buildings, storage sheds and other types of structures. All surplus equipment and supplies stored within the Quarry limits will be transported off-site. Any junk equipment left on-site will be cut up, if necessary, and disposed of for salvage value. All trash and miscellaneous debris will be collected and hauled to an appropriate waste disposal facility pursuant to the state and local health and safety ordinances. Suitable access roads will remain to allow for proper monitoring and maintenance of the reclamation effort.

3.21 Public Health and Safety (§2712(c))

Post-extraction public health and safety will be protected in accordance with County standards for undeveloped land. During operations in the RPA Area, public access will be controlled in the following manner:

- Access restricted to the Quarry 24 hours per day through a gated entrance manned by security guards.
- Prior to encountering the guard gate on Permanente Road, there are two roads leading toward the RPA Area. Access provided by these roads is controlled through locked gates.
- Steep slopes and dense vegetation prevent access to the RPA Area from offsite lands.
- Maintenance of fencing installed on portions of the property boundary where unauthorized access may be a problem

Following final reclamation of the RPA Area, public access will be controlled in the following manner:

- Access roads will be blocked with a gate, large rocks or other control mechanism that will prohibit vehicular entry.
- Signs will be posted at key locations around the perimeter of the RPA Area adjacent to undeveloped lands. These signs will warn “Private Property”, “No Trespassing”, and “Danger: Steep Slopes”.
- All final slopes will be certified by a geotechnical engineer to be suitable for the planned end use.

3.22 Effect of Reclamation on Future Recovery of Mineral Resources

There are known mineral resources within Lehigh's property other than those which will be accessed under this Amendment. Lehigh may develop these resources at a later date according to future applications filed with the lead agency. This Amendment does not preclude future extraction or overburden placement activities within the RPA Area, other areas of the Quarry or on surrounding lands.

3.23 Financial Assurances (§3702)

Financial assurances will be required to ensure that reclamation is performed in accordance with this Amendment. The financial assurance may be in the form of surety bonds, irrevocable letter of credit, trust funds, or other forms of financial assurances approved by the Lead Agency. The financial assurance is reviewed annually by the operator, the lead agency and the Office of Mine Reclamation to determine if adjustments to the estimate are necessary.

The County approved the financial assurance estimate dated April 2009 totaling $9,748,772. This estimate covers existing disturbed lands within the Permanente ownership as well as activities scheduled under the Permanente Quarry Reclamation Plan Amendment dated March 2007. An updated estimate, totaling $10,924,778 was provided to the County in April 2010. Upon approval of this Amendment, the financial assurances will be adjusted as necessary.

3.24 Administrative Requirements

Lead Agency Information:

Lead Agency:	County of Santa Clara Planning Office
Staff Contact:	Gary Rudholm, Senior Planner
Telephone:	(408) 299-5770
Address:	70 West Hedding Street East Wing 7th Floor San Jose, CA 95110

3.25 Statement of Responsibility

Lehigh Southwest Cement Company accepts responsibility for reclamation as set forth in this Amendment.

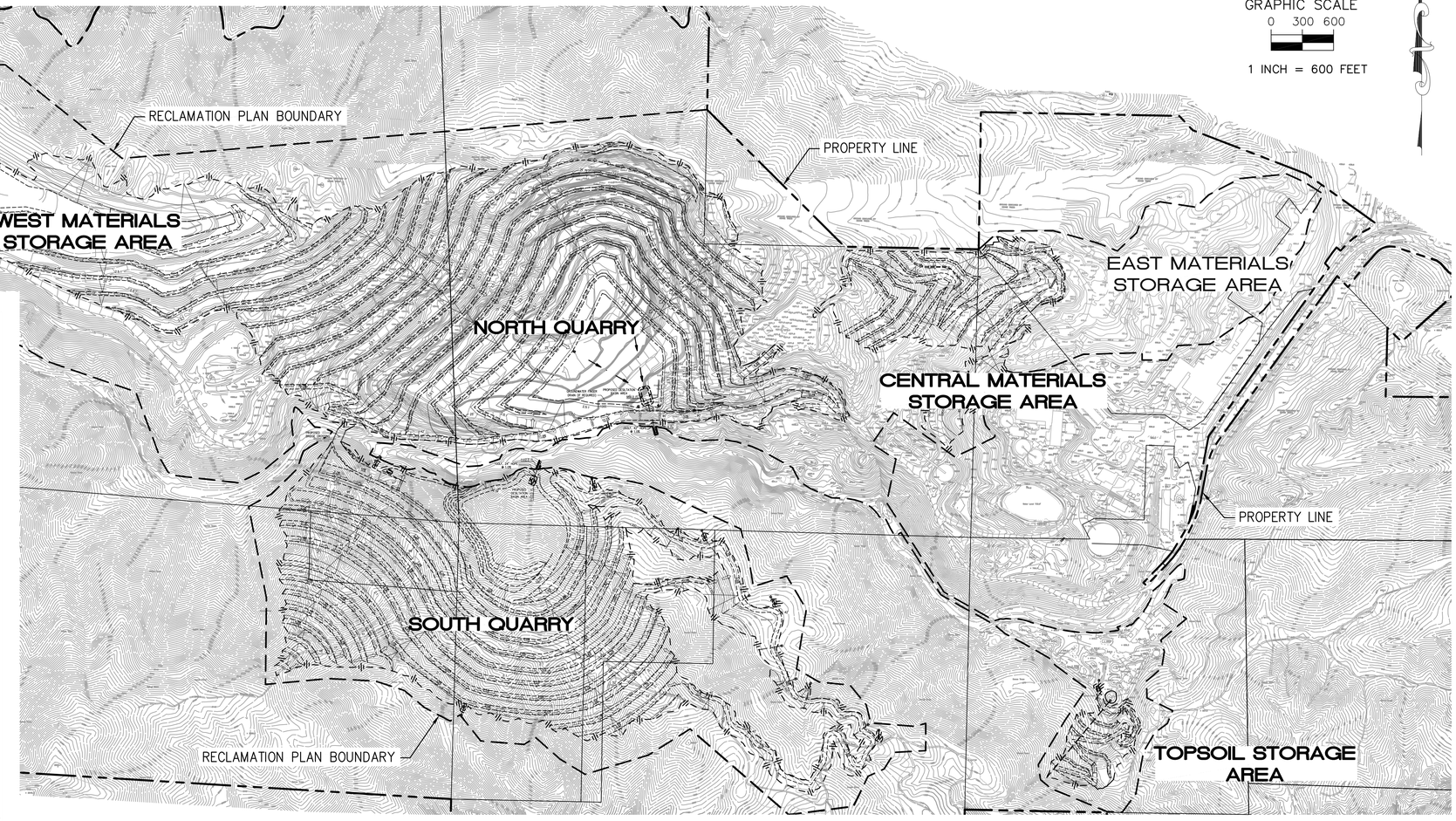
Jeffrey Brummert, Vice President

Dated: May 21, 2010

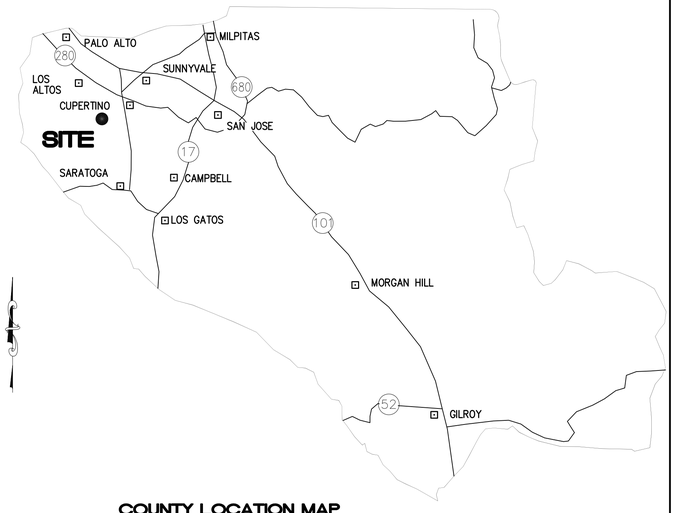
RECLAMATION PLAN FOR:

PERMANENTE QUARRY

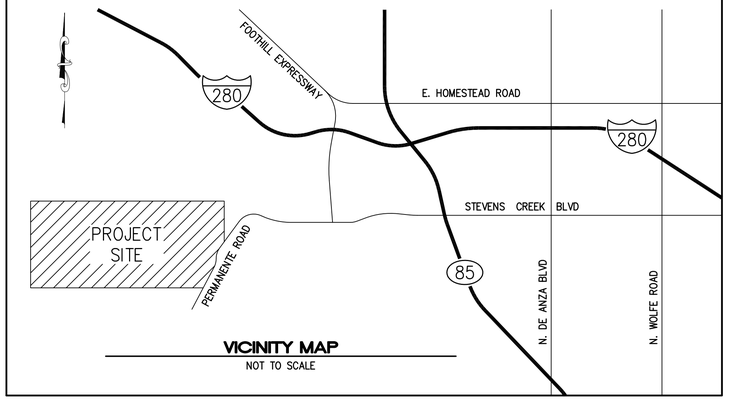
SANTA CLARA COUNTY, CALIFORNIA



SITE MAP
SCALE: 1"=600'



COUNTY LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

ENGINEER OF WORK

WAYNE W. CHANG, P.E. 46548 DATE

CHANG CONSULTANTS
P.O. BOX 9496
RANCHO SANTA FE, CA 92067
(858) 692-0760

OPERATOR

NAME:	LEHIGH SOUTHWEST CEMENT COMPANY
ADDRESS:	24001 STEVENS CREEK BLVD CUPERTINO, CA 95014
TELEPHONE:	408-996-4000
SHORT LEGAL:	SEC 18 T7S R2W MDBM; W 1/4 & SE 1/4 SEC 17 T7S R2W MDBM
A.P.N.	351-09-022; 351-10-005, 037, 038
SITE ADDRESS:	24001 STEVENS CREEK BLVD. CUPERTINO, CA 95014

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Rancho Santa Fe, CA 92067 F: 858.832.1402

RECLAMATION PLAN FOR:
PERMANENTE QUARRY

TITLE SHEET

REVISION 1		SHEET 1
REVISION 2		OF 25
REVISION 3	CO. FILE	

MAY 23, 2010

FOR PLAN CHECK ONLY

CHANG CONSULTANTS
(858) 692-0760

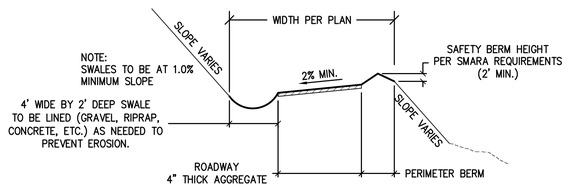
LEGEND

680	PROPOSED CONTOUR AND ELEVATION LABEL
660	EXISTING CONTOUR AND ELEVATION LABEL
	PROPERTY LINE
	RECLAMATION PLAN BOUNDARY
	PERIMETER DAYLIGHT LINE
	PROPOSED STORM DRAIN AND RISER
	PROPOSED RIPRAP PAD
	CONCRETE OR DG SWALE (DG TO BE MAINTAINED)
	GENERAL FLOW DIRECTION
	PROPOSED SWALE OR DOWN DRAIN
30A	DESILT BASIN LABEL

NOTE:

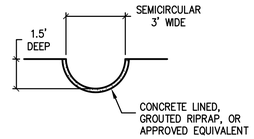
THE PROPOSED FACILITIES AND RECLAMATION GRADING SHOWN ON THESE PLANS ARE APPROXIMATE. THE ACTUAL SURFACE DISTURBANCE, GRADING AND DESILTATION BASIN LOCATIONS DURING EXCAVATION AND BACKFILL MAY VARY FROM THAT DEPICTED, ALTHOUGH THE TOTAL DISTURBED AND RECLAIMED ACREAGE SHOULD BE SIMILAR. WHILE THIS PLAN REFLECTS THE BEST AVAILABLE DATA, THE EXCAVATION AND BACKFILL MAY VARY DUE TO ACTUAL GEOLOGICAL CONDITIONS ENCOUNTERED, ENGINEERING, PHASING, AND OTHER CONSIDERATIONS.

THE BASE TOPOGRAPHIC MAPPING USED IS A COMBINATION OF FLOWN AERIAL TOPOGRAPHY FROM 2007, 2008, AND FIELD SURVEY IN COMPLETED IN 2009. THE 2007 TOPOGRAPHIC MAPPING IS AT A 2-FOOT CONTOUR INTERVAL AND THE 2008 TOPOGRAPHIC MAPPING IS AT A 10-FOOT CONTOUR INTERVAL. THE ACCURACY IS ONE-HALF THE CONTOUR INTERVAL.



TYPICAL ACCESS ROAD DETAIL

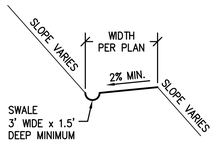
NOT TO SCALE



NOTE: DOWN DRAIN FROM NORTH QUARRY DESILTATION BASIN TO BE 6-FEET WIDE AND 3-FEET DEEP

TYPICAL DOWN DRAIN DETAIL

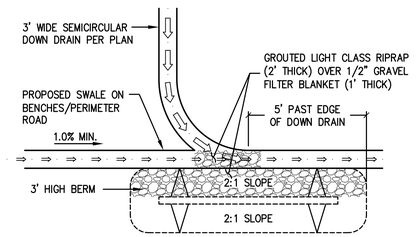
NOT TO SCALE



NOTES:
1. SWALES TO BE LINED (GRAVEL, RIPRAP, CONCRETE, ETC.) AS NEEDED TO PREVENT EROSION.
2. SWALES TO BE AT 1.0% MINIMUM SLOPE

TYPICAL BENCH DETAIL

NOT TO SCALE

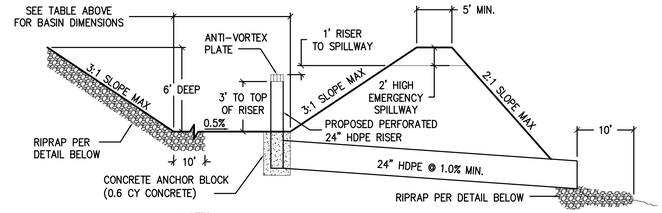


TYPICAL SPLASH WALL DETAIL

NOT TO SCALE

LOCATION	DESILTATION BASIN NO.	BASIN FLOOR MINIMUM LENGTH (FEET)	BASIN FLOOR MINIMUM WIDTH (FEET)
SOUTH QUARRY	40A	57	29
SOUTH QUARRY	40B	41	21
SOUTH QUARRY	40C	63	32
SOUTH QUARRY	40D	28	14
SOUTH QUARRY	40E	20	10
SOUTH QUARRY	40F	28	14
SOUTH QUARRY	40G	42	21
NORTH QUARRY	50A	141	70
TOPSOIL AREA	60A	41	21

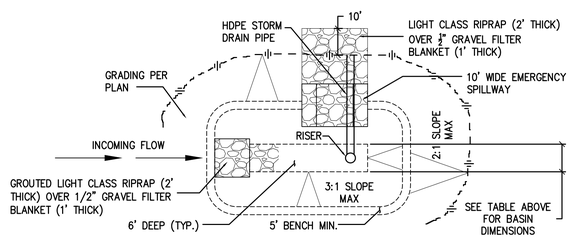
DESILTATION BASIN DIMENSIONS



NOTES:
1. CREATE 1" DIAMETER HOLES OR SLITS IN RISER TO PREVENT WATER FROM PONDING PERMANENTLY IN BASIN.
2. THE RISER AND OUTLET PIPE FOR THE NORTH QUARRY BASIN TO BE A 42" HDPE. CONCRETE ANCHOR BLOCK TO CONTAIN 1.2 CY CONCRETE.

TYPICAL DESILTATION BASIN DETAIL

NOT TO SCALE



TYPICAL DESILTATION BASIN DETAIL - PLAN VIEW

NOT TO SCALE

OPERATOR	
NAME:	LEHIGH SOUTHWEST CEMENT COMPANY
ADDRESS:	24001 STEVENS CREEK BLVD CUPERTINO, CA 95014
TELEPHONE:	408-996-4000
SHORT LEGAL:	SEC 18 T7S R2W MDBM; W 1/4 & SE 1/4 SEC 17 T7S R2W MDBM
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SHEET 25 TOPSOIL STORAGE AREA PHASES 1, 2, 5 AND CROSS-SECTIONS

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY

LEGEND AND DETAILS

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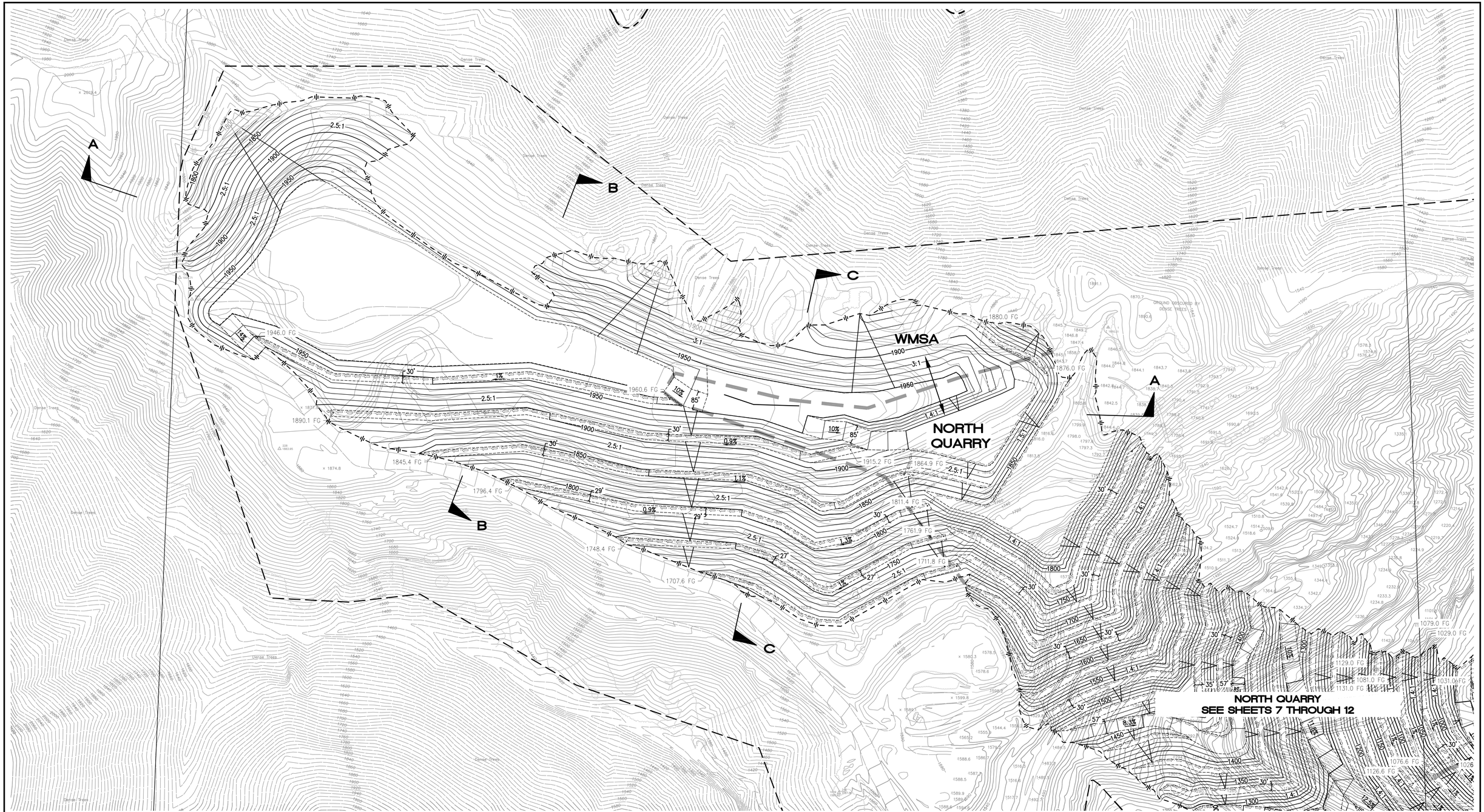

OPERATOR

NAME:	LEHIGH SOUTHWEST CEMENT COMPANY
ADDRESS:	24001 STEVENS CREEK BLVD CUPERTINO, CA 95014
TELEPHONE:	408-996-4000
SHORT LEGAL:	SEC 18 T7S R2W MDBM; W 1/4 & SE 1/4 SEC 17 T7S R2W MDBM
A.P.N.	351-09-022; 351-10-005, 037, 038
SITE ADDRESS:	24001 STEVENS CREEK BLVD. CUPERTINO, CA 95014

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
WEST MATERIALS STORAGE AREA PHASE 1

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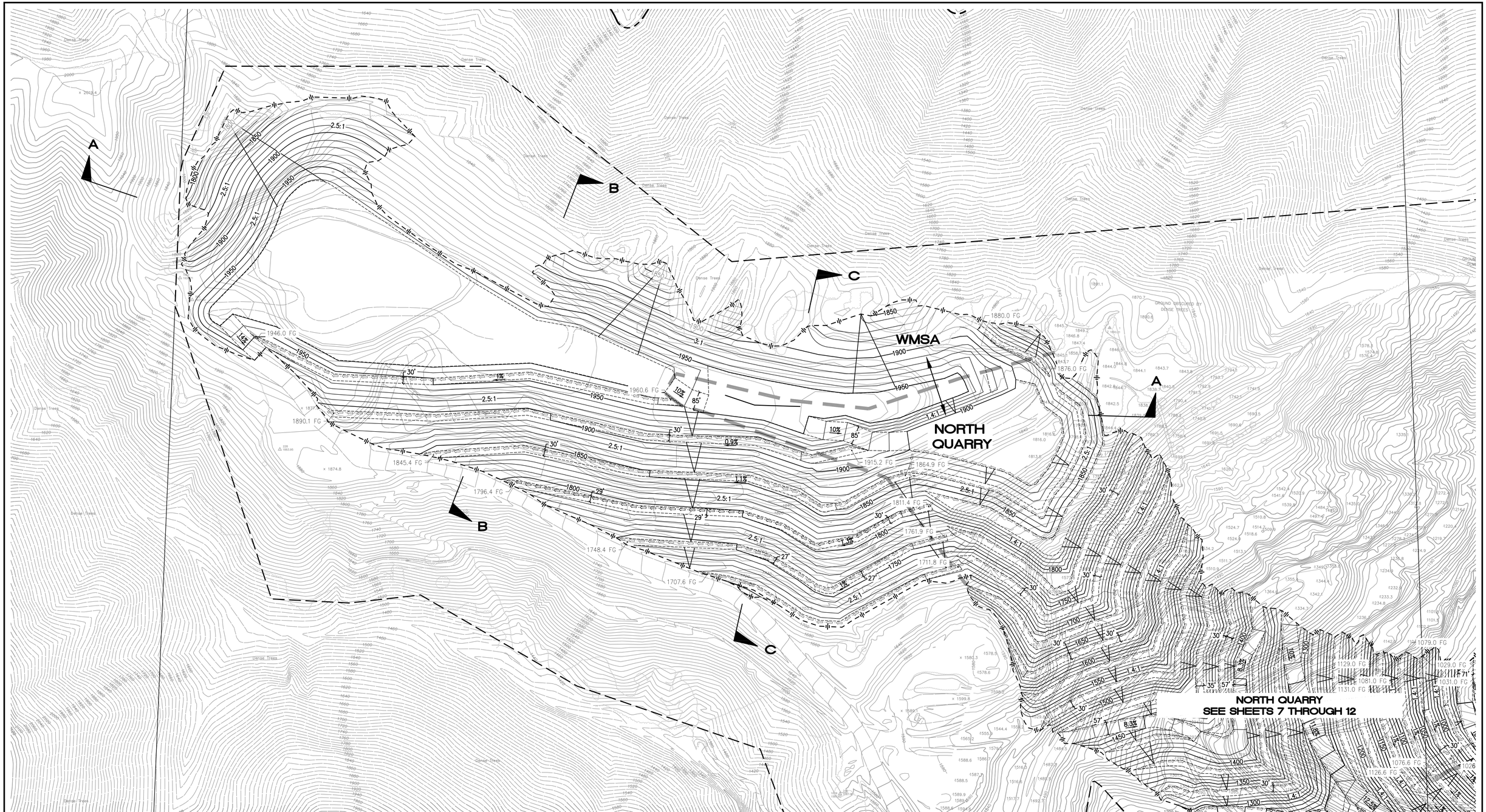

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
WEST MATERIALS STORAGE AREA
PHASES 2, 3, AND 4

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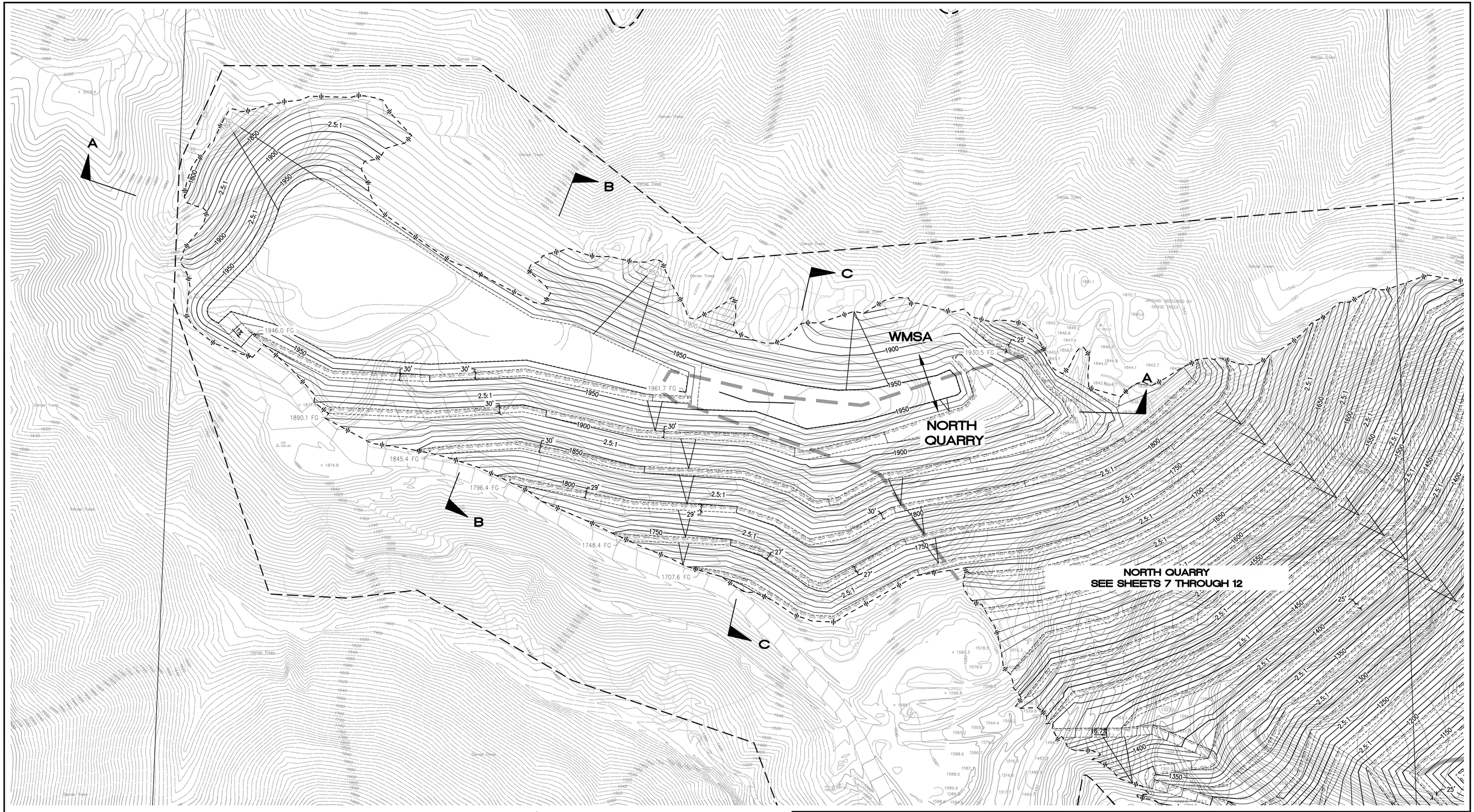

0 100 200 400

SCALE: 1" = 200'

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
WEST MATERIALS STORAGE AREA
PHASE 5

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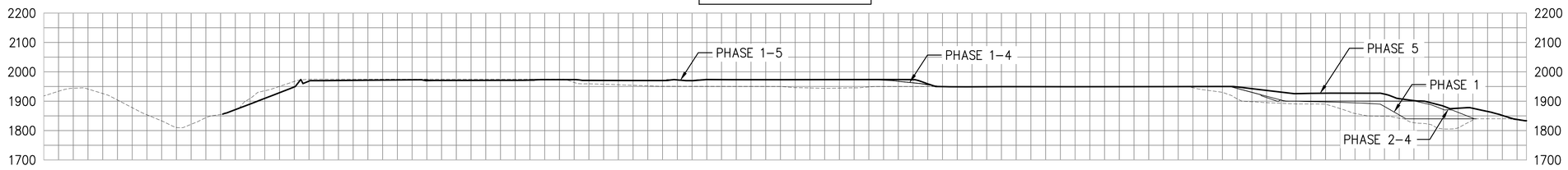

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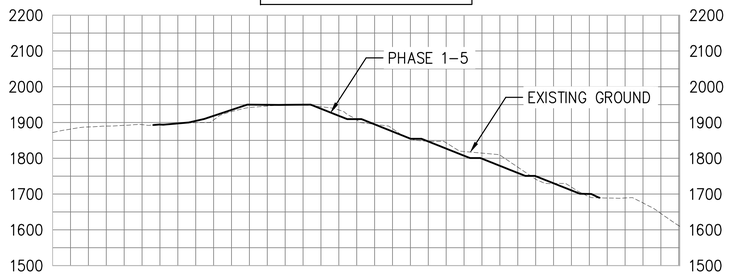

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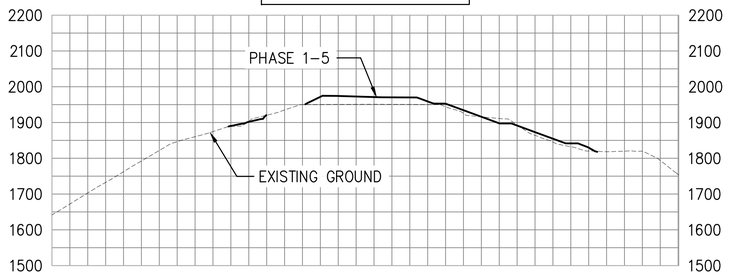

0 100 200 400

HORIZ. SCALE: 1" = 200'
VERT. SCALE: 1" = 200'

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
WEST MATERIALS STORAGE AREA CROSS-SECTIONS

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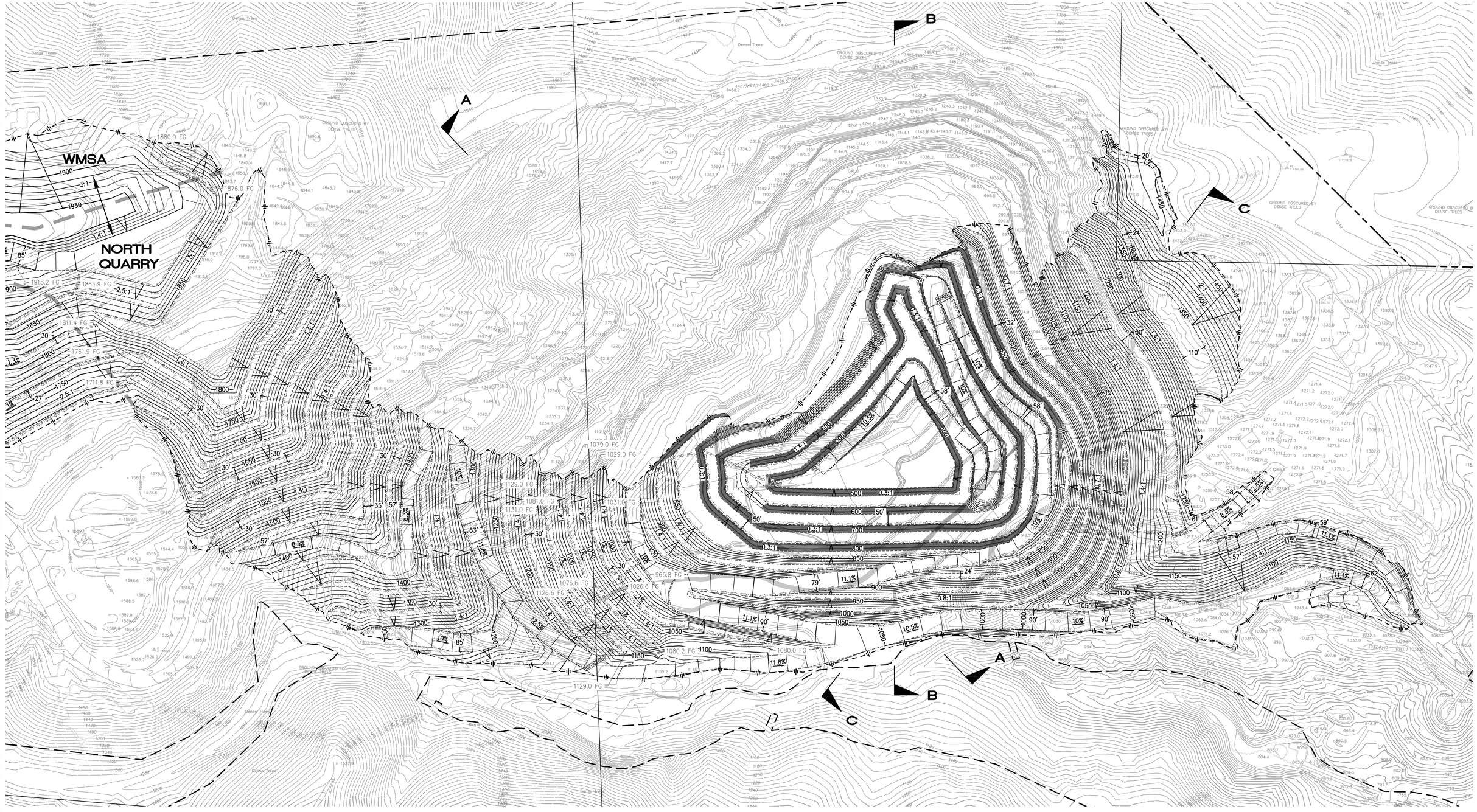

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0 100 200 400

SCALE: 1" = 200'

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
NORTH QUARRY PHASE 1

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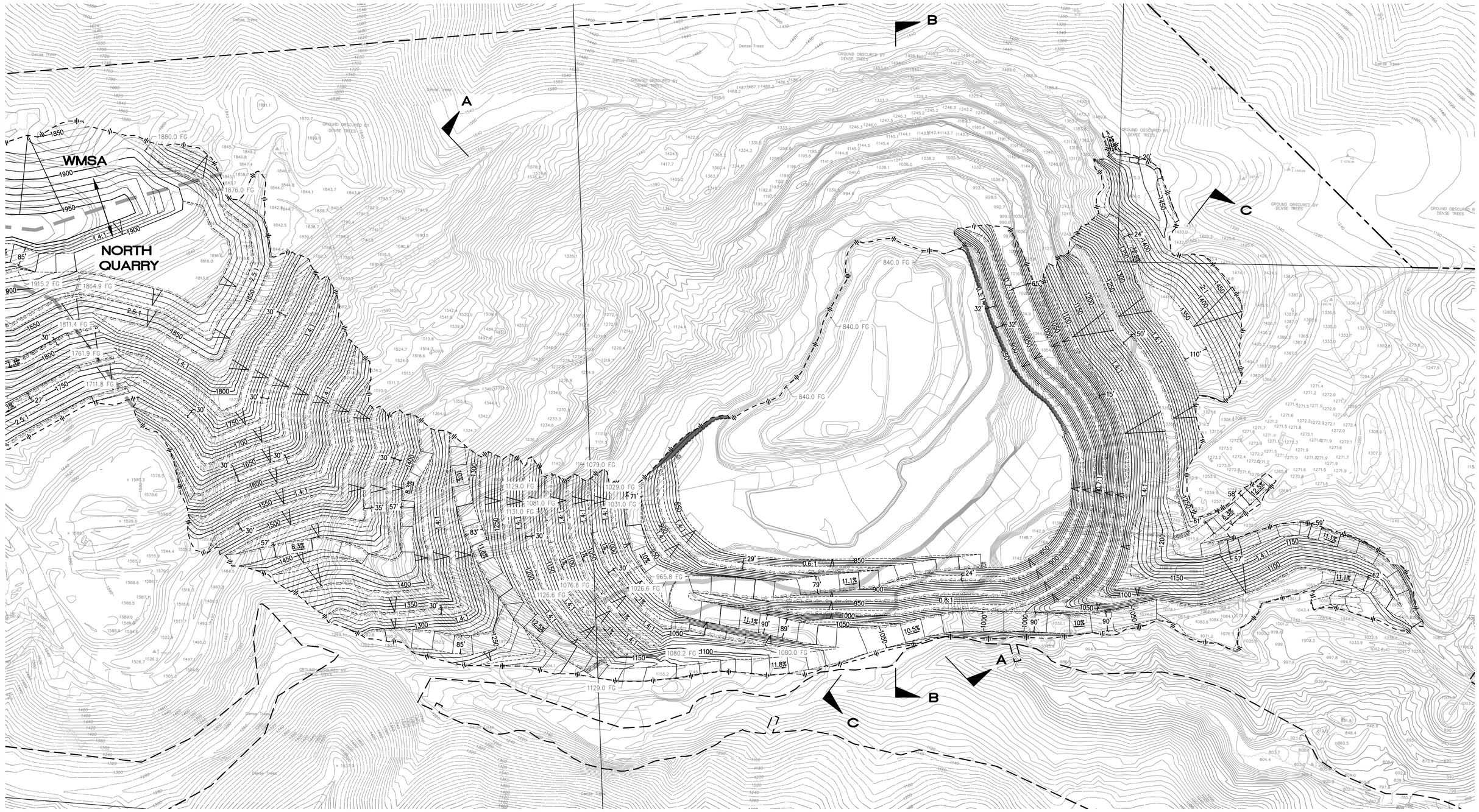

NOTE:
DIRECTION OF DRAINAGE ALONG PIT FLOOR AND BENCHES SURROUNDING PIT FLOOR CAN BE ALTERED DURING MINING AND RECLAMATION AS LONG AS THE DRAINAGE IS CONVEYED TO THE PIT FLOOR.

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
NORTH QUARRY
PHASE 2

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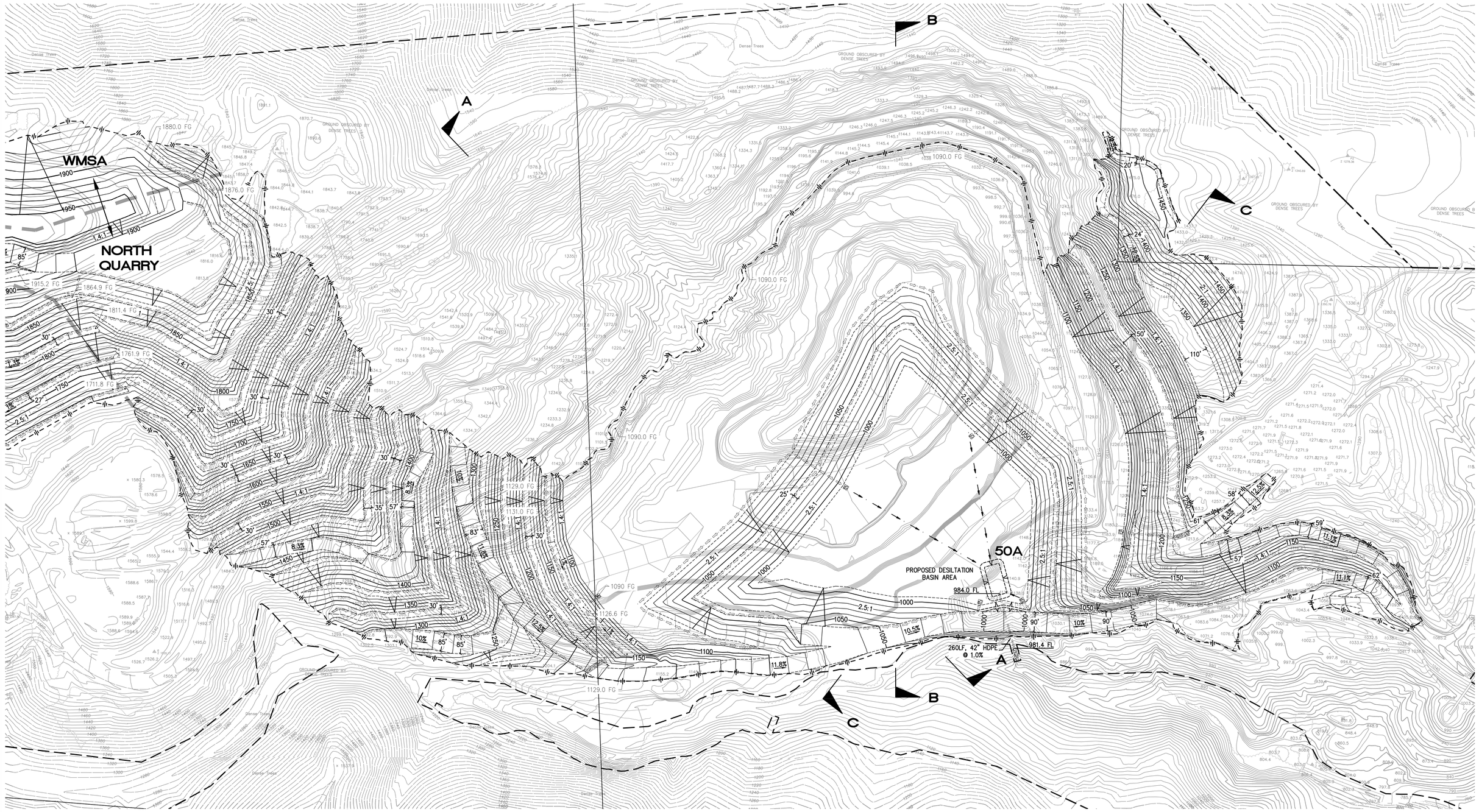

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0 100 200 400
SCALE: 1" = 200'

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
NORTH QUARRY
PHASE 3

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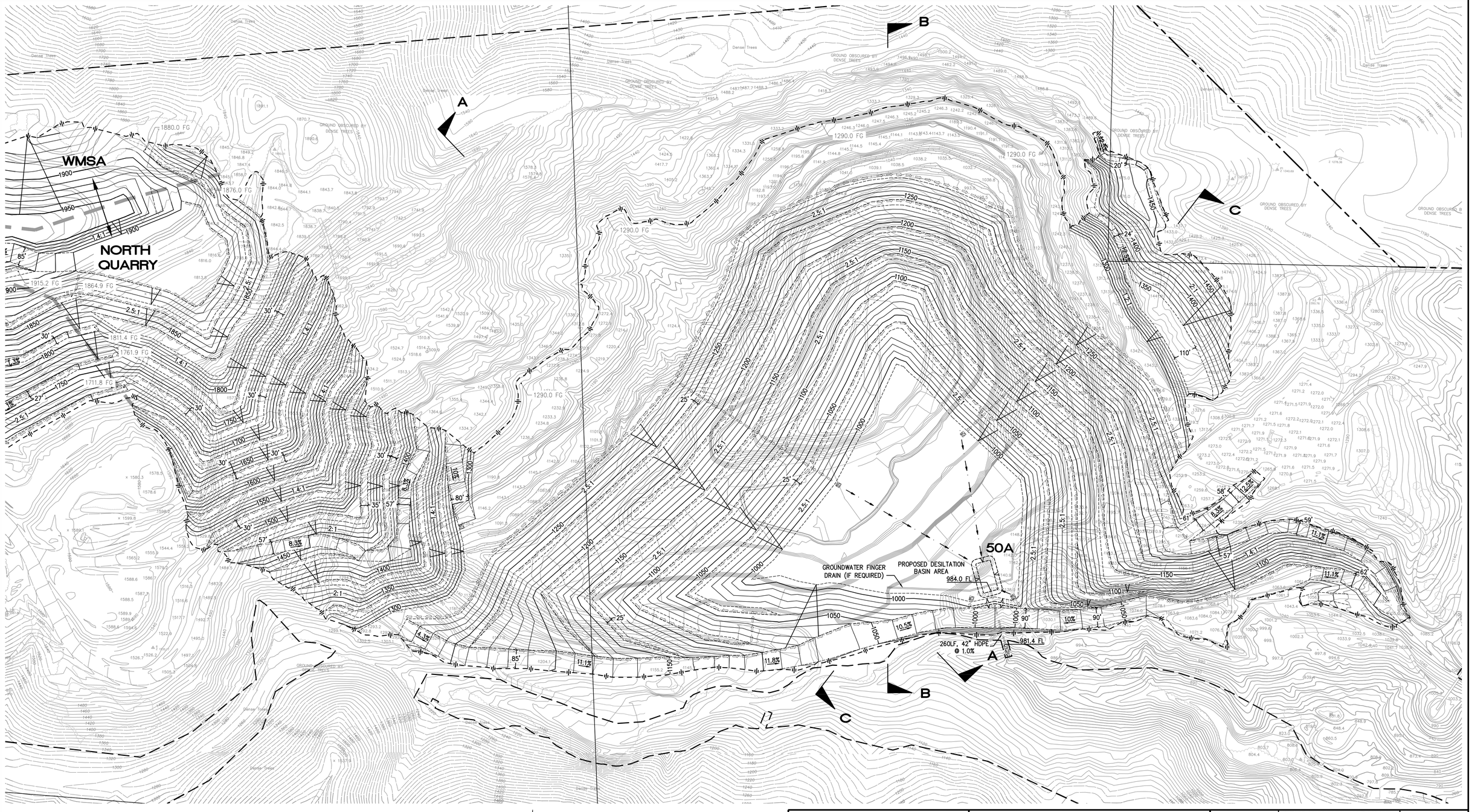

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SCALE: 1" = 200'

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
NORTH QUARRY PHASE 4

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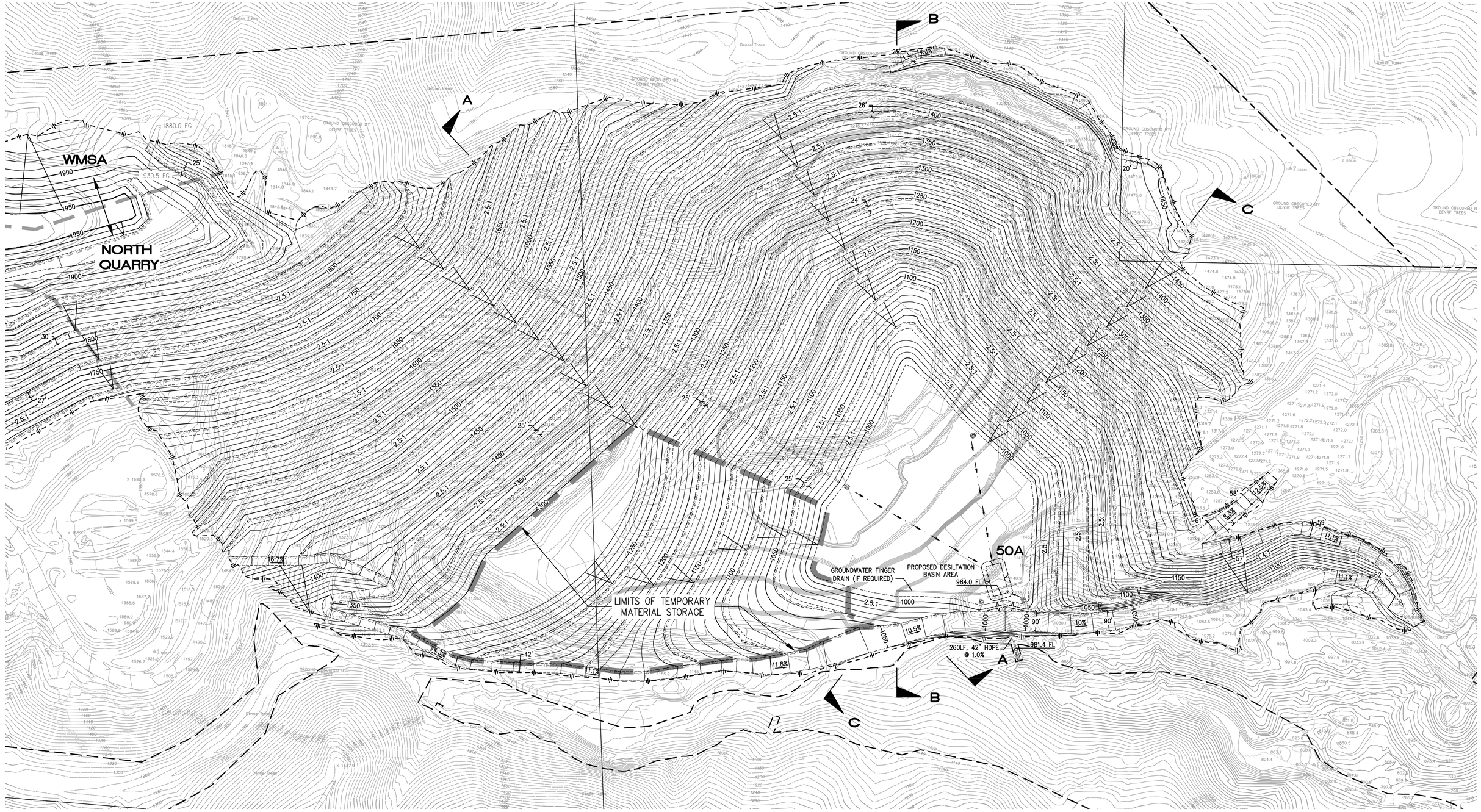

NOTE:
DIRECTION OF DRAINAGE ALONG PIT FLOOR AND BENCHES SURROUNDING PIT FLOOR CAN BE ALTERED DURING MINING AND RECLAMATION AS LONG AS THE DRAINAGE IS CONVEYED TO THE PIT FLOOR.

0 100 200 400
SCALE: 1" = 200'

OPERATOR

NAME:	LEHIGH SOUTHWEST CEMENT COMPANY
ADDRESS:	24001 STEVENS CREEK BLVD CUPERTINO, CA 95014
TELEPHONE:	408-996-4000
SHORT LEGAL:	SEC 18 T7S R2W MDBM; W 1/4 & SE 1/4 SEC 17 T7S R2W MDBM
A.P.N.	351-09-022; 351-10-005, 037, 038
SITE ADDRESS:	24001 STEVENS CREEK BLVD. CUPERTINO, CA 95014

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
NORTH QUARRY PHASE 5
PRE-BACKFILL TO SOUTH QUARRY

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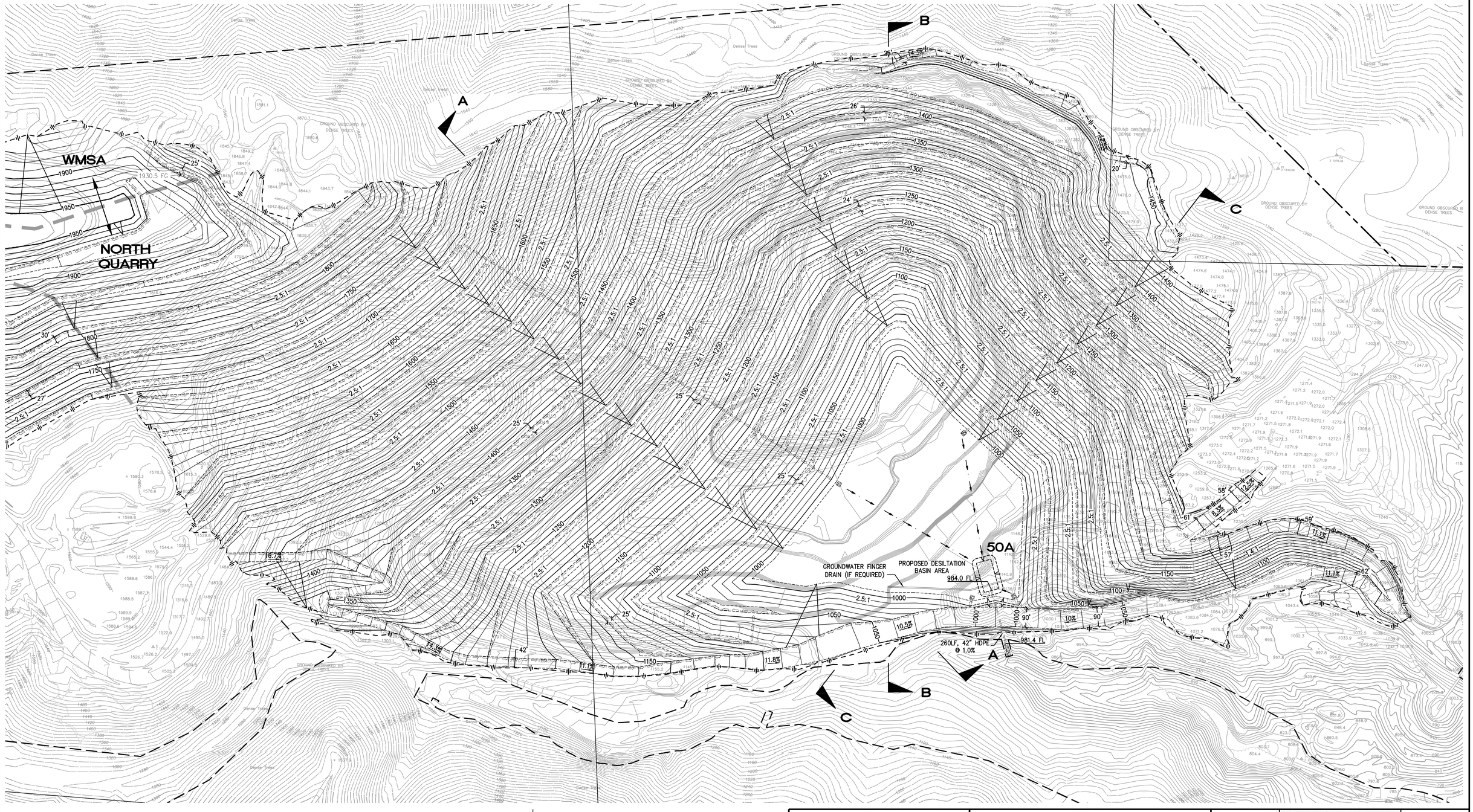

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
NORTH QUARRY PHASE 5
POST-BACKFILL TO SOUTH QUARRY

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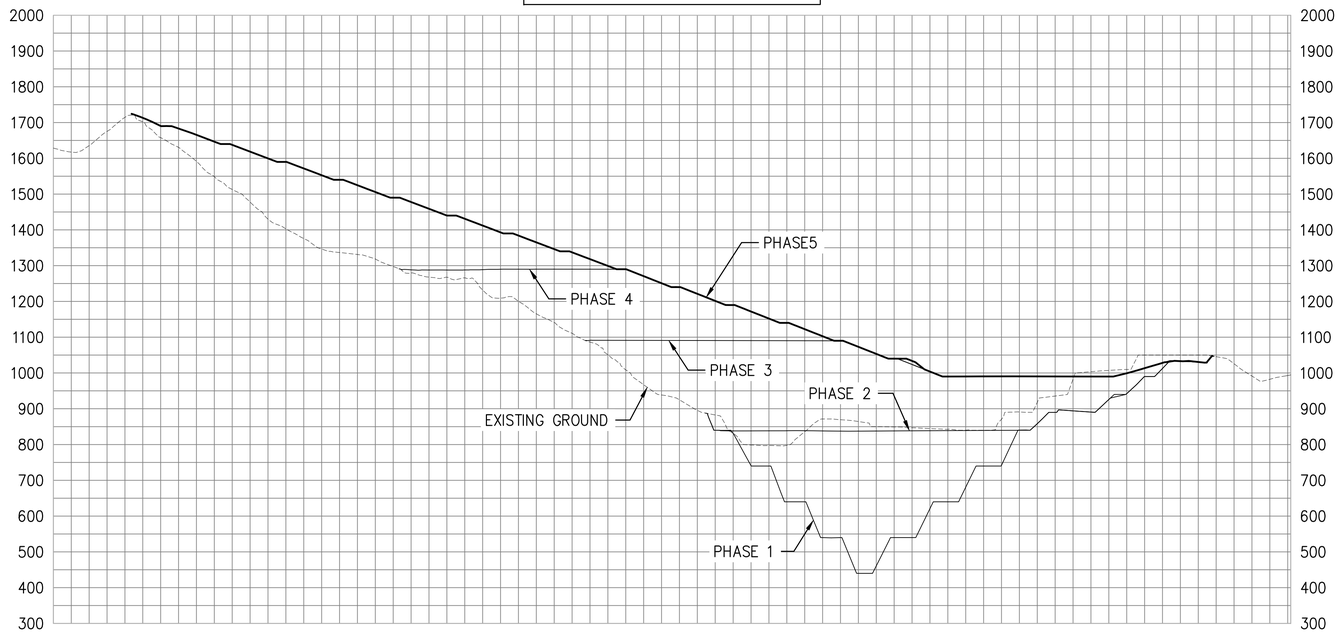
NORTH QUARRY SECTION A-A



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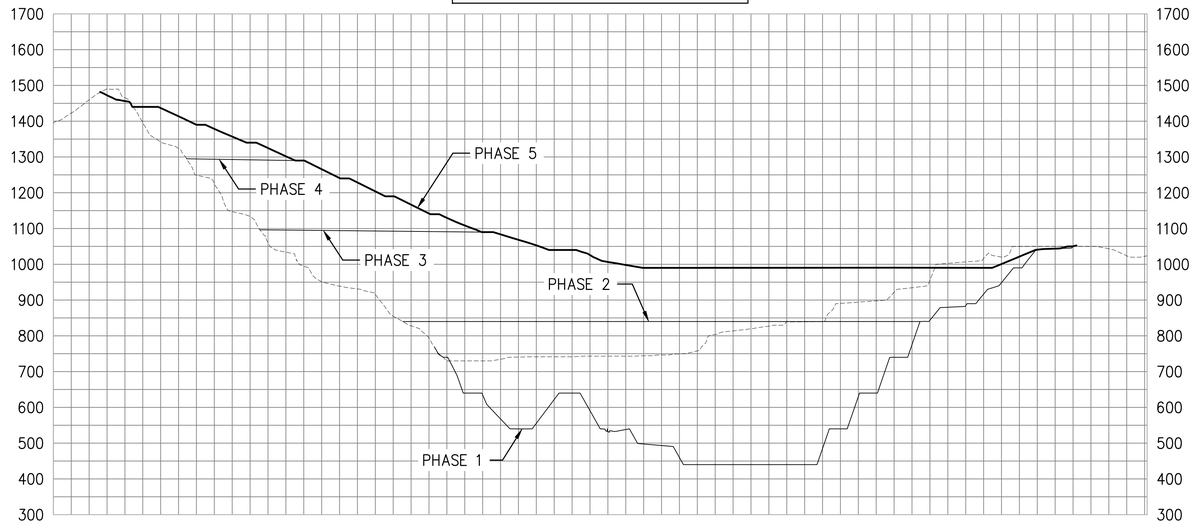
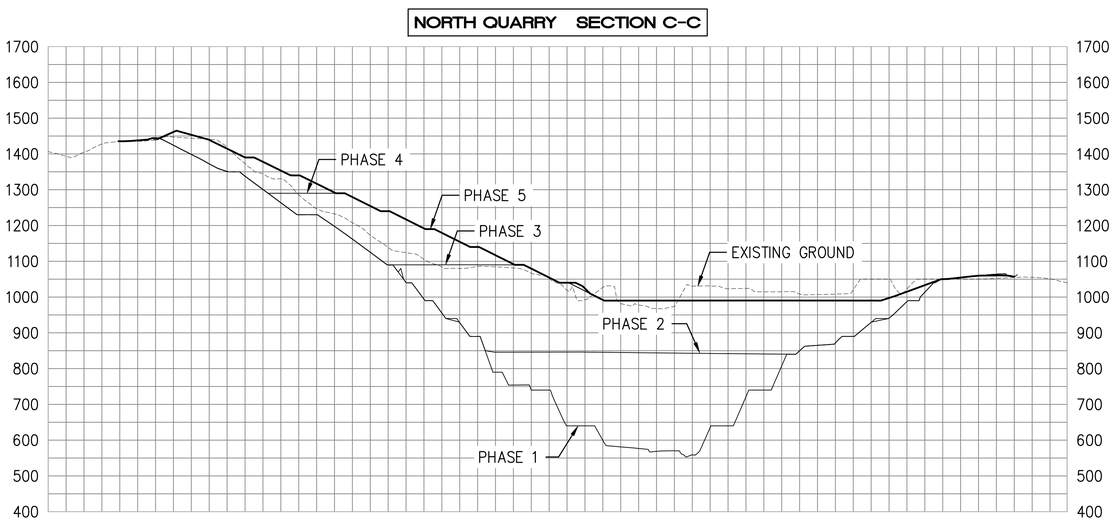


NORTH QUARRY SECTION C-C



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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
NORTH QUARRY CROSS-SECTIONS

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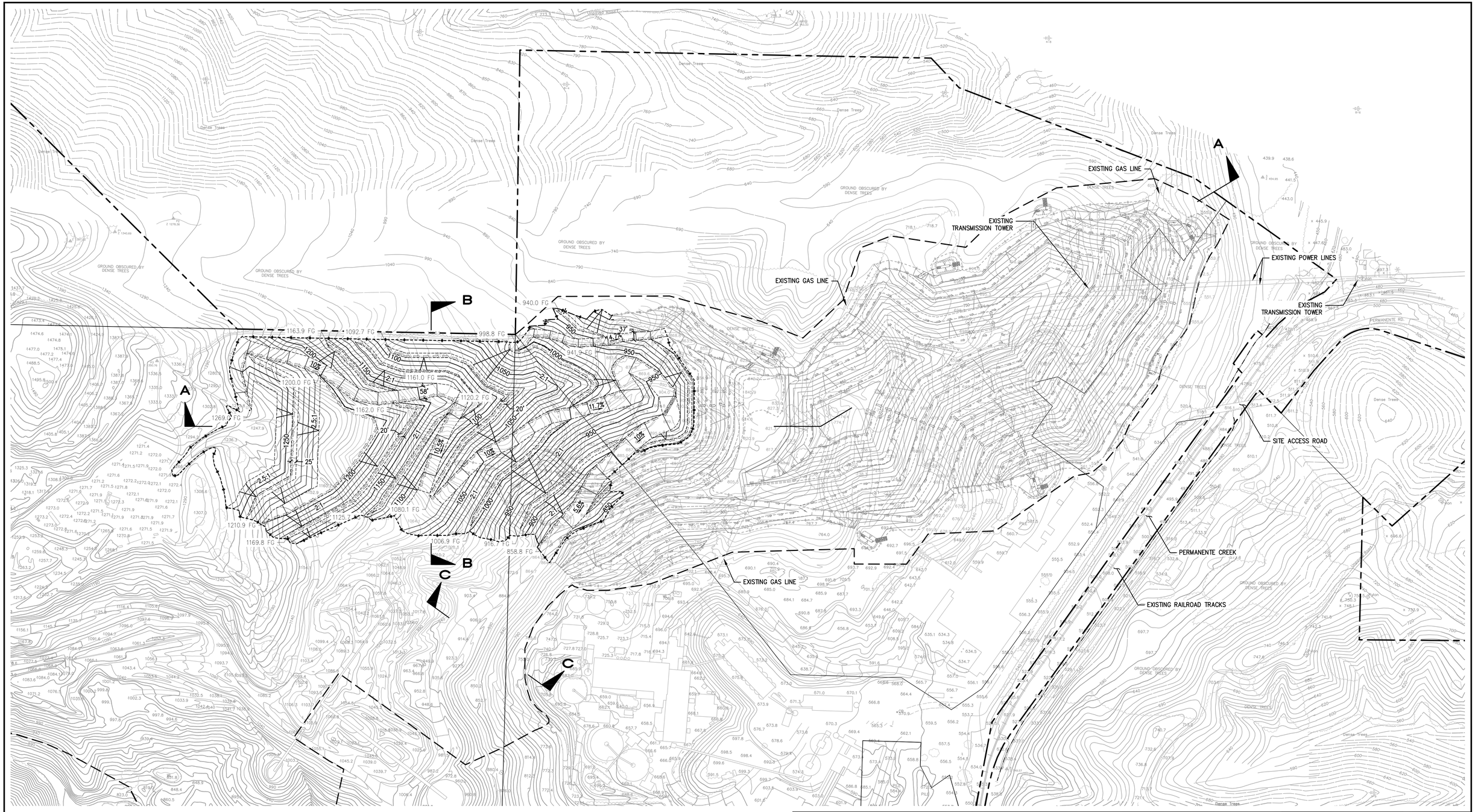

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
CENTRAL MATERIALS STORAGE AREA PHASE 1

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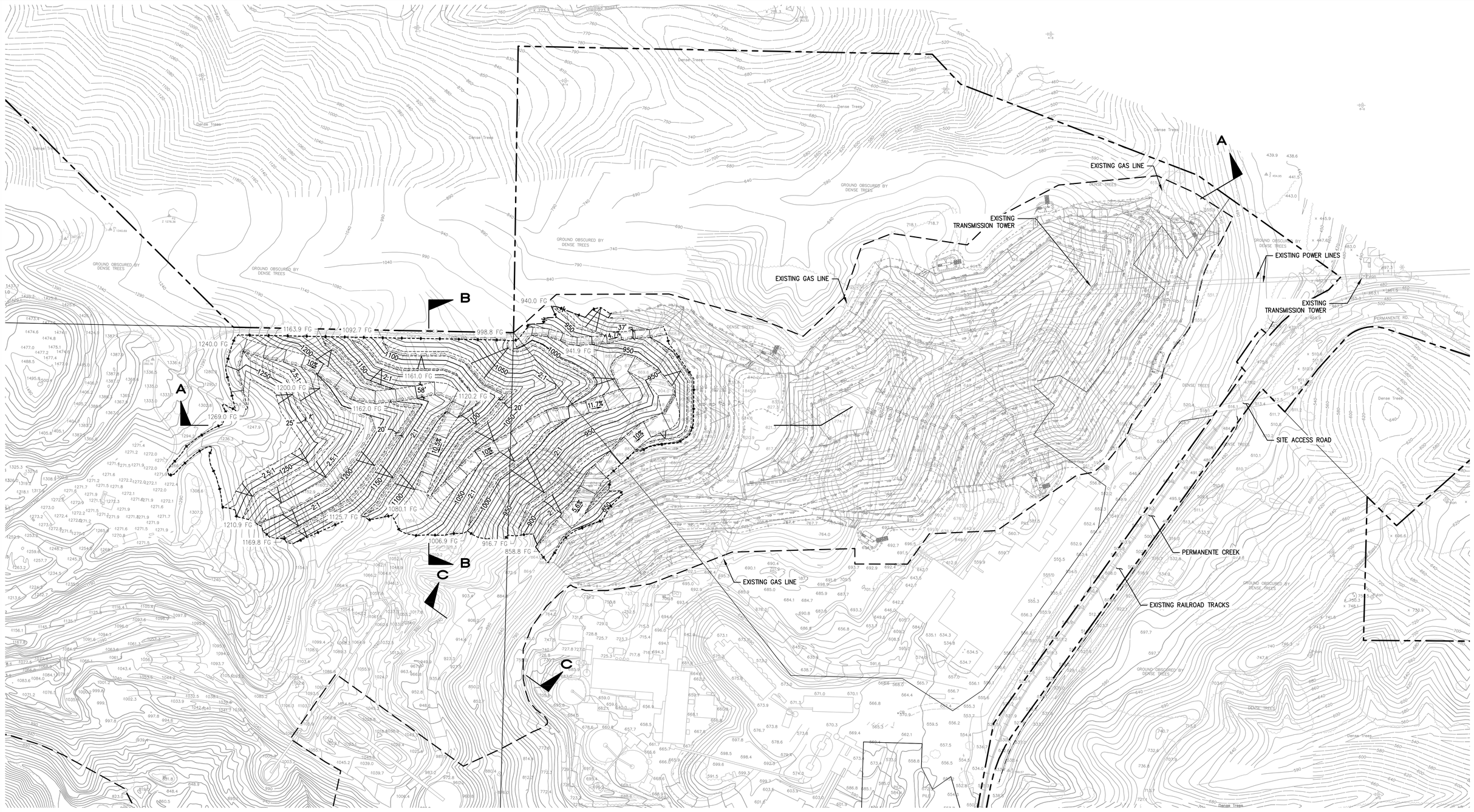

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
CENTRAL MATERIALS STORAGE AREA PHASES 2, 3, AND 4

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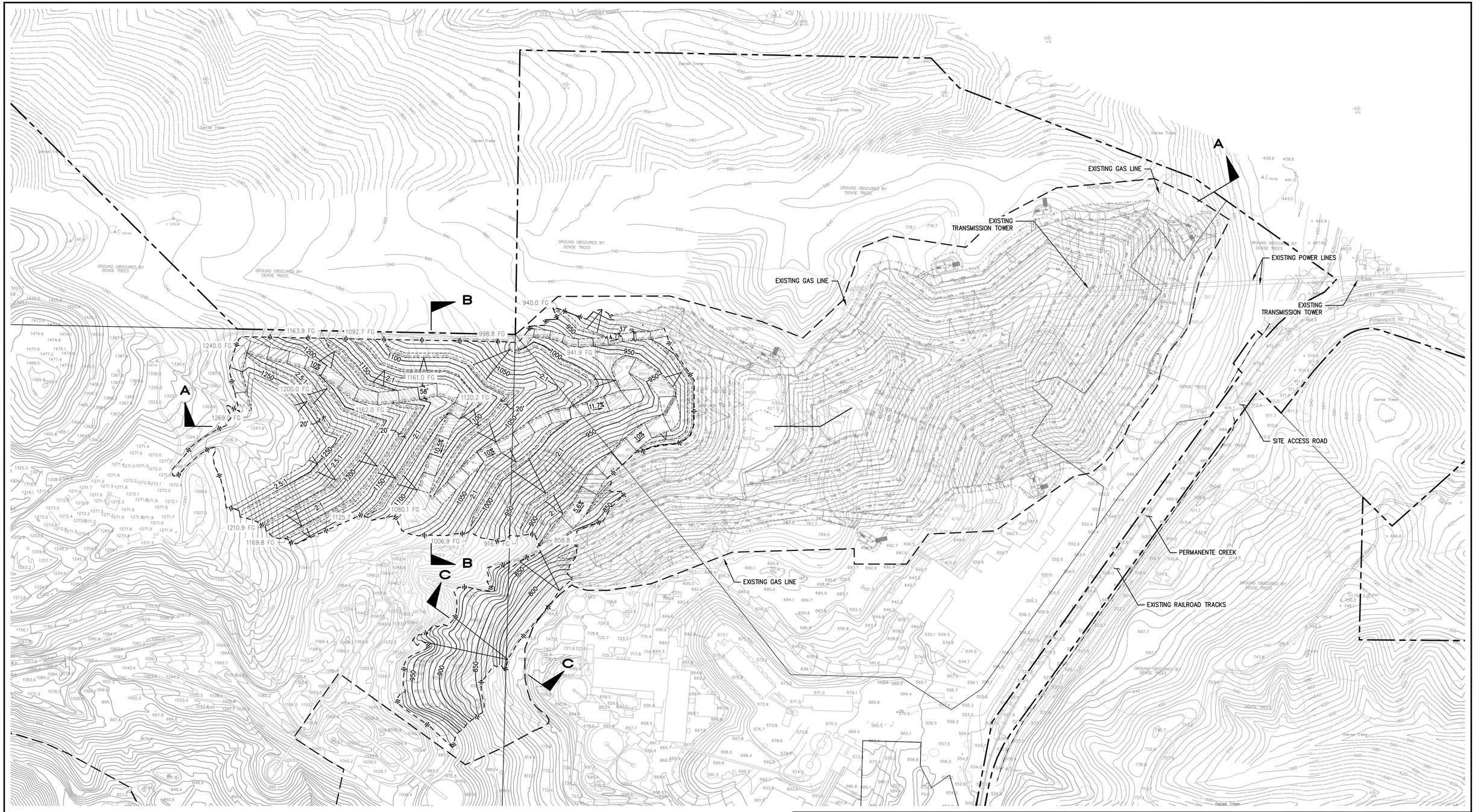

0 100 200 400

SCALE: 1" = 200'

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
CENTRAL MATERIALS STORAGE AREA PHASE 5

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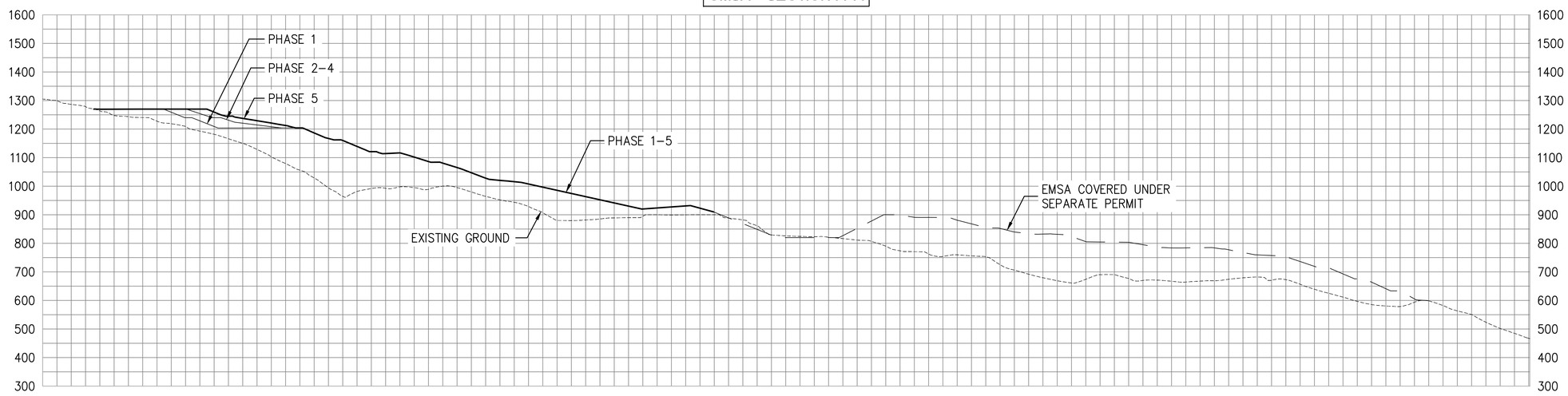
CMSA SECTION A-A



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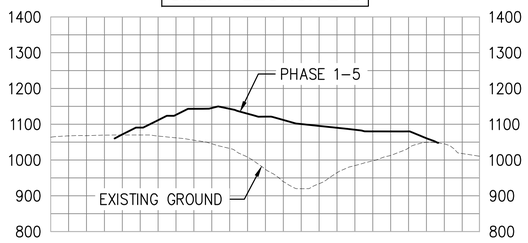

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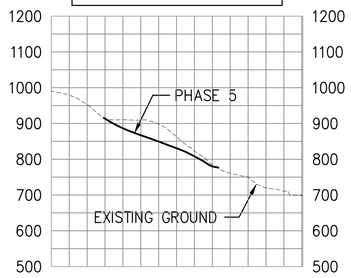

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
CENTRAL MATERIALS STORAGE AREA CROSS-SECTIONS

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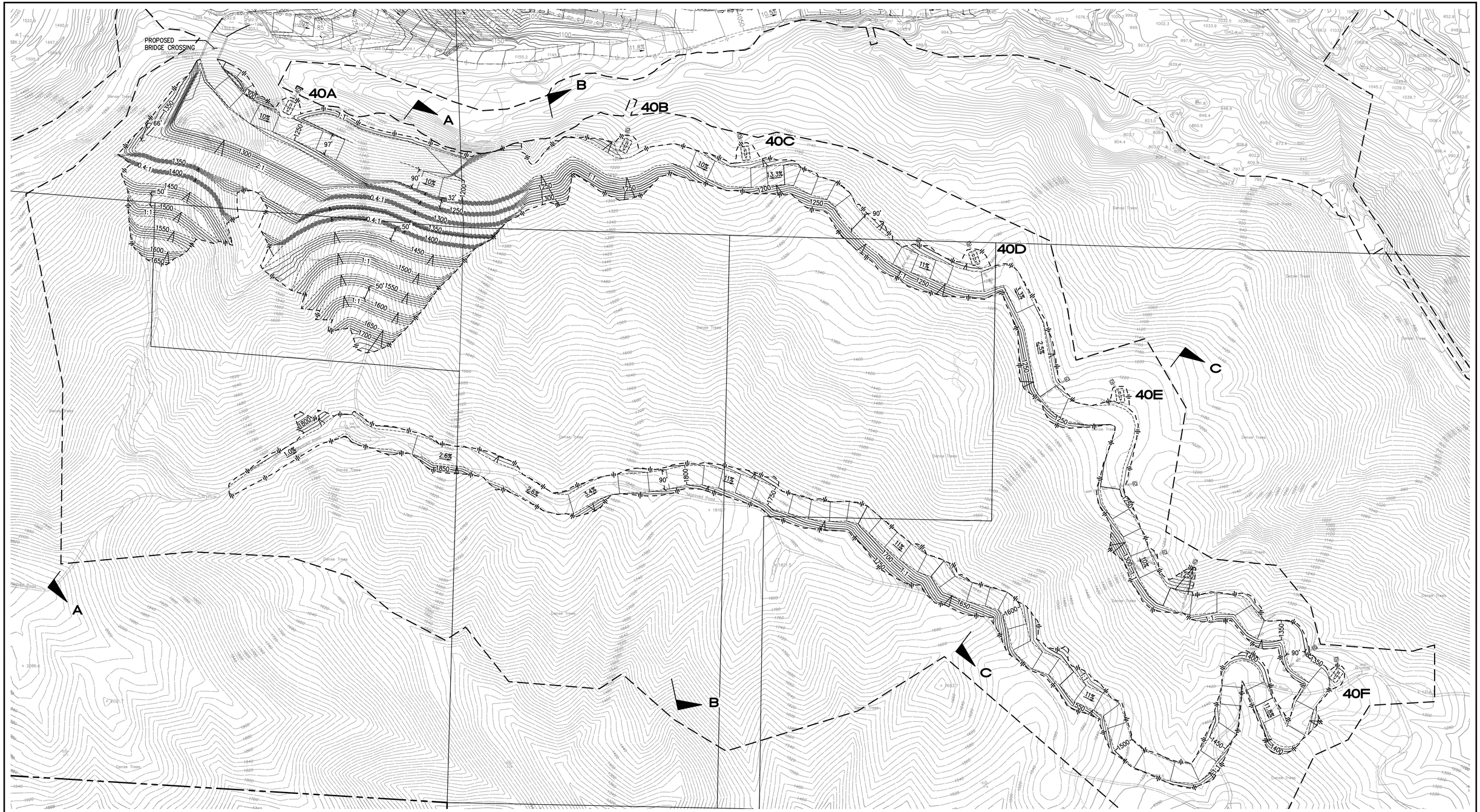

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P.O. Box 9496 T: 858.692.0760
Rancho Santa Fe, CA 92067 F: 858.832.1402

RECLAMATION PLAN FOR:
PERMANENTE QUARRY
SOUTH QUARRY PHASE 1

REVISION 1		SHEET 18
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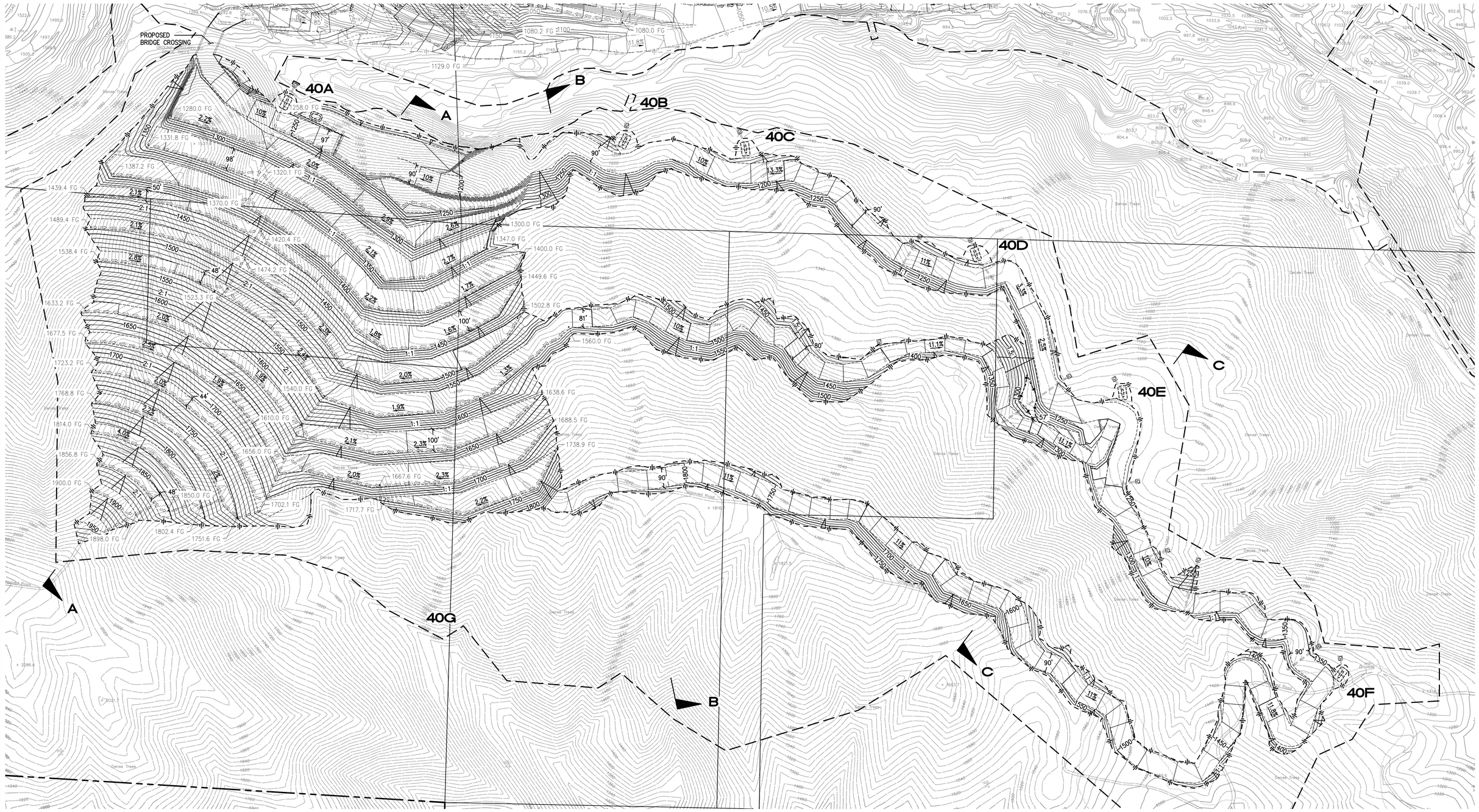

0 100 200 400

SCALE: 1" = 200'

OPERATOR

NAME:	LEHIGH SOUTHWEST CEMENT COMPANY
ADDRESS:	24001 STEVENS CREEK BLVD CUPERTINO, CA 95014
TELEPHONE:	408-996-4000
SHORT LEGAL:	SEC 18 T7S R2W MDBM; W 1/4 & SE 1/4 SEC 17 T7S R2W MDBM
A.P.N.	351-09-022; 351-10-005, 037, 038
SITE ADDRESS:	24001 STEVENS CREEK BLVD. CUPERTINO, CA 95014

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
SOUTH QUARRY
PHASE 2

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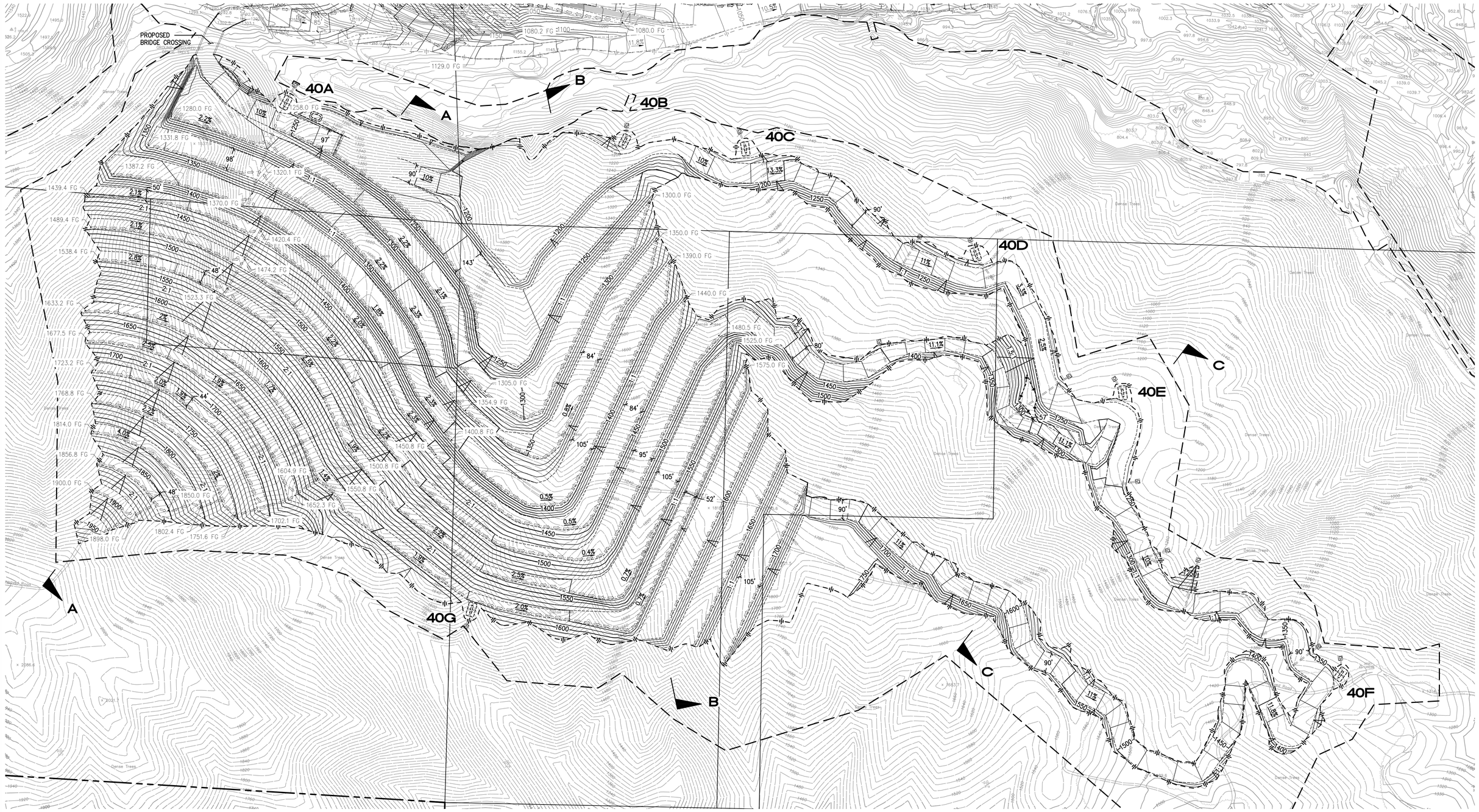

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
SOUTH QUARRY
PHASE 3

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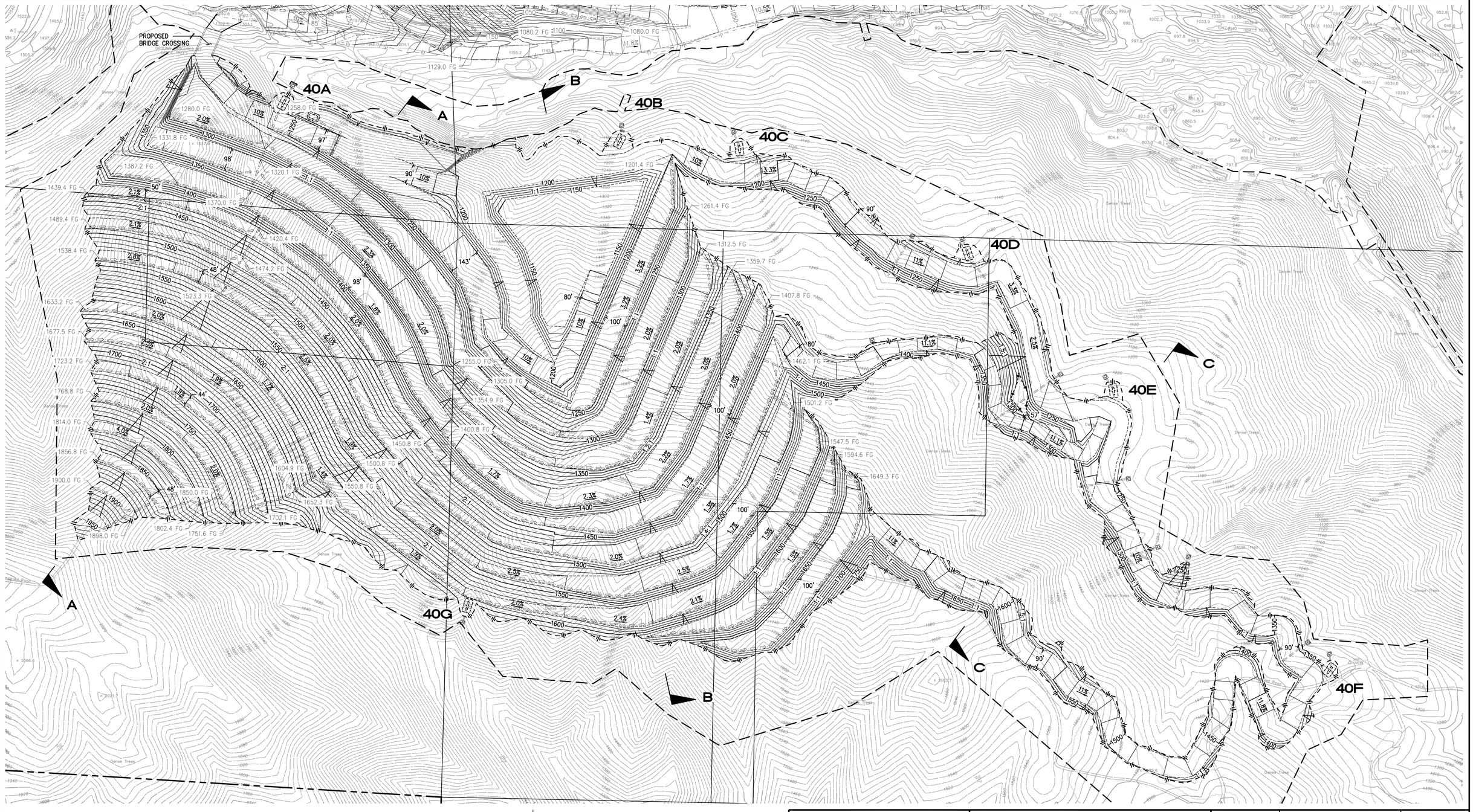

0 100 200 400
SCALE: 1" = 200'

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
SOUTH QUARRY PHASE 4

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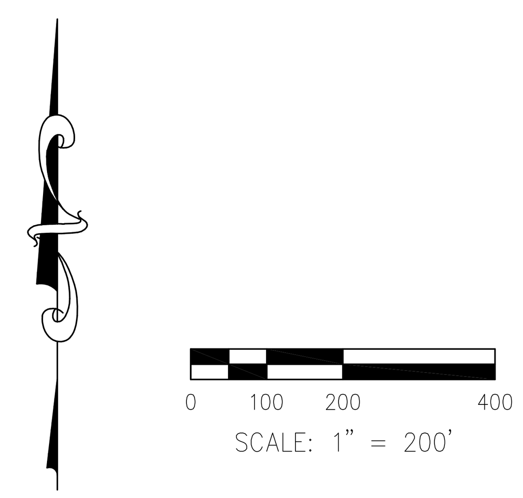

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
SOUTH QUARRY
PHASE 5

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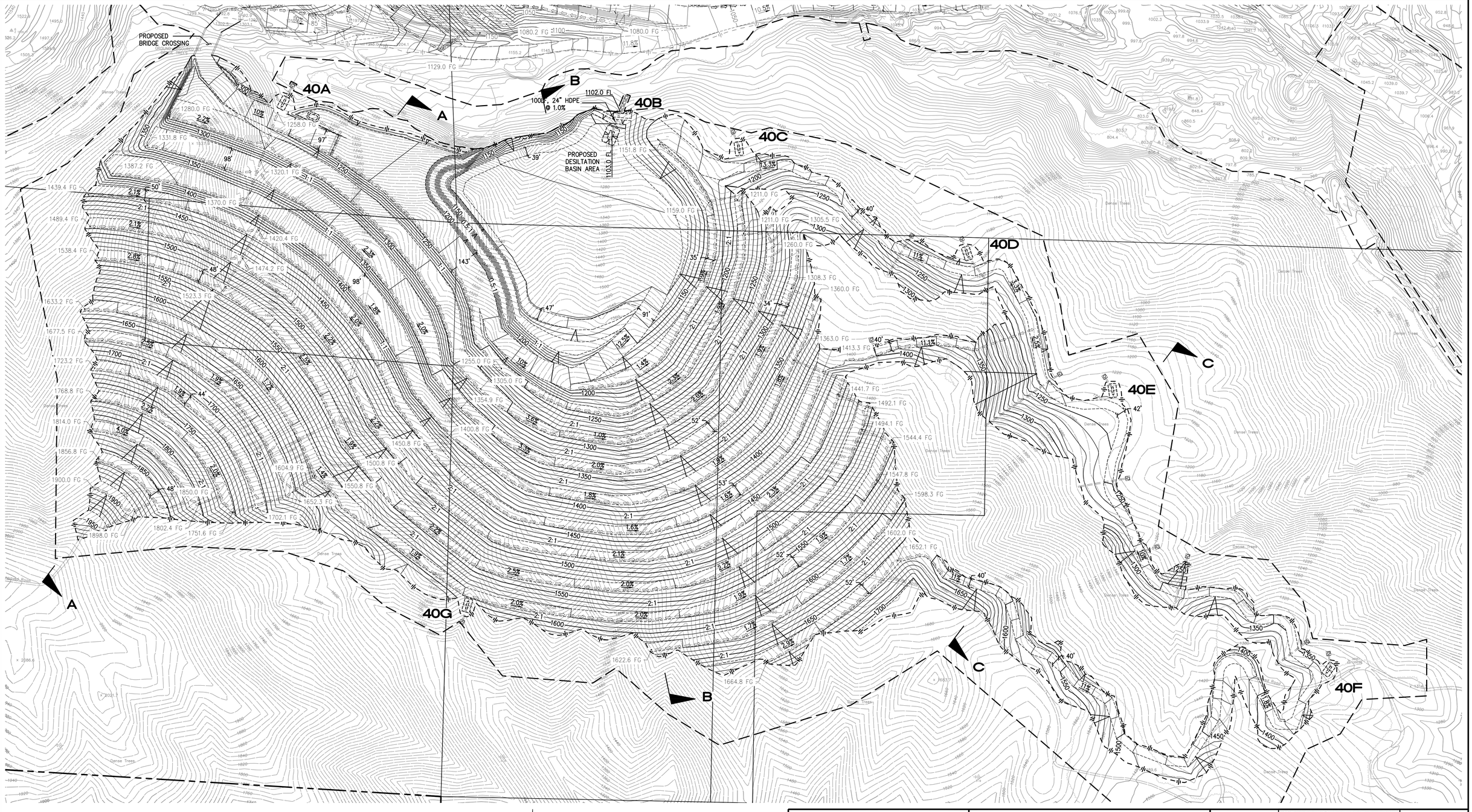

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
SOUTH QUARRY
PHASE 5 - BACKFILL

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MAY 23, 2010

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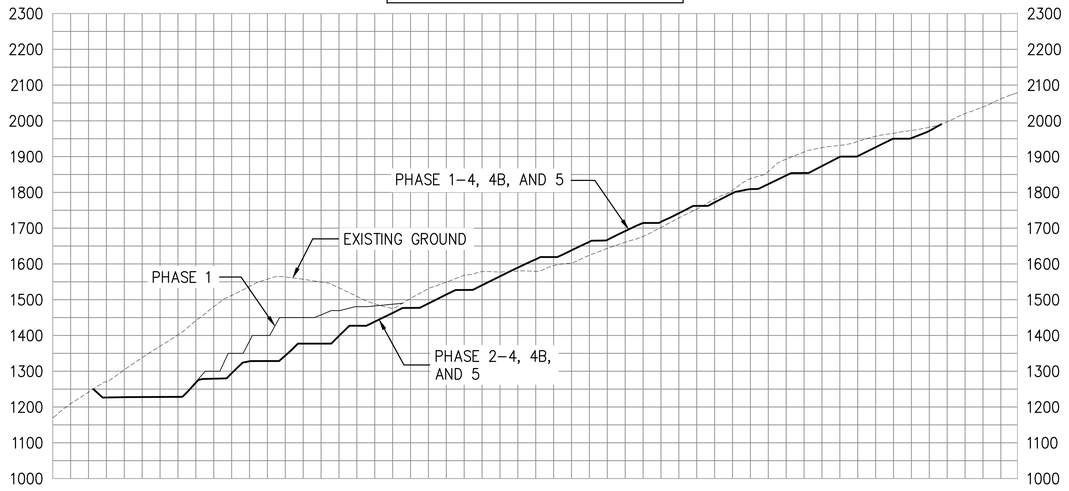
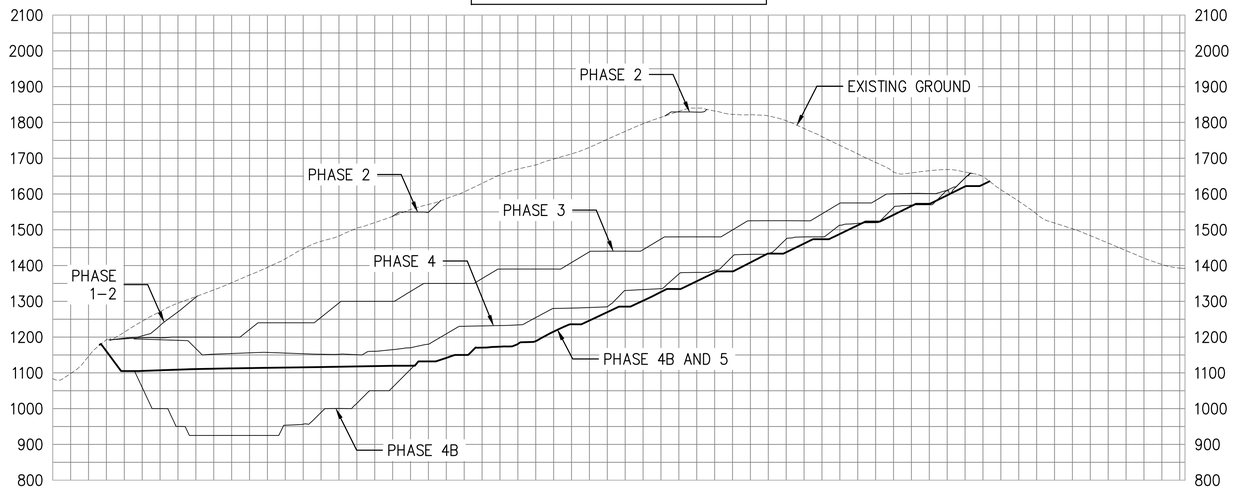
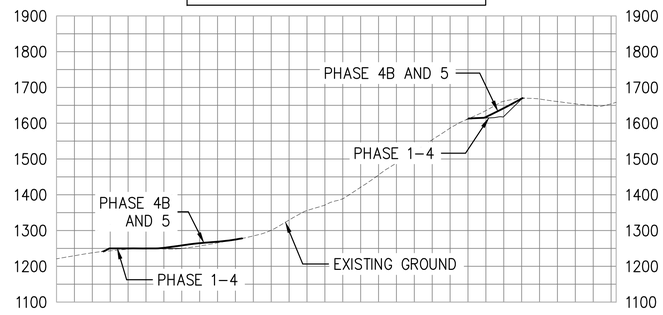
SOUTH QUARRY SECTION A-A



SOUTH QUARRY SECTION B-B



SOUTH QUARRY SECTION C-C



0 100 200 400

SCALE: 1" = 200'

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
SOUTH QUARRY CROSS–SECTIONS

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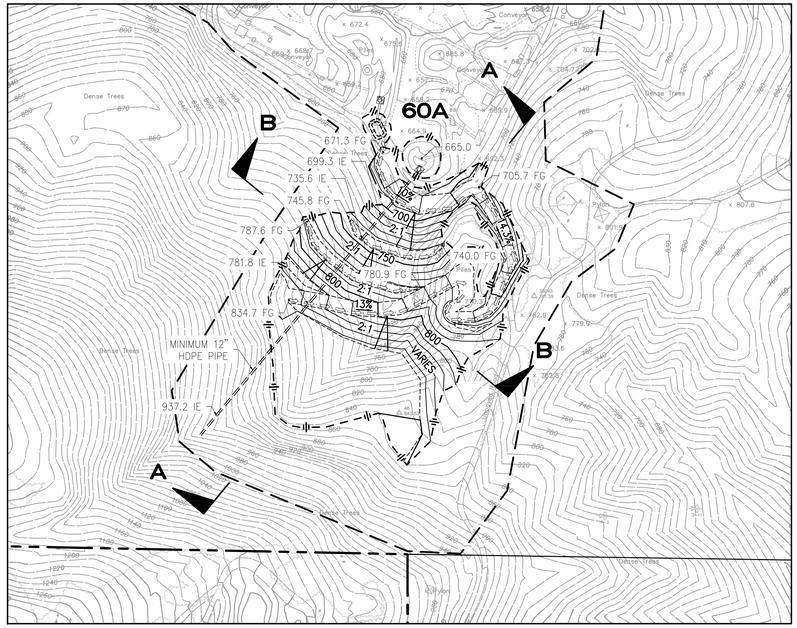
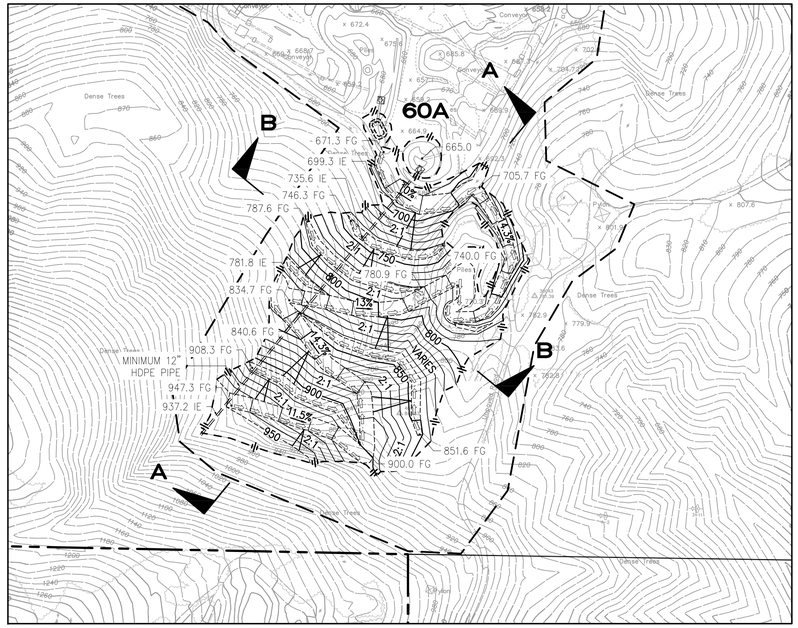
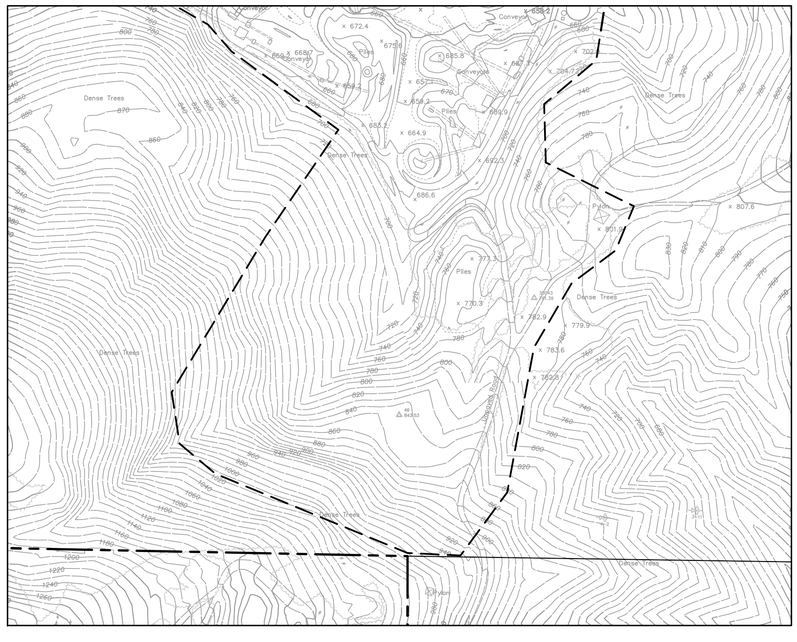


PHASE 1



PHASE 2

NOTE:
PIPE MATERIAL SHALL BE CAPABLE OF WITHSTANDING PROPOSED DEPTHS OR CONCRETE-ENCASED, AS NEEDED.



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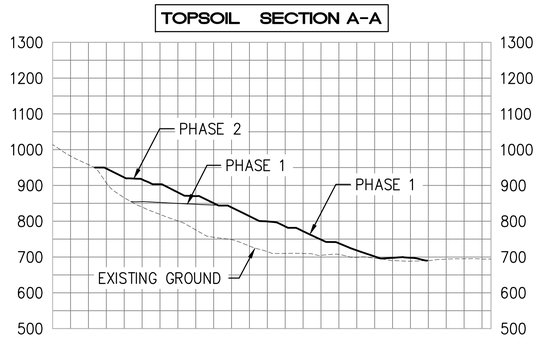

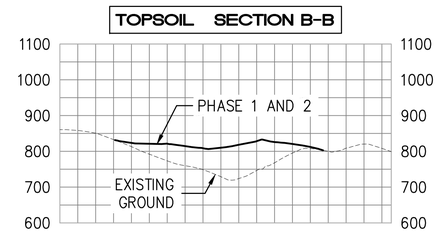

0 100 200 400
HORIZ. SCALE: 1" = 200'
VERT. SCALE: 1" = 200'

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RECLAMATION PLAN FOR:
PERMANENTE QUARRY
TOPSOIL STORAGE AREA
PHASES 1, 2, 5 AND CROSS-SECTIONS

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