SPECIFIC PLAN FOR
LIVERMORE-AMADOR VALLEY QUARRY AREA RECLAMATION

ADOPTED NOVEMBER 5, 1981
ALAMEDA COUNTY BOARD OF SUPERVISORS

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# SPECIFIC PLAN

# FOR

# LIVERMORE-AMADOR VALLEY QUARRY RECLAMATION

## I. PURPOSE

Pursuant to California Government Code, Sections 65450 et. seq., this Specific Plan is to execute, add precision to, and become a part of the General Plan of the County of Alameda for that 3,820 acre area designated for "Sand and Gravel Quarry" use between Pleasanton and Livermore in the Livermore-Amador Valley Planning Unit General Plan, adopted November 3, 1977.

## II. SPECIFIC PLAN COMPONENTS

The Specific Plan consists of the following components:

1. General and specific objectives;
2. Three maps (Plates 1-3) which represent staging plans depicting land and water configurations in the Quarry Area for the years 1995, 2010, and 2030;
3. A profile (Plate 4) of the Chain of Lakes system depicting land and water surface slevations;
4. A map (Plate 5) showing final elevations of reclaimed land areas;
5. Seven charts (Tables 1-7) tabulating 2030 land and water areas and volumes, categories and structural capabilities of land generated by reclamation, and land use acreages for the years 1995, 2010, and 2030;
6. Explanatory text;
7. Policies applying to the Quarry Area and activities conducted therein; and
8. Implementation methods.

## III. GENERAL OBJECTIVES

The general objectives of this Specific Plan are:

1. To enable the competing resources of land, water, and sand and gravel to be utilized with a minimum of conflict and disruption;
2. To plan for reclamation, productive reuse, and rehabilitation of the Quarry Area;
3. To mitigate adverse effects of mining;
4. To satisfy requirements of the State Surface Mining and Reclamation Act of 1975 and the Alameda County Surface Mining Ordinance;

5. To provide a coordinated plan for arrangement of mining-produced land and water masses into a coherent, flexible form, reflecting interrelatedness of geology, hydrology, land use, and other factors throughout the Quarry Area.

## IV. SPECIFIC OBJECTIVES

1. To mitigate alteration/impedance of groundwater movement and storage due to mining operations.

2. To mitigate exposure of groundwater to evaporative losses due to mining operations.

3. To mitigate exposure of groundwater to increased risk of quality degradation due to surface exposure as a result of mining operations.

4. To provide uninterrupted and undiminished satisfactory water quantity and quality in the upper aquifer of the mined area for beneficial uses.

5. To provide conditions to allow economic mining of sand and gravel resources benefitting the San Francisco Bay region.

6. To provide a surface water storage and transmission system to replace a portion of the existing subsurface system to mitigate mining impacts and enhance the ability to utilize, develop, and manage the water resources of the Livermore-Amador Valley for public benefit.

7. To provide land areas capable of productive use and with minimum residual hazards.

8. To provide flexibility sufficient to allow for changes in the Specific Plan in response to changes in future conditions, information, needs, technology, plans, or priorities.

9. To provide a framework concerning the future of the Quarry Area to help planning and decision making in the Livermore-Amador Valley.

## V. EXPLANATORY TEXT

1. Background

Mining of sand and gravel in the Livermore-Amador Valley began prior to 1900. As larger areas and volumes of sand and gravel were removed, the need for a permit system to regulate quarrying became apparent. In 1956 the County of Alameda adopted Ordinance 181 N.S. Early permits were issued in 1956-57 for large portions of the Quarry Area. Reclamation was generally not provided for in that era. Ordinance 181 N.S. did prohibit pollution or contamination of usable water-bearing strata. The early permits, as well as all later ones, limited mining to the uppermost aquifer (the gravel deposits serve as aquifers--storage and transmission areas for groundwater). More recent permits, beginning in 1965, contained more explicit language protecting water resources and reclamation plans were also required. Attempts by individual operators to produce viable reclamation plans failed because the water resources in the Quarry Area are interconnected and interdependent in terms of storage and flow and cannot be maintained

satisfactorily within the artificial boundaries of quarry permits. Recognizing this, the quarry operators agreed to a joint effort to develop a master reclamation plan to address all the problems within the entire 3,820 acre area designated for quarry use by the Alameda County General Plan. The operators' master plan is, for the most part, intended to provide reclamation for past, present, and future mining. Without reclamation, mining in the Quarry Area has the potential to further block the flow of groundwater from southeast to northwest, to further interfere with storage and recharge of groundwater, and to create unusable and/or unsafe pits and land areas. The master reclamation plan prepared by the operators was intended to address these problems. In 1975, the State of California adopted the State Surface Mining and Reclamation Act of 1975, requiring reclamation plans for all mining operations conducted after January 1, 1976. In 1977, Alameda County adopted a new Surface Mining Ordinance updating the 1956 Quarry Ordinance and incorporating reclamation requirements.

Currently, the operators in the Quarry Area are Kaiser Sand and Gravel, Lone Star Industries, and Rhodes-Jamieson. This Specific Plan and subsequent reclamation plans are obligations that run with land areas regardless of ownership/operator.

2. Specific Plan: Water Areas

The key concept in the master reclamation plan is the shaping of pit areas, which would eventually contain water, into a "chain of lakes" during the course of mining over the 50-60 year period that sand and gravel reserves are expected to last in the Quarry Area. The chain of lakes would provide a surface water storage and conveyance system to replace a portion of the pre-existing subsurface water storage and conveyance system feeding the groundwater basin. Connecting conduits between the lakes and structures necessary to capture and carry local runoff waters would be provided by the operators at no cost to the public through the local (Zone 7) water management agency. At the conclusion of mining, water from Arroyo del Valle will be capable of diversion into the chain of lakes, and a by-pass channel for that watercourse will also be provided to maintain downstream flows necessary to Zone 7 and Alameda County Water District. Diversion from the Arroyo Mocho into the lower portion of the chain of lakes would be made available earlier (about 2000-2010) to Zone 7 by Kaiser Sand and Gravel and Rhodes-Jamieson. The end-state configuration is shown on Plate 3. Plates 1 and 2 show the configurations projected for 1995 and 2010, respectively. The end-state profile (section) of the chain of lakes is shown on Plate 4.

The following are other important features of the chain of lakes:

- Overburden materials will be used by the operators to line the eastern or northern faces of Lakes E, F, G, and H, as shown on the Plates. In this manner, barriers to groundwater intrusion into the lakes would be created to retard lower quality waters from seeping into the main basin. Operationally, this would allow groundwater levels to be maintained at different elevations than those in the lakes with less fear of water quality degradation.

- Lakes J and K are not necessary for operation of the chain of lakes, and are designated as areas where mining is optional. If mined, Lake J could be an extension of Shadow Cliffs Regional Park. If mined, Lake K could be available to capture polluted runoff water from urban development, acting independently of the groundwater basin.

- Water from Arroyos del Valle and Mocho (and possibly Las Positas and other waters) will be diverted into the chain of lakes.

- After storage and conveyance via the chain of lakes, water would percolate into the ground through the exposed aquifer at the west face of Lake I.

- Buffer strips, 25' wide interior and exterior access areas, except as shown on the Plan maps, encircle the lakes to minimize pollution potential and maximize security and safety of the area.

- Conduits between lakes will be 30" diameter, with the exception of that between Lake D and Lake E, which will be 42".

- The diversion structure from Arroyo del Valle within Lake A into Lake C will be capable of diverting at least the first 500 cubic feet per second of flow from the Arroyo.

- The diversion structure from Arroyo Mocho into Lake H will be capable of divering at least the first 100 cubic feet per second of flow from the Arroyo.

- The operators will dedicate to Zone 7, at no cost, all lakes comprising the chain of lakes, all exterior perimeter areas, sufficient interior perimeter areas to provide a minimum 25' wide access, and appurtenant levees, conduits, and diversion structures.

3. Specific Plan: Land Areas

Land areas reclaimed upon completion of mining will reflect results of mining operations and construction of the chain of lakes. Land areas will be of four types, distinguishable on the basis of their formation and their physical characteristics, as summarized in Table 4. They are:

- Earth Fill: Overburden is placed in depleted pits creating land areas with a finished surface elevation above anticipated levels of the surrounding water areas. During placement, the overburden is compacted to meet engineering criteria so that few geologic or structural constraints exist upon development of any kind. The Staging Plans (Plates 1 and 2) depict these areas and the Available Land Use, Plate 3, denotes these areas as potentially capable of supporting "Class 1" development, including agriculture, aquaculture, recreation, industrial, commercial, and residential.

- Settling Ponds: Fine silts and clays separated from saleable aggregate by washing gradually settle out of the wash water in settling ponds. The filled ponds, which are principally made up of finer materials, may take many years to consolidate. The resulting land areas are not capable of supporting heavy structures and could be subject to flooding. These areas would be potentially suitable for "Class 3" development, including agriculture, aquaculture, and recreation. Generally, these areas will have final ground surfaces elevations well below natural ground level.

- Capped Settling Ponds: After the waste material in the settling pond has consolidated sufficiently, the resulting land area can be capped with a layer of 5 to 10 feet of overburden material. This capping adds to the structural stability of the soil and may permit use for industrial structures. Each area must be analyzed to determine its suitability for any particular use. These areas have been designated on Plate 3 as potentially suitable for "Class 2" development, including agriculture, aquaculture, recreation, and industry.

- Undisturbed Earth: Significant portions of the Quarry Area are shown as not to be mined. These areas are designated potentially capable of supporting "Class 1A" development, with the same potential uses as "Class 1" development.

The policies contained in these Specific Plan will serve to guide future decisions concerning actual land use modifications. The above categories merely indicate the major physical constraints on land use; many other factors must be taken into account before determining ultimate uses.

4. Specific Plan: Staging

Staging is defined as the sequence of operations involved in mining and reclamation. The mining operation calls for planning a logical sequence of operations to gain maximum efficiency and minimize production costs; reclamation is most efficiently performed concurrently to minimize earthmoving. A reclamation plan, therefore, flows directly from a mining plan. Staging in the Quarry Area has been developed and is presented to provide reference points as to reclamation progress, to permit planning for future land and water capabilities and to ensure the feasibility of carrying out the Specific Plan.

In order to determine the rate of staging progress, an estimate of future aggregate production must be made. It has been assumed that sales will average 6,500,000 tons annually, gradually increasing to 8,500,000 tons over a 20-year period and maintaining that rate until depletion in about the year 2030. This estimate forms the basis for the interim staging plans of 1995 (Plate 1) and 2010 (Plate 2). At the base-line year of 1976, active quarrying took place north and south of, and generally close to, Stanley Boulevard. Mining will generally proceed further away from Stanley Boulevard, while backfilling unused settling pond dry-out, dike and levee construction, and conduit and diversion structure installation, all take place concurrently to reclaim areas according to plan for which mining has been completed. Tables 5, 6, and 7 quantify the acreages of the various land and water types shown in map form on Plates 1, 2, and 3.

Detailed sequencing/staging will be the responsibility of each operator to conform to the plans contained herein.

## VI. POLICIES

1. The Alameda County Planning Commission shall be the Lead Agency and coordinator to ensure that the Specific Plan is carried out. Reclamation plans of each operator will be enforced by Building Inspection Department of the Alameda County Public Works Agency, pursuant to the Alameda County Surface Mining Ordinance.

2. Maximum flexibility in reclamation planning is desirable. The Specific Plan way be reviewed as deemed necessary by the Board of Supervisors and Planning Commission, and may be altered pursuant to State Law. Normally, review of the Specific Plan, if required, would be co-ordinated with the scheduled periodic review of individual reclamation plans within limitations of conditions existing at those times. Operators shall pay to the County the actual cost of reviews of the Specific Plan if initiated by the operators.

3. For the purposes of the Specific Plan, reclamation shall be defined as in the Alameda County Surface Mining Ordinance, with the additional requirement that mining impacts on water resources of the Livermore-Amador Valley basin be mitigated.

4. The reclamation plans to be submitted by each operator shall show details of facilities to be built, shall define each component of reclamation and the estimated cost of each reclamation component so that the guarantee required by #5 can be estimated. A staging plan for completing each component and area and detailed sequencing of reclamation shall also be submitted as part of the reclamation plans. Components of reclamation shall be substantially the same for each operator, shall be limited to work that is exclusively related to reclamation, and shall be accounted for by the operators and verified by the County.

5. Each operator shall provide security for the timely performance of reclamation requirements by one of the following methods, as shall be determined by the Planning Commission at the time it acts on individual reclamation plans.

    1. A bond or bonds by one or more duly authorized corporate sureties; or

    2. An escrow account acceptable to the County into which shall be deposited an amount per ton excavated during the period since the last deposit equal to the total estimated cost of the components of the reclamation, plus contingencies, divided by the estimated total saleable tons of aggregates to be mined from the operator's property, and against which the operator shall receive credit for reclamation work completed during such period; or

    3. A combination of the two types of security described above.

    The burden of proof shall be on the individual operator to show that surety other than an escrow account will be sufficient to ensure progressive, complete, reclamation and that reclamation progress can be monitored to ensure the surety would become readily available should reclamation lag unacceptably.

6. Levees and dikes constructed as part of the water management system shall be guaranteed by the constructing operator (s) for 5 years after construction, and maintained in a sound and acceptable condition until dedicated to Zone 7. Water Conveyance structures (conduits, appurtenances, diversion structures, etc.) will be guaranteed for 2 years after construction, and maintained in a sound and acceptable condition until dedication to Zone 7 and further guaranteed for one year after acceptance of dedication by Zone 7 if more than one-half the 2-year guarantee period has expired. All other reclamation features shall be guaranted by the operators for 2 years after completion of the component.

7. Each operator, or its successor, shall explicitly commit itself to reclamation of its own lands to carry out the overall reclamation concept, as may be modified through periodic review.

8. The operators shall pay for their fair share of the following studies or reviews necessary to demonstrate viability of their proposal in an amount to be fixed by the Planning Commission. The "fair share" shall be in proportion to the extent to which the study or review is necessary to address impacts of mining or reclamation in each operator's mining area. Studies or reviews to which this policy shall apply are as follows:

   - A routing study showing how water would be routed through the chain of lakes including interfaces with the groundwater basin and how the system would be operated under a number of hypothetical conditions (wet year, dry year, flood, drought, etc.).

   - A study of hydrology near Stanley Boulevard to demonstrate whether the area is critical for recharge of lower aquifers and to justify placement of inert material in an area shown for water on the approved Q-76 reclamation plan.

   - A study to demonstrate imperviousness and stability of pits and dikes under uplift pressures.

   - Monitoring of water levels and quality necessary to determine the potential effects on mining and water resources.

   - A study to demonstrate viable techniques for re-establishing agriculture on low-lying reclaimed lands.

9. No water rights shall be abridged due to the reclamation concept.

10. A field inspection program shall be developed by the County and the operators, and inspection shall be provided as needed to ensure proper construction techniques in critical phases of reclamation. Operators shall pay the actual cost of such inspections.

11. The operators shall dedicate to Zone 7, upon terms mutually acceptable to the operators and Zone 7, all water areas and necessary supporting land areas to operate the chain of lakes in the public interest. The right of the public to manage and use water resources of the chain of lakes and area groundwater undiminished with respect to quantity and quality shall be expressly asserted and any otheruses permitted in said areas shall be compatible with said right.

12. Water areas may be used by Zone 7 for water conservation, water transmission, groundwater recharge, flood control and water quality management. Water areas may also be used for recreation, fish farming, and other productive uses to the extent such uses would be compatible with the first-named uses.

13. Land areas may appropriately be used for mining, mining-related industry in conjunction with ongoing mining, agriculture, open space, and watershed uses. New or expanded uses in the Quarry Area shall be allowed only upon securing Zoning Approval to ensure compatibility with the Specific Plan and reclamation of the area. Reclaimed land should be capable of supporting beneficial uses. No uses shall be permitted which may unacceptably pollute the lakes.

14. Land areas necessary to support or protect water uses shall be shown in detail on reclamation plans of each operator. Minimum 25 foot widths shall be shown around all lakes with larger areas as may be needed for support facilities around critical areas such as conduits. Minimum 50 foot setbacks shall be shown from all existing public streets.

15. If El Charro Road becomes a public street, its alignment shall be coordinated with the appropriate public agencies.

16. Any expansion of Shadow Cliffs Regional Park shall be coordinated with East Bay Regional Park District.

17. Final side slopes of pits shall be governed by provisions of the Alameda County Surface Mining Ordinance.

18. The reclamation plans to be submitted by each operator shall indicate how drainage is to be provided for all land areas which will not pollute the lakes.

19. The reclamation plans to be submitted by each operator shall include provisions to retain on site all overburden and soils necessary to complete said plans. Contracts to supply overburden shall be honored only if signed prior to September 21, 1981.

20. Approval of this Specific Plan implies no commitment by the County to approval of surface mining permits for those portions of the quarry area not under permit.

21. In the event that the individual operator's ability to comply with its obligations under this Specific Plan, as it may be modified as provided herein, is demonstrably prevented or substantially impaired by any governmental action or inaction which prohibits or materially restricts the operator's conduct of its mining operation, or by any other cause or occurrence reasonably beyond the operator's control, including acts of God, the operator and the County shall negotiate in good faith to reach agreement on a revised reclamation plan within the general framework of the County's reclamation expectations and the operator's economic expectations under the Specific Plan and individual reclamation plan as such expections existed prior to the occurrence of surch event.

## VII. IMPLEMENTATION

### 1. Reclamation Plans

Pursuant to the requirements of the State Surface Mining and Reclamation Act of 1975, and the Alameda County Surface Mining Act, each operator must submit a reclamation plan for all mining conducted after January 1, 1976. The three operators in the Quarry Area will be submitting their detailed reclamation plans, to conform to this Specific Plan, as soon as possible after this Specific Plan is adopted. Once approved, the reclamation plans of each operator will be enforced by the County of Alameda Building Official, to ensure that reclamation is being completed according to the staging plans and timetables and appropriate specifications. The Building Official has the power to issue a stop work order if compliance with reclamation plans is not achieved. Chronic failure to carry out reclamation plans can, under the ACSMO, be cause for revocation of surface mining permits.

Each reclamation plan will include a requirement that reclamation be guaranteed by each operator. The Planning Commission will determine the most satisfactory type of guarantee at the time it acts upon each reclamation plan.

2. Specific Plan

Under State law, a Specific Plan sets land uses in a precise manner. Zoning must conform to the Specific Plan. Non-compliance with the maps and other information in this Specific Plan which serves to specify reclamation requirements is treated the same way as non-compliance with the General Plan or zoning. The County has the ability to seek judicial remedy and force compliance. If problems develop, either with the Plan as adopted or due to unforeseen circumstances, the Plan can be modified to ensure continuation of coordinated reclamation efforts in the Quarry Area. At such times, the operators' individual reclamation plans would be modified accordingly. Authority exists under State law to adopt new ordinances as may be necessary to ensure implentation of a Specific Plan.

3. Contracts

The operators are entering into contracts with Zone 7 of Alameda County Flood Control and Water Conservation District under which the operators agree to cause effectuation of the water management aspect of the plan, binding upon their properties and operations. As a contract, all remedies at law pertinent to breaches of contract are available to Zone 7. Included in the contract terms is an agreement that, over and above such normal remedies, specific performance is necessary to furnish adequate remedy of any breach.

The contracts specify facilities which each operator will construct and dedicate to Zone 7 in terms of location, size, and capabilities. Preparation and design of plans and specifications will be done in consultation with, and approved by Zone 7. Inspection of construction will be carried out by Zone 7. Levees and dikes will be guaranteed for 5 years and water conveyance structures (conduits, appurtenances, diversion structures, etc.) for 2 years after construction, and maintained in a sound and acceptable condition until dedication to Zone 7. For the water conveyance structures, the operators will further guarantee the integrity of the structures for one year after acceptance of dedication by Zone 7 if more than 1/2 of the 2-year guarantee period has expired.

The operators will cooperate with Zone 7 in a monitoring program to determine effects of mining on quality and quantity of groundwaters and vice versa. Terms of the contracts are binding upon Zone 7 and all successors of the present operators in the Quarry Area.

4. Reviews

Under policies of this Specific Plan, periodic reviews may be made by the Planning Commission and Board of Supervisors when they deem it necessary. Under the Alameda County Surface Mining Ordinance, review of each operator's reclamation plan is required at 5-year minimum intervals. The purpose of such reviews is to provide for changes in the reclamation plans in response to changed conditions or unforeseen circumstances. Under a review, plans could be changed to guarantee the integrity of the water resources and land areas if present concepts prove infeasible or inadequate. In addition, reclamation costs will be refined and updated and the guarantees revised accordingly.

5. Responsibilities

Under this Specific Plan, responsibilities are clearly defined within the existing framework of law, public agencies, and procedures. In summary:

- The Alameda County Planning Commission is the Lead Agency and coordinator to ensure the Specific Plan is carried out. The Planning Commission is also the action agency for surface mining permits and reclamation plans as well as most land/water use issues.

- The Building Official is the enforcement agency that ensures compliance with reclamation plans, and is also responsible for inspection of mining and reclamation and issuance of annual progress reports on same.

- Zone 7 of Alameda County Flood Control and Water Conservation District is responsible for ensuring that water resources of the Livermore-Amador Valley are not adversely affected by mining. Zone 7 is also responsible for inspection of water management facilities constructed by the operators. Zone 7 will accept the water management facilities and operate them when ready.

- Each mining operator in the Quarry Area is responsible for ensuring that its own operations do not adversely affect water resources and that land and water areas are reclaimed as quickly as possible to a usable condition which is readily adaptable for alternate uses, and no danger to public health or safety is created. Each operator is responsible for explicit commitment to reclamation of its own lands as necessary to carry out the overall reclamation concept, for guarantees that reclamation as detailed in individual plans will occur, and for individual warrantees for reclamation. Essential components of the overall reclamation concept transcending individual plans shall be identified and each operator shall participate in completion of these elements of reclamation in an equitable manner as may be determined by the operators, Zone 7 and the County of Alameda. Each operator is responsible for bearing the public cost of inspection and review of its own reclamation. Each operator is responsible for dedication of its water management facilities to Zone 7.

TABLE 1

COMPARISON OF LAND AND WATER AREAS

2030 LAND USE ACREAGES

| Category | |
|---|---|
| Undisturbed Land | 930 acres |
| Regenerated Land | 1480 |
| Water Area | 1410 ** |
| Total | 3820 acres |

*See Table 7, p. 40, 1977 Reclamation Plan

**Includes chain of lakes plus Lakes J and K

TABLE 2

2030 WATER AREAS AND VOLUMES

(Approximate)*

| LAKE | ELEVATION (feet) | AREA (acres) | ACTIVE VOLUME (ac. ft.) | DEAD VOLUME (ac. ft.) | TOTAL VOLUME (ac. ft.) |
|---|---|---|---|---|---|
| A | 385 | 165 | 7.900 | ---- | 7.900 |
| B | 360 | 147 | | 2,000 | 2,000 |
| C | 380 | 156 | 6,820 | 1,980 | 8,800 |
| D | 380 | 261 | 15,520 | 8,330 | 23.850 |
| E | 360 | 71 | 1,908 | 62 | 1,970 |
| F | 350 | 56 | 2,450 | ---- | 2,450 |
| G | 340 | 59 | 3,870 | ---- | 3,870 |
| H | 330 | 100 | 6,820 | ---- | 6,820 |
| I | 320 | 326 | 26,480 | ---- | 26,480 |
| CHAIN OF LAKES | | 1,341 | 71,768 | 12,372 | 84,140 |
| J** | 330 | 90 | | 4,400 | 4,400 |
| K** | 360 | 44 | | 1,600 | 1,600 |
| TOTAL | | 1,475 | 71,768 | 18,372 | 90,140 |

*NOTE: Lakes A and B are now proposed to be connected by a conduit, therefore, Lake B Storage will be mostly Active Volume. Other figures are subject to change.

**NOTE: Excavation of areas specified as Lakes J and K is optional.

TABLE 3

ESTIMATED VOLUME OF CAPTURABLE UNREGULATED FLOW IN ARROYO MOCHO AND CAPTURABLE REGULATED FLOOD CONTROL RELEASES FROM LAKE DEL VALLE INTO ARROYO DEL VALLE AT VICINITY OF SAND AND GRAVEL MINING AREA

A. Capturable unregulated flow in Arroyo Mocho in Livermore based on 22-year USGS record from 1913 to 1930 and 1965 to 1968.

| Diversion Rate cubic feet per second (cfs) | Average Annual Volume Diverted acre-feet (AF) |
|---|---|
| 10 | 1000 |
| 50 | 1800 |
| 100 | 2100 |
| 200 | 2500 |

B. Capturable regulated flood control releases from Lake Del Valle into Arroyo Del Valle based on USGS records from 1969 through 1980.

| Diversion Rate cubic feet per second (cfs) | Average Annual Volume Diverted acre-feet (AF) |
|---|---|
| 200 | 2800 |
| 500 | 4900 |
| 1000 | 6200 |

TABLE 4

LAND CATEGORIES, DEVELOPMENT CLASSES AND POTENTIAL USE

| CATEGORY | FILL MATERIAL | IDENTIFICATION | POTENTIAL USES |
|---|---|---|---|
| Undisturbed | Native earth in place | Development Class 1A | Agriculture* Recreation Industrial Commercial Residential |
| Earth Fill | Overburden or interbedded clay | Development Class 1 | Agriculture* Recreation Industrial Commercial Residential |
| Capped Settling Pond | Fine silts and clays capped with overburden and clay | Development Class 2 | Agriculture* Recreation Industrial |
| Settling Pond | Fine silts and clays (washout) | Development Class 3 | Agriculture* Recreation |
| Earth Fill (low elevation) | Overburden or interbedded clay | Development Class 3A | Agriculture* Recreation |

*Including aquaculture

TABLE 5

1995 LAND USE ACREAGES

| CATEGORY | | USES | OUTSIDE QUARRY AREA | INSIDE QUARRY AREA | TOTAL ACRES |
|---|---|---|---|---|---|
| Undisturbed Land | | Development Class 1A | 5 | 2,220 | 2,225 |
| Regenerated Land | Earth Fill | Development Class 1 | 265 | 218 | 1,058 |
| | Capped Settling Pond | Development Class 2 | | 128 | |
| | Settling Pond | | | 447 | |
| Working Pit | | Mining | | 162 | 162 |
| Water | | Recreation | 90 | | 335 |
| | | Process Water | | 215 | |
| | | Other Water | | 30 | |
| | | TOTAL ACRES | 360 | 3,820 | 4,180 |

TABLE 6
2010 LAND USE ACREAGES

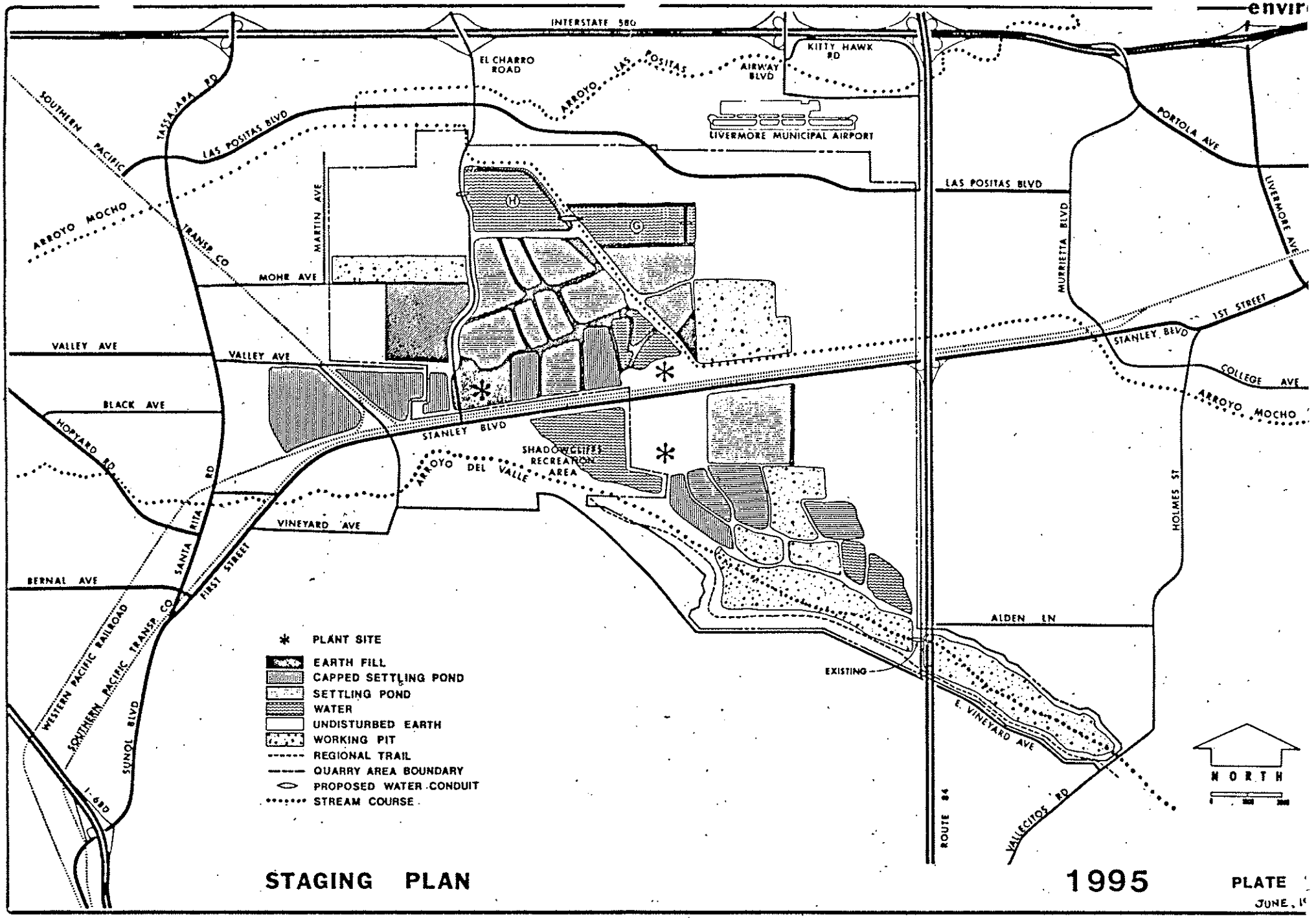
| CATEGORY | | USES | OUTSIDE QUARRY AREA | INSIDE QUARRY AREA | TOTAL ACRES |
|---|---|---|---|---|---|
| Undisturbed Land | | Development Class 1A | 5 | 1,697 | 1,782 |
| Regenerated Land | Earth Fill | Development Class 1 | 265 | 236 | 1,337 |
| | Capped Settling Pond | Development Class 2 | | 204 | |
| | Settling Pond | Development Class 3 | | 632 | |
| | | | | | |
| Working Pit | | Mining | | 462 | 462 |
| Water | | Recreation | 90 | | 679 |
| | | Water Management | | 414 | |
| | | Process Water | | 145 | |
| | | Other Water | | 30 | |
| | | TOTAL ACRES | 360 | 3,820 | 4,180 |

TABLE 7A

2030 LAND USE ACREAGES - PLAN C

| CATEGORY | | USES | OUTSIDE QUARRY AREA | INSIDE QUARRY AREA | TOTAL ACRES |
|---|---|---|---|---|---|
| Undisturbed Land | | Development Class 1A | 5 | 930 | 935 |
| Regenerated Land | Earth Fill | Development Class 1 | 265 | 437 | 1,745 |
| | Capped Settling Pond | Development Class 2 | | 470 | |
| | Settling Pond | Development Class 3 | | 573 | |
| Water | | Recreation | 90 | 90 | 1,500 |
| | | Water Management | | 1,276 | |
| | | Other Water | | 44* | |
| | | TOTAL ACRES | 360 | 3,820 | 4,180 |

*Lake K - Dry pit except when used for holding pond for polluted or silt-laden waters.

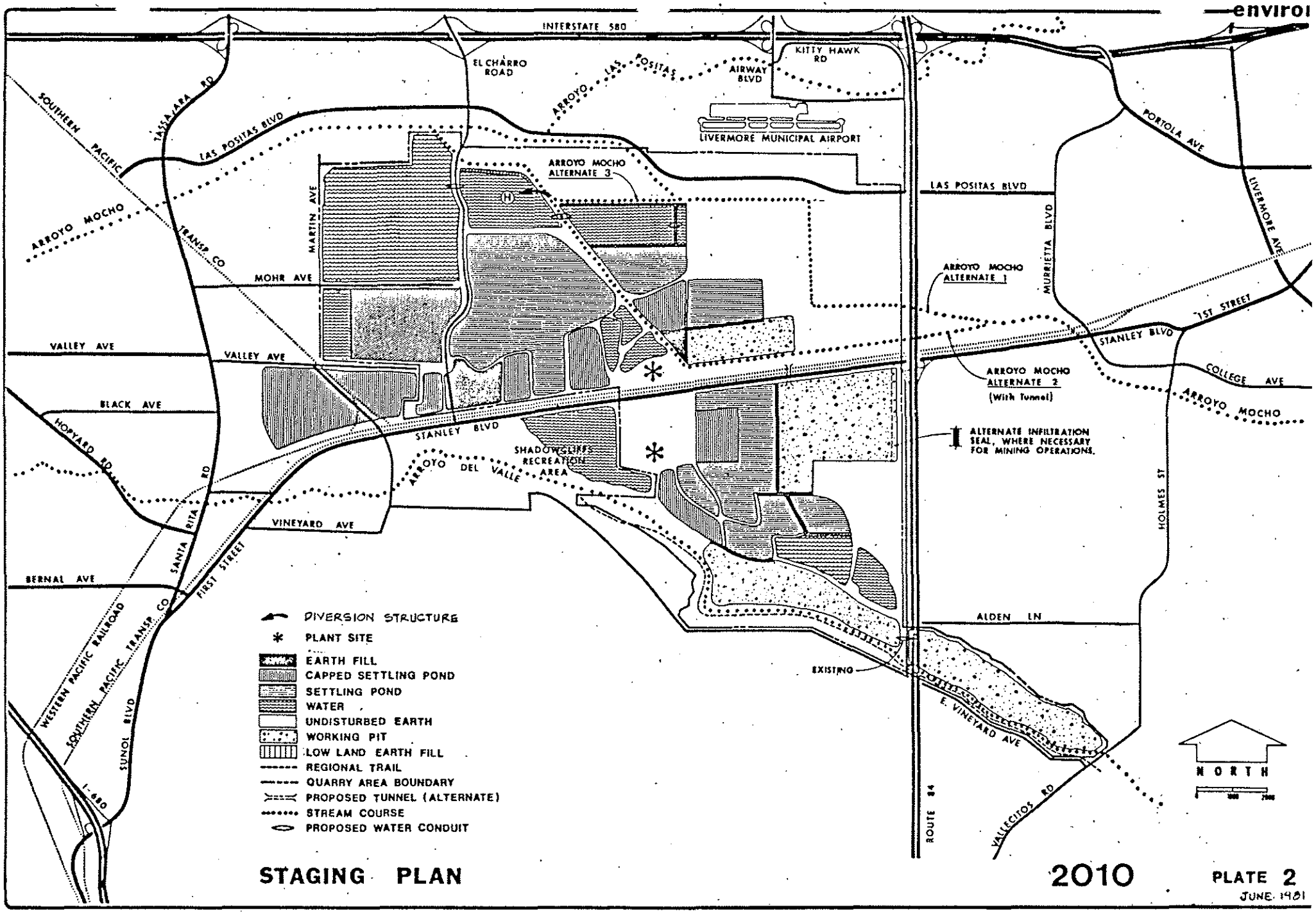



# STAGING PLAN

1995

PLATE

JUNE, 1

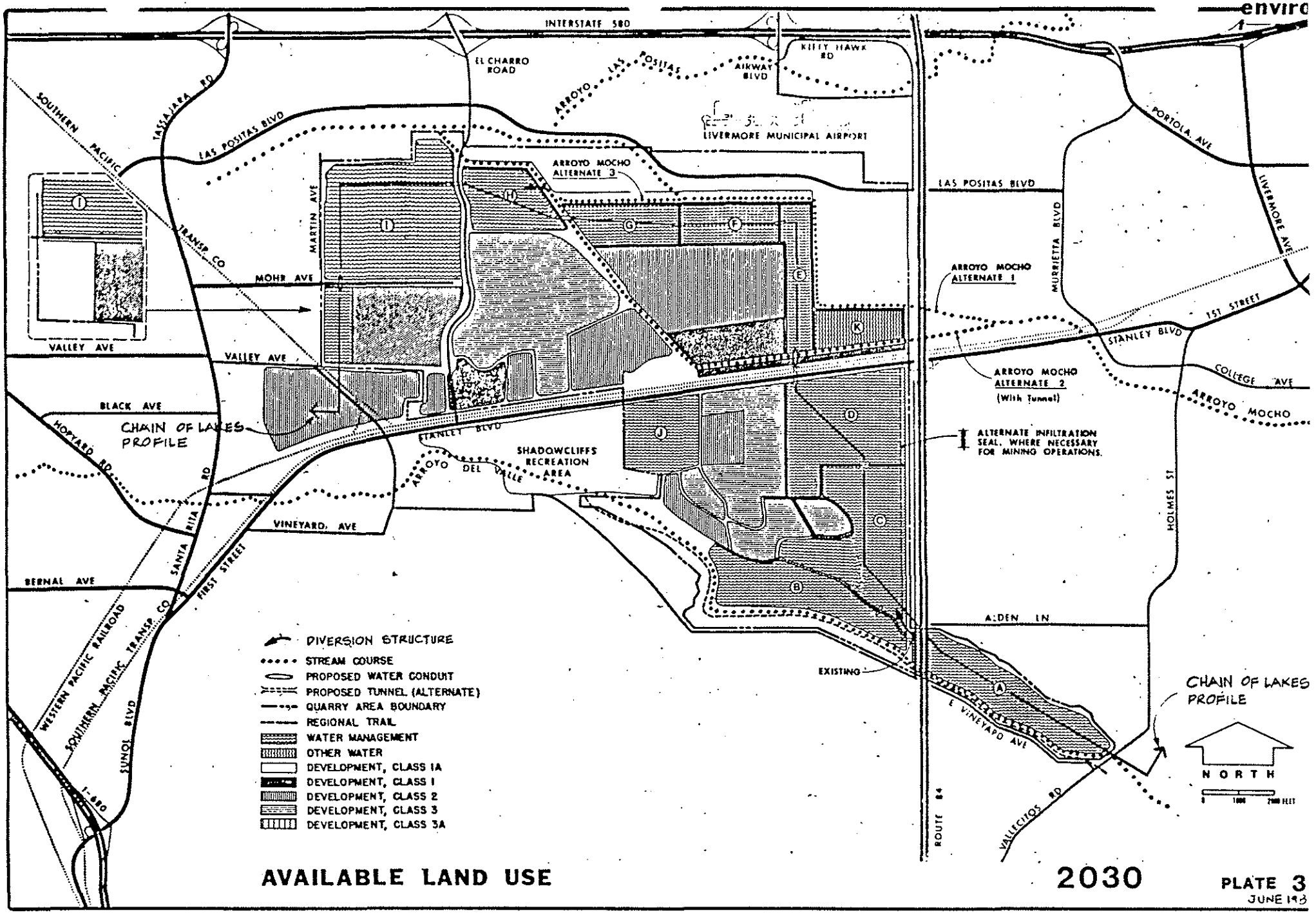



# STAGING PLAN

## 2010

PLATE 2

JUNE 1981



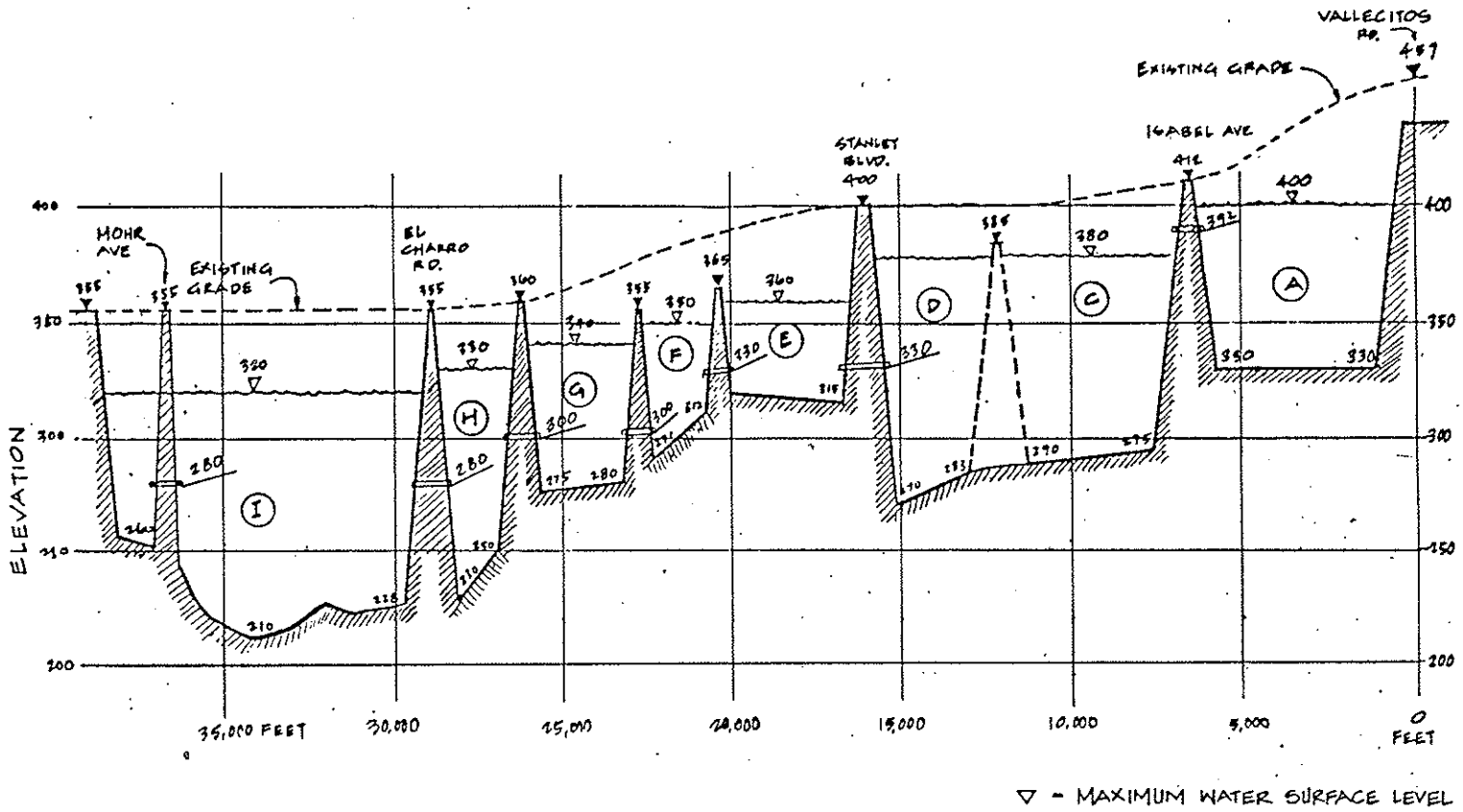

# AVAILABLE LAND USE

2030

PLATE 3

JUNE 198

## PROPOSED FLOW LINE ELEVATIONS FOR WATER MANAGEMENT CONDUITS



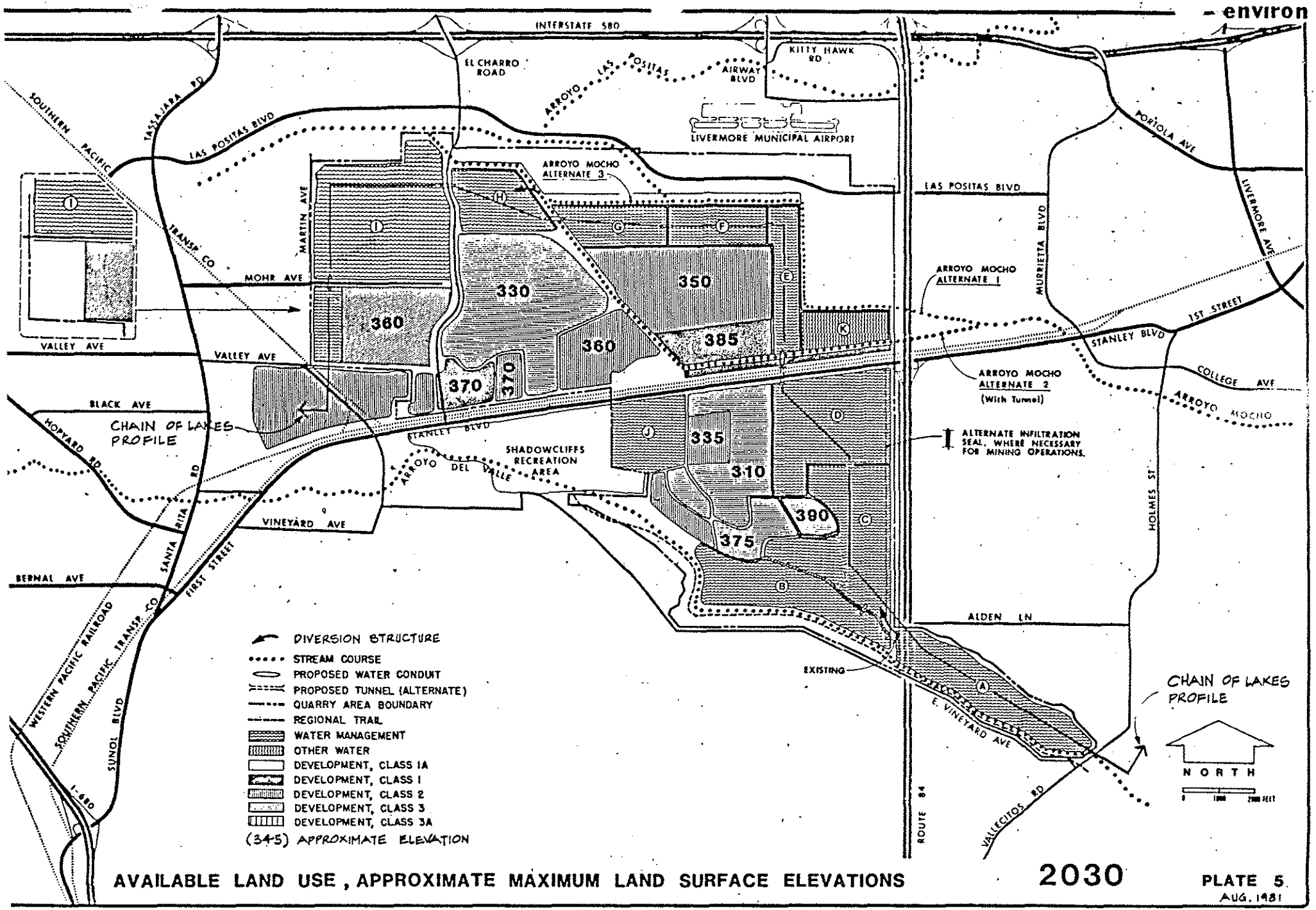

▽ = MAXIMUM WATER SURFACE LEVEL

## CHAIN OF LAKES PROFILE

SEE 2030 PLAN FOR LOCATION OF PROFILE

HORIZ = 1" : 4000'
VERT = 1" = 60'

PLATE 4
AUG. 1981




# AVAILABLE LAND USE, APPROXIMATE MAXIMUM LAND SURFACE ELEVATIONS

2030

PLATE 5

AUG. 1981