

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

ORDER NO. 99-061

WASTE DISCHARGE REQUIREMENTS  
FOR  
KAISER VENTURES, INC.  
KAISER EAGLE MOUNTAIN, INC.  
MINE RECLAMATION CORPORATION  
EAGLE MOUNTAIN RECLAMATION, INC.  
EAGLE MOUNTAIN CLASS III MUNICIPAL WASTE LANDFILL  
Eagle Mountain – Riverside County

The California Regional Water Quality Control Board, Colorado River Basin Region, finds that:

1. Mine Reclamation Corporation (MRC), Operator (hereinafter referred to as discharger) has a mailing address of 43-645 Monterey Avenue, Suite A, Palm Desert, CA 92260. Eagle Mountain Reclamation, Inc., (hereinafter also referred to as discharger), a wholly-owned subsidiary of Kaiser Ventures, Inc., is the majority shareholder of MRC, and has a mailing address of 3633 East Inland Empire Boulevard, Suite 850, Ontario, CA 91764.
2. Kaiser Eagle Mountain, Inc., Owner, (hereinafter also referred to as discharger), 3633 East Inland Empire Boulevard, Suite 850, Ontario, CA 91764, is a wholly-owned subsidiary of Kaiser Ventures, Inc..
3. The parties described in Findings No. 1 and 2: Mine Reclamation Corporation, Eagle Mountain Reclamation, Inc., Kaiser Ventures, Inc., and Kaiser Eagle Mountain, Inc. are dischargers.
4. A letter dated June 23, 1999 from Kaiser Ventures, Inc., to the Regional Board's Executive Officer, states that Mine Reclamation Corporation, of which Kaiser Ventures, Inc., is the majority shareholder, is fully authorized to represent co-applicant Kaiser Eagle Mountain, Inc., the owner of the real property under lease to MRC and Kaiser Ventures, Inc., the parent corporation for Kaiser Eagle Mountain, Inc., in connection with the Report of Waste Discharge and issuance of Waste Discharge Requirements.
5. MRC, as agent for all dischargers, submitted to the Regional Water Quality Control Board (Regional Board) the following as an application for waste discharge requirements for a new Class III Waste Management Facility, the Eagle Mountain Landfill and Recycling Center (Eagle Mountain Landfill), in compliance with combined State Water Resources Control Board (SWRCB)/ California Integrated Waste Management Board (CIWMB) regulations, Division 2, Title 27 (hereinafter referred to as Title 27):
  - a. A Report of Waste Discharge (ROWD) in eight (8) volumes, dated December 17, 1992;
  - b. Conceptual plan for Unsaturated Zone Gas Monitoring (UZGM), supplement to the ROWD, dated March 10, 1993;
  - c. Supplemental Volume 1 (SV1) to the ROWD, dated June 10, 1993;
  - d. Supplemental Volumes 2A and 2B (SV2) to the ROWD, dated December, 1993;
  - e. Summary of Information on Absence of Holocene Fault Displacement, dated November 4, 1993;
  - f. Supplemental Volumes 3A and 3B (SV3) to the ROWD, dated December 16, 1997; and

*Replacing  
94-031e*

- g. A response document dated March 25, 1998 concerning:
- Time-of-travel for landfill gas, and
  - Rationale for monitoring well screen length and depth.
6. The property on which the Eagle Mountain Landfill will be situated is at this time either owned in fee by Kaiser Eagle Mountain, Inc., or by the United States Government (federal government) under the administration of the Bureau of Land Management (BLM). Of the 4,653 acres of the proposed Landfill site, approximately 2,031 acres are presently owned by Kaiser Eagle Mountain, Inc., and the remainder is owned by the federal government. The Landfill footprint is approximately 1,868 acres of these 4,653 acres. The portion owned by the federal government is subject to a land exchange between Eagle Mountain, Inc. and the federal government that was approved by the BLM when they issued their Record of Decision, (in effect certifying the Environmental Impact Study (EIS)) on September 25, 1997. This decision has been appealed, and these appeals are now under review by the Interior Board of Land Appeals (IBLA).
  7. The properties cannot be exchanged until the IBLA issues a decision upholding BLM's record of Decision. If IBLA issues their decision allowing the land exchange to go forward, Kaiser Eagle Mountain, Inc., will exchange patents or title with the federal government. In this exchange, Kaiser Eagle Mountain, Inc., will receive approximately 3,481 acres of land. Some of this land is outside the Landfill project area. In return, the federal government will receive about 2,846 acres of undisturbed desert land plus \$20,100 from Kaiser Eagle Mountain, Inc.
  8. The land has been owned by Kaiser Steel Corporation, or one of its subsidiaries, since the mid-1940's when mine development began.
  9. The dischargers, by letter dated May 4, 1994, have acknowledged and agreed that this Board Order is not in effect until such time that a transfer of federally-owned land (at the Eagle Mountain site) to Kaiser Eagle Mountain, Inc., or it's subsidiaries, is completed.
  10. The County of Riverside required a provision in their 1997 approval that authorizes the receipt of a maximum of 20,000 tons per day (tpd) to be phased over the life of the project. The term of the Development Agreement is through November 2088, with an initial approval of 50 years. The details of this requirement are found in the ROWD Supplemental Volume 3A, Section 2.15 and the Riverside County Development Agreement
  11. The Development Agreement between Riverside County and MRC will not be in effect until such time as the land exchange between BLM and Kaiser is completed.
  12. Definitions of specific terms used in these waste discharge requirements are as follows:
    - a. "Landfill Phase" – for purposes of planning, the Landfill (waste management unit) is subdivided into four contiguous phases (Phases 1 to 4). Development of the Landfill will begin with Phase 1 and end with Phase 4.
    - b. "Landfill Subphase" – the Landfill containment system will be constructed in 10- to 40-acre size increments, termed subphases. The landfill will be developed in subphases to facilitate construction of the containment system and to optimize Landfill operations.
    - c. "Sequence of Development" – denotes the general progression across the Landfill of subphase construction, waste filling, and Landfill closure.
    - d. "Active Landfill Area" – that portion of the Landfill consisting of the working face and adjacent areas overlain by daily cover, but not intermediate cover. The active landfill area will typically consist of a portion of a subphase.

- e. "Daily Landfill Cell" – that portion of the active Landfill area in which waste disposal operations occur on a given day.
  - f. "Working Face" – that portion of the daily Landfill cell area not covered by daily cover at any point in time.
  - g. "Surface Water (Storm Water)" – denotes all surface water at the site originating from precipitation during storm events.
13. Eagle Mountain Landfill is located within the northeastern edge of the Eagle Mountains in an area of high topographic relief in northeastern Riverside County in Southern California. The proposed Landfill site is approximately 170 miles east of Los Angeles, 60 miles east of Palm Springs, and 50 miles west of the Arizona Border, and 12 miles northwest of the Desert Center community. Topography and location of the site are shown on Attachments 1 and 2, respectively, appended hereto as part of this Board Order.
  14. The approximately 4,653 acres of the proposed Landfill site occupies the following sections of the San Bernardino Base and Meridian (SBB&M) in Riverside County, California, as shown on Attachment No. 3, appended hereto as part of this Board Order:
    - a. Landfill area  
Sections 25, 26, 27, 28, 33, 34, 35, 36, T3S, R14E, SBB&M
    - b. Building and Facilities (existing and proposed)  
Sections 35, 36, T3S, R14E, SBB&M  
Section 31, T3S, R15E, SBB&M  
Sections 1, 2, T4S, R14E, SBB&M  
Section 6, T4S, R15E, SBB&M
    - c. Land Exchange (land to be transferred from BLM to Kaiser Eagle Mountain, Inc.)  
Sections 25, 26, 27, 28, 33, 34, 35, 36, T3S, R14E, SBB&M  
Section 31, T3S, R15E, SBB&M  
Section 1, 2, T4S, R14E, SBB&M  
Section 6, T4S, R15E, SBB&M
  15. The Eagle Mountain Mine property was used by Kaiser Steel Resources, Inc. , Fontana, California for open pit ore mining/processing operation between approximately 1948 and 1983. Kaiser Steel ceased active mining in 1983. Attachment 4, appended hereto as part of this Board Order, shows three pits, which were mined by Kaiser Steel.
  16. In 1988, MRC conditionally leased the approximately 8,300 acres of land from Kaiser for a period of 99 years. Kaiser Eagle Mountain, Inc., will retain ownership of the land after the 99 years expire. The lease allows MRC to operate a Class III Landfill on the land subject to obtaining all necessary local and State approvals and the consummation of the land exchange and granting the rights-of-way.
  17. MRC reports that the project site covers a project site area of approximately 4,653 acres. The Landfill portion of the project site will occupy a plan area of approximately 1,868 acres. The remainder of the project site will be occupied by haul and maintenance roads, rail container handling facilities, a container wash/storage area, maintenance/warehouse facilities, administrative and operation offices, water supply and sewer facilities, a recycle material storage area, coarse tailings, fine tailings and overburden material storage and process areas, and open space as shown on Attachments 5 and 6, appended hereto as part of this Board Order.

18. The Eagle Mountain Landfill is bounded on the north, west, and southwest by the Eagle Mountains, on the east and southeast by the Chuckwalla Valley.
19. The Eagle Mountain Landfill site is situated in an unincorporated portion of Riverside County. Attachment 7, incorporated herein and made part of this Board Order, shows existing land uses within one mile of the Landfill footprint designated within the Riverside County General Plan as:
  - a. Mineral resources and related manufacturing zone (MRA),
  - b. Natural assets zone (NA),
  - c. Controlled development areas (W-2), and
  - d. General Commercial Zone
20. MRA contains open spaces and abandoned Eagle Mountain Mine facilities, including the mine area, access roads, railroad lines, ore-processing facilities and mining residue waste piles and former ponds.
21. NA areas are primarily located to the south of the site and are currently open space with the exception of roads, the railroad line, landing strip and Colorado River Aqueduct.
22. W-2 areas primarily contain the town of Eagle Mountain, a minimum-security prison, administrative offices for Kaiser personnel, roads, and a portion of the railroad line. A large portion of the Kaiser owned Eagle Mountain townsite, located just south of the Landfill footprint, has not been inhabited since the cessation of active mining in 1983.
23. A small area of the town of Eagle Mountain has been maintained to provide housing for the remaining Kaiser, MRC and prison employees. Approximately 105 houses have been maintained.
24. A portion of the town of Eagle Mountain has been leased for operation of a private, minimum-security prison. The prison is currently permitted to house about 500 inmates. Plans are being developed for expansion to house an additional 280 inmates.
25. The dischargers report that there is a private, non-commercial airplane landing strip (Desert Center Airport) 1.5 miles south of the Landfill, owned by Metropolitan Water District, and periodically used by Kaiser and MRC employees.
26. Approximately 0.7 miles east of the eastern edge of the Landfill footprint, the Colorado River Aqueduct extends in a north-south direction.
27. There are no farming or livestock operations within one mile of the Landfill footprint.
28. The 1,868-acre Landfill footprint will be constructed in four contiguous phases containing 13 sequences. Each sequence will include a series of subphases. The 10-40 acre subphases will generally be developed from lower to higher elevation, starting in Phase 1 and ending in phase 4. Containment system components and landfilling will be continuous between subphases. Assuming an average subphase size of 25 acres, the total number of subphases at the Landfill will be approximately 75. The general location of phases and sequences are shown on Attachments 8 and 9 (respectively), appended hereto as part of this Board Order.
29. MRC proposes to operate the Eagle Mountain Landfill 312 days per year.
30. The approximate total air space of the site is 660 million cubic yards, which will provide waste capacity of about 561 million cubic yards during the 84 years of projected Landfill life.

31. Access to the site by trains will be by the existing Union Pacific Railroad's east-west rail line to a switching yard located at the Ferrum Junction siding. From the Junction, unit trains will be moved to the Landfill site over the existing 52-mile private Eagle Mountain Railroad and a proposed Eagle Mountain Railroad Extension as shown on Attachments 10 and 11, appended hereto as part of this Board Order.
32. Access to the site by waste transfer vehicles will be via Interstate 10 (I-10), the Eagle Mountain Road (i.e., County Road (R2)), and the proposed Eagle Mountain Road Extension and Kaiser Road. Eagle Mountain Road extends from I-10 (i.e., approximately 2 miles west of Desert Center) to the Metropolitan Water District's Eagle Mountain Pump Station, as shown on Attachment 10 and 11. MRC will construct Eagle Mountain Road Extension for waste transfer trucks to gain access to the Landfill from near the northern terminus of Eagle Mountain Road.
33. The Eagle Mountain Landfill site is situated within the northeastern edge of the Eagle Mountains in an area of high topographic relief. Within the site boundaries, natural ground surface elevations range between about 1,000 and 2,900 feet above sea level. Outside the project site, peaks extend to an elevation of about 4,000 feet above sea level as shown on Attachment 1.
34. The topography of the Landfill portion of the site is characterized by three significant features:
  - a. Naturally-occurring canyons and ridges,
  - b. A former mine pit with steep sidewalls and near horizontal benches, and
  - c. Mine tailings piles,as shown on Attachment 6.
35. Canyons and ridges control 50 percent of the topography or about 940 acres of the proposed Landfill footprint. Ridges extend to a maximum elevation of about 2,700 feet above sea level and canyons are situated at elevations as low as 1,200 feet above sea level. Naturally occurring canyon side slopes in these areas have inclinations ranging from 30° to about 45°. The vegetation in the canyon and ridge areas is generally characterized as being low-lying desert scrub.
36. A portion of Phase 3 of the Eagle Mountain Landfill (i.e., west bowl of the East Pit) is characterized by backwalls and benches created by previous iron ore mining operations.
37. Within the Landfill footprint, the backwalls and benches of the west bowl of the East Pit occupy an area of about 190 acres or about 10 percent of the Landfill footprint. The backwalls and bench configurations have a 37° slope with backwalls 40 feet high and horizontally interconnecting benches 40 feet wide. The high and low elevations of the topographic features within the Landfill footprint are about 1,900 feet and 1,100 feet above sea level respectively. There is little or no vegetation in the west bowl of the East Pit.
38. The mining byproduct pile topographic features are evident on about 40 percent of the Landfill footprint, or about 750 acres. The mining byproducts consist of rock overburden and coarse tailings materials stockpiled at the site (as shown on Attachment 6). The mining byproduct piles have slopes with inclinations up to 40°, and their elevations range from 1,000 feet to 2,700 feet above sea level. There is little or no vegetation present on the piles.
39. The dischargers report a series of interconnected tunnels were excavated during the operation of the Kaiser Eagle Mountain Mine. These tunnels were mined between 1966 and 1972 to access iron ore veins. The tunnels underlie the Landfill footprint in the southern portion of Phase 2 of the Landfill. The tunnels consist of a U-shaped lower level adit that provides access to three working levels above the adit. The adit and the working level tunnels have a horseshoe shape, with an invert to crown distance of 25 feet and a springline width of about 25 feet. Except at the portals, the adit is not reinforced, having only an intermittent thin veneer of shotcrete covering the wall

and crown rock. The working levels are unreinforced. The adit extends a total length of 6,800 feet. The working levels are located above the northeastern end of the adit, with elevations of 1,770, 1,815, and 1,860 feet above sea level for working levels 2, 3, and 4, respectively. The elevation of the adit is about 1,725 feet above sea level. Proposed foundation grade elevations in the portions of the phase 2 area of the Landfill will overlie the tunnel range from 1,770 feet elevation near the adit portals to over 2,600 feet above sea level above the working level. Bedrock thickness above the adit is from zero feet at the portals to 240 feet at a distance of 400 feet northwest from the portals. Bedrock thickness above the working level varies from 570 feet to 720 feet.

40. The dischargers report that approximately 75 to 360 feet of waste will be placed over the areas of Phase 2 underlain by the tunnels.
41. The dischargers report that the engineering implications of the existing tunnels on the placement of waste, on the stability of the Landfill containment system, and on the operation of the monitoring systems were considered during development of the ROWD.
42. The dischargers report that the waste-related additional stresses will not have any impact on the existing tunnels because of the following reasons:
  - a. The competent nature of the granitic and meta-sedimentary bedrock in which the tunnels are mined. These rocks are extremely hard, resulting in the high shear strength of the rock mass.
  - b. The thickness of the bedrock cover, except near the portals, and
  - c. The arching mechanism which results in stress redistribution around the tunnel.

## GEOLOGY

43. The Eagle Mountains extend into the Basin and Range Geologic Province at the eastern extremity of the southern California Transverse Ranges. Bedrock within the project area consists of Paleozoic age meta-sedimentary rocks that have been intruded by Mesozoic igneous rocks. The meta-sedimentary rocks consist of former sandstone and conglomerate, arkose, and carbonate rock that were folded, faulted, metamorphosed, and hydrothermally altered to quartzite, meta-arkose, and marble, respectively. Igneous rocks include sills, dikes, and irregular bodies of porphyritic quartz monzonite, diorite, monzonite porphyry, granodiorite, and granite.
44. Structurally, the meta-sedimentary rocks are part of a large anticline trending generally west northwesterly. The dips of the beds in the vicinity of the project site range, on average, from 30 degrees to 60 degrees with shallower, or steeper, dipping beds in some locations. Bedrock jointing is prominent and extensively interconnected. Joint systems are well developed. The primary system correlates with the trend of the major faults within the project area. The two predominant joint sets are approximately perpendicular to one another and trend northwest southeast and northeast southwest. A third joint set has a variable trend and dips less steeply, at about 20 degrees.
45. Laterally continuous alluvial deposits occur at the Eagle Mountain range front. The alluvium extends from the floor of canyons within the Landfill footprint in a thickening wedge into the down-drainage area of the Chuckwalla Valley east and southeast of the site. The alluvial deposits consist of sands, silts, gravels, and debris-flow materials laid down as channel and flood plain deposits. Within the property boundaries of the Landfill site, comparatively thin alluvial deposits occur in narrow canyon bottoms, as shown in Attachment 12, appended hereto as part of this Board Order. Mining byproducts were identified as those materials consisting of tailings and overburden from the mining operation at the site.

## FAULTING AND SEISMICITY

46. The Eagle Mountain Landfill site is located at the eastern edge of the zone of major historic recorded seismic activity in Southern California. The southern segment of the San Andreas Fault is located approximately 33 miles west of the site. Other significant faults with respect to the seismicity of the project site include the Pinto Mountain Fault, located 28 miles northwest of the site, and the Blue Cut Fault, located 4 miles to the north. In addition to these fault-specific sources, the site is located in the Southeast Transverse Ranges seismo-tectonic zone (i.e., an area where earthquakes occur due to non-specific area sources). The Victory Pass and Substation Faults are located within the Southeast Transverse Ranges seismo-tectonic zone, as shown on Attachments 13, 14, and 15, appended hereto as part of this Board Order.
47. The dischargers report that bedrock faults exist within the project area and jointing is present throughout the site. The two most prominent faults within the Landfill project area are the Bald Eagle Canyon Fault and Fault A, as shown on Attachment 15, appended hereto as part of this Board Order.
48. Pursuant to the Alquist-Priolo Special Studies Zone Act of 1972:
- a. An active fault is defined by the State Mining and Geology Board as one which has "had surface displacement within Holocene time (about the last 11,000 years)". This definition does not, of course, mean that faults having no evidence of surface displacement within Holocene time are necessarily inactive. A fault may be presumed to be inactive based on satisfactory geologic evidence; however, the evidence necessary to prove inactivity sometimes is difficult to obtain and locally may not exist.
  - b. Faults were defined as potentially active, and were zoned, if they showed evidence of surface displacement during Quaternary time (last 1.6 million years). Exceptions were made for certain Quaternary (i.e., Pleistocene) faults that were presumed to be inactive based on direct geologic evidence of inactivity during all of the Holocene time or longer.

In addition to these fault-specific sources, non-specific sources such as Southeast Transverse Ranges, San Bernardino Mountains, the Eastern Mohave, the Sonoran, and the Salton Seismo-tectonic zones were considered in evaluation of seismicity at the Eagle Mountain Landfill site.

49. The potential for seismically-induced strong ground-shaking at the site was evaluated using a probabilistic seismic hazard assessment. The probabilistic assessment considered the contributions to site seismicity from all active and potentially active faults. The Victory Pass and Substation Faults were considered to be active. The project has been designed to withstand the Maximum Probable Earthquake (MPE). Seismic analyses conducted demonstrates that peak horizontal bedrock acceleration that could occur at the site with a probability of exceedance of 10 percent in 250 years is 0.56 g. The use of this acceleration level in the Landfill design satisfies federal Subtitle D regulatory requirements, and meets the Title 27 regulatory requirements.
50. The dischargers have performed extensive slope stability analyses for interim and final configurations of the foundation, liner system, waste fill, and cover system, demonstrating that the Landfill structures will achieve adequate factors of safety under static loading conditions and acceptable limiting deformations under dynamic loading conditions. The State Department of Water Resources (DWR), at the request of this Regional Board and under contract to the Integrated Waste Management Board, has independently reviewed the slope stability analyses undertaken by the dischargers. DWR concluded that adequate factors of safety and limiting deformations can be achieved at the Landfill; and they provided recommendations to ensure that these performance criteria are satisfied at the construction phase of the Landfill development. The recommendations from DWR were fully considered in the development of these waste discharge requirements.

51. The dischargers report that based on several studies and evaluations, it is concluded that there are no known Holocene faults at the Eagle Mountain site or within 200 feet of it.

### CLIMATE

52. The dischargers report the following climatological information at the Eagle Mountain Landfill site:
- a. The site is located in an arid area of northeastern Riverside County.
  - b. Annual average precipitation is less than 4.0 inches.
  - c. Mean annual pan evaporation rate of 156 inches.
  - d. The highest recorded temperature is 118°F and lowest recorded temperature is 15°F, and the average temperature of 75°F.
  - e. The site is "breezy" with winds typically from the west and northwest (in summer, winds often blow from southeast).

### SURFACE WATER MANAGEMENT

53. There are no perennial water courses within the site area, and surface water flows are surface runoff caused by precipitation during storm events.
54. Surface drainage from the site flows toward the Chuckwalla Valley, an alluvium filled basin of about 870 square miles. Ground surface elevations in the Chuckwalla Valley range from about 1,050 feet above sea level at the western edge near the Landfill site to about 650 feet above sea level in the central portion of the Valley.
55. The temporary runoff is often rapid due to the topography, lack of significant vegetation, and intensity of the rainfall (i.e., especially during summer thunderstorms). The rapid runoff can cause flash flooding in dry washes and ephemeral streams. High runoff velocities, combined with the lack of vegetation, has resulted in erosion of the former mine site during previous storm events.
56. Significant surface water features in the immediate vicinity of the Eagle Mountain Landfill include two ephemeral creeks. The drainage course for Bald Eagle Creek presently flows southerly through the undeveloped central portion of the Landfill footprint to the East Pit, and the drainage course for Eagle Creek presently flows southeasterly outside the southern boundary of the Landfill. The peak discharges currently conveyed in Bald Eagle Creek and Eagle Creek, as a result of the 100-year, 24-hour storm event, are calculated as 452 cubic feet per second (cfs) and 1,326 cfs, respectively.
57. The watershed area in which the proposed Landfill is located is approximately 7,400 acres in size. Of this area, approximately 6,270 acres currently drain to the East Pit. Surface water runoff into the East Pit, resulting from the 100-year, 24-hour storm event, is approximately 2,446 cfs. The total volume of surface water flow into the East Pit is about 1,545 acre-feet during the 100-year, 24-hour storm event. The remainder of the area, approximately 1,130 acres, drains offsite to areas to the west and south of the Landfill footprint.
58. The dischargers propose to install a surface water management system at the Eagle Mountain Landfill designed to:
- a. Isolate the Landfill by diverting surface water runoff during storm events from adjacent areas around the Landfill footprint;

- b. Isolate the daily Landfill cell (i.e., active area with exposed waste) by diverting surface water runoff from Landfill areas with intermediate or final cover away from the active area;
  - c. Limit infiltration, inundation, and ponding within the daily Landfill cell;
  - d. Limit erosion, slope failure, washout, and overtopping of the surface water conveyance and retention structures; and
  - e. Limit erosion of interim and final cover.
59. The surface water runoff at the Eagle Mountain Landfill site is categorized as:
- a. Noncontact water – which is the surface water runoff that does not come in contact with the waste.
  - b. Contact water – which is the surface water runoff that comes into contact with waste, or surface water runoff onto the active Landfill area (i.e., working subphase) that does not come into contact with waste, but cannot be routed out of the phase.
60. The following are the types of surface water management features to be installed at the site:
- a. Interim drainage, erosion, and sediment control features within the Landfill footprint (on-Landfill), such as temporary detention basins, interim downchutes, interim swales, bench ditches, channels, side slope spillways, berms, silt fences, and hay bales, as shown on Attachments 16, 17, and 18, appended hereto as part of this Board Order, are designed to collect and control surface water flow during landfilling operations. These features will be modified periodically as landfilling operations progress.
  - b. Final on-Landfill drainage, erosion, and sediment control features, such as final cover benches, downchutes, swales, final cover access road channels, and energy dissipaters, are designed to collect and convey surface water flow across portions of the Landfill where the final cover has been constructed, as shown on Attachments 19, 20, 21, and 22, appended hereto as part of this Board Order.
  - c. Final off-Landfill drainage control, erosion, and sediment control features outside the Landfill footprint, such as haul road and maintenance road drainage channels, spillways, energy dissipaters, and three detention basins, are designed to collect and convey surface water flow around the perimeter of the Landfill, as shown on Attachments 19, 20, 21, and 22.
61. The dischargers proposed to implement the following measures (as stated in the ROWD) for surface water at the Eagle Mountain Landfill:
- a. Off-Landfill surface water runoff – During the progressive development of the Landfill, the noncontact water originating primarily from the drainage basins of the Eagle Creek and Bald Eagle Creek will be controlled in stages by constructing three detention basins. The detention basins will intercept the flow from these creeks and eventually discharge into the east bowl of the East Pit, or into a natural downstream watercourse.
  - b. On-Landfill surface water runoff (interim and final):
    - 1. Noncontact surface water runoff will be collected by a system of berms, ditches, downchutes, swales and drainage channels directed to offsite, as shown on Attachments 16, 17, 18, 19, 20, 21, and 22.
    - 2. Contact surface water will percolate through the waste and will be collected as leachate.

- c. Erosion control measures:
1. Where flow concentrations result in erosive flow velocities, surface protection such as asphalt, concrete riprap, or other erosion control material will be used for protection of drainage conveyance features. Interim bench ditches will be provided with erosion control material and riprap to control erosion where necessary.
  2. Energy dissipaters will be installed to control erosion at locations where relatively high erosive flow velocities are anticipated.
  3. Slopes on the Landfill will be benched to control flow velocities.
  4. Where high velocities occur at terminal ends of downchutes or where downchutes cross the final cover access roads, erosion control material will be applied to exposed soil surfaces.
  5. The interim detention basins in Phase 1 and final detention basins located along the north maintenance road will also function as sediment basins as shown on Attachments 16 and 19.
  6. Sediments will be removed from the detention basins whenever the volume of the basin has been reduced by 25 percent of the basin design capacity.
  7. Silt fences, hay bales, and other measures as shown on Attachment 18 will be used for noncontact surface water runoff from Landfill areas where daily, intermediate and final cover have been placed, and from areas where Landfill containment system construction is occurring.
62. The dischargers propose to use a network of nine surface water monitoring points (SW-1 to SW-9) to monitor the quality of surface water at the site. Five of the monitoring points (SW-1, SW-2, SW-3, SW-4, and SW-8) will be used to monitor the quality of surface water runoff to establish background values. The remaining four monitoring points (i.e., SW-5, SW-6, SW-7 and SW-9) will serve as compliance monitoring points. Surface water quality monitoring points are shown on Attachment 23, appended hereto as part of this Board Order.
63. The surface water monitoring program at the Eagle Mountain Landfill will include organic and inorganic constituents listed in Monitoring and Reporting Program No. 99-061 of this Board Order and any revisions thereto. The surface water quality monitoring system for the Eagle Mountain Landfill will be used only to monitor noncontact (see Finding No. 59a) surface water runoff.
64. As described in the ROWD, background values for Constituents of Concern for surface water and ground water will be established using the result of quarterly monitoring over a period of one year prior to Landfill operation. As noted in the ROWD, in the absence of a specific storm event, there is no measurable surface water flow in the vicinity of the site. Where consecutive quarterly background samples cannot be obtained, at a minimum, each significant storm event (up to four per year) will be sampled.
65. The U. S. Environmental Protection Agency issued Federal regulations for storm water discharges on November 16, 1990 (Title 40, Code of Federal Regulations (CFR) Parts 122, 123, and 124). Industrial facilities including landfills (40 CFR 122.26(b)(14)(v)) are required to obtain NPDES permits for their storm water discharges.

## GROUND WATER

66. The Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan) was adopted on November 17, 1993, and designates the Beneficial uses of ground and surface waters in this Region.
67. The beneficial uses of ground waters in the Chuckwalla Hydrologic Unit are:
  - a. Municipal Supply (MUN)
  - b. Industrial Supply (IND)
  - c. Agricultural Supply (AGR)
68. The dischargers report that there is no current use of ground water within one mile of the proposed Landfill footprint. Potable water is trucked in from Blythe. Water for irrigation and other uses is brought up from Chuckwalla Wells several miles from the project site. Future use of ground water within one mile of the Landfill footprint might involve use of the School Well (located in the town of Eagle Mountain) for irrigation and fire control.
69. Regional surface water flow direction from the Eagle Mountain Range is southeasterly entering into the Chuckwalla Valley at the range front. Upon entering the alluvial fan deposits, ground water flows in a general southeasterly direction toward the axis of Chuckwalla Valley and Palen and Ford Dry Lakes, as shown on Attachment 24, appended hereto and made a part of this Board Order. Transmissivity of the alluvial aquifer, under the Chuckwalla Valley, averages 59,000 gpd, indicating a moderately high productive aquifer.
70. The dischargers report the following about ground water in the bedrock beneath the footprint of the Eagle Mountain Landfill:
  - a. Ground water beneath the site occurs largely in the fractured igneous intrusive rock that intruded the older meta-sedimentary rocks. The alluvial deposits, thin and restricted to the narrow canyon bottoms, are mainly dry.
  - b. The density of the intersecting fractures in the bedrock is high enough that ground water flow beneath much of the site approaches the equivalent of flow through a porous media, making the ground water at the site monitorable.
  - c. The bedrock hydraulic conductivity in the saturated zone beneath the site is generally in the range of  $1 \times 10^{-4}$  cm/s to  $1 \times 10^{-6}$  cm/s. Zones of locally high hydraulic conductivities occur in some areas, appearing to be a result of more intensive bedrock fracturing.
  - d. Ground water depth below the existing ground surface ranges from a maximum of about 1,700 feet in the northwest to a minimum of about 300 feet in the southeast.
  - e. The ground water flow direction beneath much of the site is southeasterly. West of the Bald Eagle Canyon Fault, the flow direction is southerly along the north perimeter of the Landfill footprint and easterly along the south perimeter as shown on Attachment 25A, 25B, and 25C, appended hereto as part of this Board Order.
  - f. Calculated ground water velocities beneath the site generally fall within the range of 3 to 30 feet per year.
  - g. Ground water quality within the bedrock aquifer is of the calcium, magnesium sulfate type. Total dissolved solids concentrations are in the range of 430 to 2,840 mg/L with average fluoride concentration ranging from 0.6 to 3.1 mg/L.

71. The dischargers propose to install a ground water monitoring system that consists of 27 downgradient point-of-compliance monitoring points (POCs) and nine upgradient background monitoring points (upgradient background wells) as shown on Attachment 23, appended hereto as part of this Board Order.
72. Point-of-compliance wells will be located immediately downgradient of each of the ten leachate collection and removal system (LCRS) sumps.
73. The ground water and leachate parameters and Constituents of Concern will include organic and inorganic constituents listed in Monitoring and Reporting Program No. 99-061, and future revisions thereto, as specified by the Regional Board's Executive Officer.
74. The background values of Constituents of Concern for ground water for Eagle Mountain Landfill will be established using the result of continuous quarterly monitoring for a period of at least one year immediately preceding operation of the Landfill. For unsaturated zone liquid, background values will be established through a laboratory testing program involving materials that will be used in the construction of the Landfill.

**WASTE**

75. MRC reports that Eagle Mountain Landfill may accept wastes from Los Angeles, Orange, San Bernardino, Riverside, San Diego, Ventura, and Santa Barbara Counties.
76. The County of Riverside required a provision in their 1997 approval that authorizes the receipt of a maximum of 20,000 tons per day (tpd) to be phased over the life of the project. The term of the Development Agreement is through November 2088, with an initial approval of 50 years. The details of this requirement are found in the ROWD Supplemental Volume 3A, Section 2.15 and the Riverside County Development Agreement

Table 1 below shows MRC's anticipated daily waste rates:

<u>YEAR</u>	<u>WASTE DISPOSAL RATES (tpd)</u>
1	4,500
2	4,500
3	4,500
4	4,500
5-9	8,200
10-14	12,100
15-24	16,000
25-84	20,000

77. The design of the Landfill is based on several waste and Landfill parameters, including the following:
  - a. Daily and intermediate covers account for approximately 15 percent of available air space (after settlement):
  - b. Final average in place unit weight (density) of the waste (after settlement) is 1,650 lb/yd<sup>3</sup> (61.1 lb/ft<sup>2</sup>); and
  - c. The height of the waste pile may reach 700 feet above the ground elevation.

78. MRC proposes to only accept waste from jurisdictions in compliance with California State Assembly Bill 939 (AB 939), the Integrated Waste Management Act of 1989. AB 939 requires mandatory recycling of residential solid waste and mandates that 50 percent of solid waste be diverted from landfills by the year 2000.
79. MRC proposes to manage non-hazardous solid waste from residential, commercial, industrial and agricultural sources including single and multiple family residential units, office buildings, retail stores, wholesale businesses, manufacturers, and construction activities.
80. The following table shows the expected compositions of the nonhazardous solid waste that the dischargers propose to accept at Eagle Mountain Landfill:

<u>Waste</u>	<u>Current Composition By Wet Weight (%)</u>	<u>Percentage Reduction by the Year 2000 Due to Recycling And Composition</u>
1. Food Waste	4-26	0-5
2. Paper	25-54	30-60
3. Cardboard	3-15	40-70
4. Plastics	2-10	5-20
5. Textile	0-4	1-10
6. Rubber/Leather	0-3	1-10
7. Yard (green) waste	0-35	20-60
8. Wood	1-4	10-30
9. Glass	4-16	15-50
10. Aluminum	2-8	60-75
11. Ferrous Metals	1-5	5-20
12. Miscellaneous	0-10	0

81. Train transportation of up to 18,000 tpd of Class III nonhazardous solid waste to the project site will be primarily from the Los Angeles area. The trains will travel over Union Pacific Railroad's existing east-west rail line to the Ferrum Junction siding. Unit trains then will be moved to the Landfill site over the existing 52-mile private Eagle Mountain Railroad and a proposed Eagle Mountain Railroad Extension, as shown on Attachments 10 and 11.
82. Waste shipped by train will be contained in enclosed containers 20 to 53 feet in length. Each container will hold 20 to 32 tons of waste. Assuming an average weight of 22 tons per 40-ft. container and 3,500 tons of waste per train, the average train will hold 160 containers. The containers will be double-stacked on 80 rail cars, each with an average length of 71 ft. A unit train carrying 3,500 tpd will be approximately 6,000 ft. long, including the locomotives.
83. The dischargers report the following about truck transportation of waste to the Eagle Mountain Landfill site:
  - a. Approximately 100 truck trips may occur at the maximum rate of waste disposal with a projected maximum of about 2,000 tpd of waste delivered to the project by road.
  - b. Initially, some of the traffic may originate from areas west of the Coachella Valley. After three years of operation, the origin of the truck traffic will be from the Eagle Mountain, Coachella Valley, Chuckwalla Valley and Blythe areas (shown on Attachments 10 and 11).
  - c. Waste transported in the trucks will be fully enclosed within solid containers.
  - d. Typical payload weights may be 40,000 to 45,000 lbs., and total loaded truck weights may be up to approximately 80,000 lbs.

84. The Eagle Mountain Landfill will be open to the public for disposal of locally derived Class III solid waste from the communities of Desert Center, Lake Tamarisk and Eagle Mountain. This locally derived waste will be hauled to the site using commercial and private vehicles.
85. Waste destined for disposal at the Eagle Mountain Landfill will be processed prior to landfilling at offsite material recovery facilities (MRFs) or an at onsite waste inspection facility.
86. Waste accepted offsite will be compacted into steel containers and sealed prior to transport by rail or truck.
87. Local waste (about 10 tpd) will be transported by truck to the site and will be processed at an onsite waste inspection facility located within the rail/containers handling facilities.
88. Sidings in the rail/container handling facilities will be about 6,000 feet long to afford for an entire unit train to be stationed without uncoupling cars.
89. Large forklift style movers or mobile overhead cranes will be used to move containers on and off the trains and trucks.
90. The dischargers report that:
  - a) No waste will be treated on site;
  - b) Since operations in the rail/container handling facilities are expected to occur on a near-continuous basis, some temporary storage of waste, delivered to the Landfill site in sealed containers, may occur; and
  - c) Temporary storage will not exceed 60 hours.
86. The dischargers propose to operate the waste disposal facilities during daylight hours, six days a week with no waste disposal on Sundays.
91. The dischargers propose to train spotters at the waste screening area and the working face to observe the waste after unloading for the presence of unacceptable wastes. If unacceptable wastes are detected, they will be reloaded into the container and directed back to the container handling facility for proper disposal. Acceptable wastes will be pushed to the working face, spread and compacted.
92. Locally derived loads of waste will be inspected for recyclable and unacceptable wastes at an onsite waste inspection facility. Unacceptable wastes identified during the load checking program will be isolated from the other wastes and returned to the waste generator. If the waste generator cannot be identified, the unacceptable wastes will be collected, temporarily stored onsite in a special containment area, and transported and disposed of by a licensed vendor.

#### **CONTAINMENT SYSTEM/CONSTRUCTION**

93. The dischargers propose to install:
  - a. A composite liner over the entire base of the Landfill, meeting the requirements of Subtitle D, 40 CFR, Part 258 and Title 27;
  - b. A leachate collection and removal system (LCRS);
  - c. LCRS sumps;

- d. An unsaturated zone liquid monitoring system (UZLMS) beneath the base of the Landfill that also functions as a secondary leachate detection, collection and removal system;
  - e. An unsaturated zone gas monitoring system (UZGMS) beneath the entire Landfill, which functions as a gas detection, collection and removal system.
  - f. An active gas extraction system;
  - g. A perimeter gas monitoring system;
  - i. A daily, interim, and final cover system;
  - j. A surface water management system; and
  - k. An ambient air monitoring system.
94. The dischargers propose to construct the Eagle Mountain Landfill (as stated in the ROWD) in four contiguous phases, 13 sequences, and 75 subphases.
95. Once a subphase is constructed in accordance with approved construction drawings and specifications and approval to receive waste is granted by the Regional Water Quality Control Board, waste disposal operations may begin. At the same time or shortly thereafter, construction activities for the next subphase will begin.
- a. Each Phase will consist of the following approximate areas, capacities and project life:

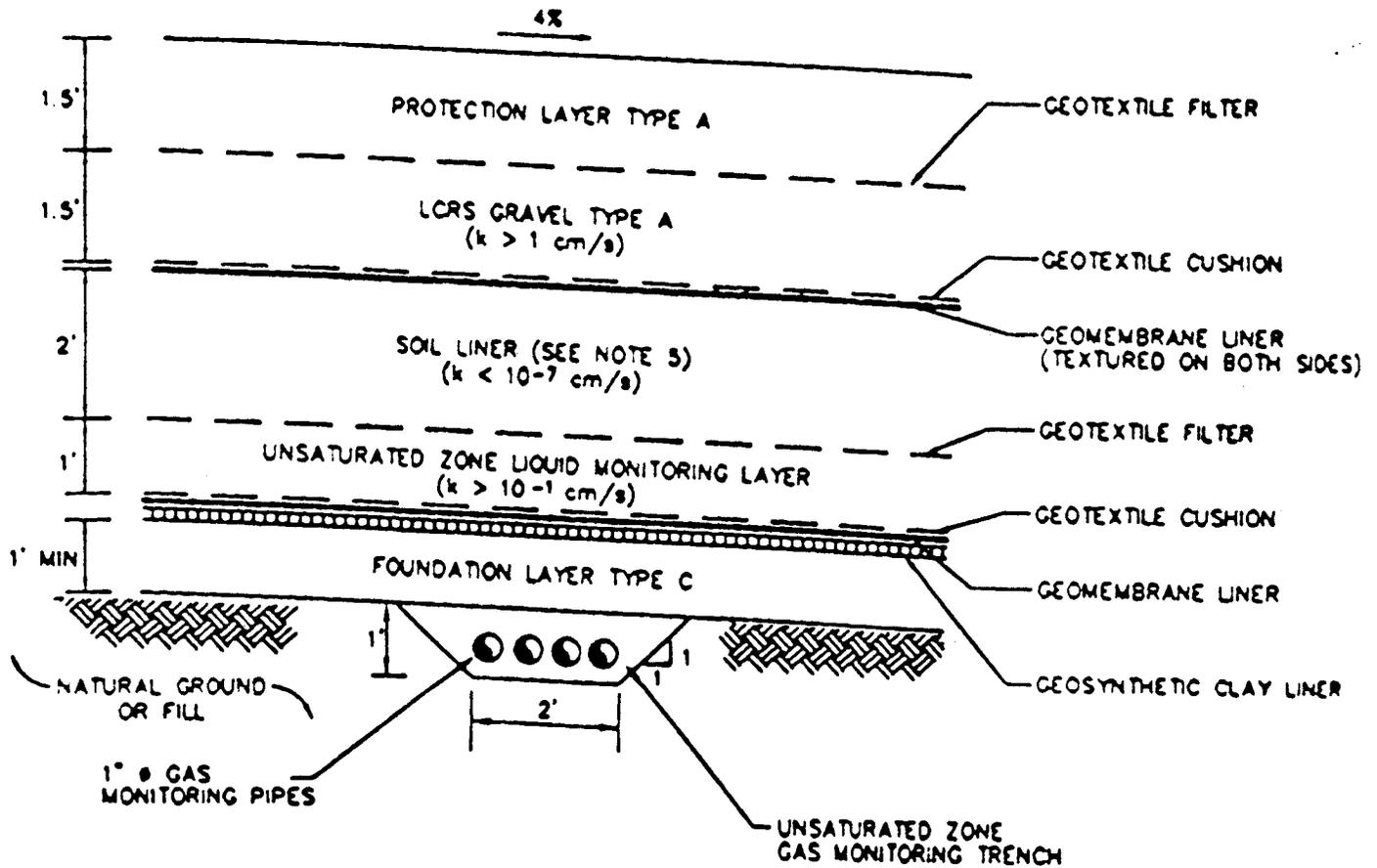
<u>PHASE</u>	<u>AREA (ACRES)</u>	<u>NET WASTE CAPACITY 10<sup>6</sup>YD<sup>3</sup></u>	<u>PROJECTED LIFE YEARS</u>
1	319	96.3	23
2	312	81.4	11
3	703	236.6	31
4	534	146.4	19
<b>Total for Landfill</b>	<b>1868</b>	<b>560.7</b>	<b>84</b>

- b. The general sequencing of the construction, waste filling, and closure is shown on Attachment 9, appended hereto as part of this Board Order. The general sequence is as follows:

<u>SEQUENCE NUMBER</u>	<u>APPROXIMATE DURATION OF FILL (YEARS)</u>	<u>APPROXIMATE TOTAL AIRSPACE (1,000 YDS)</u>
S1	11	37,031
S2	6	32,791
S3	5	35,122
S4	6	48,776
S5	6	55,380
S6	6	55,153
S7	7	63,136
S8	7	62,513
S9	7	60,871
S10	4	38,627
S11	8	71,166
S12	7	61,620
S13	4	39,414
Totals	84	659,600

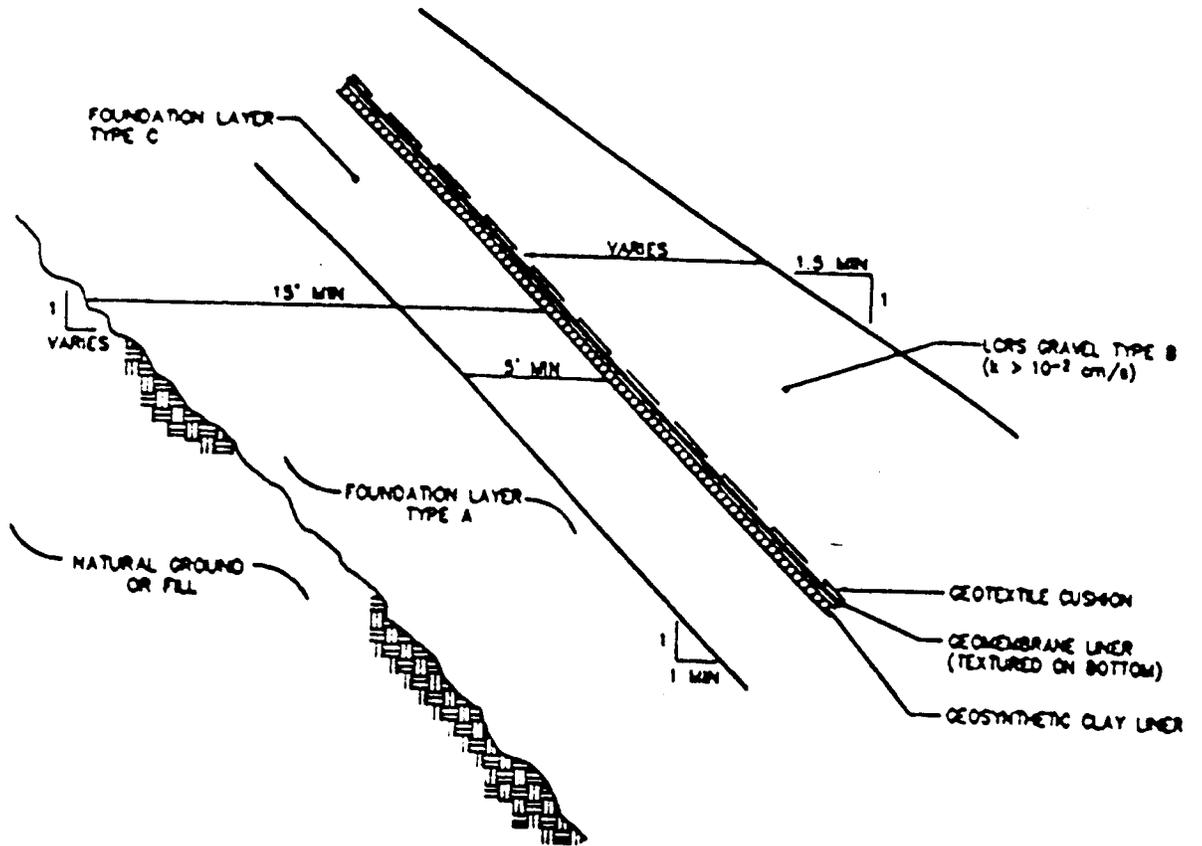
- c. Significant deviation from this sequencing will require written approval from the Regional Board's Executive Officer.
96. The dischargers propose to use onsite natural and processed soil and bedrock material such as overburden, coarse tailings, fine tailings, alluvium and excavated bedrock as part of the foundation and different liner construction layers. Attachments 6 and 26A, appended hereto as part of this Board Order, show the location and usage of these materials in the Landfill liner design. A description of grain size and hydraulic conductivity of the material used in the liner system is also shown on Attachment 26B.
97. The dischargers propose to construct the following liner systems for base, side slopes, benches and ridges, and final cover for the Eagle mountain Landfill site.

# BASE



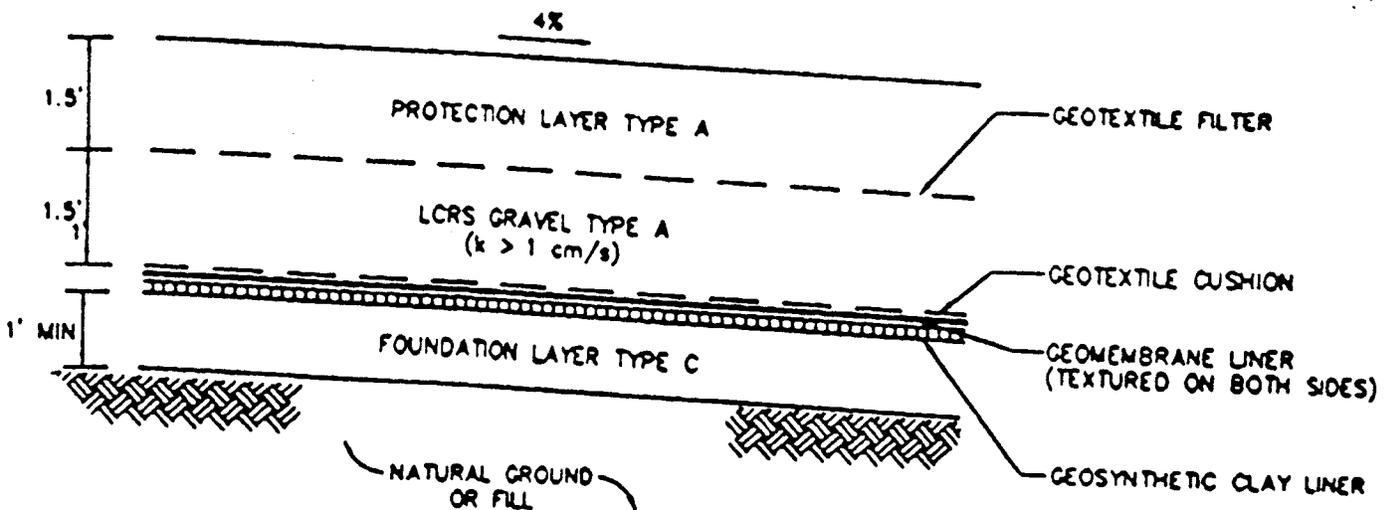
- a. Base Liner – areas of the Landfill such as bottoms of canyons and pits with a foundation of grade 3H:1V or less.

# SIDE SLOPE



- b. Side slopes – areas of Landfill with foundation grade greater than 3H:1V, including the benches.

## BENCHES AND RIDGES

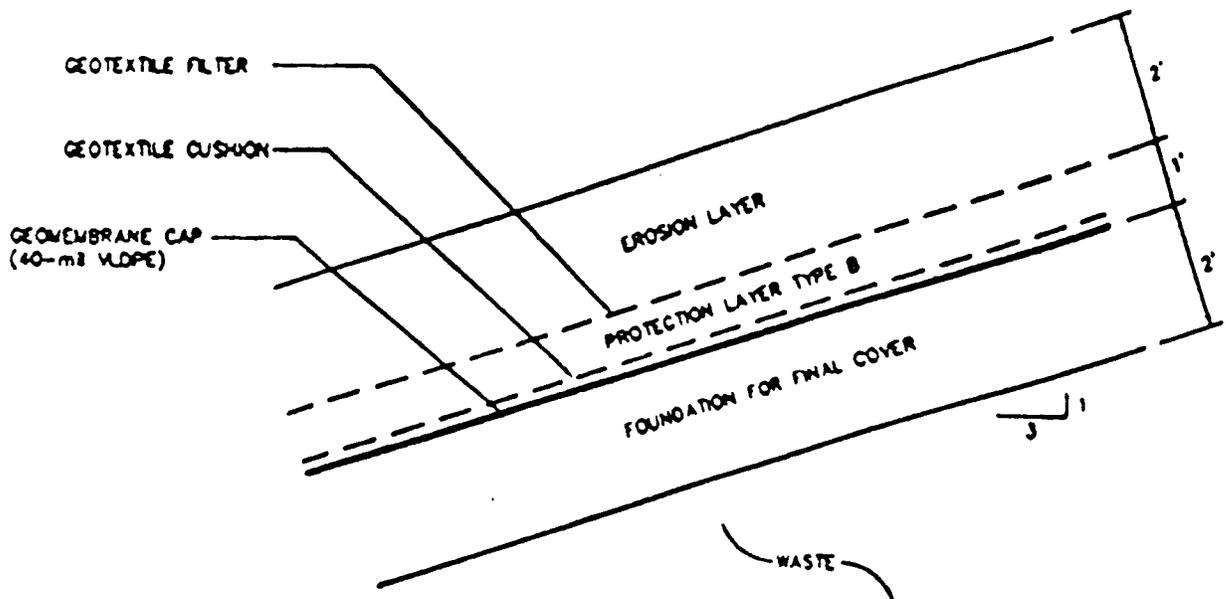


c. Benches and Ridges – areas of Landfill on the side slope with slopes of 3H: 1V, or less.

d. Interim cover:

1. Daily cover, which will be composed of a minimum of 6 inches of compacted soil, or alternative material placed over the waste during or at the end of each working day; and
2. Intermediate cover, which will be composed of a minimum of 12 inches of compacted soil, or equivalent, placed over waste areas, which will be inactive for periods greater than 180 days; existing daily cover may be used as part of the interim cover.

## FINAL COVER



98. The interim and final covers for the Eagle Mountain Landfill are designed to:
  - a. Control odors, vectors, and litter;
  - b. Minimize infiltration into the Landfill;
  - c. Control erosion and convey runoff to the storm water management system at manageable, non-scouring flow rate; and
  - d. Control and contain Landfill gas.
99. The UZLMS, installed immediately beneath the first layer of the liner system in the entire base areas of the Landfill, is designed to allow for the earliest possible detection of a leachate release from the Landfill, as shown on Attachment 27, appended hereto as part of this Board Order. The system consists of an unsaturated zone liquid monitoring layer (UZLML) liquid barrier (i.e., composite liner, ten UZLML sampling stations (located beneath the LCRS sumps), and piping.
100. Monitoring of the unsaturated zone will be conducted through ten side slope risers connecting the low points (sumps) of the UZLMS to the surface at the perimeter of the Landfill.

101. The dischargers propose the following for the LCRS:

- a. The LCRS is designed for a leachate generation rate of 26 gallons per acre per day.
- b. The leachate generated will be collected in the drainage layer and will flow by gravity, due to a minimum 4 percent bottom slope, into drainage corridors and then into the sumps, as shown on Attachment 28, appended hereto as part of this Board Order.
- c. The LCRS drainage corridor is designed for a flow of 25 gallons per minute (gpm).
- d. The leachate in the sumps will be pumped (using submersible pumps through the riser pipes) into a leachate management system for temporary onsite storage, deemed acceptable by the Regional Board's Executive Officer, followed by transport to an approved wastewater treatment plant.
- e. The potential for clogging the LCRS drainage layer is addressed by these design factors:
  1. The LCRS layer will have a minimum 4 percent slope, and the gravel used in this layer will have a hydraulic conductivity of 1 cm/s resulting in relatively high calculated leachate flow velocities;
  2. A geotextile filter above the LCRS will prevent the migration of large particles; and
  3. An 18-inch thick protection layer, above the LCRS layer, will also act as a filter layer.
- f. The LCRS sumps are designed to be the lowest points in the Landfill.
- g. A total of ten LCRS sumps (i.e., two each in Phases 1 and 2, and three each in Phases 3 and 4) will be constructed.

102. The active gas extraction and monitoring systems proposed for the Eagle Mountain Landfill consist of three different systems:

- a. Vertical gas extraction system with:
  1. Approximately 1,000 vertical gas extraction wells that will be progressively installed within the Landfill. The gas extraction wells will be located approximately 150 feet inside the limits of the containment system on approximately 200-foot centers. This system will extract gas from the Landfill under a small vacuum. The system is designed to control gas by promoting Landfill gas flow from the waste toward the gas extraction wells.
  2. Landfill gas collected and removed by the gas extraction system will be conveyed by a gas collection header and pipeline system to flare stations for ultimate treatment and disposal by thermal combustion.
  3. Enclosed gas flares will be installed in four areas along the southern portion of the Landfill as shown on Attachment 29, appended hereto as part of this Board Order.
  4. Condensate formed in the header pipe will be drained by pumping from the condensate pump stations to dedicated condensate storage tanks equipped with secondary containment systems, or by pumping into the leachate transmission pipeline. Condensate formed in the header system will not be drained into the gas extraction wells, the Landfill, or the LCRS.

- b. **Perimeter gas monitoring system:** a gas monitoring system which will include the installation of permanent gas monitoring probes around the perimeter of the Landfill as well as monitoring of ambient air, and onsite structures for the presence of Landfill gas. In addition to methane, emissions from the surface of the Landfill will be monitored periodically to ensure that emissions from the Landfill surface are within state and federal guidelines established by the South Coast Air Quality Management District (SCAQMD). Detection of potential odors associated with the release of landfill gas (LFG) and daily landfilling operations will also be monitored on a regular basis.

Perimeter gas monitoring probes will be installed as follows:

1. For waste up to 10 feet deep – A shallow probe 10 feet deep.
2. For waste depth greater than 10 feet and less than 30 feet – A second probe (intermediate probe) to a minimum depth of 30 feet.
3. For waste greater than 30 feet – A third probe (deep probe) to the depth of the waste.

When the Landfill is completed, the site will be ringed by a network of approximately 63 gas monitoring locations with up to three monitoring probes at each location. Probes will be located between the limits of waste and the project boundary at a maximum spacing of about 1,000 feet, as shown on Attachment 29.

- c. **Unsaturated Zone Gas Monitoring System (UZGMS)**
1. Approximately 200 gas probes will be installed and spaced every ten acres beneath the Landfill to locally monitor unsaturated zone gas quality, as shown on Attachment 30A, 30B, and 30C, appended hereto as part of this Board Order.
  2. Gas monitoring probes will consist of ten-foot long sections of slotted high density polyethylene (HDPE) pipes.
  3. HDPE pipes and probes, and associated pipe bending material, will be designed to function under the load that will be imposed by the Landfill. The gas probe slot size will be designed to prevent particulate clogging of the probe.
  4. The gas monitoring parameter will be methane.
  5. Monitoring will be done from a sampling port at the Landfill perimeter by applying suction to the port with a positive-displacement, leak-tight vacuum pump.
  6. Methane concentration of the gas will be measured quarterly.
  7. Monitoring will be conducted by a third party, an independent contractor, and the results will be submitted by a Civil Engineer or an Engineering Geologist, registered in the State of California.

#### 103. Final Closure

- a. The dischargers propose to progressively close the 10 to 40 acre size subphases as they are filled to the final grade elevations shown on Attachment 31, appended hereto as part of this Board Order. In general, Landfill closure will progress from the lower to high elevations of the Landfill, starting with Phase 1 and ending with Phase 4.

- b. The dischargers anticipate the following schedule for final closure of each phase of the Landfill, based on incoming waste stream volumes and other proposals (Finding No. 76), and assuming start of disposal operation in mid-2001:

<u>Phase</u>	<u>Plan Surface Area of Phase Acres (hectares)</u>	<u>Approximate Active Life (years)</u>	<u>Estimated Closure Initiation Date (year)</u>	<u>Estimated Closure Completion Date (year)</u>
1	319 (129)	23	Mid 2024	End 2024
2	312 (126)	11	Mid 2035	End 2035
3	703 (385)	31	Mid 2061	End 2061
4	534 (216)	19	Mid 2090	End 2090

- c. The dischargers propose the following closure activities at the Landfill:
1. Final grading;
  2. Placement of final cover;
  3. Construction of the Landfill gas management systems;
  4. Continued operation of the LCRS and leachate management system;
  5. Continued operation of the active gas extraction and monitoring systems (both vertical extraction system and unsaturated zone gas layer system) and Landfill gas management systems;
  6. Construction of final surface water management system controls;
  7. Removal of structures;
  8. Continued water quality monitoring; and
  9. Establishing final site security and access.
- d. The dischargers state that a minimum factor of safety of 1.5 was considered in the design of final cover slopes for static conditions.
- e. The dischargers state that a minimum factor of safety of 1.5 for final waste slopes under static conditions will be maintained.
- f. The dischargers state that settlement of the Landfill may be caused by:
1. Foundation alluvium/fill/bedrock compression due to stresses imposed by the Landfill. This settlement will be insignificant because of the following:
    - a. Thick (up to approximately 60 feet), relatively incompressible, old (40,000 years old), and generally dense to very dense alluvium at the site.
    - b. Compaction of at least 90 percent relative to compaction of fill making it stiff.

2. Mechanical compression of waste due to the weight of the overlying waste and cover soils (primary settlement). Anticipated primary settlement is on the order of 10 to 15 percent of waste thickness. Primary settlement will occur progressively as landfilling occurs, and its impact on the final cover will be insignificant.
  3. Compression caused by the decomposition of organic matter contained within the waste (secondary settlement). The dry climate and relatively dry nature of the waste accepted at the site will limit the settlement to about 5-10 percent of waste thickness. The dischargers state that secondary settlements have been considered in the design of the final cover in selection of VLDPE geomembrane, in the design of flexible drainage structures, and vertical gas extraction well penetration details, and in the design of the final Landfill grading.
104. The dischargers propose to submit to the Regional Board's Executive Officer for review and approval, plans for:
- a. A truck wheel wash area; and
  - b. A container wash/storage area.

### **CALIFORNIA ENVIRONMENTAL QUALITY ACT**

105. The County of Riverside, as lead agency, certified the final Environmental Impact Report (FEIR) on September 9, 1997. The Regional Board as a responsible agency, adopted Resolution No. 99-056 that contains findings of changes in the project to mitigate significant environmental impacts of the proposed Landfill and a mitigation monitoring program. These findings are limited to the portion of the project approved by the Regional Board and to mitigation measures that are within the Regional Board's jurisdiction.

### **FINANCIAL ASSURANCES**

106. The required financial assurances, the projected financial assurance amounts for Eagle Mountain Landfill, and the law/regulation and agency prescribing the requirements are as follows:

a.

<u>Event Requiring Financial Assurance</u>	<u>Agency Administering the Requirement</u>	<u>Law or Regulation Prescribing the Requirement</u>	<u>Amount of Financial Assurances</u>
1. Closure Costs	SWRCB	27 CCR 22207(a) 27 CCR 21769	\$22,750,000
	CIWMB	27 CCR 22205	
	EPA/State	40 CFR Part 258 (Subtitle D Regulations)	

Exact closure amounts will be determined by the California Integrated Waste Management Board (CIWMB).

2. Post Closure	SWRCB	27 CCR 22207(a) 27 CCR 21769	\$11,800,000
	CIWMB	27 CCR 22205	
	EPA/State	40 CFR Part 258 (Subtitle D Regulations)	

Exact post closure amounts will be determined by the California Integrated Waste Management Board (CIWMB).

3. "Reasonably Foreseeable Release"	CIWMB	27 CCR 22220	\$1,404,000
4. Liability Insurance Requirements	CIWMB	27 CCR 20380 27 CCR 22220 27 CCR 22221	\$1,000,000/ \$1,000,000

b. Additional Financial Obligations

In addition to the federal and state financial assurance requirements set forth above, the County of Riverside's approval of the land-use entitlement requires that MRC and its majority shareholder, Kaiser Ventures Inc. to provide additional financial assurances to the County with respect to any potential environmental remediation requirements or natural resources damage. These requirements are contained in Development Agreement No. 64, Section 9.9, by and between the County of Riverside and Mine Reclamation Corporation. The specific additional financial guarantees are as follows:

1. Commencing upon the date of execution of the Development Agreement, MRC must provide a letter of credit in the amount of \$1 million to secure its obligation under the Development Agreement, Sections 9.2, 9.3 and 9.5. MRC has provided a letter of credit in the amount of \$500,000.
  2. Commencing upon the start of operations the amount of the letter of credit shall be increased to \$2 million, to secure its obligation under the Development Agreement, Sections 9.2, 9.3, 9.5, 9.7 and 9.8.
  3. No later than the date of the execution of the Development Agreement, MRC shall deposit with the County a certificate of insurance evidencing the issuance of an environmental liability policy with coverage in the amount of \$5 million to secure its obligations under the Development Agreement, Sections 9.3, 9.5, 9.7 and 9.8. MRC has obtained the environmental insurance policy in an amount of \$5 million. This policy names the Regional Board as an additional insured party.
  4. Commencing at the startup of operations and continuing through the term of operations, MRC shall increase the amount of the environmental liability policy to \$10 million. The Regional Board will be named as an insured party.
  5. Commencing at the startup of operations, MRC shall cause to be provided a \$10 million corporate guarantee from an entity with a tangible net worth of \$100 million, or an additional \$10 million letter of credit to secure its obligations under the Development Agreement, Sections 9.2, 9.3, 9.5, 9.7 or 9.8.
  6. Commencing at the startup of operations and continuing for the life of the project, MRC and the County will jointly deposit \$0.10 per ton of waste disposed into a Financial Assurances Fund, on a monthly basis until such time that the Fund equals \$50 million. MRC and the County will each contribute half of this amount.
  7. When the total of all financial assurances reach \$30 million, MRC may replace in whole, or in part, any portion of the financial assurances as long as the total financial assurances is at least \$30 million and the total of the Financial Assurances Fund is at least \$8 million.
107. In accordance with of Title 27, the Regional Board requires the dischargers to obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the waste management unit in the amount of \$1,404,000, 90 days prior to waste disposal.

## **NOTICES**

108. The Board has notified the dischargers and all known interested agencies and persons of its intent to prescribe waste discharge requirements for said discharge and has provided them with an opportunity for a public meeting and an opportunity to submit comments.
109. The Board in a public meeting heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, that Board Order No. 94-036 is rescinded, and in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, the dischargers shall comply with the following:

## **A. DISCHARGE PROHIBITIONS**

1. The discharge of the following wastes as defined in Title 27 is prohibited at the Eagle Mountain Landfill site:
  - a. Hazardous waste, except for waste that is hazardous due only to its friable asbestos content,
  - b. Liquid waste (moisture content more than 40%)
  - c. Items included under the metallic discharge ban, including white goods (i.e., large intact household appliances),
  - d. Medical wastes,
  - e. Designated wastes,
  - f. Incinerator ash,
  - g. Radioactive waste.
2. The discharge of waste to land not owned or controlled by the dischargers and areas other than the working phase of the Landfill (areas of the Landfill that are constructed as the waste containment system) is prohibited.
3. The discharge or deposit of wastes, which can cause erosion or decay, or otherwise reduce or impair the integrity of the containment structures, is prohibited.
4. The discharge or deposit of waste which is mixed or commingled with other wastes in the Landfill which could produce chemical reactions that create heat or pressure, fire or explosion, toxic byproducts, or reactions which, in turn:
  - a. Require a higher level of containment than provided by this unit;
  - b. Are "restricted hazardous wastes"; or
  - c. Impair the integrity of the containment structureis prohibited.
5. The dischargers shall neither cause nor contribute to the existence of the following conditions:
  - a. Ground Water – contamination or pollution of ground water via the release of waste constituents in either the liquid or gaseous phase.
  - b. Unsaturated Zone – increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the unit if such waste constituents could migrate to waters of the State, in either the liquid or gaseous phase, and cause contamination, pollution, or nuisance.

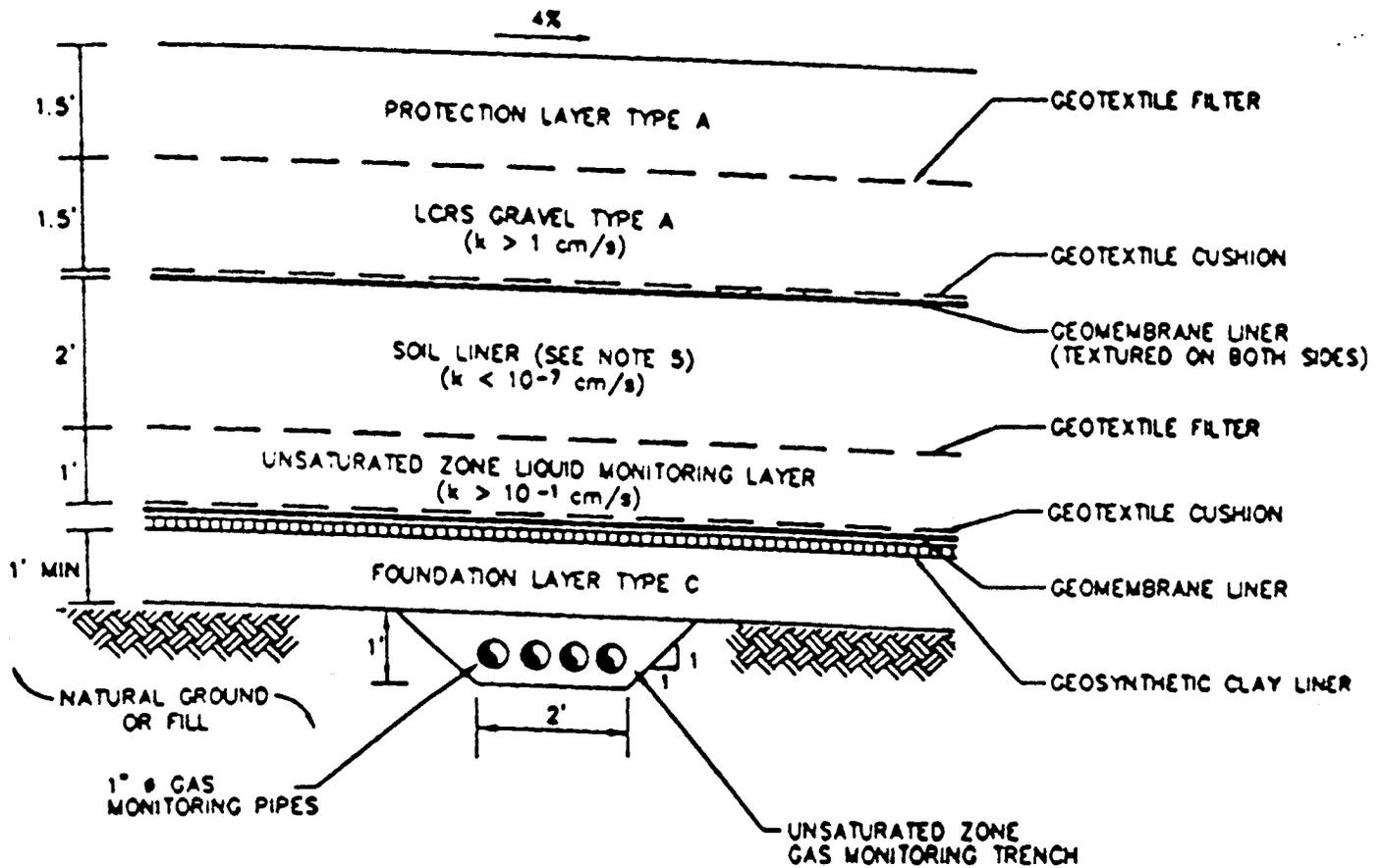
## **B. DISCHARGE SPECIFICATIONS**

1. The Landfill shall be designed and constructed in conformance with applicable regulations in Title 27, California Code of Regulations, the Federal Subtitle D Regulations, and this Board Order.
2. All materials used for the construction of the Eagle Mountain Landfill shall be selected from the following table:

<p><b>LCRS GRAVEL TYPE A</b></p> <p>ORIGIN: Processed overburden or coarse loamings</p> <p>GRAIN SIZE: Maximum particle size 1.5 in. Fines content ≤ 3%</p> <p>HYDRAULIC CONDUCTIVITY ≥ 1cm/s</p>	<p><b>FOUNDATION LAYER TYPE A (FLTA)</b></p> <p>ORIGIN: Processed overburden, alluvium, or excavated bedrock</p> <p>GRAIN SIZE: Maximum particle size - 48 in. if placed more than 10 ft below closest overlying geosynthetic liner - 24 in. if placed within 5 ft to 10 ft below closest overlying geosynthetic liner - 6 in. if placed within 5 ft of closest overlying geosynthetic liner</p> <p>Fines content ≤ 15%</p> <p>HYDRAULIC CONDUCTIVITY: Not applicable</p>	<p><b>EROSION LAYER</b></p> <p>ORIGIN: Processed overburden or excavated bedrock</p> <p>GRAIN SIZE: Maximum particle size 24 in. Fines content ≤ 10%</p> <p>HYDRAULIC CONDUCTIVITY: Not Applicable</p>	<p><b>DRAINAGE CORRIDOR GRAVEL</b></p> <p>ORIGIN: Processed overburden or excavated bedrock</p> <p>GRAIN SIZE: Maximum particle size 2.5 in. Fines content ≤ 2%</p> <p>HYDRAULIC CONDUCTIVITY ≥ 10cm/s</p>
<p><b>LCRS GRAVEL TYPE B</b></p> <p>ORIGIN: Processed overburden or coarse loamings</p> <p>GRAIN SIZE: Maximum particle size 1.5 in. Fines content ≤ 5%</p> <p>HYDRAULIC CONDUCTIVITY: ≥ 1x10<sup>-2</sup>cm/s</p>	<p><b>FOUNDATION LAYER TYPE C (FLTC)</b></p> <p>ORIGIN: Blend of fine loamings and processed coarse loamings or overburden</p> <p>GRAIN SIZE: Maximum particle size 1.5 in. when placed adjacent to a geosynthetic-clay liner, 6 in. elsewhere</p> <p>Fines content ≤ 50%</p> <p>HYDRAULIC CONDUCTIVITY: Not applicable</p> <p>SHEAR STRENGTH: Will provide an undrained cohesion, when compacted, of at least 600 psf</p>	<p><b>PROTECTION LAYER TYPE A</b></p> <p>ORIGIN: Processed overburden, excavated bedrock, or alluvium</p> <p>GRAIN SIZE: Maximum particle size 8 in. Fines content ≤ 10%</p> <p>HYDRAULIC CONDUCTIVITY: ≥ 1x10<sup>-2</sup>cm/s</p>	<p><b>UNSATURATED-ZONE LIQUID MONITORING LAYER</b></p> <p>ORIGIN: Processed overburden or coarse loamings</p> <p>GRAIN SIZE: Maximum particle size 1.5 in. Fines content ≤ 3%</p> <p>HYDRAULIC CONDUCTIVITY: ≥ 1x10<sup>-1</sup>cm/s</p>
<p><b>GEOTEXTILE FILTER (B)</b></p> <p>TYPE: Nonwoven or woven</p> <p>WEIGHT: 8 oz/yd<sup>2</sup></p>	<p><b>FOUNDATION LAYER TYPE B (FLTB)</b></p> <p>ORIGIN: Blend of fine loamings and processed coarse loamings or overburden</p> <p>GRAIN SIZE: Maximum particle size 1.5 in. when placed adjacent to a geosynthetic-clay liner, 6 in. elsewhere</p> <p>Fines content ≤ 50%</p> <p>HYDRAULIC CONDUCTIVITY: Not applicable</p> <p>SHEAR STRENGTH: Will provide an undrained cohesion, when compacted, of at least 600 psf</p>	<p><b>PROTECTION LAYER TYPE B</b></p> <p>ORIGIN: Processed overburden, coarse loamings, or excavated bedrock</p> <p>GRAIN SIZE: Maximum particle size 1.5 in. Fines content ≤ 10%</p> <p>HYDRAULIC CONDUCTIVITY: ≥ 1x10<sup>-2</sup>cm/s</p>	<p><b>GEOMEMBRANE CAP</b></p> <p>TYPE: MDPE textured both sides</p> <p>THICKNESS: 40-mil</p>
<p><b>GEOTEXTILE CUSHION</b></p> <p>TYPE: Needle-punched nonwoven</p> <p>WEIGHT: 12 oz/yd<sup>2</sup></p>	<p><b>FOUNDATION LAYER TYPE D (FLTD)</b></p> <p>ORIGIN: Blend of fine loamings and processed coarse loamings or overburden</p> <p>GRAIN SIZE: Maximum particle size 1.5 in. when placed adjacent to a geosynthetic-clay liner, 6 in. elsewhere</p> <p>Fines content ≤ 50%</p> <p>HYDRAULIC CONDUCTIVITY: Not applicable</p> <p>SHEAR STRENGTH: Will provide an undrained cohesion, when compacted, of at least 600 psf</p>	<p><b>SOIL LINER</b></p> <p>ORIGIN: Fine loamings</p> <p>USCS: CL, CH, or SC</p> <p>GRAIN SIZE: Maximum particle size 0.4 in. Fines content ≥ 30%</p> <p>HYDRAULIC CONDUCTIVITY: ≤ 1x10<sup>-7</sup>cm/s</p>	<p><b>GEOSYNTHETIC-CLAY LINER</b></p> <p>TYPE: Reinforced</p> <p>HYDRAULIC CONDUCTIVITY: ≤ 1x10<sup>-9</sup>cm/s</p>
<p><b>GEOTEXTILE CUSHION</b></p> <p>TYPE: Needle-punched nonwoven</p> <p>WEIGHT: 16 oz/yd<sup>2</sup></p>	<p><b>FOUNDATION FOR FINAL COVER</b></p> <p>ORIGIN: Processed overburden, fine loamings, coarse loamings, or excavated bedrock</p> <p>GRAIN SIZE: Maximum particle size - 6 in. if placed at a depth of 16 in. to 24 in. in this layer - 2 in. if placed within the upper 16 in. of the layer - 0.4 in. in top 0.5 in. (top of layer to be refted with a smooth-drummed roller and protrusions larger than 0.4 in. will be removed)</p> <p>Fines content ≤ 20%</p> <p>HYDRAULIC CONDUCTIVITY: ≤ 1x10<sup>-5</sup>cm/s in top 16 in.</p>	<p><b>DAILY AND INTERMEDIATE COVER</b></p> <p>ORIGIN: Coarse loamings, processed overburden, or fine loamings</p> <p>GRAIN SIZE: Maximum particle size 8 in. Fines content ≤ 10%</p> <p>HYDRAULIC CONDUCTIVITY: Not Applicable</p>	<p><b>GEOTEXTILE FILTER (A)</b></p> <p>TYPE: Nonwoven or woven</p> <p>WEIGHT: 16 oz/yd<sup>2</sup></p>
<p><b>GEOMEMBRANE LINER (Side Slope Areas)</b></p> <p>TYPE: MDPE textured bottom, smooth top</p> <p>THICKNESS: 60-mil</p>	<p><b>FOUNDATION FOR FINAL COVER</b></p> <p>ORIGIN: Processed overburden, fine loamings, coarse loamings, or excavated bedrock</p> <p>GRAIN SIZE: Maximum particle size - 6 in. if placed at a depth of 16 in. to 24 in. in this layer - 2 in. if placed within the upper 16 in. of the layer - 0.4 in. in top 0.5 in. (top of layer to be refted with a smooth-drummed roller and protrusions larger than 0.4 in. will be removed)</p> <p>Fines content ≤ 20%</p> <p>HYDRAULIC CONDUCTIVITY: ≤ 1x10<sup>-5</sup>cm/s in top 16 in.</p>	<p><b>DAILY AND INTERMEDIATE COVER</b></p> <p>ORIGIN: Coarse loamings, processed overburden, or fine loamings</p> <p>GRAIN SIZE: Maximum particle size 8 in. Fines content ≤ 10%</p> <p>HYDRAULIC CONDUCTIVITY: Not Applicable</p>	<p><b>GEOTEXTILE FILTER (A)</b></p> <p>TYPE: Nonwoven or woven</p> <p>WEIGHT: 16 oz/yd<sup>2</sup></p>
<p><b>GEOMEMBRANE LINER (Base, Bench, and Ridge Areas)</b></p> <p>TYPE: MDPE textured both sides</p> <p>THICKNESS: 60-mil</p>	<p><b>FOUNDATION FOR FINAL COVER</b></p> <p>ORIGIN: Processed overburden, fine loamings, coarse loamings, or excavated bedrock</p> <p>GRAIN SIZE: Maximum particle size - 6 in. if placed at a depth of 16 in. to 24 in. in this layer - 2 in. if placed within the upper 16 in. of the layer - 0.4 in. in top 0.5 in. (top of layer to be refted with a smooth-drummed roller and protrusions larger than 0.4 in. will be removed)</p> <p>Fines content ≤ 20%</p> <p>HYDRAULIC CONDUCTIVITY: ≤ 1x10<sup>-5</sup>cm/s in top 16 in.</p>	<p><b>DAILY AND INTERMEDIATE COVER</b></p> <p>ORIGIN: Coarse loamings, processed overburden, or fine loamings</p> <p>GRAIN SIZE: Maximum particle size 8 in. Fines content ≤ 10%</p> <p>HYDRAULIC CONDUCTIVITY: Not Applicable</p>	<p><b>GEOTEXTILE FILTER (A)</b></p> <p>TYPE: Nonwoven or woven</p> <p>WEIGHT: 16 oz/yd<sup>2</sup></p>

3. The treatment or disposal of wastes at this waste management facility shall not cause pollution or nuisance as defined in Sections 13050(l) and 13050(m) of Division 7 of the California Water Code.
4. For ground water quality protection, the dischargers shall install the following:
  - a. A composite liner over the entire base of the Landfill, meeting the requirements of Subtitle D, 40 CFR, Part 258 and Title 27;
  - b. An alternative composite liner on the side slopes meeting the requirements of Subtitle D, 40 CFR, Part 258 and Title 27;
  - c. A leachate collection and removal system (LCRS);
  - d. LCRS sumps;
  - e. An unsaturated zone liquid monitoring system (UZLMS) beneath the base of the Landfill that also functions as a secondary leachate detection, collection and removal system;
  - f. An unsaturated zone gas monitoring system (UZGMS) beneath the entire Landfill which functions as a gas detection, collection and removal system;
  - g. An active gas extraction system;
  - h. A perimeter gas monitoring system;
  - i. A daily, interim and final cover system;
  - j. A surface water management system; and
  - k. An ambient air monitoring system.
5. The dischargers shall construct the following liner systems for base, side slopes, benches and ridges, and final cover for the Eagle Mountain Landfill site:

# BASE



a. Base Liner – areas of the Landfill such as bottoms of canyons and pits with a foundation of grade of 3H:1V or less.

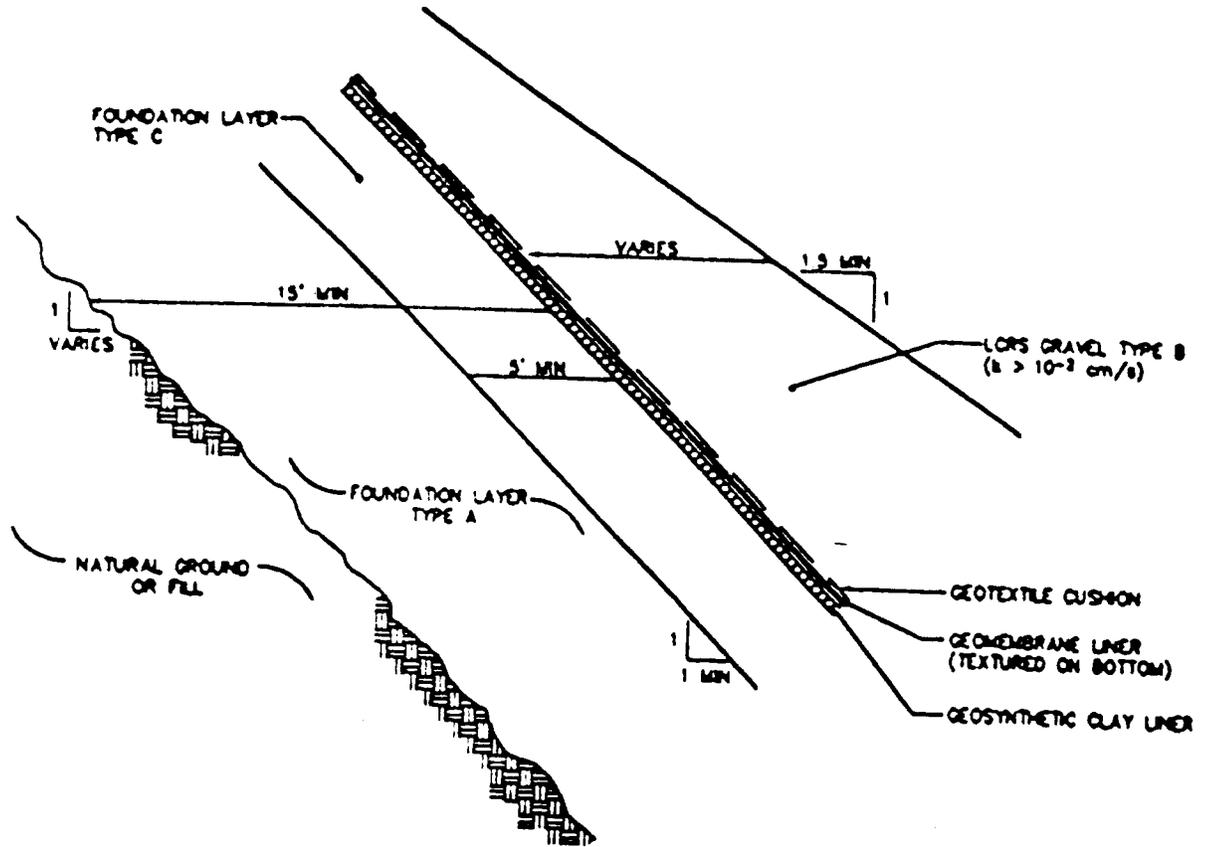
1. The composite primary liner shall consist of:

- a. A 16-oz. yd<sup>2</sup> nonwoven needlepunch geotextile
- b. An 80-mil textured (both sides) HDPE geomembrane; and
- c. A two-foot thick soil liner with low permeability of  $K \leq 1 \times 10^{-9}$  cm s.

2. The secondary composite liner shall consist of:

- a. A 16-oz. yd<sup>2</sup> nonwoven needlepunch geotextile
- b. An 80-mil textured (both sides) HDPE geomembrane; and
- d. A geosynthetic clay liner (GCL) with hydraulic conductivity of  $K \leq 1 \times 10^{-9}$  cm/s.

# SIDE SLOPE

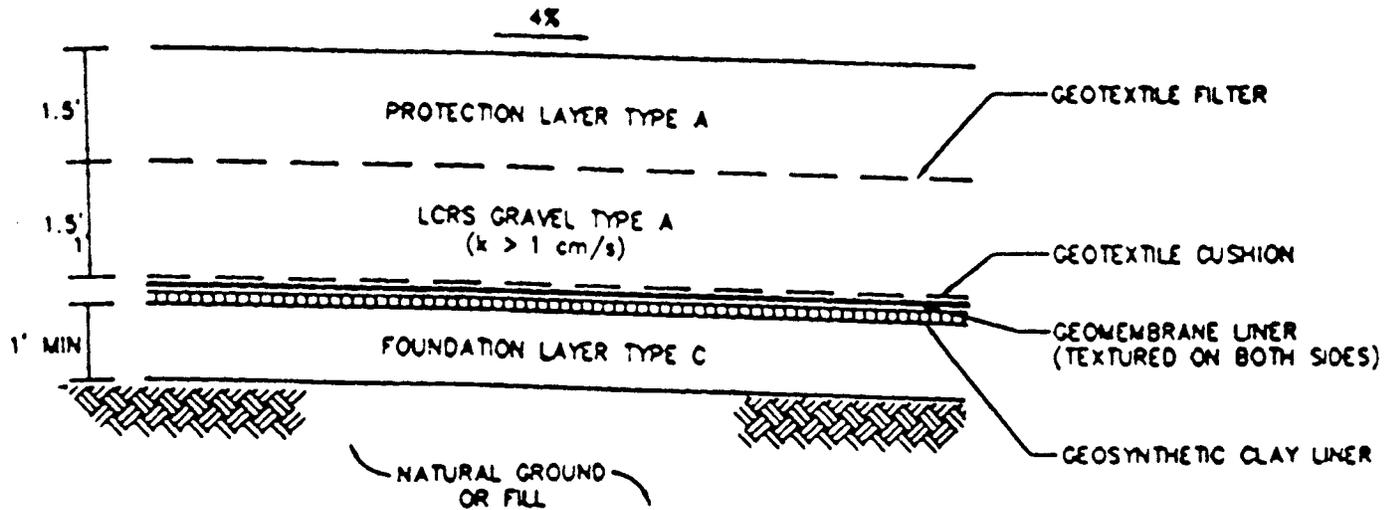


b. Side slopes – areas of the Landfill with foundation grade greater than 3H:1V, including benches.

1. The composite liner shall consist of

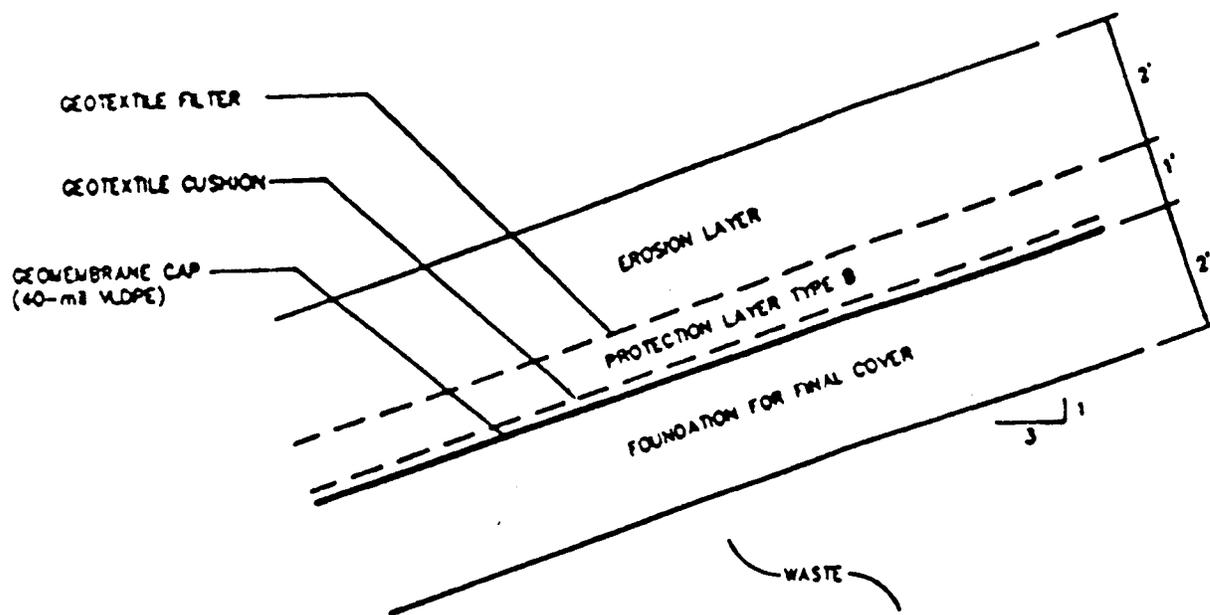
- a. A 16-oz. yd<sup>2</sup> nonwoven needlepunch geotextile
- b. An reinforced GCL ( $K \leq 1 \times 10^{-9}$  cm s); and
- c. An 80-mil HDPE, smooth on top and textured on the bottom.

## BENCHES AND RIDGES



- c. Benches and Ridges - areas of the Landfill on the side slope with slopes of 3H:1V, or less.
  - 1. The composite liner shall consist of
    - a. A 16-oz.  $\text{yd}^2$  nonwoven needlepunch geotextile
    - b. A reinforced GCL ( $K \leq 1 \times 10^{-9} \text{ cm s}$ ); and
    - d. An 80-mil HDE (textured on both sides).
  - d. Interim cover shall consist of:
    - 1. Daily cover composed of a minimum of 6 inches of compacted soil, or alternative material placed over the waste during or at the end of each working day; and
    - 2. Intermediate cover composed of a minimum of 12-inch of compacted soil, or equivalent, placed over waste areas which shall be inactive for periods greater than 180 days; existing daily cover may be used as part of the intermediate cover.

## FINAL COVER



- e. The final cover for the Eagle Mountain Landfill shall be constructed as follows (in ascending order):
1. Foundation for final cover layer – a 24-inch thick low-permeability (upper 18 inches must have  $K \leq 1 \times 10^{-5}$  cm/s) soil layer to mitigate the effect of differential waste settlement and subsidence on the overlying low permeability layer, and provide a firm smooth subgrade for placement of lower permeability barrier layer (VLDPE).
  2. VLDPE – A 40-mil very low-density polyethylene (VLDPE) ( $K \leq 1 \times 10^{-10}$  cm/s) geomembrane.
  3. Geotextile – A 12-oz/yd<sup>2</sup> nonwoven needlepunch geotextile cushion.
  4. Protection layer – A protection layer type B with  $K = 1 \times 10^{-2}$  cm/s to protect the VLDPE from damage due to equipment traffic and the overlying erosion layer.
  5. Geotextile – an 8-oz/yd<sup>2</sup> nonwoven or woven geotextile.
  6. Erosion layer – a 24-inch thick coarse granular material shall be placed on top of the protection layer to control erosion that may be caused by storm water runoff, and to visually blend with the surrounding environment.
  7. Slope of the final cover shall be no steeper than 3H:1V on the side and on the top of the Landfill. the slope shall be a minimum of 3 percent.

6. The interim and final covers for the Eagle Mountain Landfill shall:
  - a. Control odors, vectors and litter;
  - b. Minimize infiltration into the Landfill;
  - c. Control erosion and convey runoff to the storm water management system at manageable, non-scouring flow rates; and
  - d. Control and contain Landfill gas.
7. The dischargers shall cover disposed waste with six inches of earthen material at the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging. Any alternative materials of alternative thickness shall be approved by the Regional Board's Executive Officer prior to use. The dischargers shall demonstrate that the alternative material and thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment.
8. A compacted layer of at least 12 inches of intermediate cover shall be placed on all surfaces of the fill where no additional refuse will be deposited within 180 days.
9. The Landfill will be constructed in four contiguous phases, 13 sequences, and 75 subphases.
10. The Landfill construction shall start at the western end of the site in Phase 1 and end at the eastern end of phase 4.
11. East subphase shall be on the order of 10 to 40 acres to minimize:
  - a. The amount of leachate caused by direct precipitation onto the working phase; and
  - b. Wind-blown waste from the working face.
12. The dischargers shall design, install and operate a primary leachate collection and removal system (LCRS) immediately above the primary composite liner in the base, benches and ridges, and side slopes of the Landfill.
13. The LCRS at the Eagle Mountain Landfill shall:
  - a. Function without clogging through the active life of the waste management unit and during the post-closure maintenance period.
  - b. Maintain less than one-foot (1 ft.) depth of leachate over any of the Landfill liner.
  - c. Have a slope of 4% in the base, benches and ridges, and a slope of 1.5 (minimum) 3H:1V on the side slopes.
  - d. Remove twice the maximum anticipated daily volume of leachate from the waste management unit.
  - e. Consist of a permeable subdrain layer that covers the bottom of the waste management unit and extends as far up the side slopes as possible (i.e., blanket-type).
  - f. Be of sufficient strength and thickness to prevent collapse under the pressures exerted by the overlying waste, waste cover materials, and by any equipment used at the waste management units.

14. The LCRS shall consist of the following:

a. Drainage Layer

1. In the base area of the Landfill, and on benches and ridges, the drainage layer shall be 18 inches thick. The drainage material shall be gravel type A ( $K > 1$  cm/s, maximum particle size of 1.5 inches and not more than 3% passing a U. S. Standard No. 200 sieve). In the base area, an 18-inch thick protection layer shall overlie the LCRS with an 8-oz/yd<sup>2</sup> nonwoven, needlepunch, geotextile filter between drainage gravel (LCRS gravel) to control the potential for particle migration. In the benches and ridges, gravel Type A shall be overlain by LCRS gravel Type B ( $K \leq 1 \times 10^{-2}$  cm/s, maximum particle size 1.5 inches, and fine content  $\leq 5\%$ ) as a protection layer. An 8-oz/yd<sup>2</sup> nonwoven, needlepunch geotextile filter between Type A and Type B gravel shall be used to control the potential for particle migration.
2. In the side slope areas of the Landfill, the LCRS drainage layer shall be in the range of 3 feet to 20 feet in thickness and shall use LCRS gravel Type B as drainage material.

b. Drainage Corridor – Any leachate collected by the LCRS drainage layer shall flow by gravity to LCRS drainage corridors, which in turn shall direct the leachate to LCRS sumps or directly flow to LCRS sumps. Each drainage corridor shall be constructed as follows, so that leachate buildup does not occur:

1. A two-foot thick central core of coarse, granular drainage corridor gravel with hydraulic conductivity of at least 10 cm/s, a maximum particle size of 2.5 inches and not more than 2% fine. The drainage corridor shall be separated from the composite liner by a 16-oz/yd<sup>2</sup> nonwoven, needlepunch geotextile cushion and a 0.5-foot thick layer of LCRS gravel Type A. A 1.5-foot protection layer Type A shall overlie the drainage corridor. The LCRS gravel shall be encapsulated by an 8-oz/yd<sup>2</sup> nonwoven, needlepunch geotextile to prevent any particle migration from surrounding materials.

c. Sumps

1. A total of ten LCRS sumps (two each in Phase 1 and Phase 2, and three each in Phases 3 and 4) shall be constructed, in the base of the Landfill, for collection and removal of any leachate that percolates into the LCRS.
  2. The sumps shall be the lowest points in the Landfill to which any leachate flows.
  3. The sumps shall be 50 x 40 feet in plan dimension and up to 6.5 feet in depth.
  4. The sumps shall be filled with drainage corridor gravel with hydraulic conductivity of at least 10 cm/s.
  5. An 18-inch thick protection layer (Type A) shall be placed above the drainage corridor gravel in the sumps.
  6. An 8-oz/yd<sup>2</sup> geotextile shall encapsulate the drainage corridor gravel to control the potential for particle migration.
15. The dischargers shall direct any leachate removed from the LCRS sumps into a leachate management system for temporary onsite above ground storage tanks followed by transport to an approved wastewater treatment plant.

16. The dischargers shall implement the attached Monitoring and Reporting Program No. 99-061, and revisions thereto, as specified in Title 27.
17. Any monitoring and reporting of the leachate shall be done as specified in the self-monitoring program.
18. The dischargers shall test the LCRS on an annual basis to demonstrate that the system is functioning properly. The dischargers shall submit the test results to the Regional Board pursuant to Section II of Monitoring and Reporting Program No. 99-061, and revisions thereto.
19. The dischargers shall ensure that the foundation of the Landfill and the structures which control leachate, surface drainage, erosion and gas mitigation for this site, are constructed and maintained to withstand conditions generated during a maximum probable earthquake event.
20. Leachate sumps and interim and final berms shall be designed and constructed to withstand the maximum probable earthquake at the facility.
21. Leachate collection sumps shall be designed and operated to keep leachate levels at the minimum needed to ensure sufficient pump operation. Leachate collected shall be disposed of in accordance with local, state, and federal regulations.
22. The dischargers shall submit a detailed Leachate Management Plan acceptable to the Regional Board's Executive Officer for the Landfill 90 days prior to the disposal of any waste. This Plan shall estimate the quantity of leachate produced, the storage of leachate, and ultimate disposal of the leachate. The report should evaluate the quantity of the leachate produced from each unit and determine the maximum safe operating level for the leachate containment facilities. The plan shall provide a detailed assessment of alternative and disposal methods along with a plan for implementation of preferred alternatives. If recirculation of leachate is to be considered, the dischargers must demonstrate that the quantity of leachate being recirculated will not result in a solid-to-liquid ratio smaller than 5:1 by weight in that phase of the Landfill.
23. The dischargers shall install a secondary leachate detection removal system or unsaturated zone liquid monitoring system (UZLMS) immediately underneath the first composite liner system in the base of the Landfill to monitor any leachate that might have penetrated through the primary composite liner.
24. The UZLMS shall consist of:
  - a. Unsaturated zone liquid monitoring layer
    1. This drainage layer shall be constructed of coarse, granular material with a minimum hydraulic conductivity of  $1 \times 10^{-1}$  cm/s.
    2. This layer shall be at least one-foot thick and have a minimum slope of four percent to promote flow to unsaturated zone monitoring stations.
  - b. Liquid barrier:
    1. A liquid barrier shall be constructed immediately beneath the unsaturated zone liquid monitoring layer to provide a physical barrier to downward migration of liquid.
    2. The liquid barrier shall be constructed of an upper component consisting of an 80-mil HDPE (textured on both sides) geomembrane and a lower component, consisting of a geosynthetic clay liner (GCL) with hydraulic conductivity of  $1 \times 10^{-6}$  or less. A 16-oz/yd<sup>2</sup> nonwoven, needlepunch geotextile cushion shall be placed directly on the HDPE for protection.

- c. Unsaturated zone liquid monitoring stations:
1. Monitoring stations shall be used to perform detection monitoring for liquids in the unsaturated zone immediately below the Landfill.
  2. Each monitoring station shall be located within each sump, and shall be capable of monitoring the area immediately beneath the LCRS sumps.
  3. A total of ten monitoring stations shall be installed at the Eagle Mountain Landfill.
25. An active gas detection, extraction, and monitoring system shall be installed at the Landfill. This system shall be comprised of the following components:
- a. Vertical gas extraction system with:
1. Approximately 1,000 vertical gas extraction wells shall be progressively installed within the Landfill. The perimeter vertical gas extraction wells shall be located approximately 150 feet inside the limits of the containment system on approximately 200-foot centers. Interior wells shall be approximately 300-400 foot centers. This system shall extract gas from the Landfill under a small vacuum. The system shall control gas by promoting Landfill gas flow from the waste toward the gas extraction wells.
  2. Landfill gas collected and removed by the gas extraction system shall be conveyed by a gas collection header and pipeline system to flare stations for ultimate treatment and disposal by thermal combustion.
  3. Enclosed gas flares shall be installed in four areas along the southern portion of the Landfill, as shown on Attachment 29.
  4. Condensate formed in the header pipe shall be drained by pumping from the condensate pump stations to dedicated condensate storage tanks equipped with secondary containment systems, or by pumping into the leachate transmission pipeline. Condensate formed in the header system shall not be drained into the gas extraction wells, the Landfill, or the LCRS.
- b. Perimeter gas monitoring system: a gas monitoring system shall include the installation of permanent gas monitoring probes around the perimeter of the Landfill as well as monitoring of ambient air, and onsite structures for the presence of Landfill gas. In addition to methane, emissions from the surface of the Landfill shall be monitored periodically to ensure that emissions from the Landfill surface are within state and federal guidelines established by the SCAQMD. Detection of potential odors associated with the release of LFG and daily landfilling operations shall also be monitored on a regular basis.

Perimeter gas monitoring probes shall be installed as follows:

1. For waste up to 10 feet deep – A shallow probe 10 feet deep.
2. For waste depth greater than 10 feet and less than 30 feet – A second probe (intermediate probe) to a minimum depth of 30 feet.
3. For waste greater than 30 feet – A third probe (deep probe) to the depth of the waste.

When the Landfill is completed, the site shall be ringed by a network of approximately 63 gas monitoring locations with up to three monitoring probes at each location. Probes shall be

located between the limits of waste and the project boundary at a maximum spacing of about 1,000 feet, as shown on Attachment 29.

c. Unsaturated Zone Gas Monitoring System (UZGMS)

1. Approximately 200 gas probes shall be installed every ten acres beneath the Landfill to locally monitor unsaturated zone gas quality, as shown on Attachment 30A, 30B, and 30C.
  2. Gas monitoring probes shall consist of ten-foot long sections of slotted high-density polyethylene (HDPE) pipes.
  3. HDPE pipes and probes, and associated pipe bending material, shall be designed to function under the load that will be imposed by the Landfill. The gas probe slot size shall be designed to prevent particulate clogging of the probe.
  4. The gas monitoring parameter shall be methane.
  5. Monitoring shall be done from a sampling port at the Landfill perimeter by applying suction to the port with a positive-displacement, leak-tight vacuum pump.
  6. Methane concentration of the gas shall be measured quarterly.
  7. Monitoring shall be conducted by a third party, an independent contractor, and the results shall be submitted by a Civil Engineer or an Engineering Geologist, registered in the State of California.
26. For any material used for all or any portion of the UZGMS, UZLMS, base liner, LCRS, side slope liner, vertical gas collection removal system, daily, intermediate and final cover, the dischargers must demonstrate leachate compatibility, shear strength, under the applicable normal forces, and any other applicable requirements as stated in Specification 46 of this Board Order.
  27. The exterior surfaces of the disposal area, including daily cover, and intermediate and final covers shall be graded and maintained to promote lateral runoff of precipitation and to prevent ponding.
  28. The site shall be protected from any washout or erosion of wastes or covering material and from inundation due to rainfall.
  29. Drainage features within the Landfill footprint shall be designed to accommodate the 100-year 1-hour, 100-year, 3-hour, and 100-year, 24-hour storm events.
  30. A minimum depth of freeboard of two (2) feet shall be maintained for the 500-year, 3-hour storm event at all times in any sedimentation pond that received runoff from the Landfill.
  31. The dischargers shall install a surface water management system at the Eagle Mountain Landfill. This surface water management system shall be designed to:
    - a. Isolate the Landfill by diverting surface water runoff from adjacent areas around the Landfill footprint;
    - b. Isolate the daily Landfill cell (i.e., active area with exposed waste) by diverting surface water runoff from Landfill areas with intermediate or final cover away from the active area;
    - c. Limit infiltration, inundation, and ponding within the daily Landfill cell.

- d. Limit erosion, slope failure, washout, and overtopping of the surface water conveyance and retention structures; and
  - e. Limit erosion of interim and final cover.
32. The following types of surface water management features shall be installed at the site:
- a. Interim drainage, erosion, and sediment control features within the Landfill footprint (on-Landfill), such as temporary detention basins, interim downchutes, interim swales, bench ditches, channels, side slope spillways, berms, silt fences, and hay bales, as shown on Attachments 16, 17, and 18, shall be designed to collect and control surface water flow during landfilling operations. These features may be modified periodically as landfilling operations progress.
  - b. Final on-Landfill drainage, erosion, and sediment control features, such as final cover benches, downchutes, swales, final cover access road channels, and energy dissipators, shall be designed to collect and convey surface water flow across portions of the Landfill where the final cover has been constructed, as shown on Attachments 19, 20, 21, and 22.
  - c. Final off-Landfill drainage control, erosion, and sediment control features outside the Landfill footprint, such as haul road and maintenance road drainage channels, spillways, energy dissipators, and three detention basins, shall be designed to collect and convey surface water flow around the perimeter of the Landfill, as shown on Attachments 19, 20, 21, and 22.
33. The dischargers shall implement the following measures for surface water control at the Eagle Mountain Landfill:
- a. Off-Landfill surface water runoff – during the progressive development of the Landfill, the noncontact water (surface water that does not come in contact with the waste) originating primarily from the drainage basins of the Eagle Creek and Bald Eagle Creek shall be controlled in stages by constructing three detention basins. The detention basins shall intercept the flow from these creeks and eventually discharge into the east bowl of the East Pit, or into a natural downstream watercourse.
  - b. On-Landfill surface water runoff (interim and final):
    - 1. Noncontact surface water runoff within the boundary of the Landfill (i.e., precipitation that falls on the intermediate and final cover) shall be collected by a system of berms, ditches, downchutes, swales and drainage channels, and shall be diverted off the Landfill to the east bowl of the East Pit or to the natural courses offsite.
    - 2. Any precipitation that falls on the working face of the Landfill and comes in contact with waste (contact water) shall be treated as leachate.
    - 3. The working face of the Landfill shall be limited to one day of operation at a time, so as to minimize the amount of contact water.

- c. Erosion control measures:
1. Where flow concentrations result in erosive flow velocities, surface protection such as asphalt, concrete asphalt, concrete riprap, or other erosion control material shall be used for protection of drainage conveyance features. Interim bench ditches shall be provided with erosion control material and riprap to control erosion where necessary.
  2. Energy dissipators shall be installed to control erosion at locations where relatively high erosive flow velocities are anticipated.
  3. Slopes on the Landfill shall be benched to control flow velocities.
  4. Where high velocities occur at terminal ends of downchutes or where downchutes cross the final cover access roads, erosion control material shall be applied to exposed soil surfaces.
  5. The interim detention basins in Phase 1 and final detention basins located along the north maintenance road shall also function as sediment basins as shown on Attachments 16 and 19.
  6. Sediments shall be removed from the detention basins whenever the volume of the basin has been reduced by 25 percent of the basin's design capacity.
  7. Silt fences, hay bales, and other measures as shown on Attachment 18 shall be used to control noncontact surface water runoff from Landfill areas where daily, intermediate and final cover have been placed, and from areas where Landfill containment system construction is occurring.
34. The dischargers shall use a network of nine surface water monitoring points (SW-1 to SW-9) to monitor the quality of surface water at the site. Five of the monitoring points (SW-1, SW-2, SW-3, SW-4, and SW-8) shall be used to monitor the quality of surface water runoff to establish background values. The remaining four monitoring points (i.e., SW-5, SW-6, SW-7 and SW-9) shall serve as compliance monitoring points. Surface water quality monitoring points are shown on Attachment 23, appended hereto as part of this Board Order.
  35. The surface water monitoring program at the Eagle Mountain Landfill shall include organic and inorganic constituents listed in the Monitoring and Reporting Program No. 99-061 of this Board Order, and revisions thereto. The surface water quality monitoring system for the Eagle Mountain Landfill shall be used only to monitor noncontact (see Finding No. 59.a.) surface water runoff.
  36. The dischargers shall install a ground water monitoring system that consists of 27 downgradient point-of-compliance monitoring points (POCs) and nine upgradient background monitoring points (upgradient background wells) as shown on Attachment 23.
  37. Point-of-compliance wells shall be located immediately downgradient of each of the ten leachate collection and removal system (LCRS) sumps to allow detection at the earliest possible time of a release from the Landfill.
  38. The ground water and leachate parameters and Constituents of Concern shall include organic and inorganic constituents listed in Monitoring and Reporting Program No. 99-061, and future revisions thereto.

39. The dischargers shall follow the water quality protection standards (WQPS) for detection monitoring established by the Regional Board in this Board Order, pursuant to Title 27. The following are five parts of WQPS as established by the Regional Board (the terms of art used in this Board Order regarding monitoring are defined in Part I of the attached Monitoring and Reporting Program No. 99-061, and revisions thereto, which is hereby incorporated by reference):
- a. The dischargers shall test for the monitoring parameters and the Constituents of Concern (COC) listed in the Monitoring and Reporting Program No. 99-061, and revisions thereto, for:
    1. Water bearing media (i.e., ground water, storm water, and liquids in the UZLMS).
    2. For soil-pore gas in the UZGMS.
    3. For vertical gas extraction system.
    4. For perimeter gas monitoring system.
  - b. Concentration Limits – the concentration limits for each monitoring parameter and Constituent of Concern, for each monitoring point (as stated in detection Monitoring Program Part II), shall be its background value as obtained during that reporting period.
  - c. Monitoring points and background monitoring points for detection monitoring shall be those listed in Part II.C. of the attached Monitoring and Reporting Program No. 99-061, and revisions thereto. Monitoring and background monitoring points are shown on Attachment 23.
  - d. The points of compliance are shown on Attachment 23, and extend down through the zone of saturation.
  - e. Compliance Period – the estimated duration of the compliance period for this Unit is 84 years. Each time the standard is broken (i.e., a release is discovered), the Unit begins a compliance period on the date the Regional Board directs the dischargers to begin an Evaluation Monitoring Program. If the dischargers' Corrective Action Program (CAP) has not achieved compliance with the standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the Unit has been in continuous compliance for at least three consecutive years.
40. The dischargers shall use the constituents listed in Monitoring and Reporting Program No. 99-061, and revisions thereto, as "Monitoring Parameters". These monitoring parameters are subject to the most appropriate statistical or non-statistical tests under Monitoring and Reporting Program No. 99-061, Part III.A.1. and III, and any revisions thereto.
41. The concentrations of monitoring parameters or waste constituents in waters passing through points-of-compliance shall not exceed the "Water Quality Protection Standards", established in Monitoring and Reporting Program No. 99-061 of this Board Order, and revisions thereto. The concentration of monitoring parameters for water samples and soil-pore gas samples are defined in the Monitoring and Reporting Program.
42. The dischargers shall, for any additional subphase, install additional ground water, soil-pore liquid, soil-pore gas, or leachate monitoring devices to comply with the Monitoring and Reporting Program of this Board Order, and revisions thereto. The dischargers shall submit to the Regional Board's Executive Officer 120 days prior to construction, the plan for these installations.
43. The unsaturated zone gas monitoring system shall be monitored for the presence of methane in the unsaturated zone.

44. Methane, carbon dioxide and other Landfill gasses shall be adequately vented, removed from each subphase of the Landfill unit, or otherwise be controlled to prevent the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water due to the migration of gas through the unsaturated zone.
45. Adequate measures shall be taken to ensure that no part of the liner system (i.e., HDPE, VLDPE, GT, GCL) is punctured during construction and during operation and closure/post closure activities.
46. The dischargers shall submit to the Regional Board's Executive Officer, for review and approval, pursuant to Provision C.8. of this Board Order, "Final Construction Design Plans and Specifications" 120 days prior to initiation of construction of each subphase of the Landfill. The plans and specifications shall include the following:
  - a. Criteria – the minimum acceptable criteria are as follows:
    1. Interim slopes shall have a safety factor of 1.35.
    2. Final slopes shall have a safety factor of 1.5.
    3. A small increase in shear strength not greater than represented by a dilation angle of  $3^\circ$  may be used to account for the kinematic constraints imposed by side slope benches.
    4. Increases in calculated two-dimensional (2-D) factors of safety to account for three-dimensional (3-D) conditions shall not exceed a factor of 1.05. Any correction factors greater than 1.05 must be supported with specific 3-D analyses for the critical surfaces of the Landfill subphase.
  - b. Engineering Designs and Analysis – detail designs and analysis of all portions of the project shall include:
    1. Details of the minimum requirements (e.g., shear strength) associated with each element of the Landfill system required to meet slope stability criteria.
    2. Slope stability analyses shall explicitly model the actual liner slopes, including benches. The actual residual shear strengths corresponding to the actual liner interfaces shall be employed in the analyses.
    3. Seismic and static slope stability calculations for all slopes under the appropriate range of loading conditions.
    4. Evaluation of 3-D geometry effects for both interim and final slope conditions. This evaluation shall include the possibility that 3-D stability within lined canyons may be less than that calculated for 2-D stability conditions. The potential increases in computed factors of safety for the effect of 3-D effects may be incorporated in the design of the slope. However, these factors must correspond to minimum acceptable criteria set forth in Specification 46.a. of this Board Order.
    5. Calculations of the minimum factor of safety for interim and final slopes, pursuant to Specification 46.a.1 and 2.
    6. Leachate head calculations.
    7. Drainage system flow calculations.
    8. Settlement analyses of the foundation, liner system and waste.

9. Analyses indicating the capability of the material used for containment systems such as HDPE, GCL, CT, or any other material to withstand the anticipated overburden pressures plus the weight of any operating equipment used that could cause axial loading on the containment system. It is noted that the maximum overburden pressures shall be approximately 42,000 lb/ft<sup>2</sup>.
  10. Any other applicable analysis.
- c. Construction Drawings and Specifications – detailed sets of construction drawings and specifications with sufficient detail to build the Landfill containment system. The construction plans shall include horizontal coordinates ( $\pm 0.1$  ft), elevations ( $\pm 0.1$  ft), and grades ( $\pm 0.1\%$ ). The plan should show locations of all interim and permanent berms, ditches, downchutes, sumps, benches and ridges, pipe connection details, liner overlaps, liner seaming or welding, and layer minimum thickness.
  - d. Detailed Fill Plan – the fill plan detailing the limits of acceptable interim geometries for all locations of the Landfill subphase. All phases of construction where waste and/or fill is being placed over the completed liner system shall be considered to be interim waste slopes. Such slopes shall be designed to meet a minimum slope stability factor of safety of 1.35, using appropriate shear strengths of the materials involved, including residual shear strengths, where geosynthetic materials are involved.
  - e. Construction Quality Control-Quality Assurance – A Construction Quality Control-Quality Assurance (CQC-CQA) plan to be implemented during construction of the containment system by an independent engineering firm that is not owned in whole or in part by the dischargers. This plan shall contain, at a minimum, the following:
    1. Quality control/quality assurance procedures for each geosynthetic and fill material to be incorporated within the Landfill liner and cover system.
    2. Detailed testing, inspection, and acceptance criteria for each geosynthetic and fill material to be incorporated within the Landfill liner and cover system.
    3. Detailed foundation acceptance criteria and acceptable interim waste slopes.
    4. A plan for:
      - a. Performing interface shear strengths, prior to liner installation, using the specific geosynthetic materials specified for different elements of the liners. The test shall be performed for the range of normal stress, moisture conditions, and displacement rates applicable with field conditions: and
      - b. Determination of shear strength values which must be equal to or greater than the shear strengths employed in the slope stability analyses performed during final design.
  - f. Contractor Quality Control – each contractor or manufacturer is responsible for implementing their own quality control plan as required by the detailed construction specifications. All materials and workmanship shall be tested in accordance with the quality control-quality assurance plan. All tests may be observed by the CQC-CQA firm, and all test results shall be submitted to the CQC-CQA firm for review and approval.

g. Field Changes

1. Construction drawings and specifications shall be developed to minimize, to the extent feasible, the need for "significant field changes". "Significant field changes" include, but are not limited to:
  - a. Changes in material specifications,
  - b. Changes in soil liner compaction criteria,
  - c. Changes in liner system component thickness,
  - d. Increase in side slope grades,
  - e. Decrease in bottom slope grades,
  - f. Decrease or increase in the height of the slopes,
  - g. Decrease or increase in the width of benches, and
  - h. Changes to the Landfill grading plan.
2. A plan outlining the following steps, which should be taken if a "significant field change" is found to be necessary:
  - a. The contractor shall notify the construction manager or the owner regarding the proposed change.
  - b. The construction manager or owner shall have the design engineer review the proposed change. The review shall include any engineering analyses that need to be done to ensure that all design criteria are met with the proposed change.
  - c. The dischargers shall submit the proposed change to the Regional Board's Executive Officer for review and approval. The proposed change shall be accompanied by an explanation for the change, a copy of the engineering analyses, and any changes to the design drawings and specifications.
  - d. The Regional Board's Executive Officer shall approve the proposed changes before it can be implemented. Such approval shall not be given unless supported by slope stability analyses demonstrating that the field changes do not result in slope stability factors of safety less than the minimum acceptable values.
47. The dischargers shall compact the fill at least 90 percent relative compaction in areas with fine tailings, alluvial soil, or any other soil material used as a part of the liner in accordance with ASTM Standards.
48. The dischargers shall have on site at all times during construction a qualified team to perform Construction Quality Assurance-Quality Control over all aspects of foundation excavation/grading and liner system construction to ensure that the foundation and liner systems are being built in substantial accordance with the approved design. All observations and test results shall be periodically submitted to the Regional Board's Executive Officer and the results shall be included in a final report to the Regional Board's Executive Officer after construction. The Regional Board shall retain the right to have representatives on site during all aspects of Landfill liner system construction at no cost to the dischargers. If during the course of construction the dischargers desire to make a "significant field change" to the design, the dischargers shall submit all necessary

engineering calculations, drawings, and/or specifications to the Regional Board's Executive Officer for his review and approval. If the Regional Board's Executive Officer, or his agent, deems it necessary to have the proposed changes reviewed by a third party, the dischargers shall be responsible for paying for any additional and reasonable costs that may be incurred and are not covered by other funding sources. Reasonable costs may include field visits and observations, review of the dischargers' changes, including drawings specifications, and or analyses, additional analyses, and travel.

49. Wastes shall not be placed in any area of the site until the Regional Board's Executive Officer has approved the detail design plans and construction quality assurance plan for construction of the containment structures, and has received written certification by a California Registered Civil Engineer or Certified Engineering Geologist, that the structures have been constructed in accordance with those plans.
50. A periodic load checking program shall be implemented to ensure that hazardous materials are not discharged at the Landfill. The plan for the program must be acceptable to the Regional Board's Executive Officer and to the Department of Health Services pursuant to Title 27. The plan for the program shall include, but not be limited to:
  - a. Number of random loads to be checked per day,
  - b. Description of training program for onsite personnel and contract waste haulers,
  - c. Record keeping and reporting program,
  - d. Program implementation schedule, and
  - e. Alternatives for waste found to be not in compliance with this Board Order.
51. The dischargers shall submit a "Temporary Waste Storage Plan" to the Regional Board's Executive Officer for review and approval. This Plan shall contain alternatives for storage of surplus waste due to any reason. The storage period shall not exceed 60 hours.
52. The dischargers shall prevent any transport of waste by wind from the Eagle Mountain Landfill units through the active operational and post-closure periods.
53. Waste shall not be handled or disposed of any way where they can be carried from the disposal site and discharged into waters of the State or of the United States.
54. Wastes shall not be placed in or allowed to contact ponded water from any source.
55. The dischargers shall remove and relocate any wastes that are discharged at this site in violation of these requirements.
56. The dischargers shall maintain visible monuments identifying the boundary limits of each Phase and the entire waste management facility.
57. Public contact with waste/leachate shall be prevented through such means as fences, signs, and other acceptable alternatives.
58. The discharge shall not cause degradation of any water supply.
59. Waste materials shall be confined to the waste management facility as described on the attached site map (Attachment 8).

60. Waste material shall not be discharged on any ground surface that is less than five feet above the highest anticipated ground water level.
61. To minimize the potential for windblown litter to pollute surface waters off the Landfill site:
  - a. Transported waste shall be compacted to minimize the escape of refuse,
  - b. Transport of waste to the working face of the Landfill shall be in closed containers,
  - c. Waste shall be compacted into the working face of the Landfill as soon as practicable and covered promptly,
  - d. A minimum of six inches of compacted soil shall be used to cover refuse cells as each portion is completed and all refuse shall be covered at the end of each working day.
  - e. A daily litter pickup and disposal program shall be implemented at the Landfill area and in adjacent offsite areas.
  - f. Litter control fencing shall be installed around the Landfill and waste handling areas. A standard of "zero" escape of litter from the permitted Landfill area shall be established.
  - g. Measures to control fugitive dust shall be implemented that may include, but are not limited to, paving of haul roads, water or chemical treatment of dirt roads, dust storm watch, and cessation of all activities when instantaneous or average wind speeds exceed limits set by SCAQMD rules.
  - h. Truck and container wash water shall be treated to remove pollutants, and the water shall be recycled.
  - i. A drainage control system shall be installed to divert contaminated surface flows emanating from the active Landfill area away from ponded water in the East Pit.
62. All reports pursuant to this Board Order shall be prepared under the supervision of a California Registered Civil Engineer, or Certified Engineering Geologist.
63. Waters used for site maintenance shall be limited to amounts necessary for dust suppression and fire control.
64. If there is statistically significant evidence of a release from the Landfill, the dischargers shall institute an evaluation monitoring program, and shall submit to the Regional Board's Executive Officer, for review and approval, a corrective action plan.
65. The corrective action plan shall be for the duration of the Landfill operation and shall be applicable for as long as the waste poses a threat to the ground water quality after the Landfill closure

### **C. PROVISIONS**

1. The dischargers shall comply with all applicable regulations of Title 27 and Subtitle D that are not specifically referred to in this Board Order.
2. The dischargers shall comply with all specifications, prohibitions and provisions of this Board Order immediately upon adoption of this Board Order.
3. This Board Order does not authorize violation of any federal, state, or local laws or regulations.

4. The dischargers are the responsible party for the waste discharge requirements, and monitoring and reporting program for the Eagle Mountain landfill, and must comply with all of the conditions of this Board Order. Any noncompliance with this Board Order constitutes a violation of the Porter-Cologne Water Quality Control Act and is grounds for enforcement actions, including Regional Board Orders, or court orders, requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Regional Board.
5. Prior to any change of ownership or management of this operation, the dischargers shall transmit a copy of this Board order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Regional Board.
6. This Board Order does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
7. MRC will not be permitted to start construction unless the required acres of federally-owned lands are transferred from BLM to Kaiser Ventures, Inc., or its subsidiaries, prior to the start of construction.
8. The dischargers shall submit "Final Construction Design Plans and Specifications", as described in Specification No. 46 of this Board Order.
9. The dischargers shall submit a "Final Monitoring Plan". This plan should include, at a minimum, the following for each subphase:
  - a. Location of upgradient wells,
  - b. Location of downgradient wells,
  - c. Location of gas monitoring stations for UZGMS, perimeter and vertical gas extraction wells in the waste, and
  - d. Location of leachate monitoring stations for primary and secondary (UZLMS) sumps.
10. The dischargers shall comply with "Monitoring and Reporting Program No. 99-061", and future revisions thereto, as specified by the Regional Board's Executive Officer.
11. The dischargers shall ensure that all site-operating personnel are familiar with the content of this Board Order, and shall maintain a copy of this Board Order at the site.
12. The dischargers shall allow the Regional Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:
  - a. Enter upon the premises regulated by this Board Order, or the place where records must be kept under the conditions of this Board Order;
  - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Board Order;
  - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Board Order; and

- d. Sample or monitor at reasonable time, for the purpose of assuring compliance with this Board Order or as otherwise authorized by the California Water Code, any substances or parameters at this location.
13. All regulated disposal systems shall be readily accessible for sampling and inspection.
14. The dischargers shall at all times properly operate and maintain all facilities and systems of treatment and control that are installed or used by the dischargers to achieve compliance with this Board Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the dischargers only when necessary to achieve compliance with the conditions of this Board Order.
15. Adequate measures shall be taken to assure that unauthorized persons are effectively excluded from contact with the waste disposal facilities.
16. Adequate measures shall be taken to assure that flood or surface drainage waters do not erode or otherwise render portions of the discharge facilities inoperable.
17. The dischargers shall immediately notify the Regional Board of any flooding, slope failure or other change in site conditions which could impair the integrity of waste containment facilities or of precipitation and drainage control structures.
18. Ninety days prior to waste disposal, the dischargers shall submit a report acceptable to the Regional Board's Executive Officer and to the California Integrated Waste Management Board, or their designee, for review and approval, describing a periodic load-checking program to be implemented by the dischargers to ensure that wastes prohibited by this Board Order are not discharged to the disposal site.
19. The dischargers shall remove and relocate any wastes that are discharged at this site in violation of these requirements.
20. The dischargers shall maintain a legible record using a reporting form approved by the Regional Board's Executive Officer of the volume of waste received at the site, and manner and location of disposal. These records shall be available for review by representatives of the Regional Board at any time during normal business hours. Copies of these records shall be sent to the Regional Board when disposal operations cease for each subphase.
21. As stated in Title 27, "All containment structures shall be designed by, and construction shall be supervised and certified by, a registered civil engineer or a certified engineering geologist. Facilities shall receive a final inspection and approval of the construction by Regional Board...staff before use of the facility commences".
22. Two years prior to the anticipated closure of the facility or any unit (phase or subphase) thereof, the dischargers shall submit to the Regional Board, for review and approval by the Regional Board's Executive Officer, a closure and post closure maintenance plan in accordance with Title 27.
23. Each phase of the landfill shall have a:
  - a. Leachate collection and removal system (LCRS),
  - b. Gas collection and removal system,
  - c. Leachate and gas monitoring systems,

- d. Unsaturated Zone Liquid Monitoring System (UZLMS), and
  - e. Unsaturated Zone Gas Monitoring System (UZGMS).
24. The dischargers shall submit a detailed post earthquake Inspection and Corrective action Plan to be implemented in the event of any earthquake generating ground shaking of Modified Mercalli Intensity V or greater at or near the Landfill. The Plan shall describe the containment features, ground water monitoring, leachate control facilities, and gas monitoring facilities, potentially impacted by the static and seismic deformations of the Landfill. The Plan shall provide for reporting results of the post earthquake inspection to the Regional Board within 18 hours of the occurrence of the earthquake. Immediately after an earthquake event causing damage to the Landfill structures, the corrective action plan shall be implemented, and this Regional Board shall be notified of any damage.
25. The initial sections of the subphase and necessary ancillary facilities must be constructed before receipt and placement of the wastes can begin.
26. The dischargers shall neither cause nor contribute to the contamination or pollution of ground water via the release of waste constituents in either liquid or gaseous phase.
27. The dischargers shall comply with the following:
- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
  - b. The dischargers shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Board Order, and records of all data used to complete the application for this Board Order, for a period of at least 25 years from the date of the sample measurement, report or application. This period may be extended by request of the Regional Board's Executive Officer at any time.
  - c. Records of monitoring information shall include:
    - 1. The date, exact place, and time of sampling or measurements.
    - 2. The individual(s) who performed the sampling or measurements.
    - 3. The date(s) analyses were performed.
    - 4. The individual(s) who performed the analyses.
    - 5. The results of such analyses.
  - d. Monitoring must be conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this Board Order.
28. Unless otherwise approved by the Regional Board's Executive Officer, all analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. All analyses shall be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures of Analysis of Pollutants", promulgated by the United State Environmental Protection Agency.
29. All maintenance performed shall be reported with the monitoring reports as required.
30. The dischargers shall furnish, under penalty of perjury, technical monitoring program reports, and such report shall be submitted in accordance with the specifications prepared by the Regional Board's Executive Officer. Such specifications are subject to periodic revisions as may be warranted.

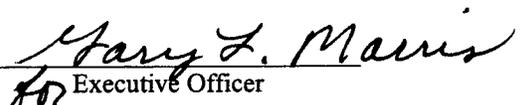
31. All storm water discharges from this facility must comply with the lawful requirements of municipalities, counties, and other local agencies, regarding discharges of storm water to storm water drain systems or other courses under their jurisdiction.
32. The dischargers shall obtain an individual National Pollutant Discharge Elimination System (NPDES) permit for storm water discharges from the project site. The dischargers shall comply with all the discharge prohibitions, receiving water limitations, and provisions of the permit. The dischargers shall obtain the NPDES storm water permit prior to disposal of any solid waste at this facility.
33. The post closure maintenance plan shall include:
  - a. Security and fencing
  - b. Survey monuments
  - c. Final cover
  - d. Storm water management system
  - e. Leachate collection and removal system (LCRS)
  - f. Leachate management system
  - g. Active gas extraction system
  - h. UZLMS
  - i. UZGMS
  - j. Water quality monitoring system.
34. This Board Order is subject to Regional Board review and updating, as necessary to comply with changing State or Federal laws, regulations, policies, or guidelines, or changes in the discharge characteristics.
35. At any time, the dischargers may file a written request (including appropriate supporting documents) with the Regional Board's Executive Officer, proposing appropriate modifications to the Monitoring and Reporting Program. The request may address changes:
  - a. To any statistical method, non-statistical method, or retest method used with a given constituent parameter,
  - b. To the manner of determining the background value for a constituent or parameter,
  - c. To the method for displaying annual data plots,
  - d. To the laboratory analytical method used to test for a given constituent or parameter,
  - e. To the media being monitored (e.g., the addition of soil-pore gas to the media being monitored),
  - f. To the number or placement of Monitoring Points or Background Monitoring Points for a given monitored medium, or
  - g. To any aspect of monitoring or QA/QC.

After receiving and analyzing such a report, the Regional Board's Executive Officer either shall reject the proposal for reasons listed, or shall incorporate it, along with any necessary changes, into the attached Monitoring and Reporting Program. The dischargers shall implement any changes in the Monitoring and Reporting Program proposed by the Regional Board's Executive Officer upon receipt of a revised Monitoring and Reporting Program.

The report due date is within two months of realizing that a change is appropriate, or of being notified by the Regional Board's Executive Officer.

36. The dischargers shall submit to this Regional Board and to the California Integrated Waste Management Board, evidence of Financial Assurance for Closure and Post Closure, pursuant to Title 27. The post closure period shall be at least 100 years. However, the post closure maintenance period shall extend as long as the waste poses a threat to water quality.
37. The dischargers shall submit to the Regional Board, in accordance with Section 20380(b) of Title 27, assurances of financial responsibility for initiating and completing corrective action for all known or reasonable foreseeable releases from the waste management unit in the amount of \$1,404,000, 90 days prior to waste disposal.
38. The dischargers shall submit a report every five years that either validates the containment and monitoring systems ongoing viability, or proposes and substantiates any needed changes (e.g., a documented increase in the monitoring systems' ability to provide reliable early detection of a release can cause a decrease in the Landfill financial coverage). The report due date is within five years of the date of adoption of this Board Order, and every five years thereafter.
39. This Board Order is not in effect until such time that transfer of federally-owned land (at the Eagle Mountain site) to Kaiser Ventures, Inc., or its subsidiaries, is complete.
40. Any hazardous waste discovered during Landfill excavation shall be properly documented, identified, reported, and disposed of by the dischargers.

I, Philip a. Gruenberg, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on September 16, 1999.

  
for Executive Officer

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION**

**MONITORING AND REPORTING PROGRAM NO. 99-061  
FOR**

**KAISER VENTURES, INC.  
KAISER EAGLE MOUNTAIN, INC.  
MINE RECLAMATION CORPORATION  
EAGLE MOUNTAIN RECLAMATION, INC.  
EAGLE MOUNTAIN CLASS III MUNICIPAL WASTE LANDFILL  
EAGLE MOUNTAIN LANDFILL  
Eagle Mountain - Riverside County**

**CONSISTS OF**

**PART I, PART II, AND PART III**

**(See Last Page for Summary)**

## PART I

### A. General

Reporting responsibilities of the dischargers are specified in Section 13225(a), 13267(b), and 13387(b) of the California Water Code, and the State Water Resources Control Board's Resolution No. 93-062. This self-monitoring program is issued in accordance with Provision No. 9 of Regional Board Order No. 99-061. The principal purposes of a self-monitoring program by a waste discharger are:

1. To document compliance with waste discharge requirements and prohibitions established by the Regional Board,
2. To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge,
3. To prepare water quality analyses;
4. To prepare vadose zone (unsaturated zone) gas and liquid quality analyses.

### B. Definition of Terms

1. The "Monitored Media" are those water- or gas-bearing media that are monitored pursuant to this Monitoring and Reporting Program. The Monitored Media include: (1) ground water in the uppermost aquifer, and in any other portion of the zone of saturation (Section 20164 of Title 27) in which it would be reasonable to anticipate that waste constituents migrating from the Unit could be detected, (2) any bodies of surface water that could be measurably affected by a release, and (3) soil-pore liquid and gases beneath and/or adjacent to the unit.
2. The "Constituents of Concern (COC)" are those constituents which are likely to be in the waste in the Unit or which are likely to be derived from waste constituents, in the event of a release. The constituents of Concern for this Unit for water are listed below:

#### INORGANIC CONSTITUENTS

Ammonia (As N)  
Bicarbonate ( $\text{HCO}_3$ )  
Carbonate ( $\text{CO}_3^{-2}$ )  
Calcium  
Chloride  
Iron  
Magnesium  
Manganese (dissolved)  
Nitrate  
Potassium  
Sodium  
Sulfate  
Chemical Oxygen Demand  
Total Dissolved Solids (TDS)  
Total Organic Carbon  
pH (field)  
Alkalinity (as  $\text{CaCO}_3$ )  
Antimony  
Arsenic  
Barium

Beryllium  
Cadmium  
Chromium  
Cobalt  
Copper  
Lead  
Nickel  
Selenium  
Silver  
Thallium  
Vanadium  
Zinc

#### ORGANIC CONSTITUENTS

Acetone  
Acrylonitrile  
Benzene  
Bromochloromethane  
Bromodichloromethane  
Bromoform;tribromomethane  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane; Ethyl chloride  
Chloroform; trichloromethane  
Dibromochloromethane; Chlorodibromomethane  
1,2-Dibromo-3-chloropropane, DBCP  
1,2-Dibromoethane; Ethylene dibromide; EDB  
o-Dichlorobenzene; 1,2-Dichlorobenzene  
p-Dichlorobenzene; 1,4-Dichlorobenzene  
trans-1,4-Dichloro-2-butene  
1,1-Dichloroethane; Ethylidene chloride  
1,2-Dichloroethane; Ethylene dichloride  
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride  
cis-1,2-Dichloroethylene; trans-1,2-Dichloroethene  
trans-1,2-Dichloroethylene; cis-1,2-Dichloroethene  
1,2-Dichloropropane, Propylene dichloride  
cis-1,3-Dichloropropene  
trans-1,3-Dichloropropene  
Ethylbenzene  
2-Hexanone; Methyl butyl ketone  
Methyl bromide; Bromomethane  
Methyl chloride; Chloromethane  
Methylene bromide; dibromomethane  
Methylene chloride; dichloromethane  
Methyl ethyl ketone; MEK; 2-Butanone  
Methyl iodide; Iodomethane  
4-Methyl-2-pentanone; Methyl isobutyl ketone  
Styrene  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene  
Toluene  
1,1,1-Trichloroethane; Methylchloroform  
1,1,2-Trichloroethane

Trichloroethylene; Trichloroethane  
Trichlorofluoromethane; CFC-11  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride  
Xylenes

3. The constituents of concern for soil-pore gas beneath and/or adjacent to the Unit are as follows:

Acetone  
Benzene  
1,1-Dichloroethane  
Ethylbenzene  
Methyl ethyl ketone  
Methylene chloride  
Tetrachloroethylene  
Toluene  
Trichloroethylene  
Vinyl chloride  
m-p-o Xylene  
o-m-p Xylene  
Methane

4. The "Monitoring Parameters" consist of a short list of constituents and parameters used for the majority of monitoring activity. At the Eagle Mountain Landfill, the list of the monitoring parameters for water is the same as the list of Constituents of Concern (COC) which are listed in Part I.B.2 (above) of this Monitoring and Reporting Program. The monitoring parameter for gas is methane. Monitoring for the short list of monitoring parameters constitutes "indirect monitoring", in that the results are used to indicate the success or failure of adequate containment for the longer list of Constituents of Concern.

5. "Standard observations" refers to:

- a. For Surface Receiving Waters:

1. Floating and suspended materials of waste origin: presence or absence, source, and size of affected area;
2. Discoloration and turbidity: description of color, source, and size of affected area;
3. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
4. Evidence of beneficial use: presence of water-associated wildlife;
5. Flow Rate; and
6. Weather conditions: wind direction and estimated velocity, total precipitation during the previous five days and on the day of observation.

- b. Along the perimeter of the Unit:

1. Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);

2. Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and
  3. Evidence of erosion and/or of exposed refuse.
- c. For the Unit:
1. Evidence of ponded water at any point on the waste management facility (show affected area on map);
  2. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
  3. Evidence of erosion and/or of daylighted refuse; and
  4. "Standard Analyses and Measurements", which refers to:
    - a. Turbidity (only for water samples) in NTU;
    - b. Water elevation to the nearest 1/100<sup>th</sup> foot above mean sea level (only for ground water monitoring); and
    - c. Sampling and statistical/non-statistical analyses of the Monitoring Parameters.
6. "Matrix effect refers to any increase in the Method Detection Limit or Practical Quantitation Limit for a given constituent as a result of the presence of other constituents, either of natural origin or introduced through a release, that are present in the sample of water or soil-pore gas being analyzed.
  7. "Facility-Specific Method Detection Limits (MDL)" for a given analytical laboratory using a given analytical method to detect a given constituent (in spite of any Matrix Effect) means the lowest concentration at which the laboratory can regularly differentiate, with 99% reliability, between a sample which contains the constituent and one which does not.
  8. Facility-Specific Practical Quantitation Limit (PQL)" for a given analytical laboratory using a given analytical method to determine the concentration of a given constituent (in spite of any Matrix Effect) means the lowest constituent concentration the laboratory can regularly quantify within specified limits of precision that are acceptable to the Regional Board's Executive Officer.
  9. "Reporting Period" means the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal. Therefore, the reporting period for monitoring parameters is quarterly, and the reporting period for Constituents of Concern is every five years. The annual report, which is a summary of all the monitoring during the previous year, shall also be submitted to the Regional Board. The submittal dates for each reporting period shall be as follows:
    - a. Quarterly Monitoring Reports
      1. First Quarter (January, February, and March) – report due by June 15
      2. Second Quarter (April, May, and June) – report due by September 15
      3. Third Quarter (July, August, and September) – report due by December 15
      4. Fourth Quarter (October, November, and December) – report by March 15.

b. Annual Summary Report

January 1 through December 31 – Report due March 15

c. Five Year Report

January of the first year through December of the fourth year and every five years after that, as long as the Landfill is in operation – report due by March 15 of the sixth year.

### C. SAMPLING AND ANALYTICAL METHODS

1. Sampling collection, storage, and analyses shall be performed according to the most recent version of Standard USEPA methods, and in accordance with an approved sampling and analyses plan. Water and waste analyses shall be performed by a laboratory approved for these analyses by the State of California. Specific methods of analyses must be identified. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board's Executive Officer prior to use. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. All motoring instruments and equipment shall be properly calibrated and maintained to ensure the accuracy of measurements. In addition, the discharger is responsible for seeing that the laboratory analyses of all samples from Monitoring Points and Background Monitoring Points meet the following restrictions:
  - a. The methods and analyses and the detection limits used must be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background Monitoring Points for that medium, the analytical methods having the lowest MDL, defined in Part I.B.8., shall be selected from among those methods which would provide valid results in light of any "Matrix Effects" (defined in Part I.B.7.) involved.
  - b. "Trace" results, results falling between the MDL and the PQL, shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run and by an estimate of the constituent concentration.
  - c. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. If the lab suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory derived MDL/PQL values, the results shall be flagged accordingly, along with an estimate of the detection limit and quantitation limit actually achieved.
  - d. All Quality Assurance/Quality Control (QA/QC) data shall be reported, along with the sample results to which it applies, including the method, equipment, and analytical detection limits, the recovery rates, and explanation of any recovery rate that is less than 80%, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analyses, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery.
  - e. Upon receiving written approval from the Regional Board's Executive Officer, an alternative statistical or non-statistical procedure can be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (i.e., methylene chloride, acetone, diethylhexylphthalate, and di-n-octyl phthalate) during any given Reporting

Period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by the Regional Board staff.

- f. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
- g. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.
- h. The MDL shall always be calculated such that it represents a concentration associated with a 99% reliability of a non-zero result.

#### **D. RECORDS TO BE MAINTAINED**

Written reports shall be maintained by the discharger or laboratory, and shall be retained for the life of the Landfill, including the post closure period. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board's Executive Officer. Such records shall show the following for each sample:

1. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identify of the individual who obtained the sample;
2. Date and time of sampling;
3. Date and time that analyses were started and completed, and the name of the personnel performing each analyses;
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
5. Calculations of results; and
6. Results of analyses, and the MDL and PQL for each analyses.

#### **E. REPORTS TO BE FILED WITH THE BOARD**

1. Written reports consisting of a) "Monitoring Parameter Report" as described in Part II.C.2.; b) "Annual Summary Report"; and c) "Five Year Report" as described in Part II.C.3. of this Monitoring and Reporting Program, shall be submitted no later than 75 days following the end of their respective reporting periods. These written reports shall be comprised of at least the following:
  - a. Letter of Transmittal. A letter transmitting the essential points in each report shall accompany each report. This letter shall include a discussion of any requirement violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the discharger has previously submitted a detailed time schedule for correcting said requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice-president or above, or by his/her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The

letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete and correct.

- b. Each Monitoring Parameter Report and each COC Report shall include a compliance evaluation summary. The summary shall contain at least:
    1. For each monitored ground water body, a description and graphical presentation of the velocity and direction of the ground water flow under/around the Unit, based upon water level elevations taken during the collection of the water quality data submitted in the report.
    2. Pre-Sampling Purge for Samples Obtained From Wells. For each monitoring well addressed by the report, a description of the method and time of water level measurement, of the type of pump used for purging and the placement of the pump in the well, and of the method of purging (the pump rate, the equipment and methods used to monitor field pH, temperature, and conductivity during purging, the calibration of the field equipment, results of the pH, temperature, conductivity, and turbidity testing, the well recovery time, and the method of disposing of the purge water).
    3. Sampling. For each Monitoring Point and Background Monitoring Point addressed by the report, a description of the type of pump, or other device, used and its placement for sampling, and a detailed description of the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations).
    4. Post-Sampling Purge. For each monitoring well addressed by the report, a description of how the well was purged to remove all portions of the water that was in the well bore while the sample was being taken.
  - c. A map or aerial photograph showing the locations of observation stations, Monitoring Points, and Background Monitoring Points.
  - d. For each Monitoring Parameter Report and each COC Report, include laboratory statements of results of all analyses demonstrating compliance with Part I.C.
  - e. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
  - f. A summary and certification of completion of all Standard Observations (Part I.B.5.) for the Unit, for the perimeter of the Unit, and for the Receiving Waters.
  - g. The quantity and types of wastes discharged and the locations in the Unit where waste has been placed since submittal of the last such report.
2. Contingency Reporting
- a. The dischargers shall report to the Regional Board any release of contaminants by telephone from the disposal area immediately after it is discovered. A written report shall be filed with the Regional Board within seven days, containing at a minimum, the following information:
    1. A map showing the location(s) of release.
    2. An estimate of the flow rate.
    3. A description of the nature of the discharge (e.g., all pertinent observations and analyses).

4. corrective measures underway or proposed.
- b. Should the initial statistical comparison (Part III) or non-statistical comparison (Part III) indicate, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified, the dischargers shall immediately notify the Regional Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven days of such determination (Section 20420(j)(1) of Title 27) and shall carry out a discrete retest in accordance with Parts II.C.1., and III. If the retest confirms the existence of a release, the dischargers shall carry out the requirements of Part I.E.2.d. In any case, the dischargers shall inform the Regional Board of the outcome of the retest as soon as the results are available, following up with written results submitted by certified mail within seven days of completing the retest.
- c. If either the dischargers or the Regional Board determines that there is significant physical evidence of a release (Section 20385(3) of Title 27), the dischargers shall immediately notify the Regional Board of this fact by certified mail (or acknowledge the Regional Board's determination) and shall carry out the requirements of Part I.E.2.d. for all potentially affected monitored media.
- d. If the dischargers conclude that a release has been discovered:
  1. If this conclusion is not based upon "direct monitoring" of the Constituents of Concern, pursuant to Part II.C.3., then the dischargers shall, within thirty days, sample for all Constituents of Concern at all Monitoring Points and submit them for laboratory analyses. Within seven days of receiving the laboratory analytical results, the dischargers shall notify the Regional Board, by certified mail, of the concentration of all Constituents of concern at each Monitoring Point. Because this scan is not to be tested against background, only a single datum is required for each Constituent of Concern at each Monitoring Point (Section 20420(k)(1) of Title 27).
  2. The dischargers shall, within 90 days of discovering the release, submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program meeting the requirements of Section 20420 (k)(5) and Section 20425 of Title 27.
  3. The dischargers shall, within 180 days of discovering the release, submit a preliminary engineering feasibility study meeting the requirements of Section 20420(k)(6) of Title 27.
- e. Any time the dischargers conclude, or the Regional Board's Executive Officer directs the dischargers to conclude, that a liquid-or gaseous-phase release from the Unit has proceeded beyond the facility boundary, the dischargers shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).
  1. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the dischargers' current knowledge of the nature and extent of the release.
  2. Subsequent to initial notification, the dischargers shall provide updates to all Affected Persons, including any newly Affected Persons, within 14 days of concluding that there has been any material change in the nature or extent of the release.

### 3. ANNUAL SUMMARY REPORT

The dischargers shall submit an annual report to the Regional Board covering the previous monitoring year. The Reporting Period ends December 31. This report shall contain:

- a. A Graphical Presentation of Analytical Data (Section 20415(e)(14) of Title 27). For each Monitoring Point and Background Monitoring point, submit in graphical format the laboratory analytical data for all samples taken within at least the previous five calendar years. Each Monitoring point and Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum rather than plotting mean value. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Regional Board's Executive Officer may direct the dischargers to carry out a preliminary investigation (Section 20080(d)(2)), the results of which will determine whether or not a release is indicated.
- b. All monitoring analytical data obtained during the previous two six-month Reporting Periods, shall be presented in tabular form as well as on 3.5" diskettes, in a format acceptable to the Regional Board's Executive Officer. Data sets too large to fit on a single 360 K.B. diskette may be submitted on disk in a commonly available compressed format (e.g., PK-ZIP or NORTON BACKUP). The Regional Board regards the submittal of data in hard copy and on diskette as "...the form necessary for..." statistical analyses (Section 20420(h) of Title 27) in that this facilitates periodic review by the Regional Board's statistical consultant.
- c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the dischargers into full compliance with the waste discharge requirements.
- d. A map showing the area, if any, in which filling has been completed during the previous calendar year.
- e. A written summary of the ground water and soil-pore gas analyses, indicating any changes made since the previous annual report.
- f. An evaluation of the effectiveness of the leachate monitoring/control facilities, pursuant to Section 20340 (b)(c) &(d) of Title 27.

## PART II: MONITORING AND OBSERVATION SCHEDULE

### A. WASTE MONITORING

1. Report quarterly, as part of the Monitoring Report (Part I.B.10.a.) (June 15, September 15, December 15, and March 15):
  - a. The total volume and weight of refuse (in cubic yards and tons) disposed of at the site during each month, showing location and dimensions on a map.
  - b. A description of the waste stream, including the percentage of the waste type (i.e., residential, commercial, industrial, or construction debris).
  - c. The location and areal extent of disposal of each waste type.
  - d. A photograph of the Landfill.
2. Report annually as part of the annual monitoring report (June 15):
  - a. An areal map of the facility.
  - b. Survey monuments.

### B. ON-SITE OBSERVATIONS

The dischargers shall report the following on-site observations as part of the Monitoring and Reporting Program during the Reporting Period (Part I.B.10.a.):

STATION	DESCRIPTION	OBSERVATIONS	MONITORING FREQUENCY	REPORTING FREQUENCY
V-1 through V-'n'	Located on waste disposal area as delineated by a 500-foot grid network	Standard Observations for the Unit	Weekly	Quarterly
P-1 through P-'n'	Located at equidistant intervals not exceeding 1000 feet around the perimeter of the Unit	Standard Observations for the Perimeter	Weekly	Quarterly

### C. WATER AND SOIL-PORE GAS SAMPLING/ANALYSES FOR DETECTION MONITORING

Monitoring Parameter Reports are due quarterly, Constituent of Concern Reports are due every five years (details below).

1. Thirty day Sample Procurement Limitation. For any given monitored medium, the samples taken from all Monitoring Points and Background Monitoring Points to satisfy the data analyses requirements for a given reporting period shall all be taken within a span not exceeding 30 days, and shall be taken in a manner that ensures sample independence to the greatest extent feasible

(Section 20415(e)(12)(B) of Title 27). Ground water sampling shall also include an accurate determination of the ground water surface elevation and field parameters (temperature, electrical conductivity, turbidity) for that Monitoring Point or Background Monitoring Point (Section 20415(e)(13) of Title 27); ground water elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the quarterly ground water flow rate/direction analyses required under Part II.C.6. Statistical or non-statistical analyses shall be carried out as soon as the data is available, in accordance with Part III of this program.

2. “Indirect Monitoring” for Monitoring Parameters Done Quarterly. For each monitoring medium, all monitoring points assigned to detection monitoring and all background Monitoring Points (Part II.C.4.), shall be monitored once each quarter ((Part I.B.10.a.) for the monitoring parameters listed in Part I.B.2. of this Program. Monitoring for Monitoring Parameters shall be carried out in accordance with Parts II.C.1. and III of this Program.
  
3. “Direct Monitoring” of all Constituents of Concern Every Five Years. In the absence of a release being indicated (1) pursuant to Part II.C.2. for a Monitoring Parameter, (2) based upon physical evidence, pursuant to Part I.B.6., or (3) by a study required by the Regional Board’s Executive Officer based upon anomalies noted during visual inspection of graphically depicted analytical data (Part I.E.3.a.), then the dischargers shall sample all Monitoring Points and Background Monitoring Points of water-bearing media, including soil-pore gas, for all Constituents of Concern every fifth year, beginning with the year of adoption of this Board Order, with successive direct monitoring efforts being carried out alternately in the spring of one year (Report Period ends December 31) and the Fall of the fifth year thereafter (Reporting Period ends September 30). Direct monitoring for Constituents of Concern shall be carried out in accordance with Parts II.C.3. and III of this program, and shall encompass only those Constituents of Concern that do not also serve as a Monitoring Parameter.
  
4. Monitoring Points and Background Monitoring Points for Each Monitored Medium. The dischargers shall sample the following Monitoring Points and Background Monitoring Points in accordance with the sampling schedules given under Parts II.C.2. and II. C. 3. (immediately foregoing), taking enough samples to qualify for the most appropriate test under Part III for:

a. Surface Water

1. For the surface water monitoring, the following locations and monitoring points shall be used (also shown on Attachment 23):

Phase 1

<u>Purpose</u>	<u>Background</u>	<u>Points of Compliance</u>
Monitoring surface water drainage from west of the project boundary onto the west haul road	SW-1	
Monitoring surface water drainage from northwest of the project boundary onto the west haul road	SW-2	

Phase 2 and 3

Monitoring Bald Eagle Creek	SW-3	
Monitoring Eagle Creek	SW-4	

<u>Purpose</u>	<u>Background</u>	<u>Points of Compliance</u>
Monitoring surface water drainage from the south haul road into the east pit		SW-5
Monitoring surface water in the east pit		SW-6
<u>Phase 4</u>		
Monitoring surface water drainage from the east haul road into the east pit		SW-7
Monitoring surface water drainage from north of the project boundary onto the north maintenance road	SW-8	
Monitoring surface water discharge from Detention Basin No. 3		SW-9

2. Each significant storm event up to four a year shall be sampled for at least one year before waste is placed in the applicable phase of the Landfill. Background water quality samples shall be analyzed for all constituents in Part 1.B.2. of this Monitoring and Reporting Program.
3. Each surface water monitoring point in Part II.C.4.a.1. shall be sampled during, or immediately after, each storm event that produces enough flow to be sampled, or a maximum of four times a year, for all the monitoring parameters given in Part I.B.2. of this Monitoring and Reporting Program.

b. Unsaturated Zone Liquid (UZL)

1. For UZL monitoring, the following stations and areas shall be used for each operational and post closure period of each phase of the Landfill (also shown on Attachment 23).

<u>Phases</u>	<u>Proposed Monitoring Points</u>	<u>Area Monitored (acres)</u>
1	UZ-1	24
	UZ-2	37
2	UZ-3	30
	UZ-4	55
3	UZ-5	34
	UZ-6	43
	UZ-7	111
4	UZ-8	59
	UZ-9	105
	UZ-10	92
Total		590

2. For establishing background values, testing shall be performed at the frequency needed for statistical analyses of variance for the following:
  - a. Obtain samples of the materials used (such as soil liner materials and unsaturated zone liquid monitoring layer material) and water to be used in the construction process.
  - b. Perform leaching tests of the construction water through the construction materials.
  - c. Perform analytical tests on samples of water that has been leached through the construction materials.
  - d. Sample and analyze construction water that accumulates in the unsaturated zone liquid monitoring stations (UZLMS) prior to waste disposal.
3. Monitoring and sampling of UZLMS shall be done quarterly for the monitoring parameters established in Part I.B.2. of this Program.

c. Ground Water

1. For ground water in the uppermost aquifer, the monitoring points shall be the following wells (also shown on Attachment 25):

<u>Phase</u>	<u>Background Monitoring Wells</u>		<u>Point of Compliance Wells</u>	
	<u>Existing</u>	<u>Proposed to be installed</u>	<u>Existing</u>	<u>Proposed to be installed</u>
1	MW-10	MW-14 and MW-15	MW-16 through MW-20 MW-21 MW-47	
2		MW-23		MW-24 through MW-26
3		MW-27 and MW-28		MW-29 through MW-35
4	MW-12	MW-36 and MW-37		MW-38 through MW-46

2. All monitoring wells shall be sampled quarterly for at least one year before waste is discharged to the Landfill for establishing background values for all the parameters given in Part I.B.2. of this Monitoring and Reporting Program.
3. Immediately after the operation starts for each phase, each background and point of compliance monitoring well that is pertinent to that phase, as is indicated in c.1. of this section, shall be sampled quarterly for all the monitoring parameters given in Part I.B.2. of this Monitoring and Reporting Program.

- d. Vertical Gas Extraction Monitoring System
  1. The discharger shall monitor the vertical gas extraction system in accordance with the requirements of applicable South Coast Air Quality District Permit.
  2. Monitoring results for vertical gas extraction system shall be reported to the Regional Board quarterly.
- e. Perimeter Gas Monitoring System
  1. Perimeter gas monitoring probes, shown on Attachment 29, shall be sampled quarterly using a portable combustible-gas meter to check for the presence of methane gas while the Landfill is operating.
  2. Monitoring results shall be reported to the Regional Board quarterly.
  3. During the post closure maintenance period, monitoring shall be done on a quarterly basis.
  4. A corrective action plan shall be implemented in the event that a gas is detected in quantities greater than the maximum allowable level in §17783 of Title 14, or 40 CFR §258.23.
- f. Unsaturated Zone Gas Monitoring System (UZGMS)
  1. The unsaturated zone gas monitoring probes, shown on Attachment 30, shall be sampled from sampling ports at the Landfill perimeter for methane gas on a quarterly basis for each unsaturated zone gas probe.
  2. Monitoring results shall be submitted to the Regional Board quarterly.
5. Initial Background Determination. For the purpose of establishing an initial pool of background data for each Constituent of Concern at each Background Monitoring Point in each monitored medium (Section 25415(e)(6) of Title 27):
  - a. Whenever a new Constituent of Concern is added to the Water Quality Protection Standard, including any added by the adoption of this Board Order, the dischargers shall collect at least one sample quarterly for at least one year from each Background Monitoring Point in each monitored medium and analyze for the newly-added constituent(s).
  - b. Whenever a new Background Monitoring Point is added, including any added by this Board Order, the dischargers shall sample it at least quarterly for at least one year, analyzing for all Constituents of Concern and Monitoring Parameters.
6. Quarterly Determination of Ground Water Flow Rate/Direction (Section 25415(e)(15) of Title 27). The dischargers shall measure the water level in each well and determine ground water flow rate and direction in each ground water body described in Part II.C.4. at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective ground water body. This information shall be included in the quarterly monitoring reports required under Part II.C.2.

### **PART III: STATISTICAL AND NON-STATISTICAL ANALYSES OF SAMPLE DATA DURING A DETECTION MONITORING PROGRAM**

1. The selection of a statistical method is predicated on the physical ability to obtain samples, including multiple samples during a given sampling interval, and on the nature and distribution of the data collected. At least 90 days prior to the initiation of waste disposal at the Landfill, the dischargers shall submit to the Regional Board, acceptable to the Regional Board's Executive Officer, a supplement to the ROWD that provides a detailed plan for sampling and analyses of water-bearing monitored media, including detailed procedures for statistical or non-statistical analyses of data. At a minimum, the plan shall include:
  - a. For each Constituent of Concern and Monitoring Parameter, results of background monitoring, including all data obtained during quarterly monitoring of all background monitoring points for a period of at least one year (Section 20415(e)(6) of Title 27). It is the responsibility of the dischargers to collect additional background samples if necessary to validate any proposed statistical or non-statistical data analyses method in Item 2, below.
  - b. For each Constituent of Concern and Monitoring Parameter, proposed statistical or non-statistical data analyses methods (Section 20415(e)(7) of Title 27). The methods shall be selected from the approved methods specified in Section 20415(e) of Title 27). The methods shall also satisfy the performance standards of Section 20415(e)(9) of Title 27).
  - c. For each Constituent of Concern and Monitoring Parameter, proposed procedures for determining background values. Justification must be provided for the proposed procedures (Section 20415(e)(10) of Title 27).
  - d. For each Constituent of Concern and Monitoring Parameter, sampling methods to be used to establish background values and sampling methods to be used for monitoring pursuant to these waste discharge requirements (Section 20415(e)(12) of Title 27). The plan shall include:
    1. The number and types of samples collected. The number and types of samples shall be appropriate for the form of statistical test employed when interpreted using generally accepted statistical principles (Section 20415(e)(12)(A) of Title 27).
    2. The sampling method, including the sampling frequency and the interval of time between successive samples, the sampling method shall be appropriate for the medium from which the samples are taken (Section 20415(e)(12)(B) of Title 27). The sampling method selected shall include not less than one sample collected quarterly from each Monitoring Point and Background Monitoring Point and statistical analyses performed at least quarterly.
  - e. Procedures for statistical retests in accordance with Section 22415(e)(8) of Title 27), including a demonstration that the proposed retest method satisfies the performance standards of 220415(e)(8)(E)1-7 as well as (e)(9) of Title 27.
  - f. All other applicable requirements of Section 20415(e) of Title 27.
2. Upon review and approval of the ROWD supplement described in III.A., above, the Regional Board shall amend these waste discharge requirements to specify one of the following for each constituent of concern and for each monitoring parameter (Section 220415(e)(11) of Title 27),

- a. A background value established by the dischargers using the procedures proposed pursuant to Section 20415(e)(10)(A) of Title 27, or
- b. A detailed description of the procedure to be used by the dischargers for establishing and updating background value as proposed pursuant to Section 20415(e)(10)(B).

### MONITORING SUMMARY

1. The dischargers shall arrange the data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with waste discharge requirements.
2. Records of monitoring information shall include:
  - a. The date, exact place, and time of sampling or measurement(s)
  - b. The individual(s) who performed the sampling or measurement(s)
  - c. The date(s) analyses were performed
  - d. The individual(s) who performed the analyses
  - e. The analytical techniques or method used
  - f. The results of such analyses.
3. Each report shall contain the following statement:

“I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”
4. A duly authorized representative of the dischargers may sign the documents if:
  - a. The authorization is made in writing by the person described above.
  - b. The authorization specified an individual or person having responsibility for the overall operation of the regulated disposal system.
  - c. The written authorization is submitted to the Regional Board’s Executive Officer.
5. Report immediately any failure in the waste disposal system by telephone with follow-up by letter.
6. Monitoring reports shall be certified under penalty of perjury to be true and correct, and shall contain the required information at the frequency designated in this monitoring report.
7. Quarterly monitoring reports shall be submitted to the Regional Board by January 15, April 15, July 15 and October 15 of each year. Annual monitoring reports shall be submitted to the Regional Board by January 15 of each year.

**SUMMARY OF DATA COLLECTION/REPORTING ACTIVITIES<sup>1</sup>**

<b>COMPONENT</b>	<b>MEDIA</b>	<b>ANALYSES PARAMETERS<sup>2</sup></b>	<b>MONITORING FREQUENCY<sup>3</sup></b>	<b>REPORTING FREQUENCY</b>
<b>Perimeter Gas Probes</b>	<b>Unsaturated Zone Gas</b>	<b>Methane</b>	<b>Monthly</b>	<b>Quarterly</b>
<b>Vertical Gas Extraction System</b>	<b>Landfill Gas</b>	<b>Methane</b>	<b>Periodic</b>	<b>Quarterly</b>
<b>Vertical Gas Extraction System</b>	<b>Landfill Gas Condensate</b>	<b>Selected Parameters</b>	<b>Periodic</b>	<b>Quarterly</b>
<b>Unsaturated Zone Gas Monitoring Layer</b>	<b>Unsaturated Zone Gas</b>	<b>Methane</b>	<b>Quarterly</b>	<b>Quarterly</b>
<b>Leachate Collection System</b>	<b>Leachate</b>	<b>Constituents Listed in Part I.B.2</b>	<b>Quarterly</b>	<b>Quarterly</b>
<b>Unsaturated Zone Liquid Monitoring System</b>	<b>Unsaturated Zone Liquid</b>	<b>Constituents Listed in Part I.B.2</b>	<b>Quarterly</b>	<b>Quarterly</b>
<b>Ground Water Monitoring Wells</b>	<b>Ground Water</b>	<b>Constituents Listed in Part I.B.2</b>	<b>Quarterly</b>	<b>Quarterly</b>
<b>Surface Water Monitoring Stations</b>	<b>Surface Water</b>	<b>Constituents Listed in Part I.B.2</b>	<b>Quarterly</b>	<b>Quarterly</b>

<sup>1</sup> All data shall be provided to the Regional Water Quality Control Board

<sup>2</sup> Inorganic and organic constituents listed in Part IB.2

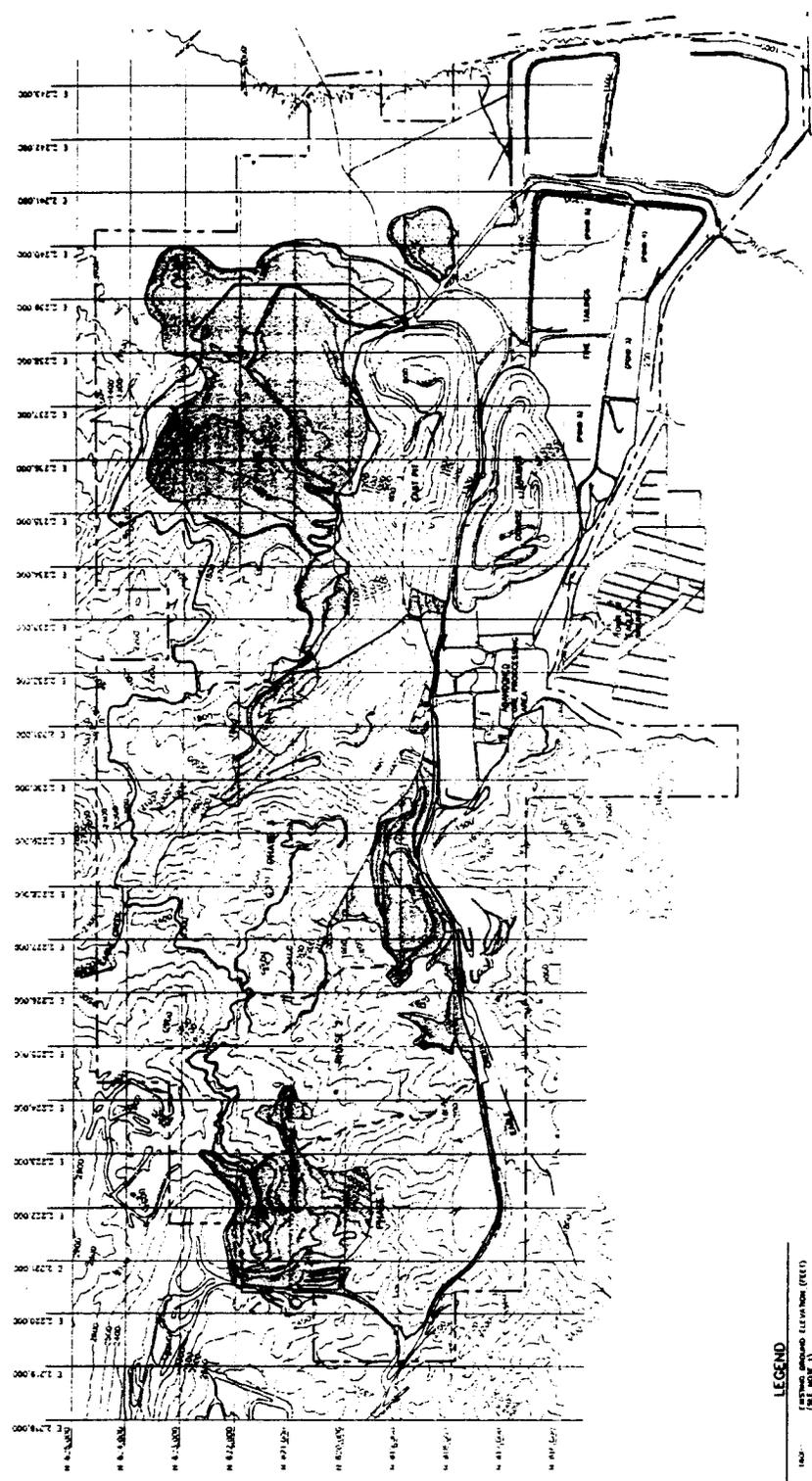
<sup>3</sup> Frequencies correspond to Landfill active life

Submit monitoring reports to:

California Regional Water Quality Control Board  
Colorado River Basin Region  
73-720 Fred Waring, Suite 100  
Palm Desert, CA 92260

Ordered by: *Gary L. Marris*  
Executive Officer

September 16, 1999  
Date



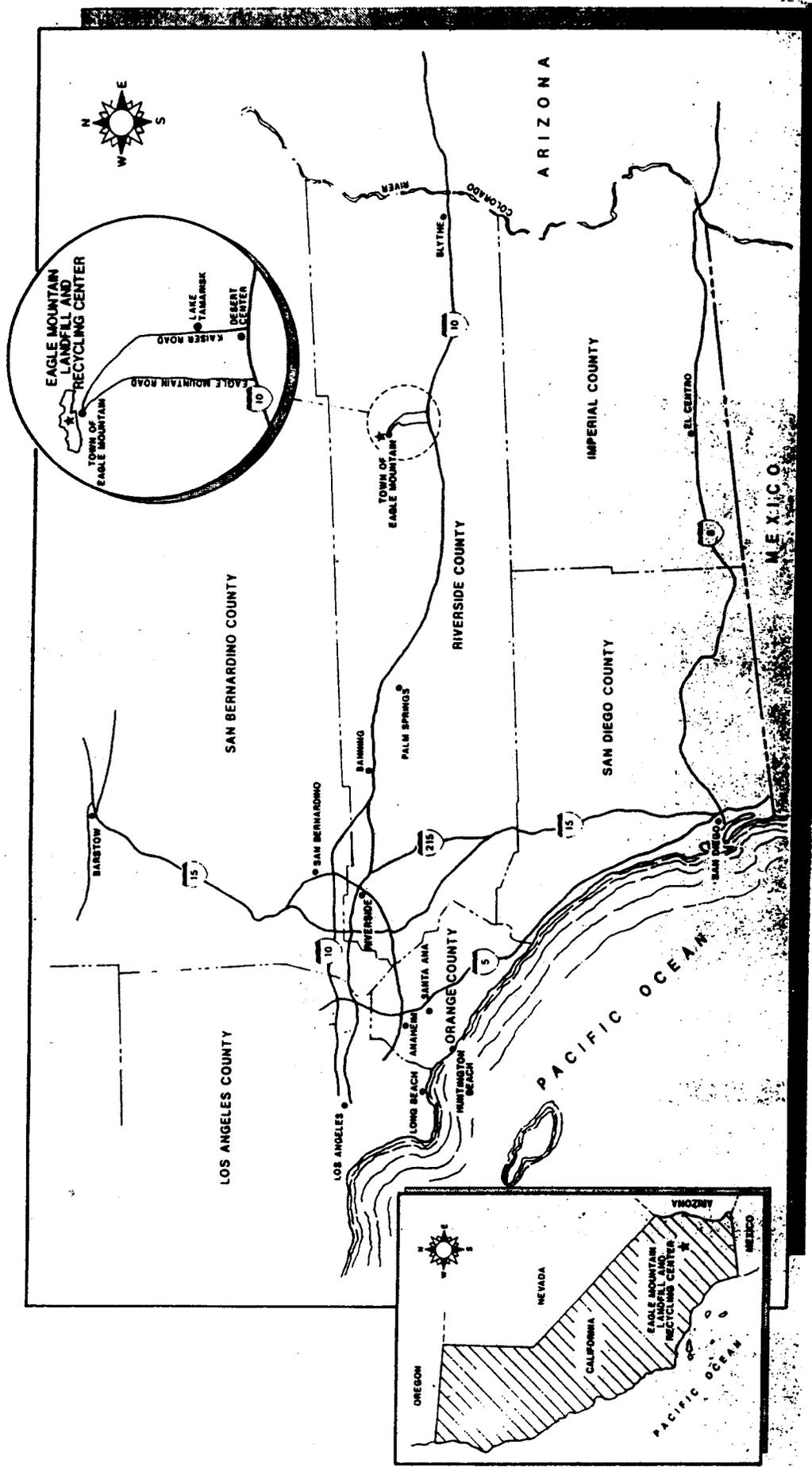
**LEGEND**

- 100' ———— EXISTING GROUND ELEVATION (FEET)  
(SEE NOTE 1)
- — — — — PROJECT BOUNDARY
- — — — — LIMIT OF LANDFILL CONTAINMENT SYSTEM
- — — — — LANDFILL PHASE BOUNDARY
- — — — — LOCATION OF OVERFLOW PIPE  
(SUBJECT TO NATURAL DRAINAGE CONDITIONS)
- — — — — WHEATSTEAD CREEK FLOW LINE (APPROXIMATE)

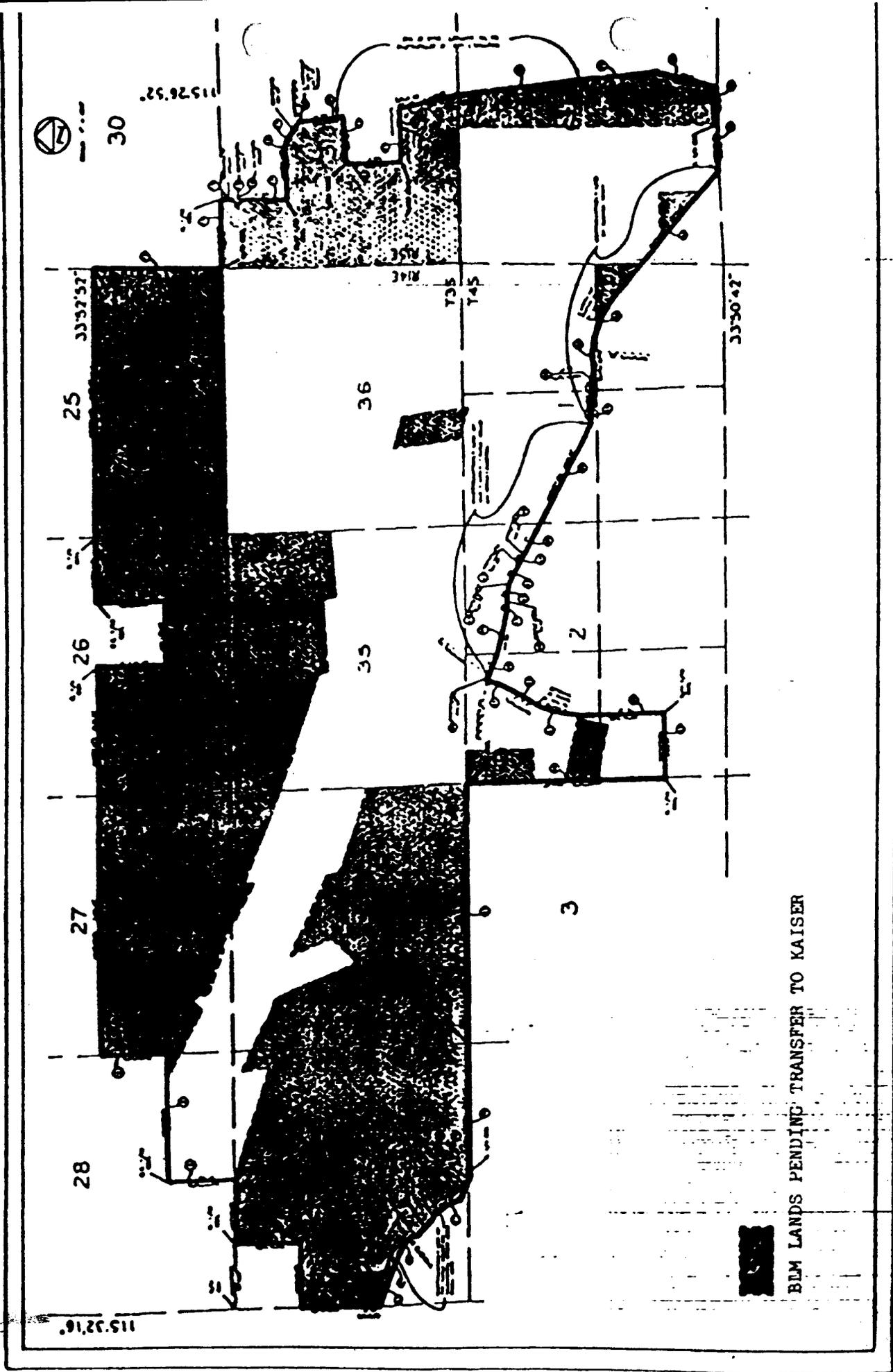
- NOTES:**
1. EXISTING GROUND ELEVATIONS OBTAINED FROM A 21-APRIL 1981 Aerial Survey by Cooper Aerial Services, Tucson, Arizona.
  2. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, NATIONAL GEODESIC VERTICAL DATUM OF 1929.
  3. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.E. ENGINEERING ASSOCIATES, SAN BERNARDINO, CALIFORNIA.
  4. ALL ELEVATIONS AND HORIZONTAL DISTANCES SHOWN ON THIS DRAWING ARE SUBJECT TO NATURAL DRAINAGE CONDITIONS.
  5. THE LOCATION OF ANY CONDUIT ON THIS DRAWING IS ACCURATE TO WITHIN 150 FEET HORIZONTALLY.

SOURCE: DRAWING NO. 1

4030E078 19921092120



LOCATION MAP



ATTACHMENT 3: BLM LANDS PENDING TRANSFER TO KAISER

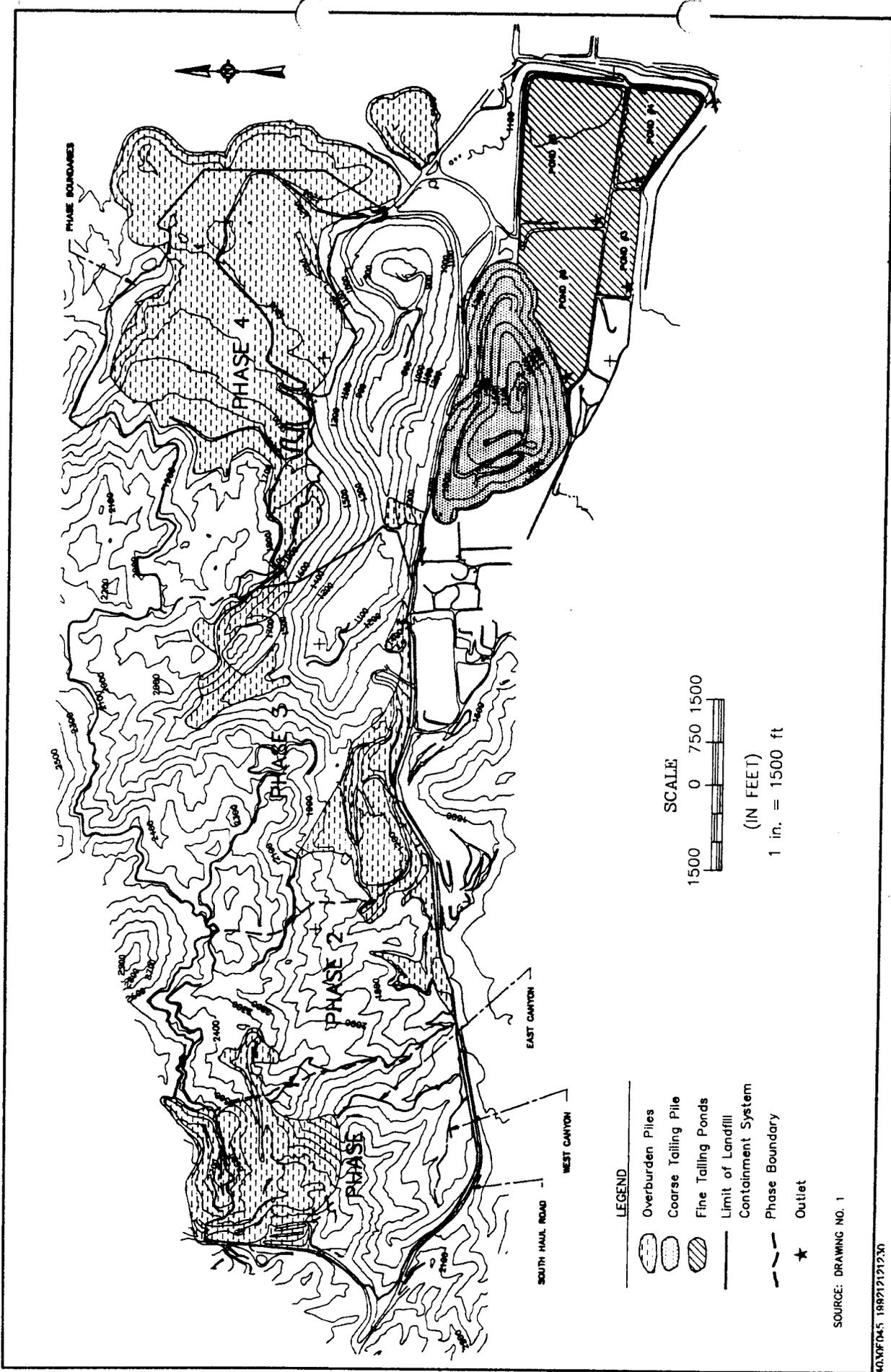


0 3000  
SCALE IN FEET

SOURCES: Base map obtained from Victory Pass Quadrangle, Buzzard Springs Quadrangle, Placer Canyon Quadrangle, and Pinto Wells Quadrangle, U.S. Geological Survey 7.5 minute series topographic maps. Limits of landfill containment system obtained from Drawing No. 1.

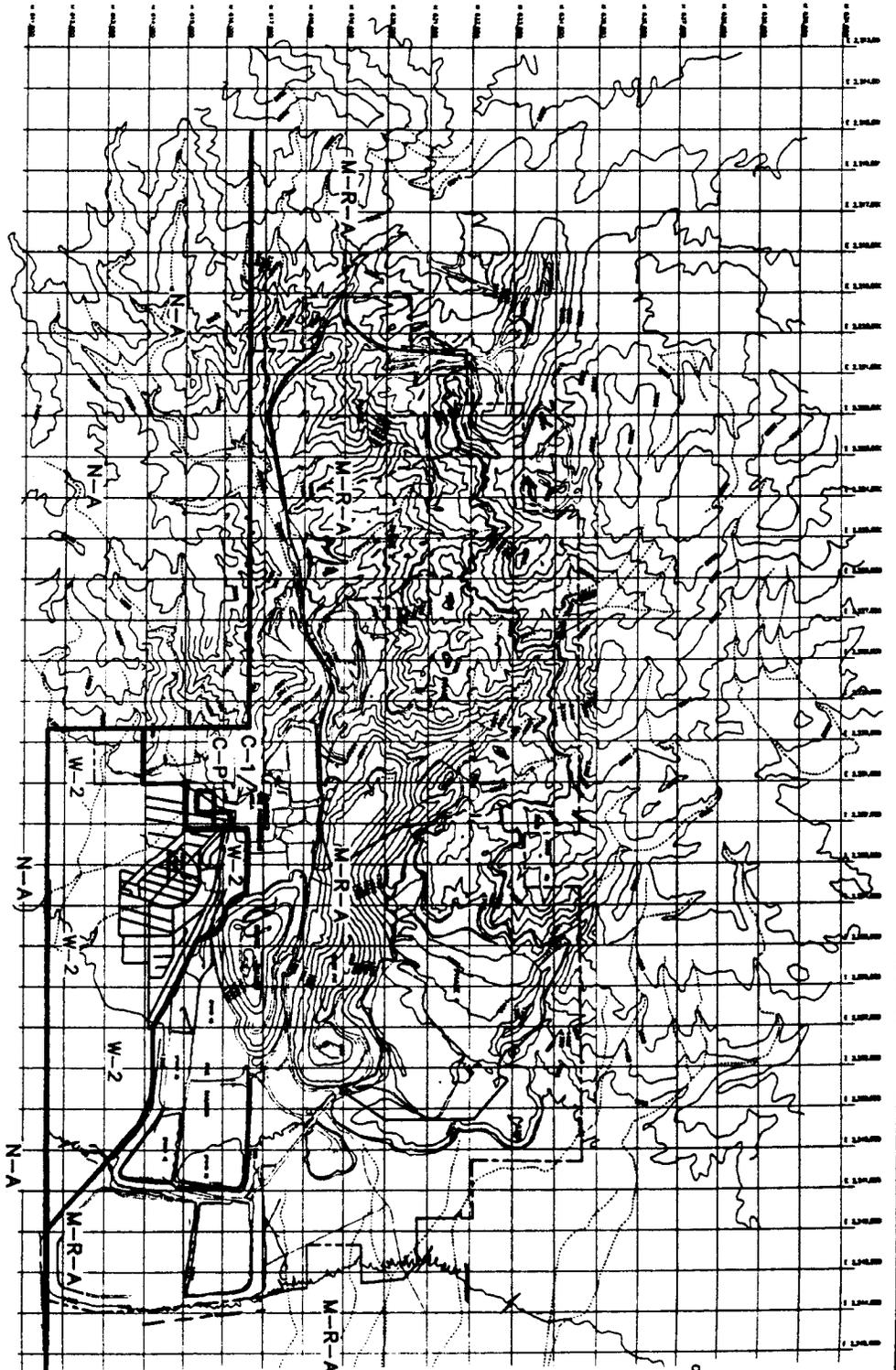
40.306028 199212020605





ATTACHMENT 6: ON-SITE MATERIAL LOCATIONS

SOURCE: DRAWING NO. 1



**LEGEND**

- 100' ..... EXISTING GROUND ELEVATION (FEET)
- (SEE NOTE 1)
- ..... PROJECT BOUNDARY
- ..... LIMIT OF LANDFILL CONTAINMENT SYSTEM
- ..... LANDFILL PLUME BOUNDARY
- ..... SUBSTITUTION GRID FROM LAW (APPROXIMATE)
- ..... BOUNDARIES OF EXISTING LAND USES BASED ON INDIANA COUNTY GENERAL PLAN

**NOTES**

1. EXISTING GROUND ELEVATIONS OBTAINED FROM A 21' X 21' 1981 AERIAL SURVEY BY GEORGE ALBERT, BIRMINGHAM, ALABAMA.
2. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, BIRMINGHAM GEODESIC REFERENCE DATUM OF 1929.
3. LOCAL AND COMMERCIAL STREETS ESTABLISHED BY C.A. ENGINEERING ARCHITECTS, SAN FRANCISCO, CALIFORNIA.
4. BOUNDARIES OF EXISTING LAND USES FROM GENERAL PLAN OF INDIANA COUNTY.
5. THE LOCATION OF LAND CONTROLS ON THIS DRAWING IS ACCORDANT TO BIRMINGHAM (L) ORDINANCE.

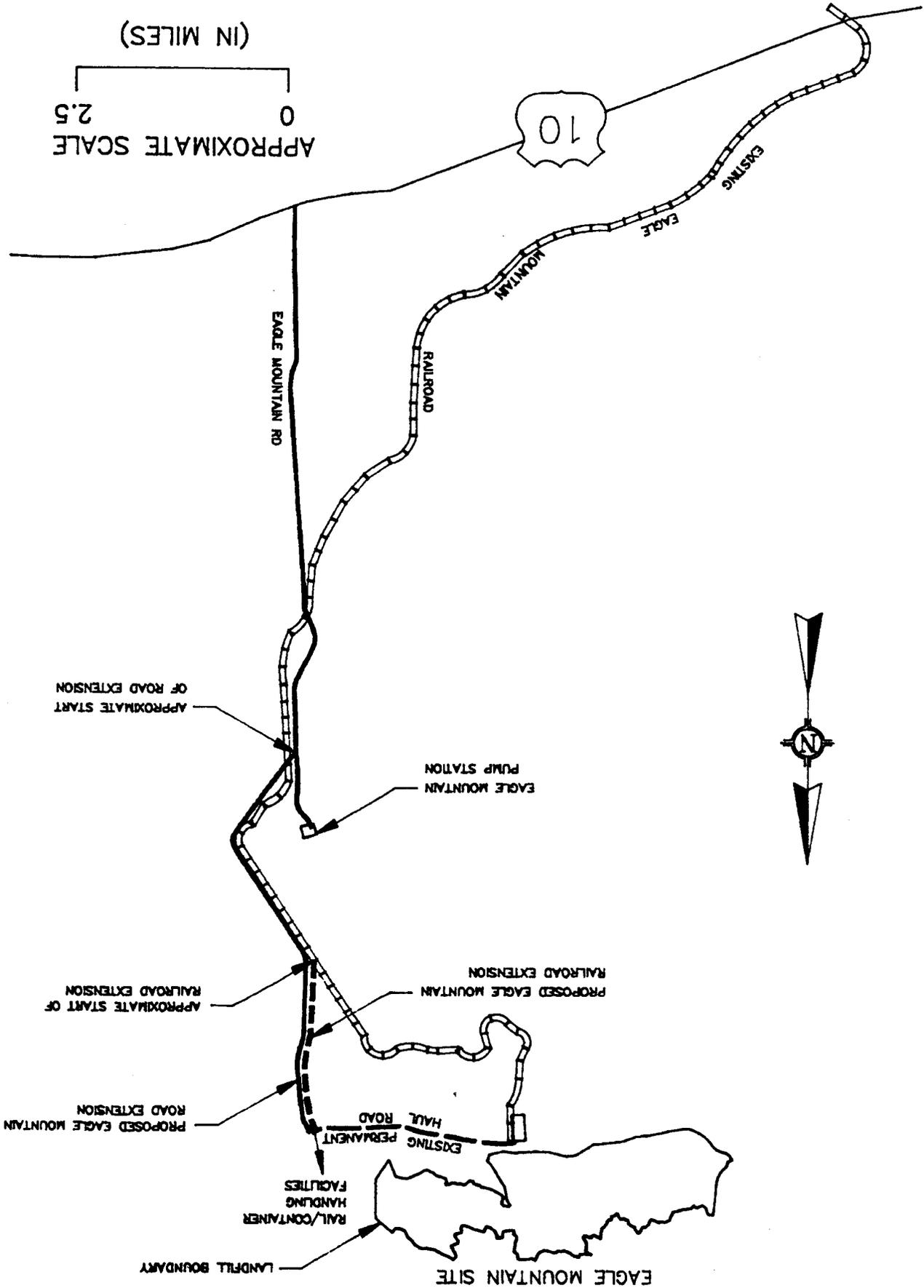
- EXISTING LAND USES**
- M-R-A: MEDIUM DENSITY RESIDENTIAL
  - W-2: WASTE MANAGEMENT ZONE
  - C-1/A: COMMERCIAL INDUSTRIAL
  - C-P: COMMERCIAL PROFESSIONAL







ATTACHMENT 11: LOCAL TRANSPORTATION NETWORK





ATTACHMENT 12: SURFICIAL ALLUVIAL DEPOSITS

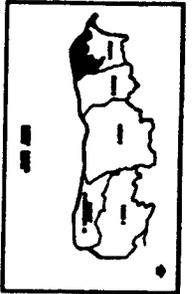
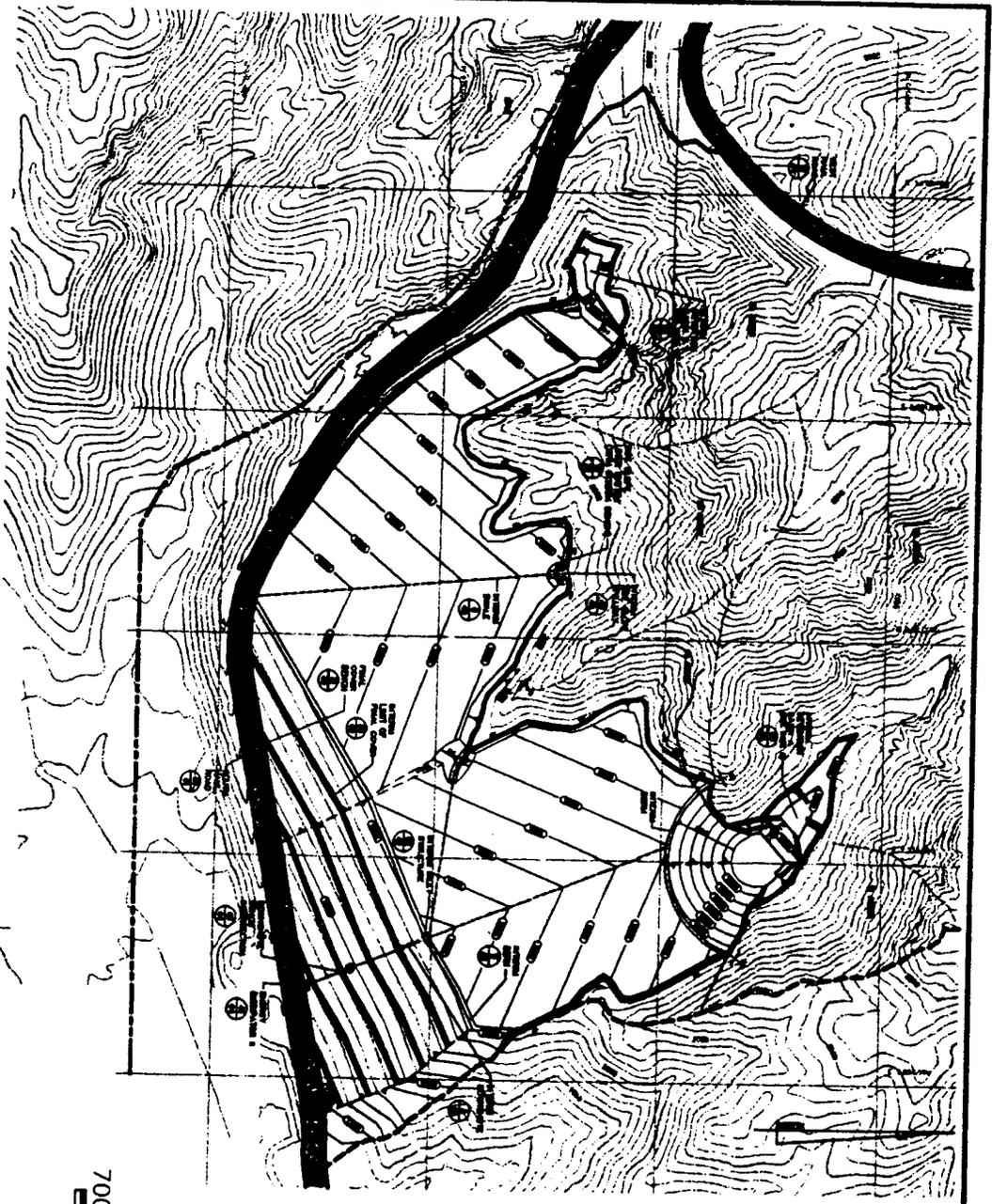






ATTACHMENT 15: MAPPED FAULT TRACES WITHIN LANDFILL FOOTPRINT

DWG: 35865008.DWG 199905200933 LP



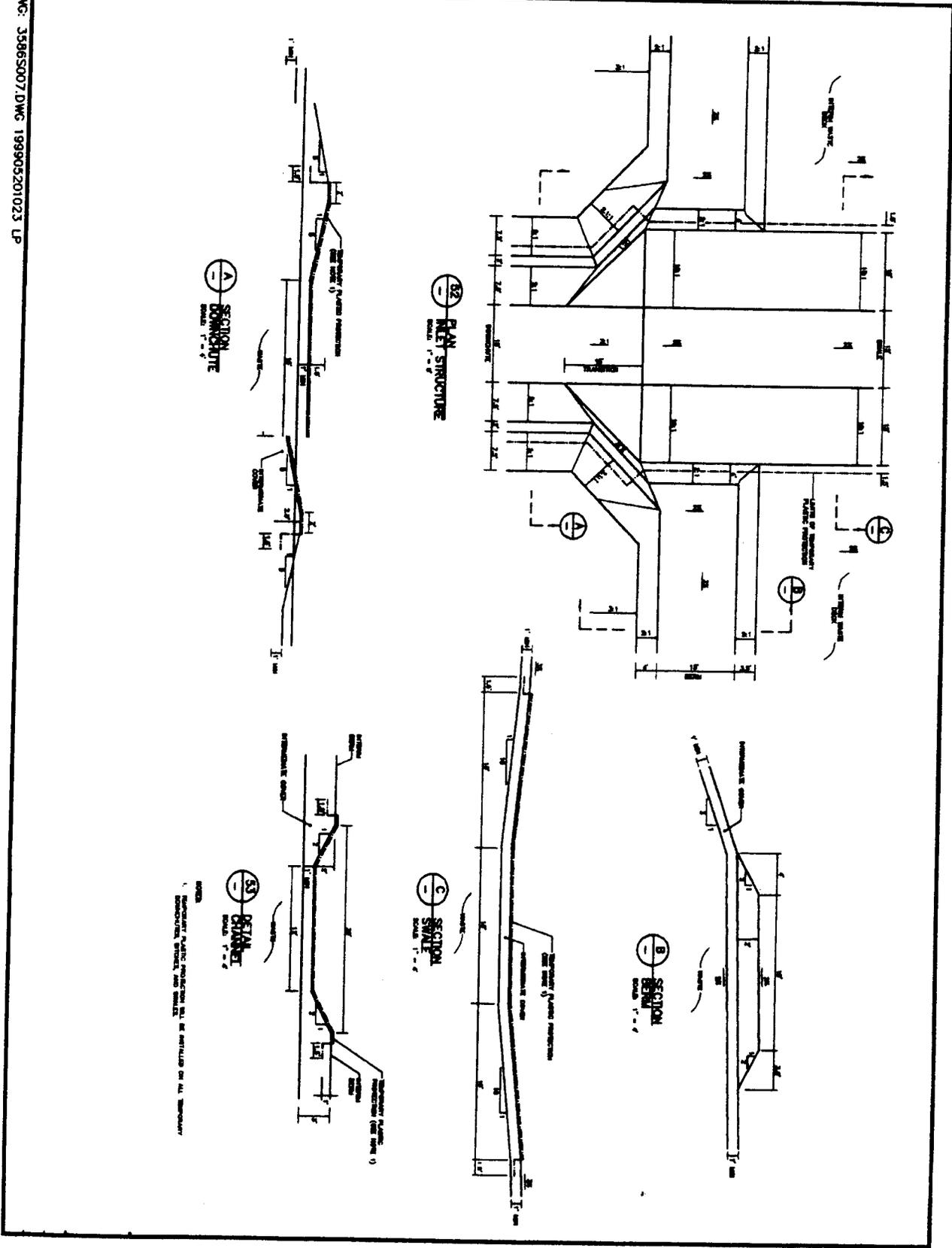
**LEGEND**

- 1. EXISTING SURFACE WATER CHANNELS
- 2. EXISTING SURFACE WATER CHANNELS
- 3. EXISTING SURFACE WATER CHANNELS
- 4. EXISTING SURFACE WATER CHANNELS
- 5. EXISTING SURFACE WATER CHANNELS
- 6. EXISTING SURFACE WATER CHANNELS
- 7. EXISTING SURFACE WATER CHANNELS
- 8. EXISTING SURFACE WATER CHANNELS
- 9. EXISTING SURFACE WATER CHANNELS
- 10. EXISTING SURFACE WATER CHANNELS
- 11. EXISTING SURFACE WATER CHANNELS
- 12. EXISTING SURFACE WATER CHANNELS
- 13. EXISTING SURFACE WATER CHANNELS
- 14. EXISTING SURFACE WATER CHANNELS
- 15. EXISTING SURFACE WATER CHANNELS
- 16. EXISTING SURFACE WATER CHANNELS
- 17. EXISTING SURFACE WATER CHANNELS
- 18. EXISTING SURFACE WATER CHANNELS
- 19. EXISTING SURFACE WATER CHANNELS
- 20. EXISTING SURFACE WATER CHANNELS
- 21. EXISTING SURFACE WATER CHANNELS
- 22. EXISTING SURFACE WATER CHANNELS
- 23. EXISTING SURFACE WATER CHANNELS
- 24. EXISTING SURFACE WATER CHANNELS
- 25. EXISTING SURFACE WATER CHANNELS
- 26. EXISTING SURFACE WATER CHANNELS
- 27. EXISTING SURFACE WATER CHANNELS
- 28. EXISTING SURFACE WATER CHANNELS
- 29. EXISTING SURFACE WATER CHANNELS
- 30. EXISTING SURFACE WATER CHANNELS
- 31. EXISTING SURFACE WATER CHANNELS
- 32. EXISTING SURFACE WATER CHANNELS
- 33. EXISTING SURFACE WATER CHANNELS
- 34. EXISTING SURFACE WATER CHANNELS
- 35. EXISTING SURFACE WATER CHANNELS
- 36. EXISTING SURFACE WATER CHANNELS
- 37. EXISTING SURFACE WATER CHANNELS
- 38. EXISTING SURFACE WATER CHANNELS
- 39. EXISTING SURFACE WATER CHANNELS
- 40. EXISTING SURFACE WATER CHANNELS
- 41. EXISTING SURFACE WATER CHANNELS
- 42. EXISTING SURFACE WATER CHANNELS
- 43. EXISTING SURFACE WATER CHANNELS
- 44. EXISTING SURFACE WATER CHANNELS
- 45. EXISTING SURFACE WATER CHANNELS
- 46. EXISTING SURFACE WATER CHANNELS
- 47. EXISTING SURFACE WATER CHANNELS
- 48. EXISTING SURFACE WATER CHANNELS
- 49. EXISTING SURFACE WATER CHANNELS
- 50. EXISTING SURFACE WATER CHANNELS
- 51. EXISTING SURFACE WATER CHANNELS
- 52. EXISTING SURFACE WATER CHANNELS
- 53. EXISTING SURFACE WATER CHANNELS
- 54. EXISTING SURFACE WATER CHANNELS
- 55. EXISTING SURFACE WATER CHANNELS
- 56. EXISTING SURFACE WATER CHANNELS
- 57. EXISTING SURFACE WATER CHANNELS
- 58. EXISTING SURFACE WATER CHANNELS
- 59. EXISTING SURFACE WATER CHANNELS
- 60. EXISTING SURFACE WATER CHANNELS
- 61. EXISTING SURFACE WATER CHANNELS
- 62. EXISTING SURFACE WATER CHANNELS
- 63. EXISTING SURFACE WATER CHANNELS
- 64. EXISTING SURFACE WATER CHANNELS
- 65. EXISTING SURFACE WATER CHANNELS
- 66. EXISTING SURFACE WATER CHANNELS
- 67. EXISTING SURFACE WATER CHANNELS
- 68. EXISTING SURFACE WATER CHANNELS
- 69. EXISTING SURFACE WATER CHANNELS
- 70. EXISTING SURFACE WATER CHANNELS
- 71. EXISTING SURFACE WATER CHANNELS
- 72. EXISTING SURFACE WATER CHANNELS
- 73. EXISTING SURFACE WATER CHANNELS
- 74. EXISTING SURFACE WATER CHANNELS
- 75. EXISTING SURFACE WATER CHANNELS
- 76. EXISTING SURFACE WATER CHANNELS
- 77. EXISTING SURFACE WATER CHANNELS
- 78. EXISTING SURFACE WATER CHANNELS
- 79. EXISTING SURFACE WATER CHANNELS
- 80. EXISTING SURFACE WATER CHANNELS
- 81. EXISTING SURFACE WATER CHANNELS
- 82. EXISTING SURFACE WATER CHANNELS
- 83. EXISTING SURFACE WATER CHANNELS
- 84. EXISTING SURFACE WATER CHANNELS
- 85. EXISTING SURFACE WATER CHANNELS
- 86. EXISTING SURFACE WATER CHANNELS
- 87. EXISTING SURFACE WATER CHANNELS
- 88. EXISTING SURFACE WATER CHANNELS
- 89. EXISTING SURFACE WATER CHANNELS
- 90. EXISTING SURFACE WATER CHANNELS
- 91. EXISTING SURFACE WATER CHANNELS
- 92. EXISTING SURFACE WATER CHANNELS
- 93. EXISTING SURFACE WATER CHANNELS
- 94. EXISTING SURFACE WATER CHANNELS
- 95. EXISTING SURFACE WATER CHANNELS
- 96. EXISTING SURFACE WATER CHANNELS
- 97. EXISTING SURFACE WATER CHANNELS
- 98. EXISTING SURFACE WATER CHANNELS
- 99. EXISTING SURFACE WATER CHANNELS
- 100. EXISTING SURFACE WATER CHANNELS



**ATTACHMENT 16: INTERIM SURFACE WATER MANAGEMENT SYSTEM  
SUBPHASE 1A**

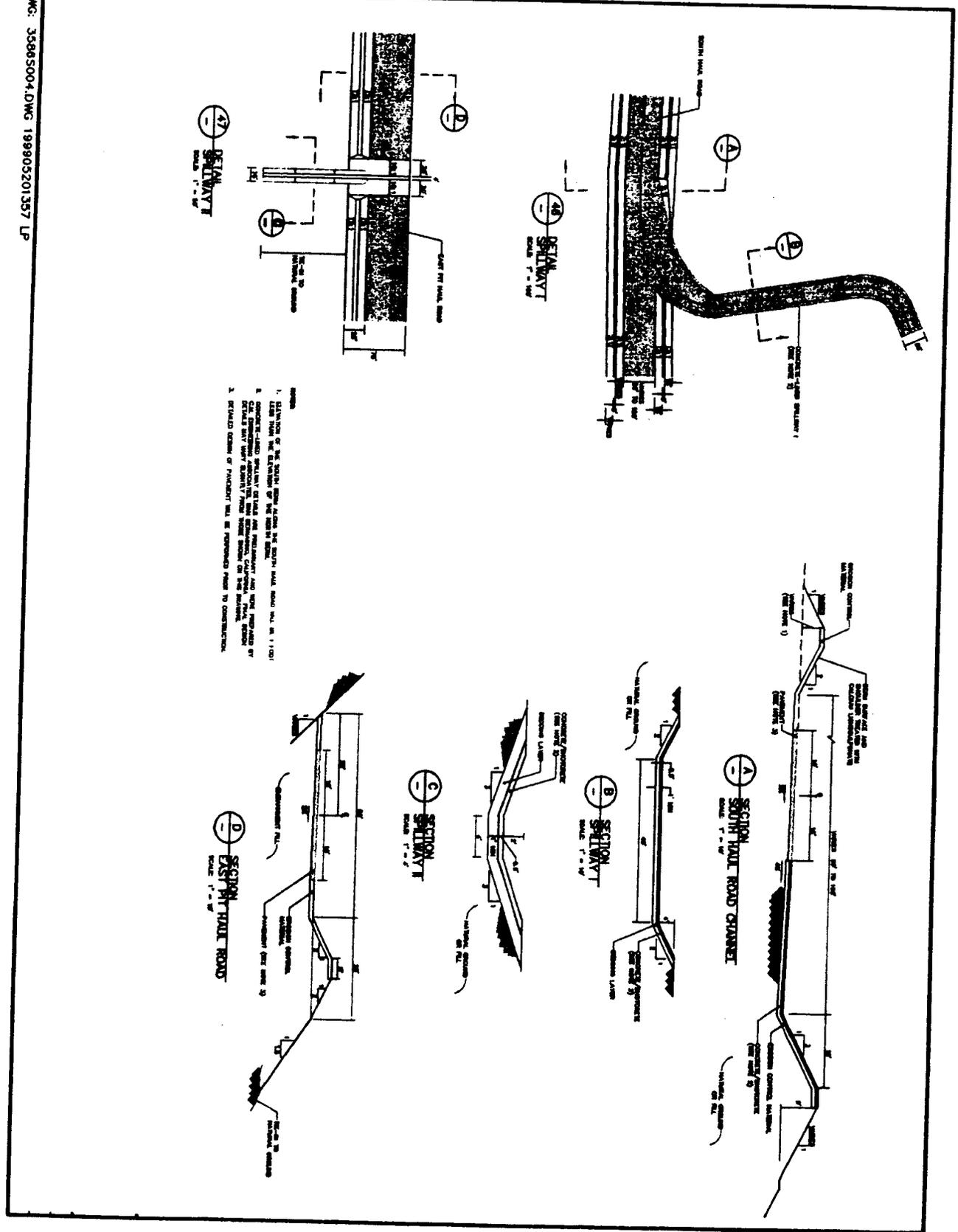
DWG: 3586S007.DWG 199905201023 LP



ATTACHMENT 17: INTERIM SURFACE WATER MANAGEMENT SYSTEM  
DETAILS II (DOWNCHUTE, CHANNEL, AND SWALE)

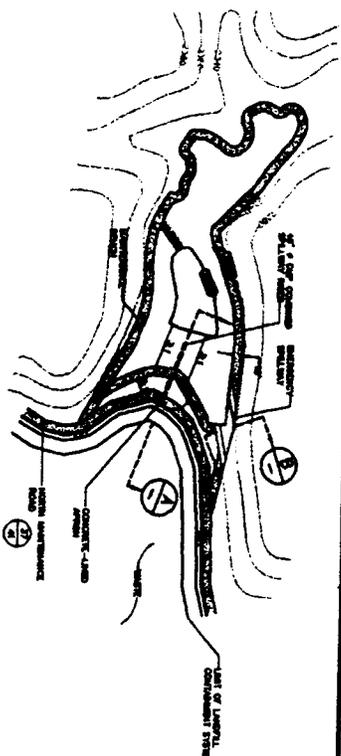






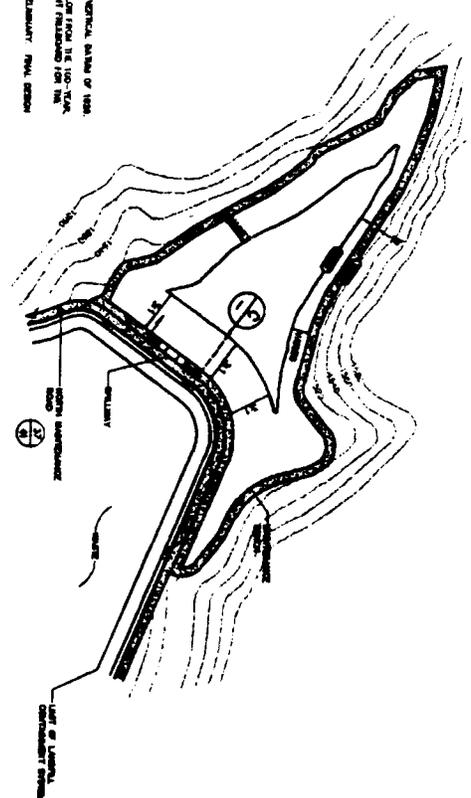
1. SELECTION OF THE CURB SHALL BE MADE ALONG THE EAST PIT ROAD WALL AS 1:1201
2. LEAD FROM THE EXTENSION OF THE ROAD TO BE
3. CONCRETE-LEAD SEALANT SHALL BE USED AND SEALANT AND SEAL COMPARED BY THE CONTRACTOR TO THE SEALS AND SEALANT USED IN THE EAST PIT ROAD
4. DETAILS MAY VARY SLIGHTLY FROM THE ABOVE PROVIDED THE GENERAL PRINCIPLES ARE MAINTAINED
5. RETAINED CURB OF PARALLEL WALL BE PROVIDED FROM TO CONSTRUCTION.

ATTACHMENT 20: FINAL SURFACE WATER MANAGEMENT SYSTEM  
DETAILS VI (EAST PIT DRAINAGE STRUCTURES)

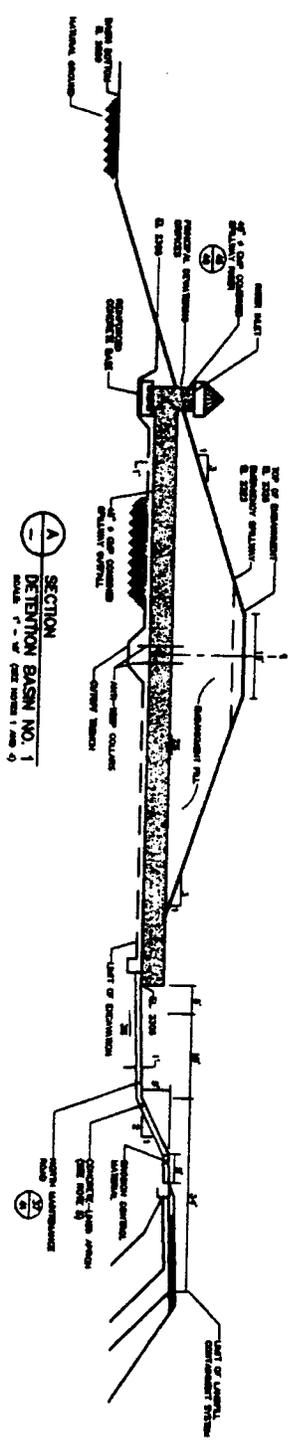


42 DETENTION BASIN NO. 1  
SCALE: 1" = 100'

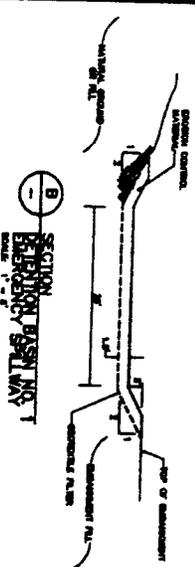
- NOTES:
1. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, UNLESS OTHERWISE NOTED.
  2. DETENTION BASIN NO. 1 AND NO. 2 ARE SIZED FOR A FLOOD FLOW FROM THE 100-YEAR FLOOD (FOR THE 100-YEAR FLOOD FLOW, THE DESIGN FLOOD FLOW IS 100 CFS) AND THE 5-YEAR FLOOD FLOW (FOR THE 5-YEAR FLOOD FLOW, THE DESIGN FLOOD FLOW IS 50 CFS).
  3. DESIGN OF CHANNELS, ELEVATIONS, SLOPE, AND OPENAL & PERMEABILITY SHALL BE SUCH AS TO PREVENT SLOTTING AND EROSION.
  4. BASIN AND EMBANKMENT ELEVATIONS ARE APPROXIMATE.
  5. DETAILED SECTION OF CONCRETE-LINED PERIMETER SHALL BE PROVIDED PRIOR TO CONSTRUCTION.



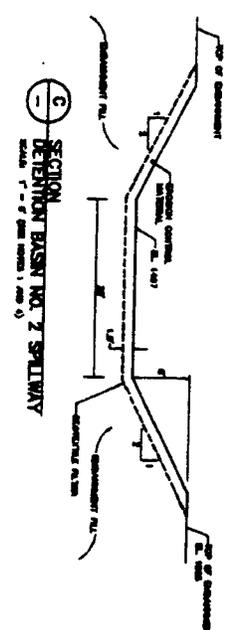
43 DETENTION BASIN NO. 2  
SCALE: 1" = 100'



A SECTION DETENTION BASIN NO. 1  
SCALE: 1" = 10'



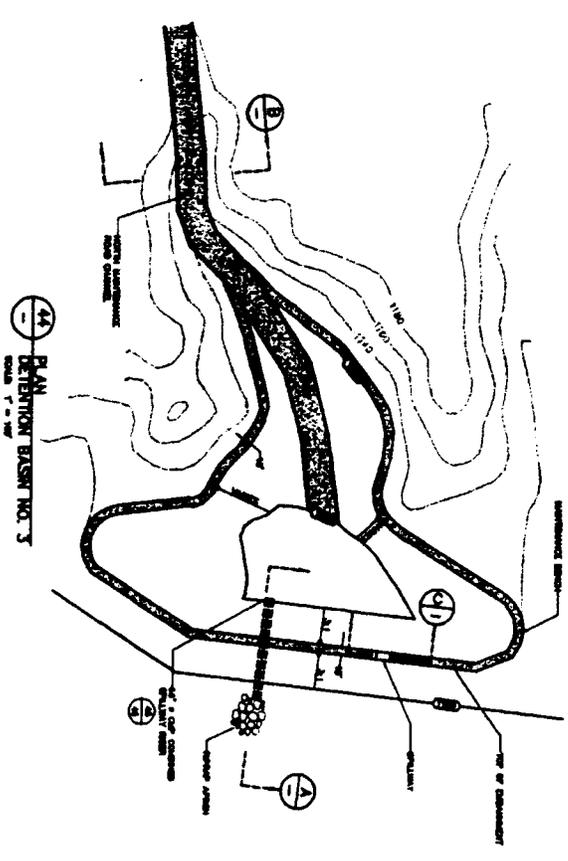
B SECTION DETENTION BASIN NO. 1  
SCALE: 1" = 10'



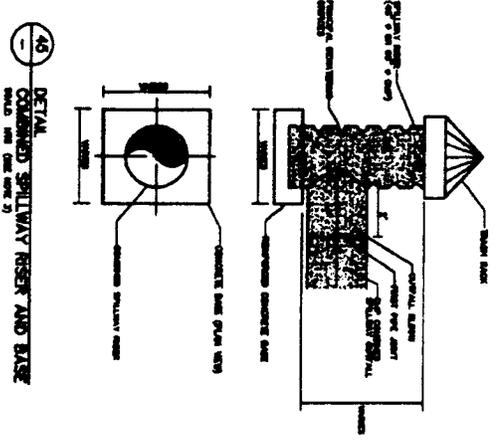
C SECTION DETENTION BASIN NO. 2 SPILLWAY  
SCALE: 1" = 10'

DWG: 3586S003.DWG 18990520144 LP

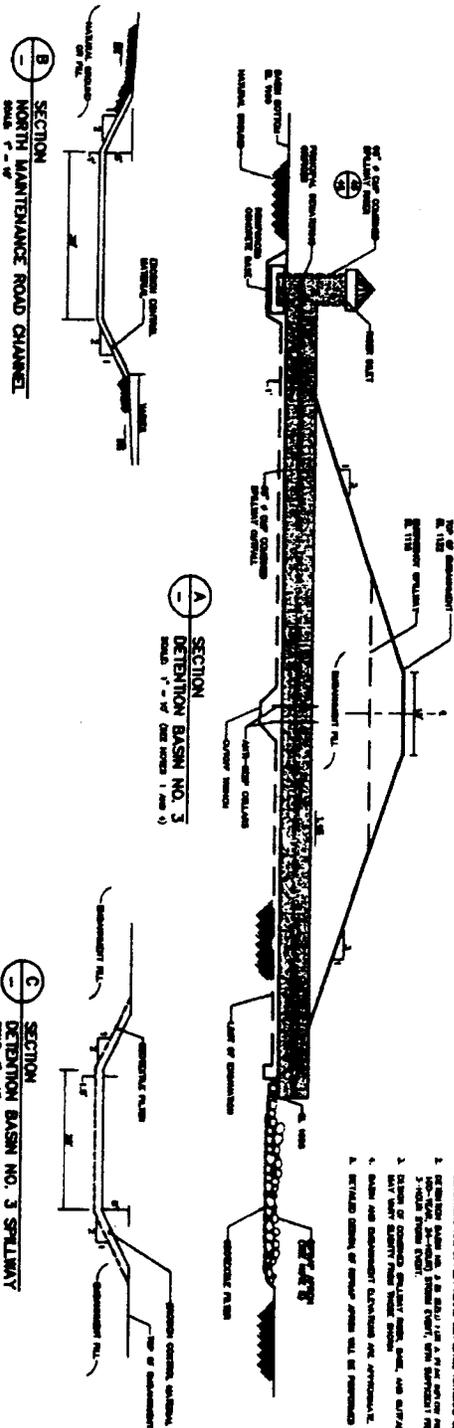
ATTACHMENT 21: FINAL SURFACE WATER MANAGEMENT SYSTEM  
DETAILS IV (BASIN NO. 1 AND BASIN NO. 2)



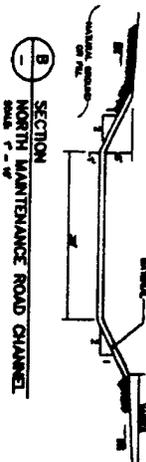
44 PLAN  
DETENTION BASIN NO. 3  
SCALE: 1" = 10'



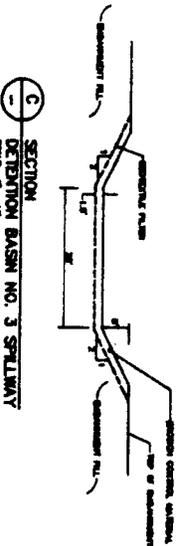
49 DETAIL  
OVERFLOW SPILLWAY RISER AND BASE  
SCALE: 1" = 10'



45 SECTION  
DETENTION BASIN NO. 3  
SCALE: 1" = 10' (SEE NOTES 1 AND 2)



46 SECTION  
NORTH MAINTENANCE ROAD CHANNEL  
SCALE: 1" = 10'



47 SECTION  
DETENTION BASIN NO. 3 SPILLWAY  
SCALE: 1" = 10'

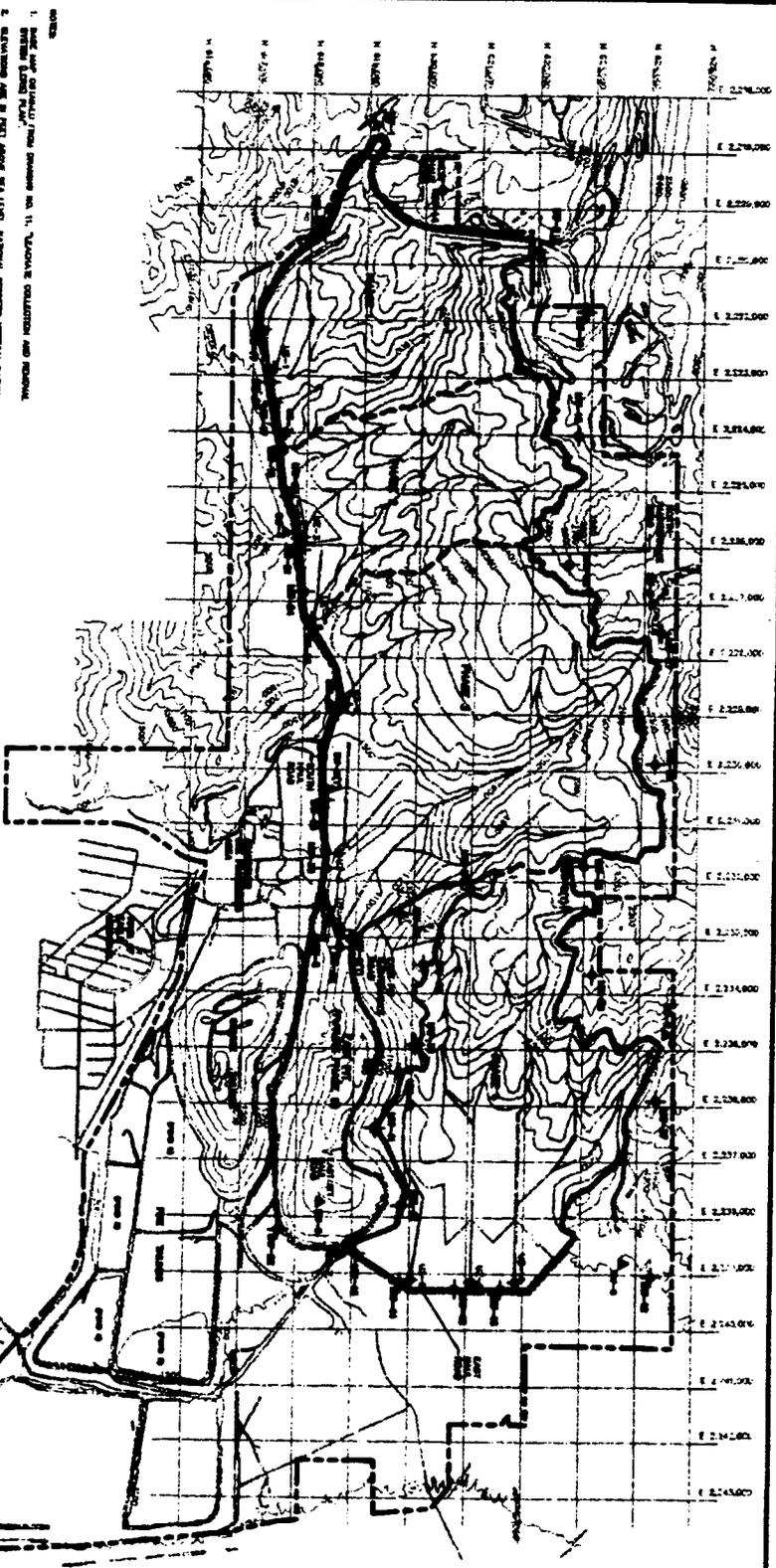
- NOTES:
1. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, UNLESS OTHERWISE SPECIFIED. GRADES OF 10% OR MORE SHALL BE INDICATED BY A 3/4\"/>
  - 2. DETENTION BASIN NO. 3 IS A 24\"/>
  - 3. 3\"/>
  - 4. BASES AND ENDORSEMENT ELEVATIONS ARE APPROXIMATE.
  - 5. RETAINED GRADES OF ADJACENT AREAS WILL BE INDICATED PRIOR TO CONSTRUCTION.

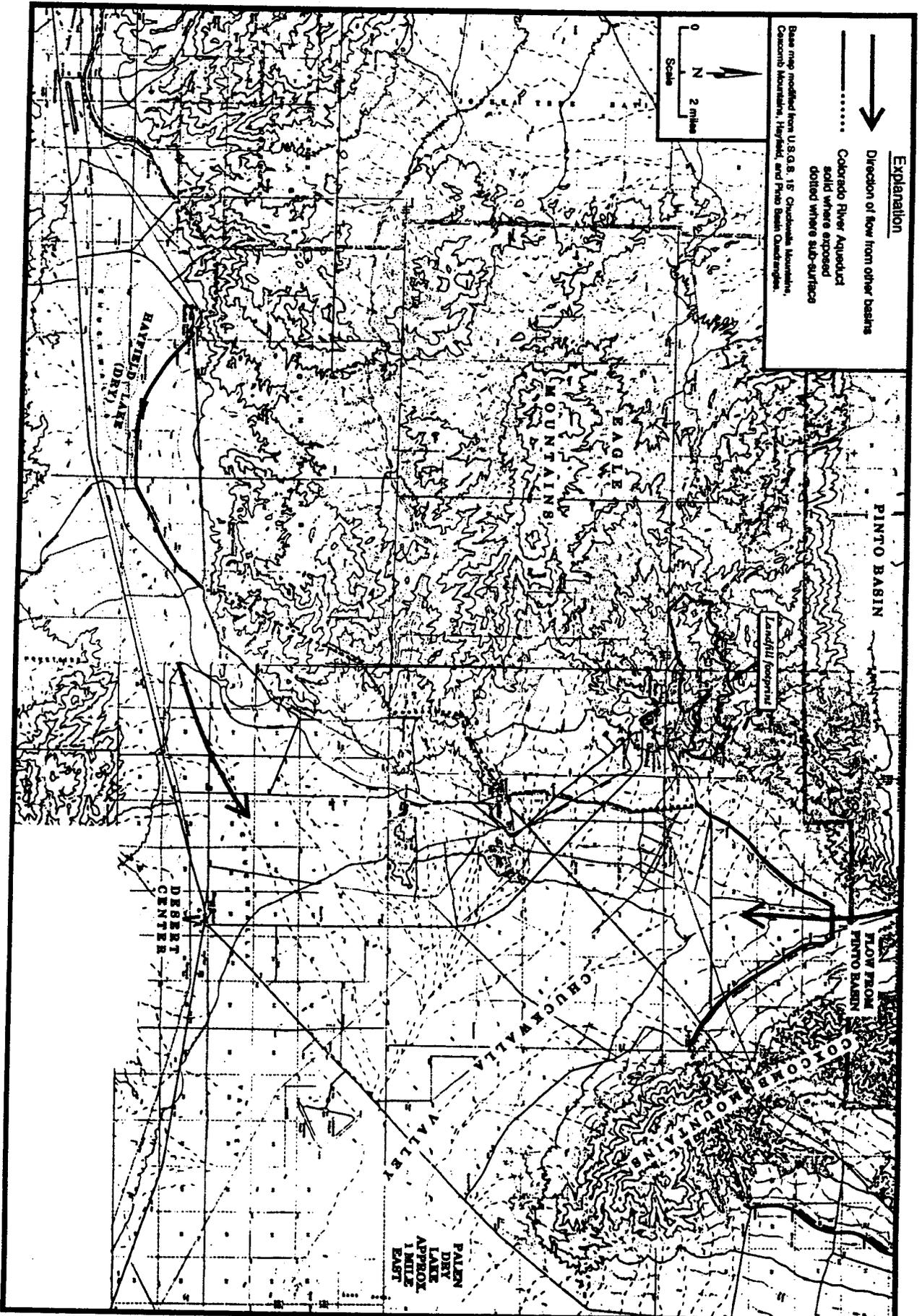
DWG: 3596S002.DWG 1999052015Z2 LP

ATTACHMENT 22: FINAL SURFACE WATER MANAGEMENT SYSTEM  
DETAILS V (BASIN NO. 3)

1. THIS PLAN IS DERIVED FROM DRAWING NO. 11, "LOCAL COLLECTION AND TREATMENT SYSTEM PLAN".
2. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, UNLESS SPECIFIC NOTATION IS MADE TO THE CONTRARY.
3. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
4. ALL DIMENSIONS ARE IN FEET.
5. THE LOCATION OF ANY CONTROL ON THIS DRAWING IS ACCURATE TO WITHIN ONE FOOT.
6. ALL PROPOSED IMPROVEMENTS TO THIS PLAN SHALL BE SUBJECT TO THE APPROVAL OF THE LOCAL HEALTH DEPARTMENT AND THE LOCAL WATER UTILITY.
7. ALL PROPOSED IMPROVEMENTS SHALL BE INSTALLED IN THE ORDER SHOWN ON THIS DRAWING.
8. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
9. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
10. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
11. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
12. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
13. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
14. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
15. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
16. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
17. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
18. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
19. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.
20. LOCAL GRID COORDINATE SYSTEM ESTABLISHED BY C.D. DIMENSIONAL SERVICES.

**LEGEND**

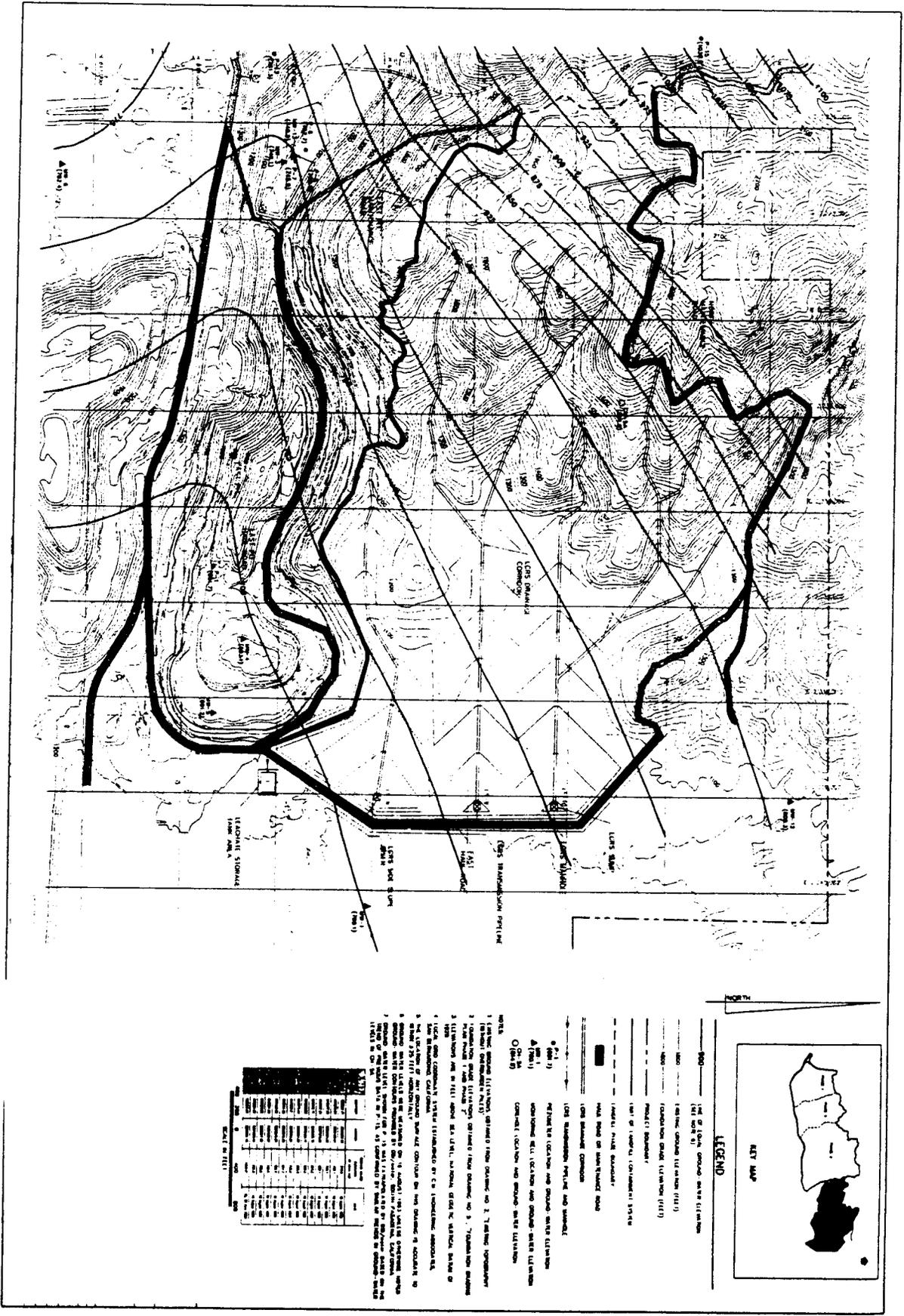




ATTACHMENT 24: INFLOW INTO CHUCKAWALLA VALLEY FROM OTHER BASINS







**LEGEND**

1000' Contour Interval

100' Contour Interval

50' Contour Interval

25' Contour Interval

10' Contour Interval

5' Contour Interval

1' Contour Interval

0.5' Contour Interval

0.25' Contour Interval

0.125' Contour Interval

0.0625' Contour Interval

0.03125' Contour Interval

0.015625' Contour Interval

0.0078125' Contour Interval

0.00390625' Contour Interval

0.001953125' Contour Interval

0.0009765625' Contour Interval

0.00048828125' Contour Interval

0.000244140625' Contour Interval

0.0001220703125' Contour Interval

0.00006103515625' Contour Interval

0.000030517578125' Contour Interval

0.0000152587890625' Contour Interval

0.00000762939453125' Contour Interval

0.000003814697265625' Contour Interval

0.0000019073486328125' Contour Interval

0.00000095367431640625' Contour Interval

0.000000476837158203125' Contour Interval

0.0000002384185791015625' Contour Interval

0.00000011920928955078125' Contour Interval

0.000000059604644775390625' Contour Interval

0.0000000298023223876953125' Contour Interval

0.00000001490116119384765625' Contour Interval

0.000000007450580596923828125' Contour Interval

0.0000000037252902984619140625' Contour Interval

0.00000000186264514923095703125' Contour Interval

0.000000000931322574615478515625' Contour Interval

0.00000000046566128730773928125' Contour Interval

0.000000000232830643653869640625' Contour Interval

0.0000000001164153218269348203125' Contour Interval

0.00000000005820766091346741015625' Contour Interval

0.000000000029103830456733705078125' Contour Interval

0.0000000000145519152283668525390625' Contour Interval

0.00000000000727595761418342626953125' Contour Interval

0.0000000000036379788070917131319140625' Contour Interval

0.00000000000181898940354585656596875' Contour Interval

0.000000000000909494701772928282984375' Contour Interval

0.0000000000004547473508864641414921875' Contour Interval

0.00000000000022737367544323207074609375' Contour Interval

0.000000000000113686837721616035373046875' Contour Interval

0.0000000000000568434188608080176865234375' Contour Interval

0.00000000000002842170943040400884326171875' Contour Interval

0.000000000000014210854715202004421630859375' Contour Interval

0.0000000000000071054273576010022108154296875' Contour Interval

0.00000000000000355271367880050110055771484375' Contour Interval

0.000000000000001776356839400250550278857421875' Contour Interval

0.0000000000000008881784197001252751394287109375' Contour Interval

0.0000000000000004440892098500626375697143546875' Contour Interval

0.000000000000000222044604925031318784857171875' Contour Interval

0.0000000000000001110223024625156593924285859375' Contour Interval

0.0000000000000000555111512312577969612142859375' Contour Interval

0.000000000000000027755575615638898480607142859375' Contour Interval

0.00000000000000001387778780781944924030357142859375' Contour Interval

0.0000000000000000069388939039097246201517857142859375' Contour Interval

0.000000000000000003469446951954862310075892857142859375' Contour Interval

0.00000000000000000173472347597743115503794642857142859375' Contour Interval

0.00000000000000000086736173798871577516973232142859375' Contour Interval

0.000000000000000000433680868994358888789861157142859375' Contour Interval

0.00000000000000000021684043449717944444494557142859375' Contour Interval

0.0000000000000000001084202172485897222224727857142859375' Contour Interval

0.0000000000000000000542101086242948611111236392857142859375' Contour Interval

0.000000000000000000027105054312147430555618319642857142859375' Contour Interval

0.00000000000000000001355250271560737152778090982142859375' Contour Interval

0.0000000000000000000067762513578036857638904549109375' Contour Interval

0.00000000000000000000338812567890184288194522745546875' Contour Interval

0.000000000000000000001694062839450921440972613727284375' Contour Interval

0.00000000000000000000084703141972546207048630686137284375' Contour Interval

0.000000000000000000000423515709862731035243293430686137284375' Contour Interval

0.00000000000000000000021175785493136551517614671703430686137284375' Contour Interval

0.00000000000000000000010587892746568275588807335851703430686137284375' Contour Interval

0.00000000000000000000005293946373284137944403667925851703430686137284375' Contour Interval

0.00000000000000000000002646973186642069722201833962925851703430686137284375' Contour Interval

0.000000000000000000000013234865933210348611000916964862925851703430686137284375' Contour Interval

0.0000000000000000000000066174329666051743050004584832430686137284375' Contour Interval

0.00000000000000000000000330871648330258715250002292241530686137284375' Contour Interval

0.0000000000000000000000016543582416512935762500011461207686137284375' Contour Interval

0.00000000000000000000000082717912082564678812500005706038430686137284375' Contour Interval

0.00000000000000000000000041358956041282339406250000285301921530686137284375' Contour Interval

0.00000000000000000000000020679478020641169703125000014265096076530686137284375' Contour Interval

0.000000000000000000000000103397390103205849851562500000713254803826530686137284375' Contour Interval

0.000000000000000000000000051698695051602924992578125000003566274019130686137284375' Contour Interval

0.0000000000000000000000000258493475258014624962890625000001783137009566530686137284375' Contour Interval

0.0000000000000000000000000129246737629007312493145312500000089156850478326530686137284375' Contour Interval

0.000000000000000000000000006462336881450365624657265625000000445784252391626530686137284375' Contour Interval

0.00000000000000000000000000323116844072518281232863281250000002228921261958126530686137284375' Contour Interval

0.00000000000000000000000000161558422036259140611641664062500000011144606309792626530686137284375' Contour Interval

0.0000000000000000000000000008077921101812957030582083206250000000557230315491326530686137284375' Contour Interval

0.000000000000000000000000000403896055090647851529104160312500000002786151574546626530686137284375' Contour Interval

0.000000000000000000000000000201948027545323925764552080156250000001393075787273326530686137284375' Contour Interval

0.00000000000000000000000000010097401377266196287276264007812500000006965378936366626530686137284375' Contour Interval

0.000000000000000000000000000050487006886330964363636320039062500000003482689468183326530686137284375' Contour Interval

0.00000000000000000000000000002524350344316548218181816001953125000000017413447340916626530686137284375' Contour Interval

0.0000000000000000000000000000126217517215772410909090009765625000000008706723670458326530686137284375' Contour Interval

0.00000000000000000000000000000631087586078862045454545004882812500000000435336183522791626530686137284375' Contour Interval

0.00000000000000000000000000000315543793039431022727272502441406250000000217668091761958126530686137284375' Contour Interval

0.000000000000000000000000000001577718965197155113636362512207031250000001088340458809792626530686137284375' Contour Interval

0.0000000000000000000000000000007888594825985775681818162561035156250000000544170229404891626530686137284375' Contour Interval

0.00000000000000000000000000000039442974129928878409090812530686137284375' Contour Interval

0.000000000000000000000000000000197214870649644392045454062530686137284375' Contour Interval

0.0000000000000000000000000000000986074353248221960227272530686137284375' Contour Interval

0.00000000000000000000000000000004930371766241108011363632530686137284375' Contour Interval

0.000000000000000000000000000000024651858831205540056818162530686137284375' Contour Interval

0.00000000000000000000000000000001232592941560277002840909062530686137284375' Contour Interval

0.00000000000000000000000000000000616296470780138501420454530686137284375' Contour Interval

0.0000000000000000000000000000000030814823539006925071022727530686137284375' Contour Interval

0.0000000000000000000000000000000015407411769503462535511363632530686137284375' Contour Interval

0.0000000000000000000000000000000007703705884751731267756818162530686137284375' Contour Interval

0.000000000000000000000000000000000385185294237586563387840909062530686137284375' Contour Interval

0.00000000000000000000000000000000019259264711879328168920454530686137284375' Contour Interval

0.000000000000000000000000000000000096296323559396640844727272530686137284375' Contour Interval

0.0000000000000000000000000000000000481481617796983204223636362530686137284375' Contour Interval

0.000000000000000000000000000000000024074080889849160211363632530686137284375' Contour Interval

0.0000000000000000000000000000000000120370404449245801056818162530686137284375' Contour Interval

0.00000000000000000000000000000000000601852022246229005340909062530686137284375' Contour Interval

0.00000000000000000000000000000000000300926011123114502670454530686137284375' Contour Interval

0.0000000000000000000000000000000000015046300556155725013363632530686137284375' Contour Interval

0.00000000000000000000000000000000000075231502780778625066818162530686137284375' Contour Interval

0.0000000000000000000000000000000000003761575139038931253340909062530686137284375' Contour Interval

0.0000000000000000000000000000000000001880787569519465626670454530686137284375' Contour Interval

0.000000000000000000000000000000000000094039378475973281333511363632530686137284375' Contour Interval

0.000000000000000000000000000000000000047019689237986640666727272530686137284375' Contour Interval

0.0000000000000000000000000000000000000235098446189933203333636362530686137284375' Contour Interval

0.0000000000000000000000000000000000000117549223094966601666818162530686137284375' Contour Interval

0.000000000000000000000000000000000000005877461154748330083340909062530686137284375' Contour Interval

0.000000000000000000000000000000000000002938730577374165041670454530686137284375' Contour Interval

0.00000000000000000000000000000000000000146936528868728252083511363632530686137284375' Contour Interval

0.0000000000000000000000000000000000000007346826443436412604166818162530686137284375' Contour Interval

0.000000000000000000000000000000000000000367341322171820630208340909062530686137284375' Contour Interval

0.0000000000000000000000000000000000000001836706610859103151041670454530686137284375' Contour Interval

0.00918353305429551575520727272530686137284375' Contour Interval

0.004591766527147777877613636362530686137284375' Contour Interval

0.002295883263573888938806818162530686137284375' Contour Interval

0.00114794163178694446940340909062530686137284375' Contour Interval

0.00057397081589347223470170454530686137284375' Contour Interval

0.000286985407946736117350083511363632530686137284375' Contour Interval

0.00014349270397336555867504166818162530686137284375' Contour Interval

0.00717463519866827793375208340909062530686137284375' Contour Interval

0.00358731759933363896687613636362530686137284375' Contour Interval

0.00179365879966681948343806818162530686137284375' Contour Interval

0.0008968293998334472417190340909062530686137284375' Contour Interval

0.0004484146999167236208595166818162530686137284375' Contour Interval

0.00022420734995836181042977806818162530686137284375' Contour Interval

0.0001121036749791659052148890340909062530686137284375' Contour Interval

0.00560518374895829526072445166818162530686137284375' Contour Interval

0.0028025918744791476303622258340909062530686137284375' Contour Interval

0.0014012959372395738151561113636362530686137284375' Contour Interval

0.0007006479686197869075780558340909062530686137284375' Contour Interval

0.0003503239843098934537890279166818162530686137284375' Contour Interval

0.000175161992154946726894513958340909062530686137284375' Contour Interval

0.0087580996077473363447256979166818162530686137284375' Contour Interval

0.004379049803873668172236348979166818162530686137284375' Contour Interval

0.0021895249019368340861181948979166818162530686137284375' Contour Interval

0.00109476245096841704305948979166818162530686137284375' Contour Interval

0.0005473812254842085215297448979166818162530686137284375' Contour Interval

0.000273690612742104260764872448979166818162530686137284375' Contour Interval

0.00013684530637105213038243622448979166818162530686137284375' Contour Interval

0.0068422653185261065191218113636362530686137284375' Contour Interval

0.0034211326592613052559560558340909062530686137284375' Contour Interval

0.0017105663296306526297780279166818162530686137284375' Contour Interval

0.000855283164815261314889013958340909062530686137284375' Contour Interval

0.0004276



**LONG GRAVEL TYPE A**

ORIGIN: Processed overburden or coarse leavings

GRAIN SIZE: Maximum particle size 1.5 in. Fine content ≤ 3%

HYDRAULIC CONDUCTIVITY: 2 lcm/s

**LONG GRAVEL TYPE B**

ORIGIN: Processed overburden or coarse leavings

GRAIN SIZE: Maximum particle size 1.5 in. Fine content ≤ 5%

HYDRAULIC CONDUCTIVITY: 2 l.10-2cm/s

**GEOTEXTILE FILTER (B)**

TYPE: Nonwoven or woven

WEIGHT: 8 oz/yd<sup>2</sup>

**GEOTEXTILE CURBION**

TYPE: Needle-punched nonwoven

WEIGHT: 12 oz/yd<sup>2</sup>

**GEOTEXTILE CURBION**

TYPE: Needle-punched nonwoven

WEIGHT: 16 oz/yd<sup>2</sup>

**GEOMEMBRANE LINER (Side Slope Areas)**

TYPE: HDPE textured bottom, smooth top

THICKNESS: 80-mil

**GEOMEMBRANE LINER (Bona, Bench, and Ridge Areas)**

TYPE: HDPE textured both sides

THICKNESS: 80-mil

**FOUNDATION LAYER TYPE A (FLTA)**

ORIGIN: Processed overburden, siltstone, or excavated bedrock

GRAIN SIZE: Maximum particle size - 48 in. if placed more than 10 ft below clearest overlying geosynthetic liner - 24 in. if placed within 5 ft to 10 ft below clearest overlying geosynthetic liner - 6 in. if placed within 5 ft of clearest overlying geosynthetic liner

Fine content ≤ 15%

HYDRAULIC CONDUCTIVITY: Not applicable

**FOUNDATION LAYER TYPE C (FLTC)**

ORIGIN: Blend of fine leavings and processed coarse leavings or overburden

GRAIN SIZE: Maximum particle size 1.5 in. when placed adjacent to a geosynthetic-clay liner, 6 in. elsewhere

Fine content ≤ 30%

HYDRAULIC CONDUCTIVITY: Not applicable

SHEAR STRENGTH: Will provide an undrained cohesion, when compacted, of at least 600 psi

**FOUNDATION FCW FINAL COVER**

ORIGIN: Processed overburden, fine leavings, coarse leavings, or excavated bedrock

GRAIN SIZE: Maximum particle size - 6 in. if placed at a depth of 18 in. to 24 in. in this layer - 2 in. if placed within the upper 18 in. of the layer - 0.4 in. in top 0.5 in. (top of layer to be raised with a smooth-drummed roller and protrusions larger than 0.4 in. will be removed)

Fine content ≤ 20%

HYDRAULIC CONDUCTIVITY: 5 l.10-2cm/s at top 18 in.

**EROSION LAYER**

ORIGIN: Processed overburden or excavated bedrock

GRAIN SIZE: Maximum particle size 24 in. Fine content ≤ 10%

HYDRAULIC CONDUCTIVITY: Not Applicable

**PROTECTION LAYER TYPE A**

ORIGIN: Processed overburden, excavated bedrock, or siltstone

GRAIN SIZE: Maximum particle size 6 in. Fine content ≤ 10%

HYDRAULIC CONDUCTIVITY: 2 l.10-2cm/s

**PROTECTION LAYER TYPE B**

ORIGIN: Processed overburden, coarse leavings, or excavated bedrock

GRAIN SIZE: Maximum particle size 1.5 in. Fine content ≤ 10%

HYDRAULIC CONDUCTIVITY: 2 l.10-2cm/s

**SOIL LAYER**

ORIGIN: Fine leavings

USCS: CL, CH, or SC

GRAIN SIZE: Maximum particle size 0.4 in. Fine content ≤ 20%

HYDRAULIC CONDUCTIVITY: 5 l.10-2cm/s

**MANAGE CORRODOR GRAVEL**

ORIGIN: Processed overburden or excavated bedrock

GRAIN SIZE: Maximum particle size 2.5 in. Fine content ≤ 2%

HYDRAULIC CONDUCTIVITY: 2 l.10cm/s

**UNSATURATED-ZONE LIQUID MONITORING LAYER**

ORIGIN: Processed overburden or coarse leavings

GRAIN SIZE: Maximum particle size 1.5 in. Fine content ≤ 3%

HYDRAULIC CONDUCTIVITY: 2 l.10-2cm/s

**GEOMEMBRANE CAP**

TYPE: HDPE textured both sides

THICKNESS: 40-mil

**DISJUNCTIVE-CLAY LINER**

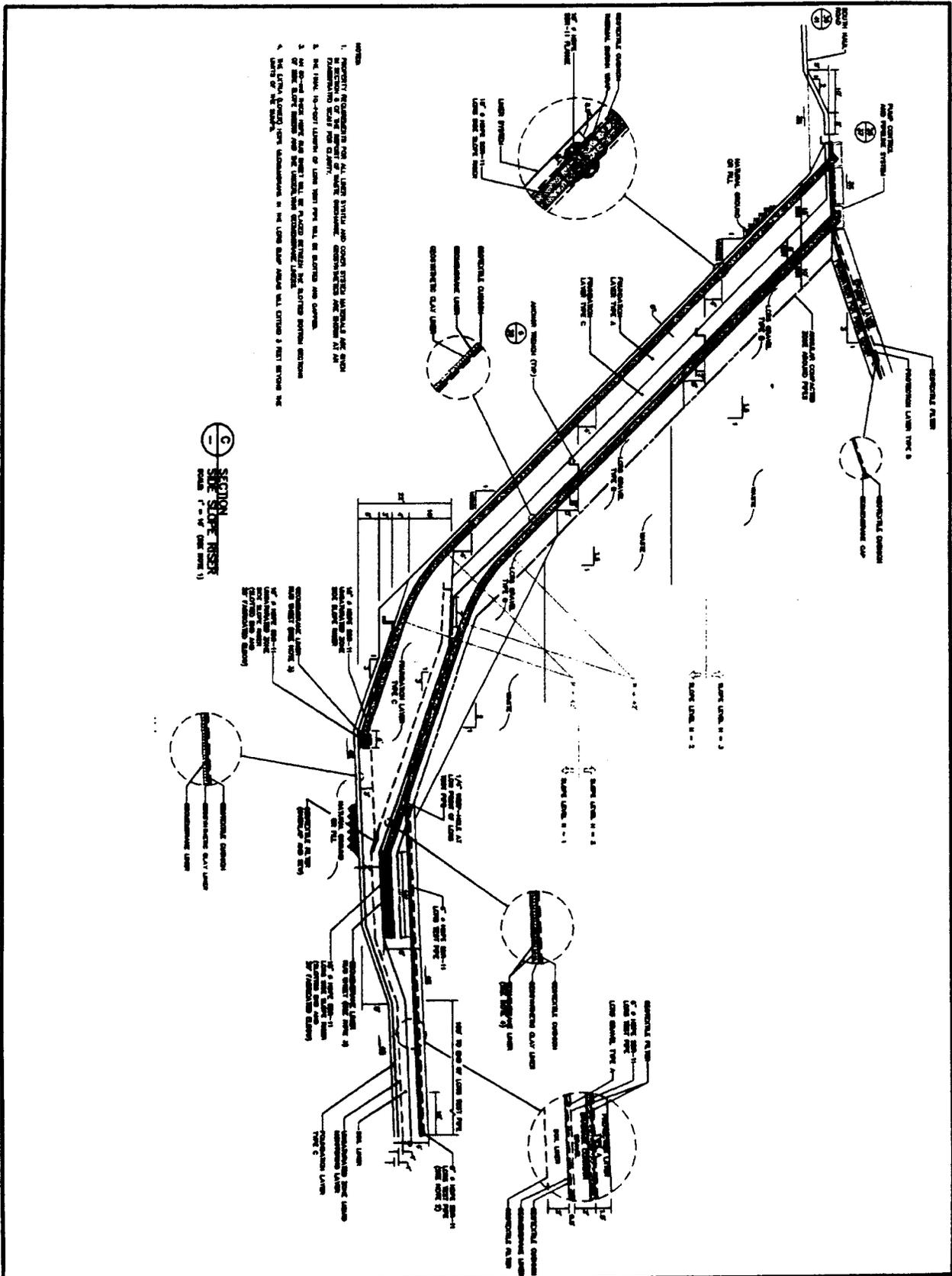
TYPE: Rantured

HYDRAULIC CONDUCTIVITY 5 l.10-8cm/s

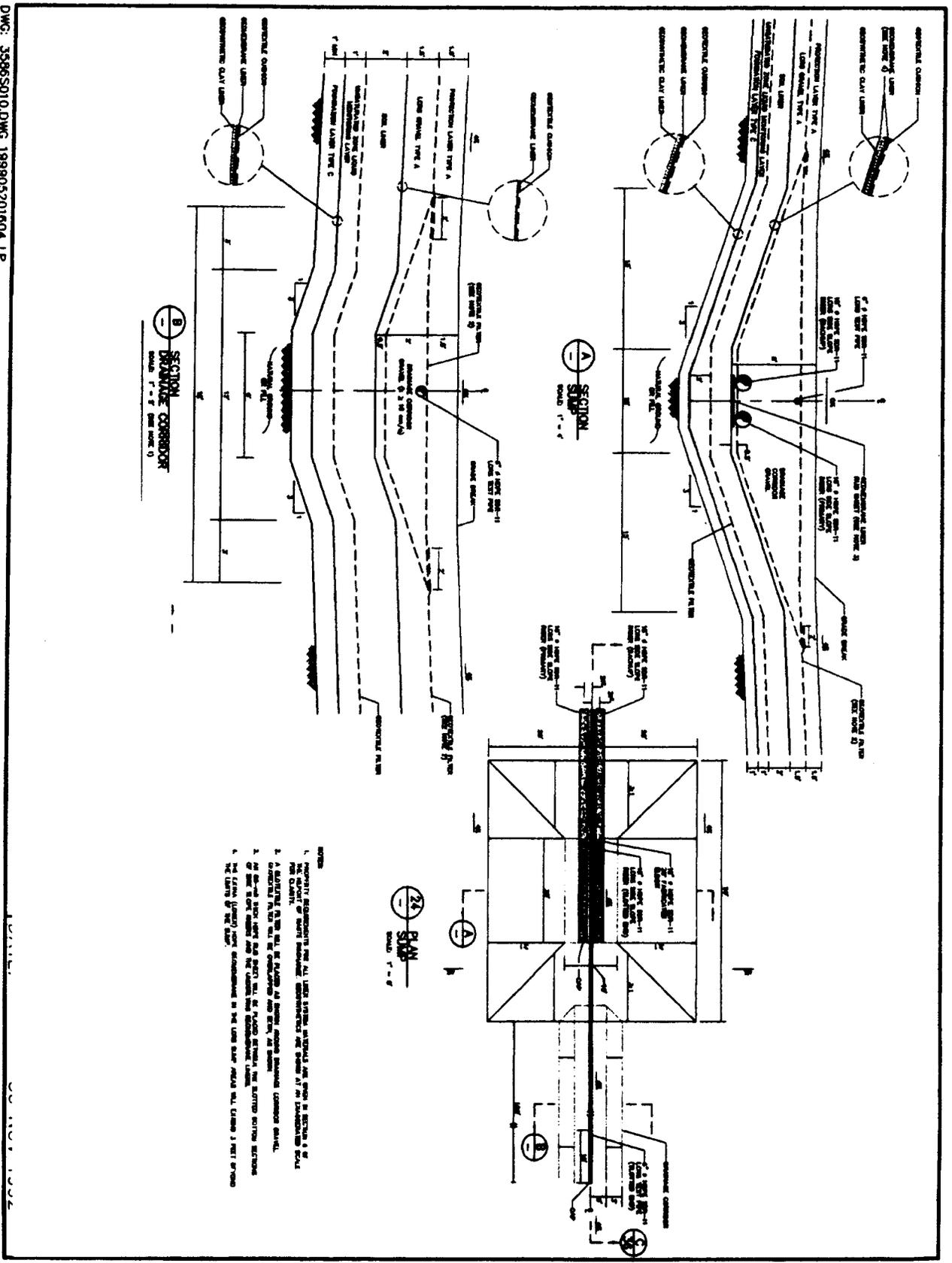
**GEOTEXTILE FILTER (A)**

TYPE: Nonwoven or woven

WEIGHT: 16 oz/yd<sup>2</sup>



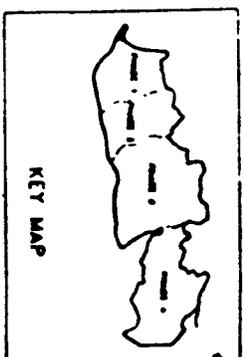
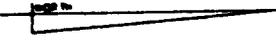
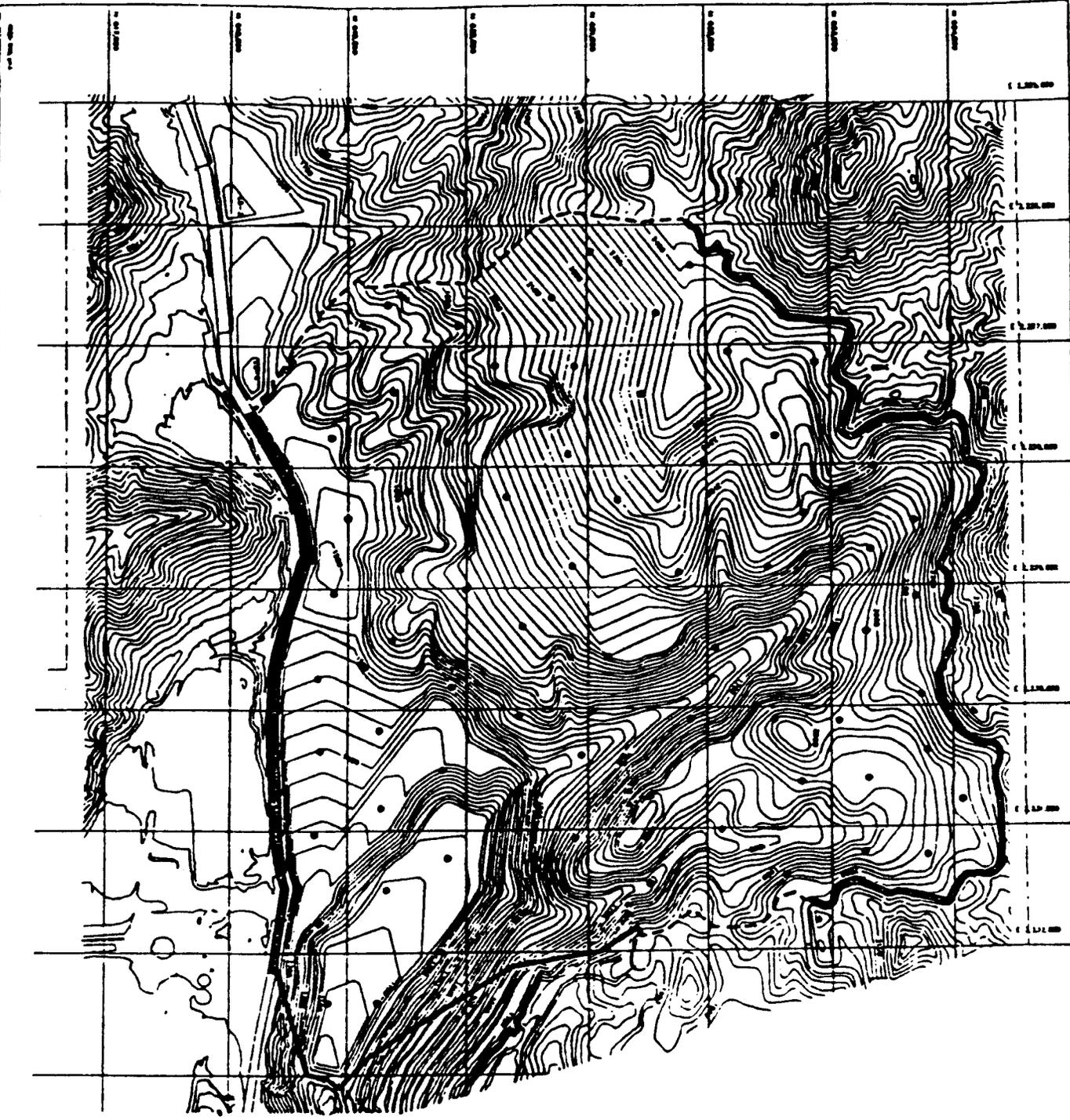
ATTACHMENT 27: LEACHATE COLLECTION AND REMOVAL SYSTEM (LRC) DETAILS II (SIDE SLOPE RISER)



ATTACHMENT 28: LEACHATE COLLECTION AND REMOVAL SYSTEM (LRCS) DETAILS I (DRAINAGE CORRIDOR AND SUMP)



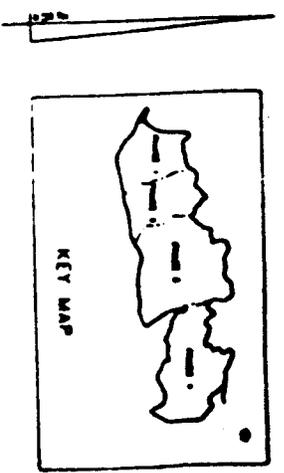
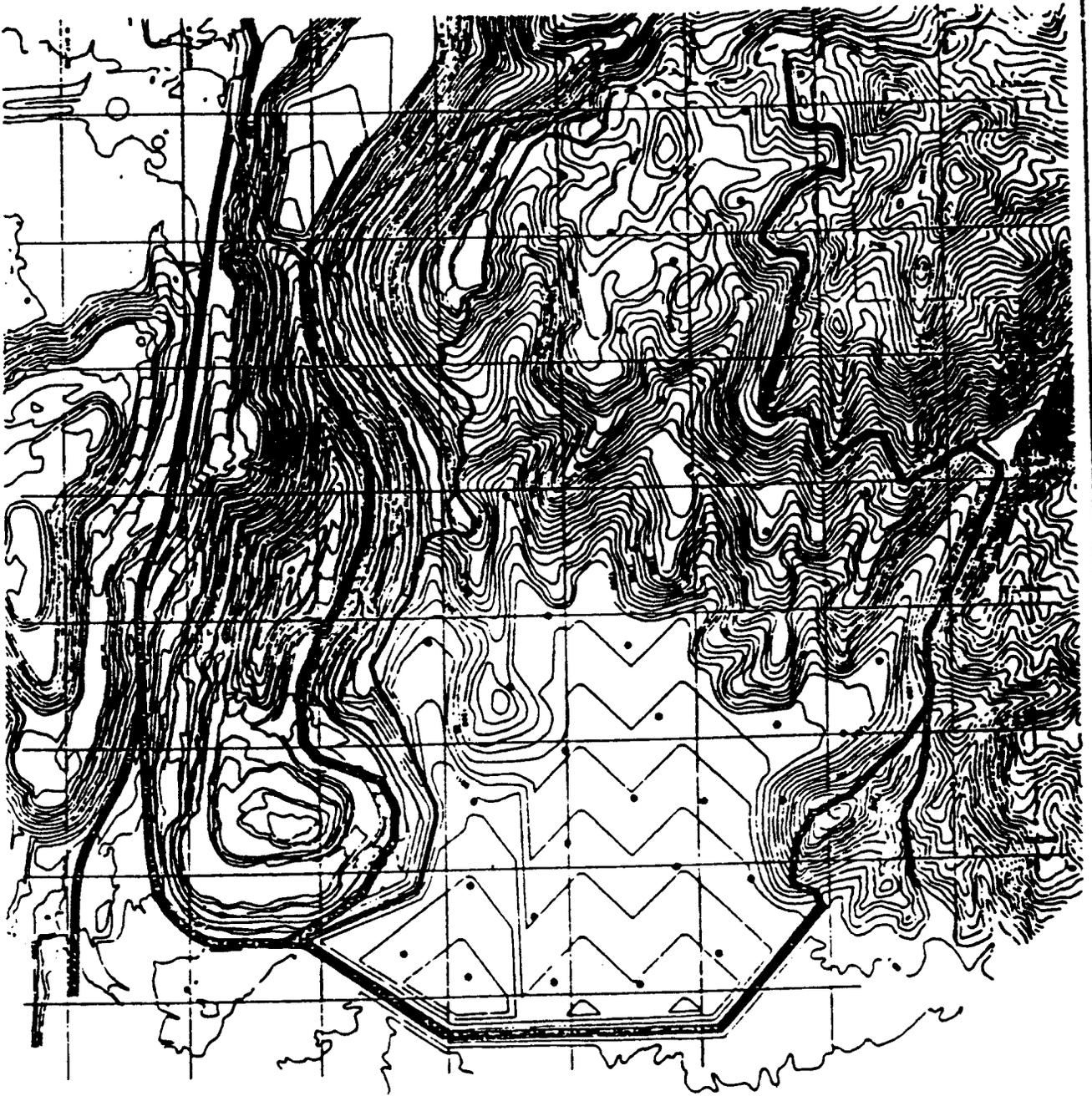




LEGEND

- 1. Existing proposed Gasification (PRT)
  - 2. Proposed Gasification (PRT)
  - 3. Project Boundary
  - 4. Limit of Landfill Containment System
  - 5. Landfill Cell Boundary
  - 6. Gas, steam or vent gas flow
  - 7. (PRT) (PRT) Gas Gas monitoring point (PRT) (PRT)
1. Existing proposed Gasification (PRT) (PRT)
  2. Proposed Gasification (PRT) (PRT)
  3. Project Boundary
  4. Limit of Landfill Containment System
  5. Landfill Cell Boundary
  6. Gas, steam or vent gas flow
  7. (PRT) (PRT) Gas Gas monitoring point (PRT) (PRT)

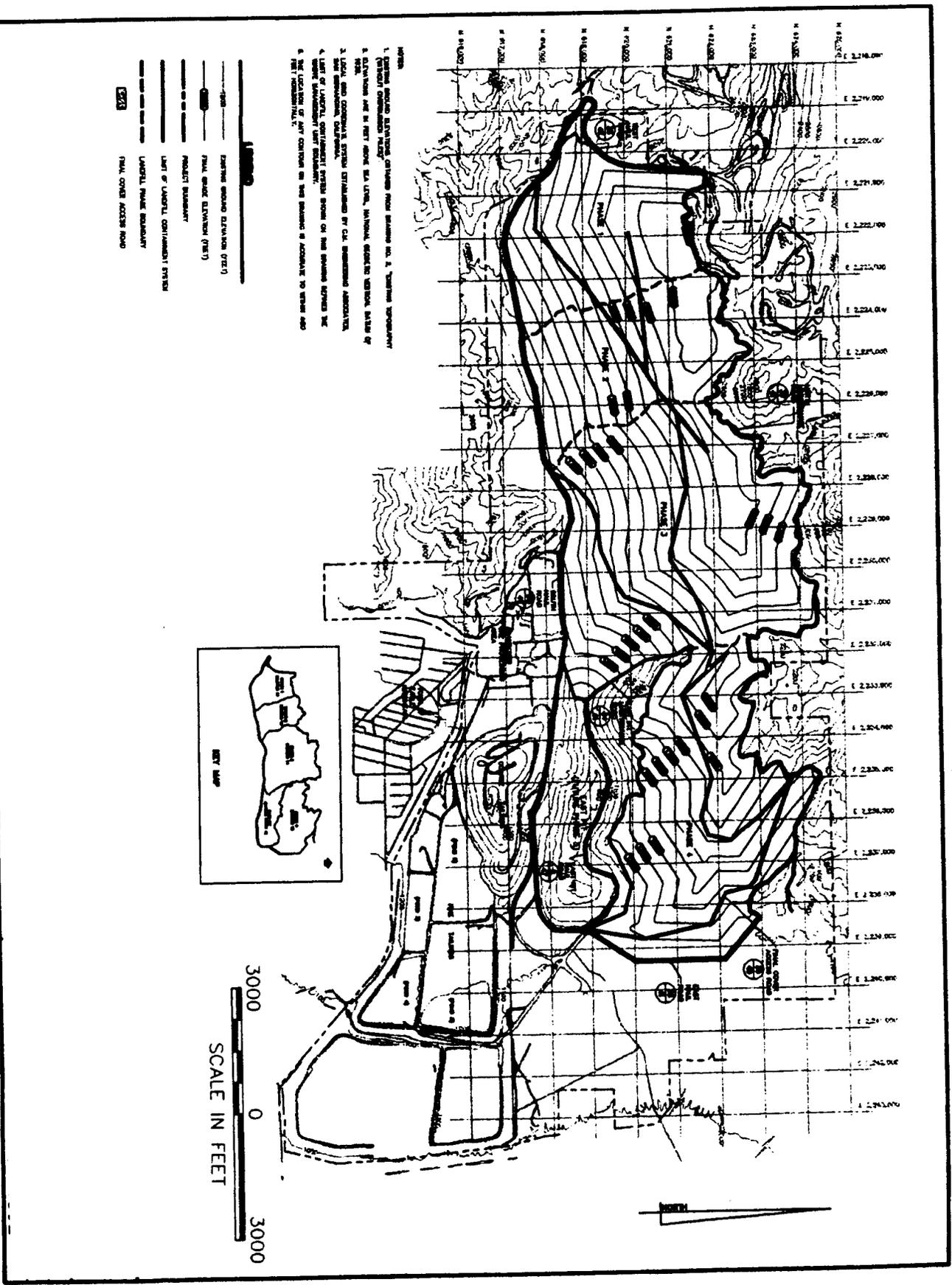
ATTACHMENT 30B: UNSATURATED ZONE GAS MONITORING SYSTEM PLAN (PHASE 3)



- LEGEND
- existing ground elevation (feet)
  - projected ground elevation (feet)
  - project boundary
  - limit of landfill containment system
  - landfill final boundary
  - area used as construction area (see note 2)
  - monitoring point and monitoring well (see note 3)

- NOTES
1. Existing ground elevations shown refer to the 1950 datum. Projected ground elevations are based on the design final land elevation (see note 2).
  2. Construction shall utilize ground water from the 1950 datum. The area shown as construction area shall be used for the construction of the landfill.
  3. The location of the monitoring points and monitoring wells shall be determined by the design engineer. The location of the monitoring points and monitoring wells shall be determined by the design engineer.
  4. The location of the monitoring points and monitoring wells shall be determined by the design engineer.
  5. The location of the monitoring points and monitoring wells shall be determined by the design engineer.

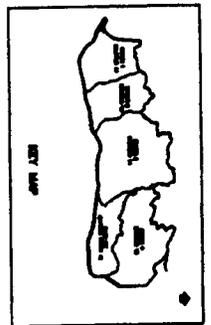
ATTACHMENT 30C: UNSATURATED ZONE GAS MONITORING SYSTEM PLAN (PHASE 4)

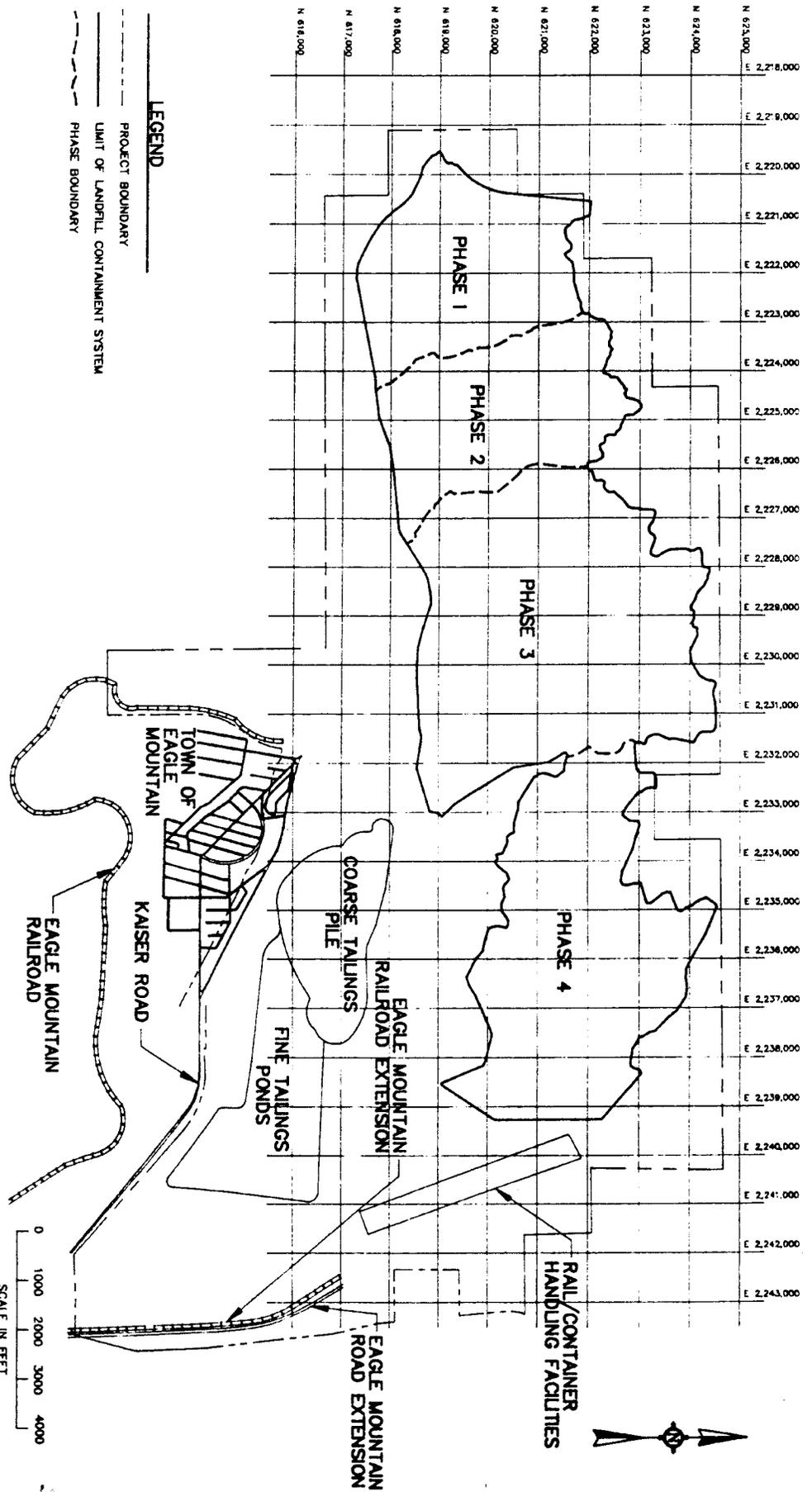


- NOTES
1. EXISTING GROUND ELEVATIONS OBTAINED FROM BATHYMETRIC NO. 2, "CANTON TERRACE" (PROVIDED BY THE STATE OF NEW YORK).
  2. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM OF 1988.
  3. LOCAL AND CONTIGUOUS SITES ESTABLISHED BY THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL AFFAIRS.
  4. LIMIT OF LANDFILL CONTINUED SYSTEM SHOWN ON THIS DRAWING SHOWS THE "LIMIT OF LANDFILL CONTINUED SYSTEM" AS DEFINED BY THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL AFFAIRS.
  5. THE LOCATION OF ANY CONTIGUOUS SITES SHOWN IS SUBJECT TO VERIFICATION BY THE FIELD ENGINEER.

- LEGEND
- EXISTING GROUND ELEVATION (FEET)
  - FINAL GRADE ELEVATION (FEET)
  - PROPOSED ROADWAY
  - LIMIT OF LANDFILL CONTINUED SYSTEM
  - LANDFILL FINISH ELEVATION
  - FINAL OPEN ACCESS ROAD

3000  
0  
3000  
SCALE IN FEET





NOTE: 1. GRID COORDINATES WERE ASSUMED BY C.M. ENGINEERING ASSOCIATES.  
 2. PROJECT BOUNDARY WAS TAKEN FROM SPECIFIC PLAN NO. 252, DATED JUNE 1992 PREPARED BY SMITH, PERONI, AND FOX.

SOURCE: BASE MAP OBTAINED FROM DRAWING NO. 1.

4030E029 199212130645