THOMAS L. BOLICH
DIRECTOR OF PUBLIC WORKS

County of Santa Cruz

0277

DEPARTMENT OF PUBLIC WORKS

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AGENDA: OCTOBER 3, 2000

September 2 1, 2000

SANTA CRUZ COUNTY BOARD OF SUPERVISORS
701 Ocean Street
Santa Cruz, California 95060

SUBJECT: BUENA VISTA LANDFILL SOIL MANAGEMENT PROJECT

Members of the Board:

On August 8, 2000, your Board directed Public Works to return on October 3, 2000, with a status report and updated discussion of project options for the Buena Vista Landfill Soil Management Project. Your Board also added a direction to provide a cost analysis for an outside party to remove the soil overburden from our landfill expansion area and then re-purchase soil on the open market for ongoing landfill operations.

Under direction from your Board, Public Works has been working to develop a project alternative utilizing land on the adjacent City of Watsonville Landfill site. The proposed site is planned as a future landfill expansion area for the City of Watsonville. We previously informed your Board that recent changes in Watsonville's landfill development schedule have eliminated this as a feasible alternative. However, during a project meeting with Watsonville city staff and Supervisor Tony Campos, a variation of this project was suggested. A farm parcel adjacent to the Watsonville site was suggested as an alternative soil storage site. On August 8, 2000, your Board directed Public Works to return with details on this proposed project alternative along with discussions of other possible alternatives. Attachment "A" includes a summary report and project drawings for this latest project alternative. Also part of Attachment "A" are supporting engineering reports, soil balance calculations, biotic evaluation, and noise analysis, which are on file with the Clerk of the Board.

Per your Board's direction, Attachment "B" is a summarized discussion of previously considered project alternatives and your Board's suggested alternative. Including the project proposal discussed in Attachment "A," your Board has several remaining options to consider. Each of the following project alternatives is discussed in greater detail in Attachment "B."

1. Move soil, via a 6,500 foot conveyor belt system, to the adjacent farm property southwest of the Watsonville Landfill expansion site.

2. Return to the original project as proposed on the adjacent Rocha property. All permits and permitting activities are still being held in abeyance with the various permitting agencies.

3. Consider use of the Miyashita and Love properties immediately north of the Buena Vista Landfill, as previously recommended by the Buena Vista Community Homeowners Association members.

4. Initiate siting of a remote soil storage area using trucks and public roadways to move soil to and from the landfill.

5. Pay an outside party to remove all the soil and then re-purchase soil on the open market as needed for ongoing landfill operations.

6. Abandon all off-site soil storage efforts with the effect of reducing landfill capacity by approximately 5 years (28 percent) and requiring importation of soil for daily and post-closure landfill needs. Under this scenario the landfill would close in 13 years, instead of 18 years.

Many alternatives for this project have been considered and suggested throughout the development process. Each project alternative has been evaluated in terms of environmental impact, cost effectiveness, preservation of agriculture and biotic resources, and long-term waste disposal needs for our county residents. Preservation of the limited landfill capacity remaining at the Buena Vista Landfill is a significant issue that must be weighted against the impacts and mitigations required for each of the project options discussed in this report. There is approximately two years' disposal capacity remaining at the Buena Vista Landfill without completing construction of the two remaining landfill modules. With the exception of the Rocha property or the "no project" alternative, environmental review and permitting for any of the other project options listed above will likely take up to two years to complete. A final decision to move forward with one of these project options is necessary at this time, or by default we must begin focusing our resources on managing the impacts associated with a no-project determination.

It is therefore recommended that the Board of Supervisors take the following action:

1. Accept and file this report on the Buena Vista Landfill Soil Management Project.

2. Consider all Buena Vista Landfill Soil Management Project alternatives outlined in this report and provide Public Works with direction on the Board's preferred project structure.

Yours truly,

THOMAS L. BOLICH
Director of Public Works

RPM:mg

Attachments

RECOMMENDED FOR APPROVAL:

County Administrative Officer

copy to: Rick Hyman, California Coastal Commission
Brian Hunter, California Department of Fish and Game
David Koch, City of Watsonville
Ana Demorest, CH2M Hill
Dana McRae, County Counsel
Kim Tschantz, Planning Department
Public Works, Fred Magaard
Jonathan Wittwer
Art Higaki
Rosemarie Imazio

Proposed Soil Management Area - Imazio Property

PREPARED FOR: Patrick Mathews/County of Santa Cruz

PREPARED BY: Ana Demorest/CH2M HILL

COPIES: Mark Janay/CH2M HILL

DATE: September 20, 2000

This memorandum summarizes the preliminary design for the proposed Soil Management Area (SMA) at the Imazio Property, adjacent to the City of Watsonville Landfill (Watsonville Landfill) Expansion Site. The preliminary design of the SMA is comprised of two major elements: phasing and development of the SMA site and preliminary design of the stockpile and related facilities.

Phasing and Development

The phasing and development plan for the SMA site was initially performed in November, 1999. At this time, the proposed location of the SMA was the Watsonville Landfill Expansion Area. The Watsonville Landfill expansion site encompasses Phases IV and V of the landfill. Based on initial screening of phasing options, two proposed alternatives were selected for further evaluation. These alternatives included 1) Phased excavation of Buena Vista Modules 4 and 5; construction of Watsonville Phase V as designed, and 2) Phased excavation of Buena Vista Modules 4 and 5; phased construction of Watsonville Phase V. After input and review by County of Santa Cruz (County) and City of Watsonville (City) staff, Phasing Alternative 2 was selected as the preferred alternative in December 1999.

On April 28, 2000, the City provided revised numbers for the projected soil needs, waste disposal rates, and site life of Watsonville Landfill. These revisions resulted in substantial changes to the impacts of the SMA project on both landfills. The revisions to the anticipated development of Watsonville Landfill resulted in the need for the County to find an alternative stockpile for over 550,000 cubic yards of soil by the year 20 12. Material would need to be stored at the alternative stockpile location for approximately seven years. In addition to costs and environmental impacts associated with locating and developing a second soil management area, additional costs would be incurred by the County for double handling of the soil. Further changes to Watsonville's landfill development plans could also adversely impact the SMA project. Therefore, based on these issues, as well as a meeting with Watsonville staff, it was determined that the use of the Watsonville Landfill Expansion Site was no longer a feasible alternative for the stockpile location.

During a meeting to discuss the proposed SMA project on June 28, 2000, Watsonville staff suggested that the Imazio property, located adjacent to the Watsonville Landfill Expansion Area, may be a suitable alternative for the SMA. Subsequent conversations between Watsonville staff and Ms. Imazio indicated that she was open to the possibility of placing the SMA on her property. Therefore, a conceptual level design was prepared for the SMA on the Imazio property.

Preliminary Design

The SMA was designed to accommodate soils excavated from Modules 4 and 5 of the Buena Vista Landfill. The SMA is approximately 13 acres at its maximum size, and is located on the Imazio property above Phase V of the Watsonville Landfill Expansion Area.

Attachment A

The grading criteria for the soil management area generally included 3 to 1 (horizontal to vertical) fill slopes. The criteria also included a 5-foot wide drainage bench, and a 20-foot wide access road to the top of the stockpile. Based on the existing Buena Vista Landfill development plans, the maximum volume of stockpiled soil will occur in 2005 when the excavation of Module 5 is complete. (Table 1 summarizes key soil management activities and milestones.) It is anticipated that the SMA will need to have a capacity of approximately 1.08 million cubic yards. This stockpile volume includes approximately 886,000 cubic yards excavated from Module 4, and approximately 194,000 cubic yards excavated from Module 5. The actual excavation volume of Module 5 is approximately 444,000 cubic yards; however, we have assumed that between the years 2000 and 2005, approximately 250,000 cubic yards will be excavated from Module 5 and used in the operations of Buena Vista Landfill.

In order to minimize the acreage used by the SMA on the Imazio property, the sedimentation basin for the SMA was initially placed in Phase V of the Watsonville Landfill Expansion Area. Drainage from the sedimentation basin will either be released into the natural drainage channel located in the Phase V area, or will be routed to a dispersion system and released as overland flow. Figure 1 presents a conceptual level design for the maximum SMA buildout.

In 20 12, Watsonville will excavate Phase V for construction. At this time, the sedimentation basin will be moved from the Watsonville Landfill Phase V area to within the footprint of the maximum buildout of the SMA. Drainage from the sedimentation basin will be routed to a dispersion system and released as overland flow. Space for the sedimentation basin will be made available through the removal of soil for use in Buena Vista Landfill operations. Figure 2 presents a conceptual level design for the SMA with the sedimentation basin included in the footprint.

Table 1
Buena Vista Landfill - Soil Management Area
Summary of Soil Management Activities

Year	Buena Vista Landfill Activities	Watsonville Landfill Activities	SMA Activities
2000	Excavating from Module 4 area for daily and interim cover soil needs		
2001	Completion of Module 4 excavation and construction		Receiving soil from Buena Vista Landfill Module 4 excavation (-886,000 cy).
2002	Filling Module 4. Using soil excavated from Module 5 for operational needs. (-250,000 cy between 2001 and 2005)		
2003			
2004			
2005	Complete Module 5 excavation (- 194,000 cy)		Receives -194,000 from Buena Vista Landfill Module 5 excavation. (Total SMA volume -1.08 M cy)
2006	Module 4 full Module 5 construction		Buena Vista Landfill begins excavating from SMA for operational soil needs
2007	Filling-Module 5		
2008			
2009			
-2010	Module 5 full, start filling to final elevations		
2011	Module 3 Final Cover construction		
2012		Phase V construction	Sedimentation-basin moves to Imazio property within footprint of SMA
2013			
2014			
2015			
2016			
2017			
2018	All Modules filled to final elevation		
2019	Final Cover construction		Stockpile completely gone.

Attachment B

BUENA VISTA LANDFILL SOIL MANAGEMENT PROJECT:

HISTORY AND SUMMARY OF PROJECT ALTERNATIVES

September 2000

BUENA VISTA LANDFILL SOIL MANAGEMENT PROJECT: HISTORY AND SUMMARY OF PROJECT ALTERNATIVES

The following report is a summary of the development process for the Buena Vista Landfill Soil Management project and a discussion of project alternatives previously and currently under consideration.

LANDFILL HISTORY/BACKGROUND

In 1981, our County began the process of siting and developing a new landfill facility to replace the existing San Andreas Landfill (immediately adjacent to the current Buena Vista Landfill) that was projected to reach capacity in 1985. In 1983, after evaluating several potential sites, the current Buena Vista Landfill site was recommended as the most suitable site and the environmental review process was initiated. This site was estimated to have 20 years of disposal capacity. However, through implementation of aggressive recycling programs and improvements in operational practices, the site life has been increased to an estimated 33 years,

The proposed site was owned by Granite Construction, a portion of which was being operated as a sand and gravel quarry. Initial project parameters assumed the landfill would also continue operation as a quarry, as total soil excavation volumes exceeded the projected landfill operational needs. All the excess soil was projected to be removed by Granite Construction in advance of construction of each landfill module and all remaining soil would be used for ongoing landfill operations. However the agreement language did not obligate Granite Construction to remove any specific amount of soil.

In 1984, the final EIR was certified and negotiations for acquiring the land from Granite Construction were initiated. In 1985, landfill development plans were completed and a conditional property acquisition agreement was signed with Granite Construction. One condition of this agreement, pertinent to our current soil project, was Granite Construction's retention of mineral and quarry rights on the site for 17 years (expiring May 2002). Under this agreement, Granite Construction would be allowed to continue excavating soils for their own off-site needs in advance of each module construction along with county excavation for landfill operational needs.

There were three changes in operational conditions that later factored into the need for an offsite soil storage area.

1) Granite Construction has removed far less soil than was projected in the 1985 development plans, creating an interim soil overburden. The land acquisition agreement provided Granite Construction with the rights, but not the obligation, to remove soil from the landfill site.

2) The federal and state landfill design standards were amended in 1991, well after the original site development plans were approved. The more stringent design standards for

landfills call for plastic geomembrane liners and lower permeability clay foundations. Both of these engineering components create interim stability limitations for the landfill and restrict the amount of soil stockpiling that can occur on the closed or inactive areas of the landfill. In addition, as this project has extended beyond anticipated time lines, much of the available on-site soil storage area on the inactive landfill sections will need to be used for ongoing refuse disposal in the immediate future.

3) The Buena Vista Landfill has been operating under newer State operating standards that allow the use of alternative daily cover (ADC). Typically, landfills are required to place a minimum of 6" of compacted soil on the incoming refuse each day. Under the ADC program, the Buena Vista Landfill uses large tarps to cover the refuse each day and soil is placed over the refuse only once per week. This approved practice minimizes the use of soil on a daily basis and allows for placement of more refuse in the permitted landfill airspace, thus extending landfill life. We estimate that the ADC program has added 2-3 years of life to the Buena Vista Landfill. However, this practice has added to the landfill's long-term soil management needs.

In summary, the operating conditions and regulations have changed significantly since the landfill's original development plans were completed in 1985. As a result of these changes, the need for a temporary off-site soil storage area has occurred.

LANDFILL DEVELOPMENT

In order to fully understand this project, the landfill development process needs to be outlined to give a clear picture of the necessary project sequencing. To clarify the scope of the proposed project, we have included several drawings (Figures 1, 2 and 3) to illustrate the sequence of remaining landfill construction activities. Module 6 is the current active refuse disposal area. Please note that due to the long soil management project development process, Module 6 was constructed as a stop-gap measure to allow additional time for development of an alternative soil storage project. On-site soil stockpiling constraints limited Module 6 in size and this expansion only provides for an added two years of refuse capacity. The following is a summary of the current remaining site development sequence:

- 1,330,000 cubic yards of soil will have to be excavated from Modules 4 and 5 in order to complete permitted construction of the Buena Vista Landfill. This excavation will occur in two planned phases coinciding with construction of each of the 2 remaining landfill modules.

- 886,000 cubic yards of soil will have to be excavated from the Module 4 area before construction of the liner system can commence. Modules 3 and 6 will continue to remain active until Module 4 construction is completed. Approximately 2 years of disposal capacity remain in Modules 3 and 6 including the area previously reserved for on-site soil storage.

- In order to limit the size of the off-site stockpile area, we will leave the 444,000 cubic yards of soil from the future Module 5 in-place for as long as possible to maximize its use for

landfill operations and possible off-site usage by Granite Construction. Due to the uncertainty of Granite Construction's offsite soil usage over the 4-5 year interim life of Module 4, we cannot accurately project the amount of additional soil that would need to be moved to the soil storage area. Our best estimate would be 194,000 additional cubic yards of soil would be moved to the off-site soil storage area during the Module 5 construction. The off-site soil storage area would therefore need to be able to accommodate a maximum of 1,080,000 cubic yards.

SOIL STORAGE ALTERNATIVES

The most cost effective means of handling the soil overburden at the Buena Vista Landfill would be to maintain the soil on-site as originally intended. However, due to the existing site conditions and engineering restrictions outlined above, this option is no longer viable. In light of these restrictions, the only feasible alternative was to seek an off-site location for long term temporary storage of the remaining soil left on the landfill site. The landfill will need most of the 1.38 million cubic yards of excavated soil over it's remaining life. The soil is needed for weekly covering operations, interim and final landfill closures.

The first logical soil storage alternatives considered were sites immediately adjacent to the landfill. From an operational and cost efficiency standpoint this would clearly be the most favorable and cost effective option to consider. Use of an adjacent parcel would allow for continued use of the County's existing heavy equipment fleet and staff, and eliminate the need for more costly and higher impact trucking operations on public roadways. Unfortunately due to land use conflicts, there are only a limited number of usable parcels adjacent to the landfill. The landfill is surrounded to the east by the Harkins Slough Wetlands, and to the south by a migrant farm worker housing facility and the County Sheriffs detention facilities. Adjacent parcel options are limited to the Rocha Property (our original recommended project site) to the west, the Watsonville landfill site and adjacent farm parcels to the southwest, and the Miyashita Property to the north.

Three projects have been given lengthy consideration over the course of your Board's deliberations on this project. Each of these three projects, as well as several off-site alternatives have been extensively reviewed, evaluated and compared during the previous public review processes. Below is a summary of the three projects previously considered by your Board:

1) Rocha Property - Located immediately west of the Buena Vista Landfill. The project site is located in a deep ravine with periodic strawberry and row crops planted on the 20-30% slopes. Stockpiling operations would entail filling the ravine and installing erosion control structures. Soil would be moved to and from this site via a 1,500 foot long conveyor and road crossing over Buena Vista Drive. This project also included an extensive biotic restoration component on a portion of the parcel degraded from agricultural activities. This site was initially approved and permitted by your Board for the soil management project. After deliberations regarding a neighborhood appeal to the Coastal Commission, your Board elected to pursue an alternative project on the Watsonville Landfill site. All current

permitting activities are currently being held in abeyance with the various resource agencies pending a final Board decision on other project alternatives.

2) Watsonville Landfill and/or Imazio Property - Both parcels are located southwest of the closed section of the Buena Vista Landfill (previously known as the San Andreas Landfill). A map outlining the project sites is included in the project report. As discussed in previous Board correspondence, recent changes in the Watsonville City Landfill development schedule have rendered this alternative unfeasible. However, a variation of this project is before your Board for further consideration. It has been proposed by Watsonville staff and Supervisor Tony Campos that we utilize the farm property immediately southwest of the Wastsonville Landfill site. The Watsonville site would still be used for a small portion of the soil storage, access roads and interim storm water management for the project. The portion of this parcel proposed for soil storage meets all the engineering and size requirements for this project. The parcel has gently rolling contours and is located at the top of a ridge above the Watsonville Landfill. However, the site is in active strawberry production and the ridge top is in the coastal viewshed above Monterey Bay Academy. Approximately 13 acres of the 190 acre parcel would be needed for the soil storage site. Soil would be moved to and from this site via a 6,500 foot long conveyor system and crossing over a Union Pacific rail line. Access to these sites are through a Biotic Conservation Easement. After receiving public comment, your Board considered this the most favorable project alternative suggested by local residents and directed staff to pursue development.

3) Miyashita/Love Properties - Located immediately north of the Buena Vista Landfill across Harkins Slough Road. The Miyashita property is primarily fallow agricultural land with a 2 10,000 square foot greenhouse facility. The Love property is a residential/agricultural parcel, also not in production. The property owners lease the lower section of the parcel to an adjacent equestrian facility for training and stabling horses. This project alternative was strongly suggested by the Buena Vista Community Association during public deliberations. Due to these parcel's closer proximity to residential premises and an equestrian facility and the parcel size limits, this option was ranked below the two discussed above. In order to accommodate the project, both parcels would need to be acquired, and the greenhouse complex on the Miyashita property would have to be removed. The Miyashita property was up for sale in 1998 at an asking price of $2.4 million. Removal of the greenhouses to accommodate soil storage on the property would significantly devalue the parcel. However, this parcel has no significant biotic resource constraints (per Fish and Game staff) and would not require a conveyor system. From an operational perspective, this is the simplest and possibly least expensive project.

In addition to these three previously considered project options outlined above, there are three additional alternatives that could still be considered. All three of these additional project options were discussed in previous project alternatives analyses and were ranked well below the options listed above.

4) Offsite Soil Storage - The previous alternatives analyses considered several potential off-site soil storage sites in the general area of the Buena Vista Landfill. The analyses quantified all the off-site storage sites as being significantly more expensive and with many similar site constraints and environmental considerations. In addition, the large number of truck round-trips (estimated at over 70,000 during the 6 month excavation period) would significantly add to the environmental impacts for traffic, air quality and noise.

5) Private Contractor Removal of Soil - Your Board, during it's August 8, 2000 deliberations, directed Public Works to consider this alternative project structure. Contractor(s) would be paid (or pay, the County if the need for this much soil exists) to remove all soil from our landfill expansion area and transport the soil to a site of their own choosing for storage or use as till material. The County would then go to the open market and purchase soil, as needed, for the landfill operations. We have initially contacted Granite Construction to discuss this option. Their initial position is that they may be interested, but in exchange they would seek assistance from the County in expediting the siting process for their own soil fill/storage site. They do not currently have any large capacity fill sites approved in the County and, as we have already mentioned, our experience with Granite Construction in using the soil provided them under our current agreement does not provide any guarantee that the soil will used.

Based on our previous experience in the sale of soil from the site, we would receive little or no revenue from the sale of our soil and would likely have to pay the trucking costs to have it removed. Trucking costs would be similar to those in our previous analyses for option #4 above and possibly more if the haul distance is longer to a private soil storage site. Purchase and return trucking costs for soil to operate and eventually close the landfill would also be comparatively more expensive than the other options. The summary analysis table at the end of this report includes a cost estimate for this option.

6) No Project - The remaining option is that of "no project". We discussed this option in previous correspondence. However, this option now warrants a more candid discussion due to the time constraints facing the Buena Vista Landfill. "No project" means that the Buena Vista Landfill must manage all 1.33 million cubic yards of soil on-site. Management of this large volume of soil on-site is not feasible for the reasons previously outlined in this and previous reports. We are nearing capacity in the current developed landfill areas. In order to continue landfill operations without an off site soil storage area, much of the remaining soil would have to be left in place and a landfill liner system constructed over it to allow for continued operation of the landfill. We would lose both landfill capacity and further access to our on-site soil resources. Access to substantial soil resources is a key operational criteria for any landfill. Figure 3 is a cross section map of the Buena Vista Landfill depicting each of the modular phases and the area of soil that would be left in place without an off-site storage site.

The result of a no project determination by your Board would be the loss of approximately 5 years of landfill life (28%) and the requirement to pay for importation of soil for future landfill operational needs. Landfill closure would occur in 13 years, instead of the current

projected 18 years. The cost estimates at the end of this report include the soil import costs, but do not include a valuation of the loss of five years of landfill capacity. Loss of landfill life is difficult to value. Many of the potential cost variables cannot be projected such as the cost and feasibility of accelerating the siting of a replacement solid waste facility by five years, or potential rate increase impacts associated with losing five years of the revenue generating potential necessary to fund future facility construction. At a minimum, this option would result in the loss of approximately $30 million in revenue potential at today's rates and refuse volumes.

We have presented your Board with the latest project alternative along with discussions of the pros and cons of all other project options considered or previously recommended. Each of the project options have some fiscal, environmental or social advantage or disadvantage. Below you will find a table summarizing the various impacts of each of these project alternatives,

Project Options Summary

reas of Concerr	Project Options	Impacts
Biotic	• Rocha	• Temporary loss of 0.8 acres of a degraded riparian drainage course
	• Watsonville/Imazio	• Temporary loss of 0.3 acres of riparian habitat in Biotic Conservation Easement
	• Miyashta/Love	• No known biotic resources
	• Off-site Storage	• Two of three sites reviewed had riparian habitat that could not be avoided by a soil storage project
	• Private Contractor Removal	• Unknown impacts, contractor responsibility
	• No Project	• No biotic impacts
Agricultural	• Rocha	• Temporary loss of 20 acres of agricultural land with Class IV soil, in periodic production
	• Watsonville/Imazio	• Temporary loss of 13 acres of agricultural land with Class III soil, in continuous production
	• Miyashta/Love	• Temporary loss of 18 acres of agricultural land with Class IV soil, fallow for over 15 years, plus loss of up to 210,000 square foot greenhouse facility
	• Off-site Storage	• All three sites reviewed are in agricultural use, 1) operating ranch, 2) agricultural land in continuous strawberry production, 3) agricultural land used for cattle grazing
	• Private Contractor	• Unknown impacts, contractor responsibility
	• No Project	• No agricultural impacts

Traffic	• Rocha	• Infrequent heavy equipment crossing (6-10 trips per day) and 15-20 truck round trips per day for soil returning to landfill, a proposed project variation would leave the conveyor in place for soil returning to landfill, eliminating the 15-20 truck trips per day
	• Watsonville/Imazio	• No traffic impacts
	• Miyashta/Love	• Scraper cross traffic on Harkins Slough Road, up to 300 scraper round trips per day, requires signaled or signed truck crossing
	• Off-site Storage	• Up to 70,000 truck round trips in 6 months to haul soil to storage site and same number return trips, but over 15 years
	• Private Contractor	• Up to 70,000 truck round trips in 6 months to haul soil to storage site and same number return trips, but over 15 years
	• No Project	• No increased traffic impacts
Air Quality	• Rocha	• Dust from conveyor transfer points (10 total) and soil loading operations, emissions from heavy equipment excavation operations
	• Watsonville/Imazio	• Dust from conveyor transfer points (21 total) and soil loading operations, emissions from heavy equipment excavation operations
	• Miyashta/Love	• Dust and emissions from scraper travel, no increase over current landfill practices
	• Off-site Storage	• Dust from soil loading operations and emissions from soil trucking operations and heavy equipment excavation operations
	• Private Contractor	• Dust from soil loading operations and emissions from soil trucking operations and heavy equipment excavation operations, increased large truck emissions along haul route
	• No Project	• Less soil movement reduces cumulative dust and heavy equipment emissions from current landfill operations
Noise	• Rocha	• Heavy equipment and conveyor noise, stockpile site is farther away from receptors than other options (1,300'), confines of ravine acts as noise buffer
	• Watsonville/Imazio	• Heavy equipment and conveyor noise, project site is elevated above surrounding area and noise may carry, one nearby receptor (600')
	• Miyashta/Love	• Heavy equipment noise, stockpile would be elevated above surrounding area and noise may carry, 6 nearby receptors (300' - 900')
	• Off-site Storage	• Two of three sites considered were similar in siting to Rocha with only a few adjacent receptors, one site was surrounded by homes on ridges above the propose storage area
	• Private Contractor	• Increase in large truck traffic noise along haul route, unknown impacts at storage/fill site, contractor responsibility
	• No Project	• No increased noise impacts

Visual	• Rocha	• In viewshed for Buena Vista Drive scenic corridor, location up in a ravine and riparian vegetation partially hides soil stockpile operation
	• Watsonville/Imazio	• In viewshed for Buena Vista Drive scenic corridor and coast, ridge top location
	• Miyashta/Love	• In viewshed for Buena Vista Drive scenic corridor, elevated location
	• Off-site Storage	• Two sites are on open flat agricultural land including one in the coastal viewshed, the third site is in a ravine with houses on surrounding ridge tops
	• Private Contractor	• Unknown impacts, contractor responsibility
	• No Project	• No increased visual impacts
Cost (represent costs over 18 year landfill life)	• Rocha	• $7,100,000 - with soil conveyor to Rocha and soil trucking back to landfill; $6,400,000 - with conveyor left in place for soil returning to landfill
	• Watsonville/Imazio	• $8,500,000
	• Miyashta/Love	• $6.5 - $7,500,000 dependent upon property acquisition cost and greenhouse salvage value
	• Off-site Storage	• $12 - $17,000,000 distance and site constraint dependent
	• Private Contractor	• $12 - $17,000,000 (+) Widely variable, dependent upon truck haul distance, contractor operating costs at receiving end, and repurchase costs for returning soil
	• No Project	• $7 - $12,000,000 for importation of lost soil resource (unit costs vary dependent upon soil source, trucking distance, quality and availability), cost estimate does not include valuation of lost landfill space

SUMMARY

Many alternatives for this project have been considered and suggested throughout the development process. Each project alternative has been evaluated in terms of environmental impact, cost effectiveness, preservation of agricultural and biotic resources, and long term waste disposal needs for our county residents. Preservation of the limited landfill capacity remaining at the Buena Vista Landfill is a significant issue that must be weighed against the impacts and mitigations required for each of the project options discussed in this report. A final decision to move forward with one of these project options is necessary at this time or by default we must begin focusing our resources on managing the impacts associated with a no project determination.

RPM:rpm

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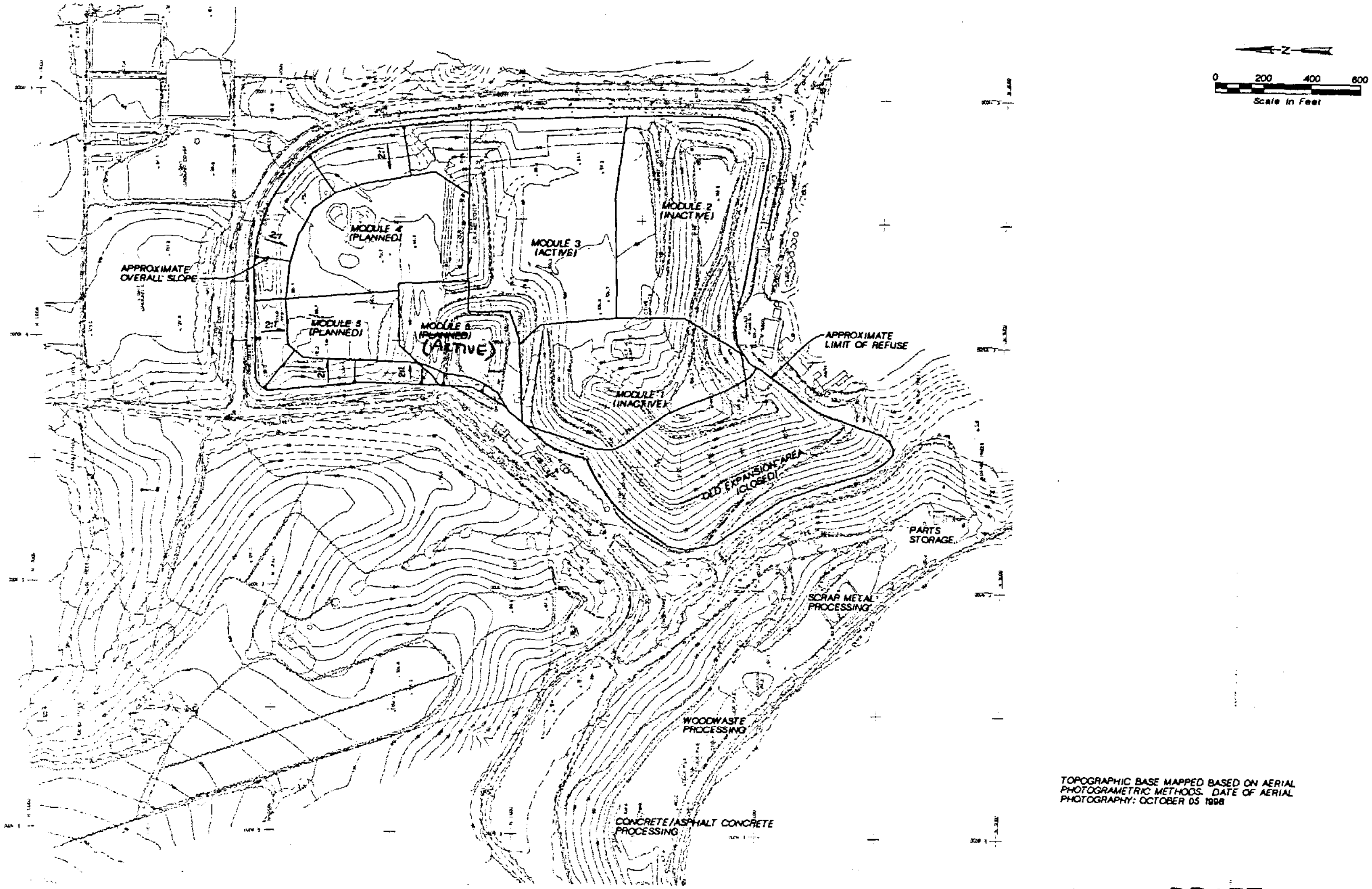

FINAL DRAFT

CH2MHILL

DSGN	M.COQUIA
DR	G.SAUL
CHK	C.BASNETT
APVD	M.YACYSHYN

NO.	DATE	REVISION	BY	APVD

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SITE DEVELOPMENT PLAN
BUENA VISTA LANDFILL
COUNTY OF SANTA CRUZ, CALIFORNIA

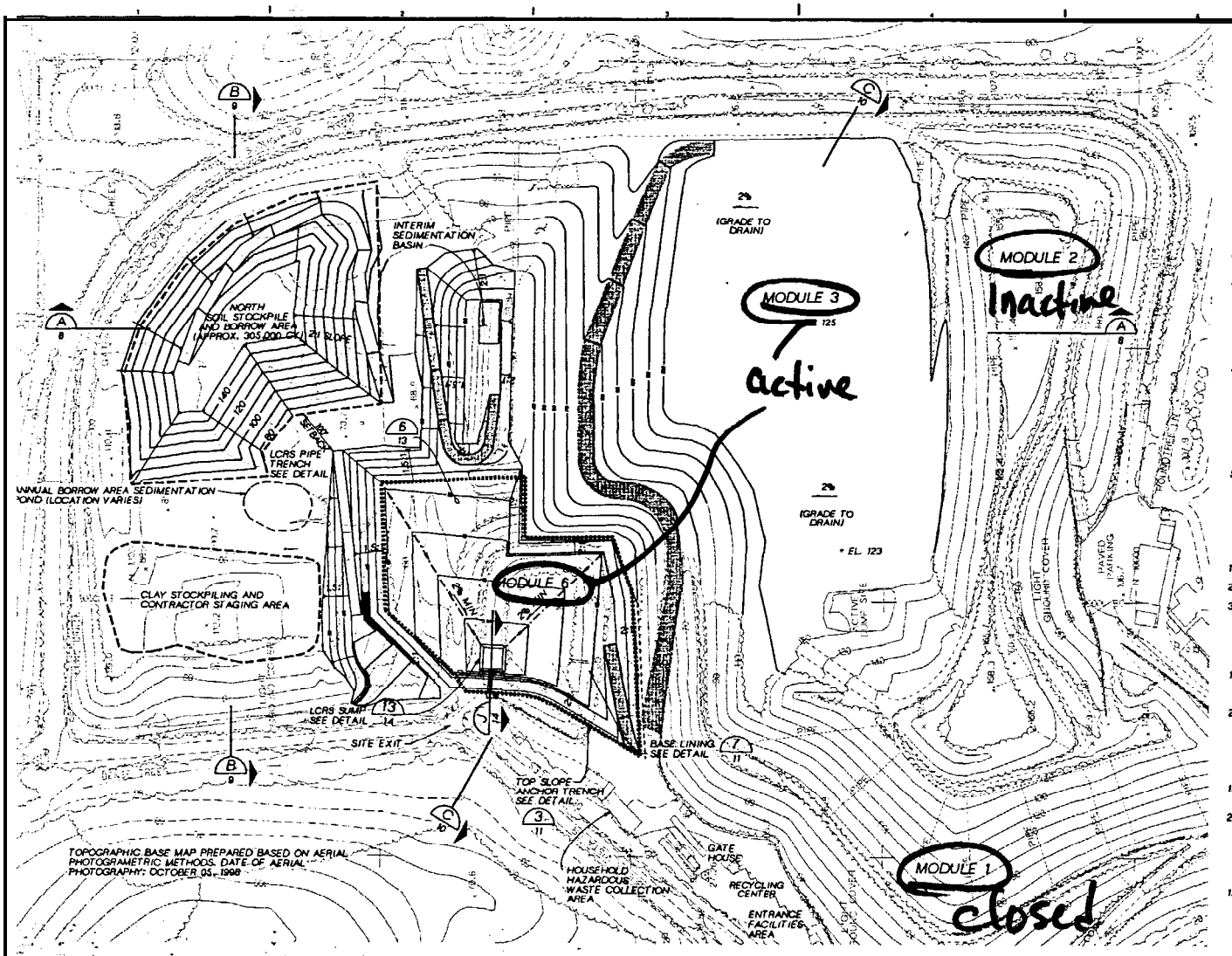
MODULE CONSTRUCTION SEQUENCE AND SOIL MANAGEMENT LAYOUT

SHEET
DWG NO. 2
DATE MAY 1999
PROJ NO. 148059.BV.07

Figure 1

0292

Current Stage of Landfill Development



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0 100 200 300
Scale in Feet

DEVELOPMENT SUMMARY NOTES - PHASE I

A. CONSTRUCTION SEQUENCING:

1. CONTINUE REFUSE PLACEMENT IN MODULE 3. FOR A MINIMUM STATIC FACTOR OF SAFETY OF 1.3 AGAINST SLOPE FAILURE, FILL UP TO ELEV 120, AS SHOWN. FOR A MINIMUM FACTOR OF SAFETY OF 1.5, PLACE REFUSE UP TO ELEV 100.
2. EXCAVATE SOIL IN MODULE 6 FOR LINER SYSTEM CONSTRUCTION.
3. STOCKPILE EXCESS SOIL ONSITE AND IN AREA NORTH OF INTERIM SEDIMENTATION BASIN, AS SHOWN, TO OBTAIN A MINIMUM FACTOR OF SAFETY OF 1.3 AGAINST SLIDING (SLOPE FAILURE) FOR MODULE 3. FOR A MINIMUM FACTOR OF SAFETY OF 1.5, LIMIT MAXIMUM REFUSE ELEVATION TO +100 FEET AND NORTH STOCKPILE HEIGHT TO 150 FEET (50+ FEET MAXIMUM STOCKPILE HEIGHT) AND MAINTAIN 100 FOOT SETBACK FROM MODULE 6 AND INTERIM SEDIMENTATION BASIN.
4. A. PLACE COMPOSITE BASE LINER (ELEVATIONS SHOWN ARE TOP OF RECOMPACTED SUBGRADE LAYER)
   - 2' CLAY LINER (1×10^{-7} cm/sec)
   - HDPE GEOMEMBRANE (60 mil or 80 mil)
   - NONWOVEN CUSHION GEOTEXTILE
   - 1' GRANULAR DRAINAGE LAYER
   - 2' PROTECTIVE OPERATIONS LAYER

   B. ON SIDE SLOPES, PLACE 80-mil GEOMEMBRANE ON PREPARED SUBGRADE.
5. PLACE PROTECTIVE OPERATION LAYER ON SIDESLOPE, UP TO 10 FEET ABOVE REFUSE LEVEL (AS REFUSE PLACEMENT PROGRESSES).

B. LEACHATE COLLECTION REMOVAL SYSTEM (LCRS):

1. INSTALL LCRS COLLECTION PIPES.
2. CONSTRUCT LCRS SUMP.
3. INSTALL LCRS RISERS AND APPURTENANCES.

C. SURFACE DRAINAGE:

1. CONSTRUCT TEMPORARY DRAINAGE DITCHES AND BERMS, AS SHOWN, TO CAPTURE AND CONVEY RUNOFF INTO INTERIM SEDIMENTATION BASIN, BY GRAVITY FLOW.
2. INSTALL CULVERTS & DOWNDRAINS

D. GAS MANAGEMENT

1. INSTALL HORIZONTAL COLLECTORS ON PERIMETER LINED BENCHES PRIOR TO FILLING BENCHES WITH REFUSE.
2. CONNECT HORIZONTAL COLLECTORS TO HEADER LINE.

E. DAILY INTERMEDIATE SOIL COVER

1. OBTAIN SOIL COVER FOR MODULE 3 FROM NORTH STOCKPILE AND MODULE 4 EXCAVATION AREA.

FINAL DRAFT

CH2MHILL

DSGN	G.SAUL
DR	S.LEONG
CHK	M.COGLIA
APVD	M.YACYSHYN

NO.	DATE	REVISION	BY	APVD

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SITE DEVELOPMENT PLAN
BUENA VISTA LANDFILL
COUNTY OF SANTA CRUZ, CALIFORNIA

PHASE I
MODULE 3 INTERMEDIATE STAGE
AND MODULE 6 EXCAVATED

SHEET
DWG NO. 3
DATE MAY 1999
PROJ NO. 140029.BV.01

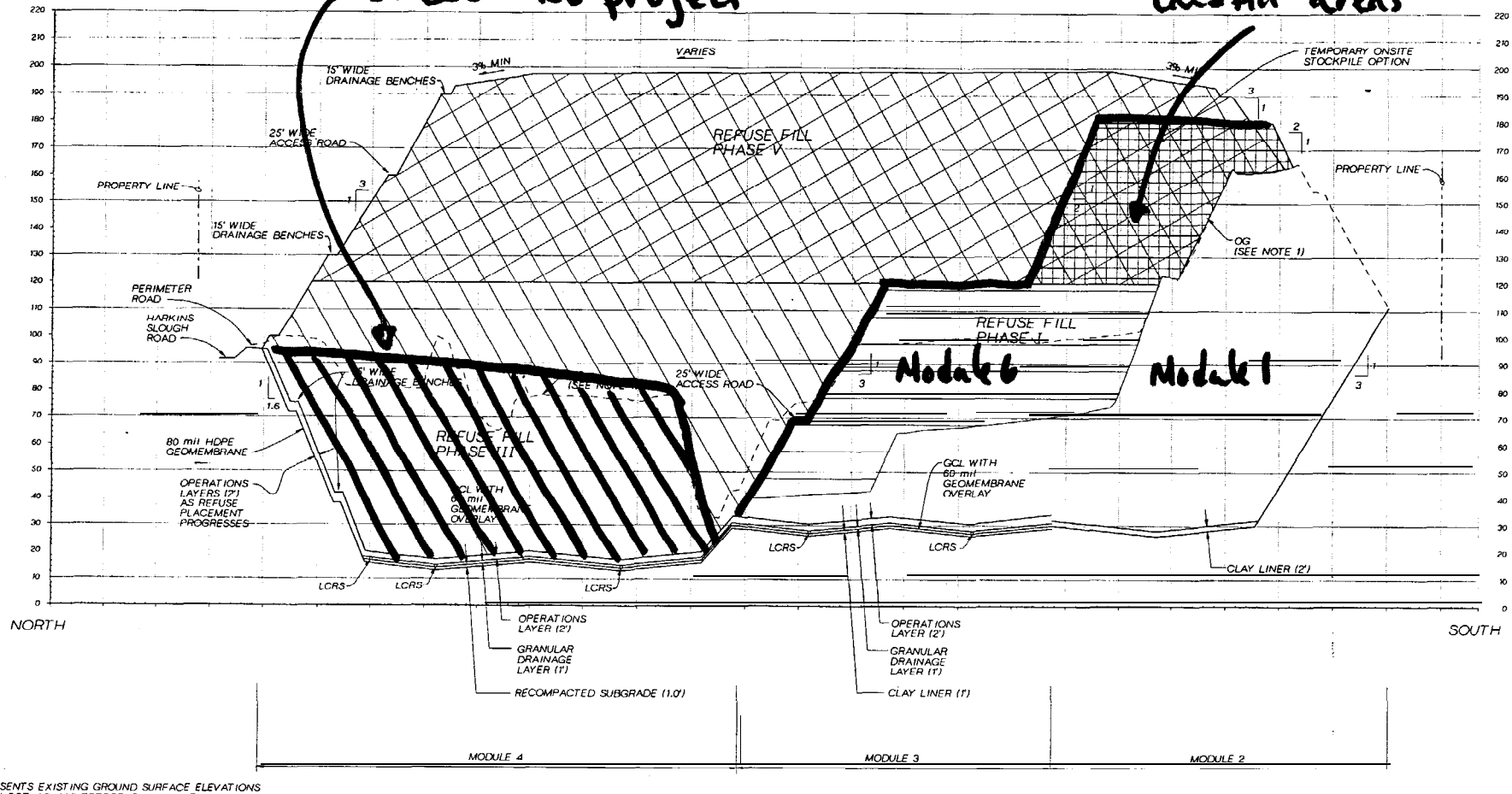
Figure 2

46

0293

Area of soil to be left in-place under "No project"

Current Developed Landfill areas



NOTES:

1. OG REPRESENTS EXISTING GROUND SURFACE ELEVATIONS BASED ON OCT. 05 1998 TOPOGRAPHIC SURVEY.
2. VERTICAL SCALE IS EXAGGERATED BY 5 TIMES.

SECTION A
H: 1"=100'
V: 1"=20'
3,4,5,6,7

FINAL DRAFT

CH2MHILL

DSGN	G. SAUL
DR	F. POON
CHK	M.COQUIA
APVD	M.YACYSHYN

REVISION | NO | DATE | BY | APVD

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CROSS SECTION

SHEET
DWG
DATE MAY 199
PROJ

PRELIMINARY - NOT FOR CONSTRUCTION

07-SEP-1999

Figure 3

0294