CONSTRUCTION WASTE MANGEMENT

APPLICATION FOR PERMIT

TO OPERATE A

CLASS VI LANDFILL

UTAH DIVISION OF SOLID AND HAZARDOUS WASTE

November 16, 2009

Utah Class IV and VI Landfill Permit Application Form

***Part I* General Information** APPLICANT: PLEASE COMPLETE ALL SECTIONS.				
***I.* Landfill Type**	Class IVa Class IVb Class VI	***II.* Application Type : New Application**	New Application Renewal Application	Facility Expansion Modification
For Renewal Applications, Facility Expansion Applications and Modifications Enter Current Permit Number				

***III.* Facility Name and Location**								
Legal Name of Facility: Central Valley Landfill								
Site Address (street or directions to site) 7213 W. California Ave.								County
City: Salt Lake City	State: Utah		Zip Code :				Telephone 801-250-1778	
Township 1 S			*Range* 2 W		*Section(s)* 9		*Quarter/Quarter Section* W	*Quarter Section* SW
Main Gate Latitude	degrees 41	minutes 10	seconds 20	Longitude	Degrees 112		minutes 4	seconds

***IV.* Facility Owner(s) Information**			
Legal Name of Facility Owner: Construction Waste Management			
Address (mailing) 8630 S. Redwood Rd.			
City: West Jordan	State: Utah	Zip Code: 84088	Telephone: 801-562-4343
***V.* Facility Operator(s) Information**			
Legal Name of Facility Operator: Construction Waste Management			
Address (mailing) 8630 S. Redwood Rd.			
City: West Jordan	State: Utah	Zip Code: 84088	Telephone: 801-562-4343
***VI.* Property Owner(s) Information**			
Legal Name of Property Owner: Central Valley Water Reclamation Facility			
Address (mailing) 800 W. Central Valley Rd.			
City: Salt Lake City	State: Utah	Zip Code: 84119	Telephone: 801-973-9100

***VII.* Contact Information**				
Owner Contact: Greg Bland				Title: Manager
Address (mailing) 8630 S. Redwood Rd.				
City: West Jordan	State: Utah	Zip Code: 84088	Telephone: 801-801562-4343	
Email Address: greg.bland@hotmail.com				Alternative Telephone (cell or other)801-979-0010
Operator Contact Jeremy Bland				Title: Operation Manager
Address (mailing) 8630 S. Redwood Rd.				
City: West Jordan	State: Utah	Zip Code: 84088	Telephone: 801-562-43-43	
Email Address: Jeremy@constructionwastemanagement.com				Alternative Telephone (cell or other)
Property Owner Contact: Reed Fisher				Title: General Manager
Address (mailing) 800 W. Central Valley Rd.				

City: Salt Lake City	State: Utah	Zip Code: 84119	Telephone: 801-973-9100	
Email Address: fisherr@cvrf.org				Alternative Telephone (cell or other)801-580-9499

Utah Class IV and VI Landfill Permit Application Form

Part I General Information (Continued)

VIII. **Waste Types** (check all that apply)	*IX.* **Facility Area**	
Landfill will accept all wastes allowed in Class IV or VI landfills Or landfill will accept only the following wastes Waste Type Combined Disposal Unit Monofill Unit Construction & Demolition Tires Yard Waste Animals Contaminated Soil *Other* Note: Disposal of dead animals must be approved by the Executive Secretary	Facility Area..................75..	acres
	Disposal Area..	acres
	Design Capacity	
	Years..	
	Cubic Yards........12700000................................	
	Tons..................19050000................................	

X. **Fee and Application Documents**	
Indicate Documents Attached To This Application Application Fee: Amount $ Facility Map or Maps (x) Facility Legal Description (x) Plan of Operation (x) Waste Description (x) Ground Water Report (x) Closure Design (x) Cost Estimates (x) Financial Assurance	Class VI Special Requirements Documents required by UCA 19-6-108(9) and (10)

I HEREBY CERTIFY THAT THIS INFORMATION AND ALL ATTACHED PAGES ARE CORRECT AND COMPLETE.

Signature of Authorized Owner Representative Name typed or printed Greg Bland	Title: Manager	Date: 11-16-2009
	Address: 8630 S. Redwood Rd.	
Signature of Authorized Land Owner Representative (if applicable) Name typed or printed Reed N. Fisher	Title: General Manager	Date: 11-16-2009
	Address: 800 W. Central Valley Rd.	
Signature of Authorized Operator Representative (if applicable) Name typed or printed Jeremy Bland	Title: Operations Manager 8630 S. Redwood Rd.	Date: 11-16-2009

PROVEN MARKET ANALYSIS INFORMATION

UCA

Title 19 Chapter 6

Section 108 (10)

UCA

Title 19 Chapter 6

Section 108 (10)

A. Evidence that there is a proven market for this facility can be shown by quantities already being accepted by this C & D landfill as a class 4(b). Also provided is a chart by the Utah Solid and Hazardous Waste Division (see attached sheet #1)

   i. The source for a C & D landfill is construction and demolition debris. Quantities are between 500 to 3,000 ton per day. Price ranges are between $14.00 and $18.90 per ton depending on which facility is used.
   ii. The need for Central Valley Landfill is for competitive pricing rather than a monopoly by one company because of the lack of a second facility.
   iii. There are no other sites in the Salt Lake valley other than Mountainview Landfill and Central Valley Landfill.

B. Description of benefits to the public
   i. The need for an additional landfill site is essential because Mountainview Landfill is almost filled to capacity and there is no additional land available in the landfill overlay plan for Salt Lake City.
   ii. Recycling at Central Valley Landfill is removing steel, copper, metals and other materials. The recycling of green material is used by Central Valley Water Reclamation Facility.
   iii. The crushing of asphalt and concrete will reduce the material at the landfill site.
   iv. There are no other sites available in the landfill overlay plan.

C. Compliance history (see attached sheet #2)

Item #1

2008 Non-hazardous Solid Waste Disposal for Utah facilities:

Facilities	Municipal Tons	industrial Tons	C/D Tons	Total Tons	Recycling Tons	Number of
Class I Facilities	1,611,261	58,082	110,004	1,779,346	20,737	21
Class II Facilities	25,077	604	11,806	37,488	1,094	10
Class III Facilities		852,633		852,639	450	20
Class IV Facilities			176,757	176,757	2,368	31
Class V Facilities	629,876	548,151	2,413	1,180,440	0	8
Class VI Facilities			639,284	639,284	11,871	8
Totals*	2,266,214	1,459,470	940,264	4,665,954	36,520	98

ITem #2

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF SOLID AND
HAZARDOUS WASTE
Dennis R. Downs
Director

State of Utah

GARY HERBERT
Governor

GREG BELL
Lieutenant Governor

November 9, 2009

Reed N. Fisher, General Manager
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, Utah 84119

and

Greg Bland
Construction Waste Management
8630 South Redwood Road
West Jordan, Utah 84088

RE: CVWRF Construction Debris Landfill Inspection

Dear Mr. Fisher and Mr. Bland:

An inspection of the Central Valley Water Reclamation Facility Class IVb Landfill was conducted by our staff on November 2, 2009. The construction and demolition waste landfill appears to be well operated. Negligible municipal or other prohibited waste was observed. Fencing and signs were in place. Inspections of waste loads are being performed at more than the required frequency. The waste was adequately covered with soil and the working face was of reasonable size. A minor amount of windblown litter was observed outside the fence. A waste inspection form is enclosed for your records.

Thank you for your efforts to operate the landfill in compliance with current regulations. If you have questions regarding this or other solid waste issues, please contact Phil Burns or Ralph Bohn at 801-538-6170.

Sincerely,

Original Document signed by Dennis R. Downs on 11/9/09

Dennis R. Downs, Executive Secretary
Utah Solid and Hazardous Waste Control Board

DRD/PEB/kk

Enclosure: CVWRF Landfill Inspection Report

c: Gary Edwards, MS, Health Officer, Salt Lake Valley Health Department
Jeremy Bland, Landfill Manager

TN200901145

Utah Class IV and VI Landfill Permit Application Checklist

Important Note: The following checklist is for the permit application and addresses only the requirements of the Division of Solid and Hazardous Waste. Other federal, state, or local agencies may have requirements that the facility must meet. The applicant is responsible to be informed of, and meet, any applicable requirements. Examples of these requirements may include obtaining a conditional use permit, a business license, or a storm water permit. The applicant is reminded that obtaining a permit under the *Solid Waste Permitting and Management Rules* does not exempt the facility from these other requirements.

An application for a permit to construct and operate a landfill is the documentation that the landfill will be located, designed, constructed, and operated to meet the requirements of Rules R315-305 of the *Utah Solid Waste Permitting and Management Rules* and the *Utah Solid and Hazardous Waste Act* (UCA 19-6-101 through 123). The application should be written to be understandable by regulatory agencies, landfill operators, and the general public. The application should also be written so that the landfill operator, after reading it, will be able to operate the landfill according to the requirements with a minimum of additional training.

Copies of the *Solid Waste Permitting and Management Rules*, the *Utah Solid and Hazardous Waste Act*, along with many other useful guidance documents can be obtained by contacting the Division of Solid and Hazardous Waste at 801-538-6170. Most of these documents are available on the Division's web page at www.hazardouswaste.utah.gov. Guidance documents can be found at the solid waste section portion of the web page.

When the application is determined to be complete, the original complete application and one copy of the complete application are required along with an electronic copy.

Part II **Application Checklist**

***I.* Facility General Information**	
Description of Item	Location In Document
***Ia.* General Information - All Facilities**	
Completed Part I General information form above	Original Application
General description of the facility (R315-310-3(1)(b))	Page 1
Legal description of property (R315-310-3(1)(c))	Page 2, no. 3
Proof of ownership, lease agreement, or other mechanism (R315-310-3(1)(c))	Appendix A
If the permit application is for a Class IV landfill, a demonstration that the landfill is not a commercial facility	Page 2, no. 4
Waste type and anticipated daily volume (R315-310-3(1)(d))	Page 2, no. 5
Intended schedule of construction (R315-302-2(2)(a))	Page 3, no. 6
***Ib.* General Information - New Or Laterally Expanding Facilities**	
Documentation that the Historical Survey requirements of R315-302-1(2)(f) have been met (R315-305-4(1)(b)(vi))	Appendix B
Name and address of all property owners within 1000 feet of the facility boundary (R315-310-3(2)(i))	Table 1
Documentation that a notice of intent to apply for a permit has been sent to all property owners listed above (R315-310-3(2)(ii))	Appendix C

Utah Class IV and VI Landfill Permit Application Checklist

I. Facility General Information	
Description of Item	Location In Document
Name of the local government with jurisdiction over the facility site (R315-310-3(2)(iii))	Page 3, no. 10
***Ic.* Location Standards - New Or Laterally Expanding Class IVa Landfills (R315-305-4(1)(a))**	
Land use compatibility	
Maps showing the existing land use, topography, residences, parks, monuments, recreation areas or wilderness areas within 1000 feet of the site boundary	Figure 4 an 5
Certifications that no ecologically or scientifically significant areas or endangered species are present in site area	Appendix D
Maps showing the location of dwellings, residential areas, other structures, and historic structures.	Figure 3
List of airports within five miles of facility and distance to each	Page 5, F
Geology	
Geologic maps showing significant geologic features, faults, and unstable areas	Geotechnical Report
Maps showing site soils	Geotechnical Report
Surface water	
Magnitude of 24 hour 25 year and 100 year storm events	Table 7
Average annual rainfall	Table 7
Maximum elevation of flood waters proximate to the facility	Figure 2
Maximum elevation of flood water from 100 year flood for waters proximate to the facility	Figure 2
Wetlands	Appendix D
Ground water	Table 4
***Id.* Location Standards - New Or Laterally Expanding Class IVb and VI Landfills**	
Floodplains as specified in R315-302-1(2)(c)(ii) (R315-305-4(1)(b)(i))	Figure 2
Wetlands as specified in R315-302-1(2)(d) (R315-305-4(1)(b)(ii))	Appendix D
The landfill is located so that the lowest level of waste is at least ten feet above the historical high level of ground water (R315-305-4(1)(b)(iii))	Variance requested from Salt Lake Valley Health Department
Geology as specified in R315-302-1(2)(b)(i) and (iv) (R315-305-4(1)(b)(iv))	See Geotechnical Report
***Ie.* Additional Location Standards - New Or Laterally Expanding Class IVb and VI Landfills Or Landfills Requesting That Dead Animals Be Added As A New Waste Stream (R315-305-4(1)(a)(v))**	
Maps showing the existing land use, topography, residences, parks, monuments, recreation areas or wilderness areas within 1000 feet of the site boundary	Figures 1, 4 and 5

I. **Facility General Information**	
Description of Item	*Location In Document*
Certifications that no ecologically or scientifically significant areas or endangered species are present in site area	Appendix B
Maps showing the location of dwellings, residential areas, other structures, and historic structures.	Figure 3 and Page 5, no. E
List of airports within five miles of facility and distance to each	Page 5, no. F
If. Plan Of Operations - All Facilities (R315-310-3(1)(e) and R315-302-2(2))	
Description of on-site waste handling procedures and an example of the form that will be used to record the weights or volumes of waste received (R315-302-2(2)(b) And R315-310-3(1)(f))	Page 11, no. A
Schedule for conducting inspections and monitoring, and examples of the forms that will be used to record the results of the inspections and monitoring (R315-302-2(2)(c), R315-302-2(5)(a), and R315-310-3(1)(g))	Page 12, no. B
Contingency plans in the event of a fire or explosion (R315-302-2(2)(d))	Page 13, no. C
Plan to control fugitive dust generated from roads, construction, general operations, and covering the waste (R315-302-2(2)(g))	Page 13, no. D
Plan for letter control and collection (R315-302-2(2)(h))	Page 13, no. E
Procedures for excluding the receipt of prohibited hazardous or PCB containing waste (R315-302-2(2)(j))	Page 14, no. F
Procedures for controlling disease vectors (R315-302-2(2)(k))	Page 13, nos. D and E
A plan for alternative waste handling (R315-302-2(2)(l))	na
A general training and safety plan for site operations (R315-302-2(2)(o))	Page 16, no. H and Appendix F
Any recycling programs planned at the facility (R315-303-4(6))	Page 17, no. I
Any other site specific information pertaining to the plan of operation required by the Executive Secretary (R315-302-2(2)(o))	None required
Ig. Additional Plan Of Operation Requirements - Class IVa Facilities	
Corrective action programs to be initiated if ground water is contaminated (R315-302-2(2)(e))	na
II **Facility Technical Information**	
IIa. Maps - All Facilities	
Topographic map drawn to the required scale with contours showing the boundaries of the landfill unit, ground water monitoring well locations, gas monitoring points, and the borrow and fill areas (R315-310-4(2)(a)(i))	Figures 4 and 5

Utah Class IV and VI Landfill Permit Application Checklist

I. **Facility General Information**	
Description of Item	Location In Document
Most recent U.S. Geological Survey topographic map, 7-1/2 minute series, showing the waste facility boundary; the property boundary; surface drainage channels; any existing utilities and structures within one-fourth mile of the site; and the direction of the prevailing winds (R315-310-4(2)(a)(ii))	Figures 4 and 5
IIb. Geohydrological Assessment - Class IVa Landfills (R315-310-4(2)(b))	
Local and regional geology and hydrology including faults, unstable slopes and subsidence areas on site (R315-310-4(2)(b)(i))	na
Evaluation of bedrock and soil types and properties including permeability rates (R315-310-4(2)(b)(ii))	na
Depth to ground water (R315-310-4(2)(b)(iii))	na
Quantity, location, and construction of any private or public wells on-site or within 2,000 feet of the facility boundary (R315-310-4(2)(b)(v))	na
Tabulation of all water rights for ground water and surface water on-site and within 2,000 feet of the facility boundary (R315-310-4(2)(b)(vi))	na
Identification and description of all surface waters on-site and within one mile of the facility boundary (R315-310-4(2)(b)(vii))	na
For an existing facility, identification of impacts upon the ground water and surface water from leachate discharges (R315-310-4(2)(b)(viii))	na
Calculation of site water balance (R315-310-4(2)(b)(ix))	na
IIc. Engineering Report, Plans, Specifications, And Calculations - All Facilities	
Unit design to include cover design; fill methods; and elevation of final cover including plans and drawings signed and sealed by a professional engineer registered in the State of Utah, when required (R315-310-3(1)(b) and R315-310-4(2)(c)(iii))	Page 8, no. 3 and Figure 8
Design and location of run-on and run-off control systems (R315-310-4(2)(c)(viii))	Table 7
Anticipated facility life and the basis for calculating the facility's life (R315-310-4(2)(c)(ii))	Table 8 and Page 10, no.F
Engineering reports required to meet the location standards of R315-305-4 including documentation of any demonstration or exemption made for any location standard (R315-310-4(2)(c)(i))	Permit Application from Salt Lake Valley Health Department
Identification of borrow sources for final cover (R315-310-4(2)(c)(iv))	All borrow is from on-site sources, Page 8, G
Run-off collection, treatment, and disposal and documentation to show that any treatment system is being or has been reviewed by the Division of Water Quality (R315-310-4(2)(c)(v) and R315-310-3(1)(i))	Table 7 and currently under review
IId. Closure Requirements - All Facilities	

Utah Class IV and VI Landfill Permit Application Checklist

I. **Facility General Information**	
Description of Item	Location In Document
CLOSURE PLAN (R315-310-3(1)(h))	Page 18, V
Closure schedule (R315-310-4(2)(d)(i))	Page 18, no. A
Design of final cover (R315-310-4(2)(c)(iii))	Page 19, no. B
Capacity of site in volume and tonnage (R315-310-4(2)(d)(ii))	Table 8
Final inspection by regulatory agencies (R315-310-4(2)(d)(iii))	Page, 19 B
IIe. Post-Closure Requirements- All Facilities	
POST-CLOSURE CARE PLAN (R315-310-3(1)(h))	Page 19. IV
Changes to record of title, land use, and zoning restrictions (R315-310-4(2)(e)(ii))	Page 19, A
Maintenance activities to maintain cover and run-on/run-off control systems (R315-310-4(2)(e)(iii))	Page 20, B
List the name, address, and telephone number of the person or office to contact about the facility during the post-closure care period (R315-310-4(2)(e)(vi))	Page21, C
IIf. Financial Assurance - All Facilities (R315-310-3(1)(j))	
Identification of closure costs including cost calculations (R315-310-4(2)(d)(iv))	Table 9
Identification of post-closure care costs including cost calculations (R315-310-4(2)(e)(iv))	Table 9
Identification of the financial assurance mechanism that meets the requirements of Rule R315-309 and the date that the mechanism will become effective (R315-309-1(1))	Still to be determined

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CENTRAL VALLEY LANDFILL

APPLICATION FOR PERMIT

TO OPERATE A

CLASS VI LANDFILL

UTAH DIVISION OF SOLID AND HAZARDOUS WASTE

November 2009

UTAH DIVISION of SOLID and HAZARDOUS WASTE

APPLICATION for a PERMIT to OPERATE a CLASS VI LANDFILL

November 2009

I. FACILITY INFORMATION

A. General Information

1. General description of the facility

The owner Central Valley Water Reclamation Facility Board (CVWRF) proposes to change our Class VI landfill, (a construction and demolition waste landfill), into a Class VI commercial landfill, in accordance with Utah Administrative Code R315 through 320 as revised February 1, 2007. The facility will serve the CVWRF's service area, which consists of population centers along the Wasatch Front from Ogden to Provo and from Park City to Tooele. As a Class VI landfill the facility will not accept waste from a conditionally exempt small quantity generator of hazardous waste. The facility will accept all types of construction and demolition waste materials that will be placed and compacted in the landfill as it is received. At closure, the top surface will have an elevation of about 4,434 feet above Mean Sea Level (msl) or an average of 210 feet above the existing grades.

Construction and demolition waste includes materials, such as, concrete, asphalt paving, asphalt roofing, lumber, gypsum board, soil, rock and fines as well as general composite construction and demolition waste materials that would be difficult to separate. Generally speaking, the construction and demolition waste stream represents about 12 percent of the community's total municipal solid waste (msw)[1].

The site is located at 7213 West California Avenue (1300 South), adjacent to the future extension of 7200 West. The landfill is in the landfill zone which is in close proximity to several other landfills. These currently operating waste facilities include the City/County landfill and composting operations, Waste Management landfill and ET Technologies soil remediation facility. To the west there are a number of closed landfills and the Kennecott tailings pond. Located to the east are the Lee Kay Waterfowl Management Area wetlands that were constructed as a mitigation measure for construction predecessor of the Salt Lake City and county landfill.

2. Legal description of the property

Following is a surveyor's legal description of the property: "Beginning at a point North 89°52'16" West 55.00 feet from the East Quarter Corner of Section 16, Township 1 South, Range 2 West, Salt Lake Base and Meridian, and running thence North 89°52'16" West 1261.24 feet to the East 1/16 corner of said Section 16; thence North 00°00'54" West 2643.87 feet; thence North 89°54'19" East 924.35 feet; thence South 87°13'56" East 160.20 feet; thence North 89°54'19" East 150.00 feet; thence South 45°03'44" East 36.79 feet; thence South 00°01'47" East 1273.96 feet; thence South 00°02'13" East 1340.80 feet to the point of the beginning.

Containing 3,334,023.91 square feet equaling 76.593 acres."

3. Proof of ownership

The property contains three parcels that are listed (parcels 14-16-20001, 14-16 20012) with the Salt Lake County Recorders Office. As indicated by the Recorder's most recent records, the property is owned by CVWRF. Total acreage of these three parcels is about 76.6 acres.

4. Demonstration that the facility is proposed as a Class VI commercial facility.

The construction and demolition waste (Class VI) landfill will be owned by Construction Waste Management, LLC (CWM). CVWRF currently owns the site and conducts composting operations of its biosolids on site and a Class VI construction and demolition landfill. The Class VI facility will be operated and managed by Construction Waste Management, LLC (CWM).

5. Waste type and anticipated daily volumes

As a Class VI landfill, the only waste types that are acceptable are concrete, asphalt paving, asphalt roofing, lumber, gypsum board, soil, rock and fines, general composite construction and demolition waste materials that would be difficult to separate. Estimates of the volume of construction and demolition waste materials that will be received on a daily basis range from 1,000 tons to 3,000 tons per day. The landfill will operate six (6) days per week 7:00 a.m. to 7:00 p.m. or as necessary to meet waste hauler demands.

6. Anticipated schedule of construction

The construction and demolition landfill will be constructed over the next 40 plus/minus years depending on the economy, new construction replacing old facilities, such as the Cottonwood Mall in 2008, and state and county road construction projects. Current planning is for the landfill to be constructed in five (5) phases. This will permit individual closure of each phase to provide a more aesthetic appearance as the land filling process is accomplished.

7. Historical survey documentation

During February 2008, P-III Associates conducted an intensive cultural resources inventory of the proposed landfill site. The scope of work included both a file search and field investigations. There were no sites that could be considered significant on the parcel; therefore, the consultant recommended that no additional cultural resource investigations be conducted. The consultant's final report was submitted to the State Historic Preservation Officer and no comments were received. A complete copy of Cultural Resources Report 5305-01-20803 is included as Appendix B.

8. Names and addresses on all property owners within 1,000 feet of the proposed Class VI landfill are given in Table 1.

As noted above, the project is located in a relatively open space environment. Actually, there are no domestic dwellings with a half-mile of this site. The Salt Lake County Records Office lists nine property owners within the application permit 1,000-foot notification specification. Major property owners include the State of Utah and Kennecott Utah Copper. The 1,000-foot perimeter line is also indicated on Figure 1.

9. Notification of the permit application to neighboring property owners

Documentation that a notice of intent to apply for a Class VIb Landfill Permit was performed by sending the nine (9) property owners a letter indicating CVWRF's intent to construct a Class VI landfill by registered/returned mail receipt. Copies of the mailing are included in Appendix C.

10. Name of the local governing body with jurisdiction over the Class VI landfill site

The landfill site falls within the jurisdiction of Salt Lake City, Utah.

II. LOCATION STANDARDS

A. Location of 100-year floodplain

Location of the 100-year floodplain was taken from the Flood Insurance Rate Map (FILM Number 49035C0275 E; effective date September 21, 2001 published by the Federal Emergency Management Agency FEMA). This map indicates a 100-year flood can occur along the Lee Creek channel. Areas of the 100-year floodplain are shown in the vicinity of the northwest corner of the landfill site, but the FILM does not give actual base flood elevations. However, the culvert crossing the intersection at 1300 South 7200 West could represent a hydraulic flow restriction causing some flooding in this area. Based on the FILM a floodplain elevation of 4222.5-feet above msl is expected which is about 2-feet below the lowest final grade at the landfill site. The FILM 100-year floodplain is shown on Figure 2.

B. Wetlands and endangered species determinations

Wetland delineation was conducted on the proposed landfill site to determine whether any portion of the property may be considered wetlands, as defined by Section 404 of the Clean Water Act (CWA). The results of the delineation indicate that there may be approximately 9.59 acres of "suspect" wetlands on the property. Of the "suspect" wetlands it appears that approximately 7.71 acres may be considered jurisdictional and the remaining 1.88 acres may be considered isolated by the US Army Corps of Engineers (ACOE). A final decision as to the jurisdiction will be made by the ACOE after its field verification of the site. The Wetland Delineation Report is included as Appendix D.

A decision has been made by the owner to fill the "suspect" wetlands to maximize the capacity of the landfill site. In doing so, the owner acknowledges that it will need to negotiate with the ACOE as to the extent and type of wetlands replacement, i.e. wetland banking, necessary to be in compliance with the CWA. This is a long and complicated process and in order to forward with this application for a permit to operate a Class VI landfill, the owner agrees to comply with any final determination by the ACOE as to the extent and nature of mitigations required.

C. Groundwater separation from bottom fill layer

Historical groundwater contour elevations at the proposed landfill site range from about 4219.50 at the north end to 4216.500 near the south end of the property[2]. These elevations were further verified during installation of six (6) groundwater-monitoring wells required by the Salt Lake County Health Department (see Table 2 for depth to groundwater at the six (6) groundwater monitoring well locations). Due to the sloping nature of the ground surface, an average depth to groundwater from existing grade is about five (5) to seven (7) feet at the present time.

To permit initial excavation of the site to clear surface vegetation and poor soils, an exemption from the customary 10-foot (R302-2(e) (B)) separation between groundwater and the lowest elevation of the fill materials was requested from the Salt Lake Valley Health Department (SLVHD). The exemption was granted largely due to the poor quality of groundwater in the vicinity of the landfill site and the low moisture content of construction and demolition waste materials. However, the depth of excavation will be limited to the extent of the five-foot separation between the waste and groundwater is maintained.

D. Site hydrogeology

The landfill project site lies between two (2) drainage areas: Lee Creek and Kersey Creek. Both act as drainage conduits for storm water in the area of State Highway 201 and 5600 West (storm water from Salt Lake City and West Valley City). Of the two creeks, Lee Creek has the largest capacity for winter flows at about 100 cubic feet per second (cfs) whereas Kersey Creek winter flows typically do not exceed 40 cfs[3]. Due to the northeasterly slope of the site, about one half of the storm water runoff will ultimately drain into Lee Creek. The remainder will flow toward Kersey Creek which ties into the East C-7 Ditch before entering the Great Salt Lake.

Surface water quality is mostly poor due to the alkaline nature of the surface soils. Studies of surface water quality were obtained during the Kennecott Tailings Pond Expansion Environmental Impact statement (EIS)[4] and over twenty years of Storret[5] water quality data for Lee and Kersey creeks are summarized in Table 3.

E. Neighboring land uses

Neighboring land uses with 0.25-mile of the landfill site include open space, agricultural, and mining. Several active as well as closed landfills border the site. The proposed landfill site is also within Salt Lake City's Landfill Overlay District as indicated on Figure 3. The only active neighbor within the 0.75-mile criteria is Waste Management's construction and demolition waste landfill.

F. Distance to nearest local turbojet as well as piston-type airport

The nearest regional airport capable of accommodating turbojet engines as well as piston-type aircraft is the Salt Lake International Airport. This airport is located to the northeast of the proposed landfill site at a line-of-sight distance of about 8.96-miles or 47,310-feet. Propeller type aircraft also fly in and out of the Salt Lake International Airport.

III. FACILITY TECHNICAL INFORMATION

A. Topographic features

The existing site is a rectangular shaped parcel located in the upper half-quarter section of Section 16 Township 1, Range 2 East at about 1300 South 7300 West in Salt Lake City, Utah. The site is relatively flat with areas of seasonal ponds (winter only) and some potentially "suspect" wetlands areas. Overall slope across the site is from south to north at about 0.15 feet per 100 feet.

CVWRF currently operates the site as a Class VI landfill and chipping compost manufacturing facility. The site has a large concrete pad (900-feet x 450-feet) and a 100-feet x 60-feet metal building used for equipment storage. The remaining portions of the site are undeveloped and vegetated with native grasses, sagebrush and weeds. This site is also located within the Salt Lake City Landfill Overlay District.

Topographic features as well as contour elevations are shown on Figures 4 and 5.

B. Hydro-geologic assessment

As discussed in the section on water quality, hydrology at this site was highly influenced by the sedimentary deposits of Lake Bonneville. These sediments have overlaid bedrock over millions of years. There are three (3) principal aquifers in the Great Salt Lake area: the Bedrock Aquifer, the confined Principal Aquifer and the unconfined/confined Shallow Aquifer. All aquifers are present at the proposed construction and demolition waste landfill site. The Bedrock Aquifer is overlain by more than 1,200 feet of sediment in the vicinity of the Kennecott tailings pond. The Shallow Aquifer also extends at least 100 feet below ground surface as reported in the Geotechnical Report.

The principal water supply wells and the source protection zones together with the recharge areas adjacent the Oquirrh Mountain Range is shown on Figure 6. The protected zones include: 1) 100-foot critical zone, 2) bacteriological zone (250-feet), 3) the monitoring required zone and 4) the

15-year pollutant travel zone. These protected zones are well outside the project's area of influence and as a result, the project will not have any impact on drinking water resources.

Overall groundwater flow in the Shallow Aquifer is to the northwest, towards the Great Salt Lake; however, some local groundwater to and discharges into topographic lows that occur in the vicinity of the site, which is reflected in the presence of evaporative flats, wetlands, ponds and drainage canals. The average horizontal hydraulic conductivity in the area of the Great Salt Lake is at least two to three times greater than the vertical hydraulic conductivity. Groundwater flow gradient in the vicinity of the landfill site is shown on Figure 7 included in the Groundwater Monitoring Plan.

Estimated hydraulic conductivities in the Bedrock Aquifer range from 1×10^{-4} to 1×10^{-1} centimeters per second (cm/s)[4]. An average hydraulic conductivity of 6x10-6 cm/s[4] has been reported for the Principal Aquifer in the Great Salt Lake area. The Shallow Aquifer vertical permeabilities range from about 2×10^{-8} cm/s to 4×10^{-5} cm/s[4].

Groundwater quality is generally poor below the site. TDS typically ranges between 4,000 and 28,000 mg/l well about Utah standards for beneficial uses and wells (less than 1,000 mg/l[5]) that usually only draw water from just above the bedrock layer near Magna. A summary of groundwater quality characteristics is given in Table 4.

C. Plans, specifications and calculations

Design of the construction and demolition waste landfill consists of plans, specifications and engineering calculations necessary to support the design. The plan set includes general, civil and landscape drawings (full set of 33 full-size drawings plus two 3-D sheets to show the visual aspects of the project). Calculations are provided for hydrology, slope stability and total volume of each phase of construction are provided in Appendix E.

D. Unit design features

1. Liquefaction, seismic slope stability and erosion potential

The landfill design will be an elevated mound. Basic seismic design criteria were established in the geotechnical report by Y^2 Geotechnical, P.C. A generalized dynamic response analysis was performed using commonly accepted geotechnical ground acceleration values. These design criteria were subsequently to calculate liquefaction and slope stability

- Liquefaction: According to the Salt Lake County liquefaction map, this site is in an area classified as having high potential for liquefaction. A preliminary analysis of liquefaction by Y^2 Geotechnical, P.C. indicates a potential for up to 4.5-inches of differential settlement at the surface at closure.

- Seismic slope stability: The Initially, site fill was analyzed for a slope of 2H:1V (horizontal to vertical0 Extending to an elevation of 300-feet above ground surface. The 2H:V slope was determined to have a stability safety factor of 1.44 (typically an FS of 1.3 is considered safe), which is actually conservative since the total fill high is only 200-feet.

- Erosion potential: Erosion potential of the proposed vegetative soil cover layer of the final cover at the end of the 30-year post-closure period was estimated using the Universal Soil Loss Equation (USLE)[6]. The USLE estimates soil loss in tons per acre. The results of these calculations are presented in Table 5 for both 3H:1V and 2H:1V slopes. The projected erosion, approximately of 0.6 inches of over 30-years, would be relatively small amount of the proposed 24-inches of final soil cover layer.

2. Fill methods

Construction and demolition waste materials will be placed and spread in layers not exceeding two-feet in compacted total thickness. Each layer of waste materials will be compacted into active the active face of the fill at the end of each operating day. A clean stockpile of soil material (about 5,000 yd^3) will be maintained on-site to address fires, odors, litter, and vector problems, if they occur.

The landfill will be constructed in phases (five phases total) starting from the southern end of the property and progressing northward. The initial phases will increase a final elevation of about 4,334-feet above msl at which time final cover layers will be placed over the final grade on slopes of the completed initial fill. Final cover will also be placed on each interim phase as they reach final grades. This will facilitate closure in a progressive manner and minimize the unsightliness of uncompleted final cover areas.

3. Final cover design

Design of the final cover for the construction and demolition waste landfill is based on regulations of the permitting agencies. Both agencies with permitting authority in Salt Lake County, i.e., the State Department of Solid and Hazardous Waste (SDSHW) and the Salt Lake Valley Health Department (SLVHD) having differing requirements for construction and demolition landfills. For example, cover specification cited in the SDSHW regulations for a construction and demolition landfill requires that the landfill be closed by 1) leveling the waste to extend practicable, 2) covering the waste with a minimum of two-feet of soil, including six-inches of topsoil, 3) contouring the cover as specified in Subsection R3150303-3(4)(a)(i)(b), and 4) seeding the cover with grass other shallow rooted vegetation or other native vegetation approved by the Executive Secretary.

On the other hand SLVHD (Regulation #1, subpart 4.1.5(ii) p,q,r and s) requires that 6-inches of compacted cover to be placed daily, or as often as required by the Director, after compaction of the waste material to smallest practical volume. Cells that will not have additional waste placed on them for 30 days will be covered with 12-inches of compacted cover material. At final closure, or within 12-months after receiving the last load of waste materials within a particular phase of construction, the operator will cover the completed section with at least 2-feet of compacted final cover material. The final cover layer of the landfill on any completed portion of the landfill will also be vegetated to minimize erosion and maximize evapotranspiration.

Following discussions with both agency staff members, the following cover design criteria were established;

- Since the waste is construction and demolition materials that are less susceptible to the problems posed by MSW, such as, vectors, odors, dust, etc., daily cover at the exposed face of the landfill will not be required,

- Total cross section of the final cover will consist of a layer of native material which has hydraulic conductivity of 1 x 10^{-8} cm/sec as determined by field tests. Compacting the native soils for the final cover layer to 90 – 95 percent relative density will ensure a final permeability of 1 x 10^{-8}. Total thickness of the final cover layer will be 24-inches.

- A soil amendment (composted biosolids) will be incorporated into the top 6-inches and seeded with native grasses (see specification on Drawing L1001) to minimize infiltration and erosion of the final cover layer.

A cross-section of the final cover design is on Figure 8. The cover layers will be placed into two separate operations. First, a layer of low hydraulic conductivity material of 18-inches will be placed covering the fill. To obtain this level of permeability of 10^{-8} cm/s, final cover material will be compacted to 90 percent to insure that surface water (precipitation) does not enter the fill material and become trapped in construction and demolition waste material above the foundation (bottom) layer. The initial final cover layer will be placed on completed sections/phases as the landfill phases are completed.

For protection from erosion, a second and final vegetative cover layers will be placed on top of the impermeable layer. This layer will consist of a mix of soil, for stability, and organize material (biosolids) to support vegetative growth. The final vegetative cover layer will be placed and seeded after final grading, compaction and testing of the low hydraulic conductivity layer is completed at closure of each phase of the project.

Sufficient quantities of both soil materials are available on site from the excavation of the original grade. Quantities of the final cover layers are given in Table 6.

E. Design and location of run-on/run-off control systems

Proposed elevations of new landfill site along the perimeter fencing will be above existing ground elevation. Consequently, run-on will not be an issue for this project. Conversely, run-off, especially due to the impervious nature of the final cover must be addressed. Initially, until phases 1, 2, and 3 have been completed, all run-off will be collected and conveyed to a storm water retention pond at the north end of the site. This will provide containment of any sediment and pollutants from discharging from the perimeter of the site as well as collection and treatment of storm water draining from any active fill areas. During the initial phases of the project, Drainage channels and temporary piping will convey storm water run-off to the retention pond.

All drainage facilities will be designed to convey peak flows from a 25-year storm event with 30-minute duration at the landfill site. Since data was not available for 25-year design event storm event, 10 and 100-year storms[7] were adjusted to provide an equivalent value of 0.835 inches per 30-minute period.

Design calculations are included in Appendix E. Table 7 shows the sizing of hydraulic conduits required for drainage of the site.

Upon completion phases 1, 2, and 3 surface run-off from the top surface and side slopes will be conveyed to Lee Creek and Kersey Creek as shown on Drawings C1004, C1005, and C1006. Storm water retention ponds designed to control sediments are included in the final site plan (this design is consistent with Storm Water Pollution Plans for construction projects over five-acres as required by the Clean Water Act).

F. Anticipated facility life

Anticipated life of the proposed landfill facility is difficult to gauge. This is due to the variability of incoming waste volumes and the amount of recycling that can be accomplished on site. Current estimates of incoming materials from the service area are about 6 pounds per person per day[8] of which 12 percent represents construction and demolition waste. Suing figure as a guide and the population the Wasatch Front area, a daily volume of construction and demolition waste that could be generated was estimated. Obviously, there are other choices for disposal of this material, such, as other landfills, recycling and deconstruction. The owner/operator indicates that this landfill may experience a daily input volume of between 1,500 and 3,000 tons of construction and demolition waste per day. Converting this figure to volume represents between 2,025 yd^3 and 4,050 yd^3, an average of 3,040 yd^3 per day.

Calculations of fill volumes and life for each of the five phases are summarized in Table 8. These estimates and time lines are also subject to the construction and demolition activity along the Wasatch Front as well as the amount of recycling that can be accomplished.

G. Identification of borrow material (impermeable layer and soil) for final cover

Borrow material (impermeable layer and vegetative soil) for final cover is available on-site from the initial excavation of existing grade materials. Design of the final cover is discussed in the previous section. Clean fill materials will also be accepted at the landfill to provide an addition assurance that sufficient materials will be available for the final cover layers. The landfill site will be excavated from existing grade to a depth of about 2-3-feet. A separation (five feet) between the lowest layer of construction and demolition waste material and the highest groundwater level will be maintained during the initial excavation phases. Due to the phased nature of the landfill development, excavated cover material will be stockpiled on-site until it will be incorporated into the side slopes and top deck of each phase of construction filling.

IV. PLAN OF OPERATIONS

A. On-site waste handling procedures

The CVWRF construction and demolition Class VI landfill will be under the direct of Greg Bland, Landfill Manager for Construction Waste Management (CWM). He will have overall responsibility for the site including monitoring and reporting.

The minimum area neede4d to accommodate the unloading of the anticipated daily construction and demolition waste materials is approximately 100 feet by 150 feet. The active working face will be about 150 feet wide. The landfill will use the area fill method of operation. Incoming waste material will be compacted using a landfill compactor or bulldozer. The compaction equipment actually spreads out the waste material and compacts in 2-foot lifts to ensure maximum density, especially on side slopes. Due to the largely non-degradable nature of construction and demolition waste the active face will not be covered. However, as the fill increases in elevation, side slopes will be covered with a final cover layer of 2-feet to minimize the potential for infiltration *into the landfill contents.*

All traffic coming into the landfill for disposal purposes will be weighed and counted at the scale house. Signs at the entrance of the facility will direct traffic to the proper unloading areas for each material type. A spotter then will control traffic at the active face and will direct vehicles where to unload. In general, the spotter/load checker will observe all loads (contractors, general public, municipal delivers, etc.) randomly at the working face. However, in addition to the random inspection, the spotter/load checker will make an effect to inspect "suspicious" loads (i.e., loads from haulers with a history of containing hazardous and/or prohibited waste loads, loads from business that generate hazardous wastes, loads that look unusual in any way, etc.) A Waste Inspection Report as showing in Appendix G will be submitted to SLVHD, if suspicious or hazardous/prohibited loads are observed entering the landfill. The spotter/load checker will be a full time employee of Construction Waste Management and will inspect at least five loads at random each week.

B. Schedule for inspection and monitoring

Incoming construction and demolition waste materials will be inspected on random basis. The waste hauler vehicles will initially be given a cursory check as they enter the landfill and pass the weigh scale. In addition to the random checks, at least five vehicles each week will be subject to a detailed inspection. The next level of inspection occurs at the landfill active face where in the spotter directs the hauler to the disposal location and performs a second visual inspection. At this time the spotter will be able to actually observe the contents of the hauler's load and determine whether or not any hazardous and/or prohibited wastes have been brought into the landfill. The spotter will also check ten random loads per week as they are deposited at the face to ensure that no wastes other than construction and demolition waste materials are disposed of at the landfill.

Monitoring consists of ensuring that the landfill is operated in conformance with this plan as efficiently as possible. Monitoring functions include, compaction reports, daily/monthly summary of waste materials volumes (yards and tons) disposed of in the landfill, groundwater and surface water monitoring, reporting to the directors of SDSHW and SLVHD, and documentation of employee training and reports of any accidents occurring at the site.

C. Contingency plans for fire and explosion

The landfill will employ common measures for fire control (explosion is not considered an issue as explosive wastes are prohibited from entering the landfill). Large earth moving equipment and an abundance of earthen material should be sufficient to contain any fire that could occur as most of the combustible wood materials will be culled out of the waste stream and transferred to the CVWRF composting facility. Water for fire protection will also be supplied by an extension of the 10-inch main from the new CVWRF composting facility and an on-site 4,000-gallon water truck will be available at all times. The Salt Lake County Unified Fire Protection District has determined that these five prevention measures are adequate.

In addition, for fire protection the landfill equipment and vehicles will be provided with portable fire extinguishers. The office and maintenance facility will also be equipped with fire extinguishers for dealing with small fires. All site personnel will be trained in proper use of on-site fire fighting equipment. Small fires occurring on the landfill will be extinguished using soil materials or the on-site water truck.

D. Dust and fugitive emissions control plan

Dust will be controlled by: 1) grading and watering the haul and maintenance roadways, 2) applying a fine water spray on soil cover work areas when conditions might cause the formation of fugitive dust, 3) using low dust emission materials when construction roadways and pads, 4) Applying water or planting temporary vegetative cover where conditions might cause recurrent problems with fugitive dust and erosion and 5) planting and maintaining vegetative cover on compacted fill slopes.

Other fugitive emissions are usually present in the form of odors. MSW landfills are notorious for the unique smell of organic material decomposition. However, in the case of a construction and demolition waste landfill, organic materials should be minimal. Some wood and green waste from small construction sites may enter the landfill, but most of these degradable materials will be diverted to the CVWRF composting facility for use as a bulking agent. In the event of unlikely odors, an odor-masking agent will be kept on-site and used as appropriate to control fugitive odors.

E. Litter control plan

The construction and demolition waste landfill processes waste material quite different from that of a municipal solid waste landfill. Materials typically are heavier and bulkier so they tend to remain in place after discharge from the hauler's vehicle. However, litter control is important to maintain a well-operated site and eliminated unsightly conditions. Therefore, the following litter control measures will be implemented at the CVWRF construction and demolition waste landfill:

- Litter catch screens and other means of necessary, if required, to prevent the site from becoming unsightly, and

- Routine litter collection programs both within the landfill perimeter (daily), as well as off-site (weekly), and

- Special operating practices may be required to control wind blown litter during high winds which can occur at the site, i.e., the working face may require soil cover to prevent litter from escaping from the landfill.

F. Procedures from excluding hazardous and restricted waste from entering the landfill

Construction and demolition waste materials may contain materials unsuitable for disposal in an unlined landfill. Regulations prohibit the disposal of the following materials to a construction and demolition waste landfill:

- Hazardous wastes
- PCBs
- Bio-hazardous wastes
- Lead-acid batteries

- Used oil/filters
- Yard trash
- Whole tires
- Household wastes
- Food wastes
- Asbestos
- Mercury containing lamps and devices
- Cadmium containing batteries

It is important that the operator as well as employees at the site learn recognition of these types of waste materials and prevent them from being disposed of in the landfill. Incoming waste materials will undergo load checking (as described above) to insure that physical contaminants such as, hazardous and prohibited wastes are less than one percent of the construction and demolition waste material received at the landfill. Load checking will include both visual observations of incoming loads and load sorting to qualify the percentage of hazardous and prohibited waste materials. Proper recognition of these types of prohibited waste materials is discussed in the following sections of this plan.

1. Load checking activies:

   Load checking activities fall into three categories:

   - Waste hauler notification (including public customers)
   - Site surveillance
   - Load inspections

   Hauler notification: A key component of the non-conforming load checking program will be notifying waste haulers that certain wastes are unacceptable for disposal at the landfill. This will be accomplished through fliers and casual discussions with the waste haulers. Waste haulers will also be notified that they retain responsibility for any prohibited wastes detected in their loads. Additional notification procedures include signs posted at the front gate and verbal communication (such as the scale house operator inquiring about the waste hauler's load).

   Site surveillance: All employees have a duty to ensure that prohibited waste do not enter the landfill. As such they must pay attention to all loads entering the site and report any unusual wastes containers, covered loads and suspicious loads. If an employee notices any prohibited waste he/she will immediately notify the site manager and the load will be inspected again. The waste hauler must then demonstrate to the site manager's and/or site foreman's satisfaction that the waste is acceptable by presenting material safety data sheets (MSDS), laboratory tests, or other proof of acceptability. If a more detailed review of the waste load is required, a more thorough inspection will be performed. As the hauler's vehicle leaves the facility, the spotter/equipment operator may survey the load again to ensure that prohibited wastes identified earlier were not unloaded.

Load inspections: Load inspections involve a more thorough examination of the waste stream than surveillance. Waste inspections will be conducted on a random day each week or as required by the appropriate regulating agency. All inspections will be documented on the Waste Inspection Report Form. Waste loads can also be randomly or intentionally selected for inspection. The load checker instructs the hauler to unload the vehicle contents onto a designated area. The load checker will then inspect and carefully examine the waste for the presence of prohibited wastes. Any material suspected of being prohibited or hazardous will be returned to the hauler for proper disposal. If the waste hauler is not on-site, or if the waste is from an unknown or recalcitrant generator, the waste will be stored in the landfill's hazardous materials storage containers until removal.

G. Procedures for handling alternative (special) wastes

The CVWRF will not be accepting any alternative (special) wastes.

H. Training and safety plans

The operator will insure that competent and well-trained personnel operate the construction and demolition waste facility. The operator will maintain records that document the training and examination of facility personnel. Following are guidelines for training of operations personnel at the landfill site:

- Site manager: The site manager referred to in the industry as the Manager of Landfill Operations (MOLO) will be responsible for all activities at the site including supervision of employees, record keeping, safety, training, as well as the day-to-day operation of the facility. The site manager may be required to demonstrate to the SDSHW and SLVHD that he/she has the competence and skill to operate the facility in full compliance with its permit and operating plan. The site manager should be required to take management and waste handling training courses to ensure that he site will be operated in accordance with all laws and regulations for a Class VI landfill site.

The Solid Waste Association of North America (SWANA) offers several training and certification courses. These courses are offered at several locations through the country and prove essential knowledge for the MOLO. The owner/operator should also consider having its MOLO certified by SWANA or any state offering MOLO training. In today's world, not enough emphasis can be placed on training.

- Other construction and demolition on-site employees (scale house operators, equipment operators, spotters, and laborers) should also receive training in landfill operations including health and safety issues, the importance of the plan of operation, equipment operation and maintenance and proper sanitation practices.
- All on-site personnel will be required to take safety training. This training should be designated to assist landfill personnel how to identify, and correct landfill health and safety issues. The training should include topics, such as, response to medical emergences, safe equipment operation, public safety, first aid, contingency plans, and OSHA issues.

  Copies of the landfill safety plans and emergency preparedness plan are included in Appendix F.

I. Plans for recycling

The volume of recyclable materials generated in the service area will vary considerably over time. Therefore, the quantity of recyclable materials shipped off-site will also vary. The types of recyclable materials expected to arrive at the landfill include: metal, such as, rebar, structural steel and white metal, concrete and asphalt aggregate materials, wood waste and dimensional lumber, asphalt shingles and sheet rock. Recycling plans for each type of material are as follows;

- Metals. Metals and other ferrous materials will be segregated from the construction and demolition waste stream and stored in 35 yd^3 bins. When about 70 yd^3 accumulates on-site, the material will be delivered to a metal recycler. The maximum volume stored on-site will be 70 yd^3. Maximum storage time will be one year, and

- Concrete and asphalt. Concrete and asphalt will be diverted from the waste stream and stockpiled on-site in the recycling yard. Rock crushing and screening equipment will be used to make a uniform aggregate material. Concrete and asphalt materials will be used to on-site for construction of all weather roadways, such as, tipping pads and access roads. If market conditions exist, these materials will be taken off-site and sold for alternative purposes, and

- Wood waste. Wood and brush will be accepted and diverted the CVWRF Composting Facility. Dimensional lumber may be salvaged if a commercial value for this type of waste material can be developed. Wood and brush stored on-site will not be allowed to accumulate consistent with local fire codes. The Salt Lake County Unified Fire District regulates combustible waste piles and limits any on-site storage of these types of material to less than 10,000 yd^3. Piles should not be greater than 20-feet high, or 40-feet wide and 125-feet long with a minimum distance between piles of 20-feet.

- Dimensional lumber. Dimensional lumber will only represent a small fraction of the recycled materials received at the landfill. This is largely due to demolition contractors recycling at their job site. A designated area will be maintained for any dimensional lumber received and it will be removed off-site as soon as possible, and

- Asphalt shingles and sheet rock. Currently there are no plans to recycle these two types of materials. They will be disposed of in the landfill as received.

V. CLOSURE REQUIREMENTS

A. Closure schedule:

A detailed closure schedule will be prepared as part of the final closure and post-closure maintenance and monitoring plan. The following provides a summary of the currently anticipated closure schedule.

- Signage posted at all points of access consistent with regulatory requirements at the time of closure. These signs will be placed at least 60-days prior to closure, state the date of closure, identify alternative waste disposal locations, and remain for at least 180 days after receiving the final load of construction and demolition waste materials, and,

- A public notice will be placed in a local newspaper with general circulation at least 6 days prior to closure, and

- Preparation and completion of construction and quality assurance (QC/QA) activities will likely occur at the time each phase of closure takes place. Assuming that each closure phase will cover approximately 15 to 20 acres, it is anticipated that it will require about three to four months to complete. Due to Utah's weather climate, closure activities will commence in May and continue over the summer of the same year until complete, and

- The QA/QC report for each phase of closure construction will be submitted within 30 days of the SDSHW for approval prior to actual construction.

Closure activities proposed for the construction and demolition waste materials landfill include:

- Complete the final filling of the particular phase of the project (five phases are contemplated), and

- Perform final grading on the landfill slope, and

- Install final cover materials (final cover materials include two types of soil materials; 1) the low-hydraulic conductivity (1×10^{-8} cm/s) compacted soil layer and 2) the erosion (vegetative) control final cover material, and

- Installation of erosion and run-off controls and convey run-off to the surface water discharge sites, i.e., Lee Creek and Kersey Creek, and

- Removal of any remaining structures and facilities that will not be required for closure and post-closure activities, and

- Installation of final site security measures, such as, signs posted at all points of access, locked perimeter gates, and fencing around the entire site.

B. Final cover design

A final cover system will be completed as part of the landfill's closure activities. However, as the operator plans to construct the landfill in five separate phases, the outer perimeter slopes of the landfill will be covered as they are completed.

C. Final site capacity

Final site capacity of the landfill is indicated by the sum of the separate phases of construction as detailed in Table 8.

D. Final inspections

Key aspects of the closure inspection program include the following;

- Final cover integrity inspection. Qualified personnel will inspect the final cover for signs of settlement and/or subsidence, erosion, cracking or other items that could adversely affect the integrity and effectiveness of the final cover. Items requiring corrective action will be repaired, and

- Vegetative cover inspection: Qualified personnel will inspect the vegetative cover for signs of erosion, degradation, and areas that lack vegetative growth. Items that require corrective action will be addressed and resolved, and

- Run-off control system inspection: Qualified personnel will inspect the drainage system to insure that all hydraulic conduits and drop inlets are in place and functioning. Inspections will be performed prior to the commencement of the wet weather season. Any malfunctions, such as separated pipes due to differential settlement, sediment buildup in pipes and/or drop inlets and low points causing water ponding will be corrected weather permitting.

VI. POST-CLOSURE CARE PLAN

A. Changes in title, land use, or zoning restrictions

Upon closure of the construction and demolition waste materials site, CVWRF will file a detailed description of the closed site to the County Recorder' Office. The site description will include:

- A map and description of the closed site, and

- Date closure was completed, and

- Locations where the Closure and Post-closure maintenance plans can be obtained, and

- Boundaries of each phase of construction and height and depth of construction and demolition waste materials, and

- A statement the site is restricted to open space uses only in accordance with the post-closure maintenance plan.

B. Maintenance of final cover, vegetative cover and erosion control, and run-off control systems

Post-closure inspection and maintenance activities will include the final cover, the final site storm water run-off system, environmental controls, and security systems. Written notification of any unusual incidents observed during inspections will be reported to the owner, SDSHW, and the SLVDH. Unusual incidents that require reporting include: vandalism, erosion of the vegetative cover layer, flooding, overflow of the storm water retention ponds; surface drainage problems; and any other incidents threatening the release of waste material to the environment or deleterious to the public health.

A semi-annual inspection report will submitted to all permitting agencies (a sample annual report form is included in Appendix G).

- Final Cover Maintenance

  Consistent with the final cover design, final grades will reach elevation 4,434-feet above msl and maintain a maximum side slope inclination of 2H:1V (horizontal to vertical). To facilitated drainage and erosion control, 25-foot wide benches are incorporated into the side slopes at a maximum of every 45-foot in elevation gain. The top surface will be initially graded for a 5 percent fall from centerline of the top final cover layer to the edge of slopes to accommodate post-closure settlements and maintain positive drainage (the final slope of the top layer will be about 2 percent), and

- Vegetative cover and erosion control. The integrity of the final cover side slope will be maintained by the placement of a vegetative cover layer to provide erosion control. The final slopes will be re-vegetated with an application of drought tolerant seed mixes that can survive under normal precipitation conditions without irrigation and fertilizers as specified on the landscape plans after the final grading is complete, and

- Run-off velocities will be reduced on side slopes by installing wattles at 15-foot intervals in elevation gain. Drainage will be conveyed along the top deck and side slopes benches to down drains along the sides of the landfill. The down drains will be fitted with diffuser tees to mitigate high energy velocities in the pipe before the conveyed surface water enters drop inlets located at the low points in the benches. Maintenance roadways with upslope "V" ditches will be installed to assist in conveying run-off down the slope to the primary collection and discharge conduits located around the perimeter of the landfill. These primary hydraulic conduits will be completed during the individual phases of the landfill construction to convey surface water run-off to the storm water retention ponds or at closure both Lee Creek and Kersey Creek. All surface water run-off pipes will be inspected prior to and following the wet weather seas on for water tightness, settlement and sediment deposits and corrective action taken, as required, ensuring the integrity of the run-off collection and discharge system.

C. Contact information during the post-closure care period:

As during the construction phases of the landfill the primary contact will be the owner, CVWRF, Attention Mr. Reed N. Fisher, General Manager, 800 Central Valley Road, Salt Lake City, UT 84119, 801-973-9100.

VII. FINANCIAL ASSURANCES

Bond and financial assurance cost estimates are based on a third party performing closure and post-closure care at any time during the active life of the facility and adjusted for inflation until final closure.

Closure disposal costs will be prepared to include the maximum amount of waste material that will be stored on-site at any time during the life of the facility. This is interrupted to be the maximum volume of waste on-site during any of the five phases of the project.

A. Closure cost estimate

The current closure cost estimate is $343,280 as indicated in Table 9. Work envisioned in the closure cost estimate includes final grading of ditches and swales, final cover placement, hydro seeding, QA/QC testing, deed recording, final cleanup and removal of any on-site structures, and final fencing and security improvements.

B. Post-closure-care period cost estimate

The current estimate for post-closure maintenance activities is $541,500 plus inflation at $181,027 also shown in Table 11 for a total post-closure care period cost estimate of $1,065,807. Post-closure care activities include drainage system maintenance, vegetative cover reseeding, groundwater and surface water monitoring, and annual reporting.

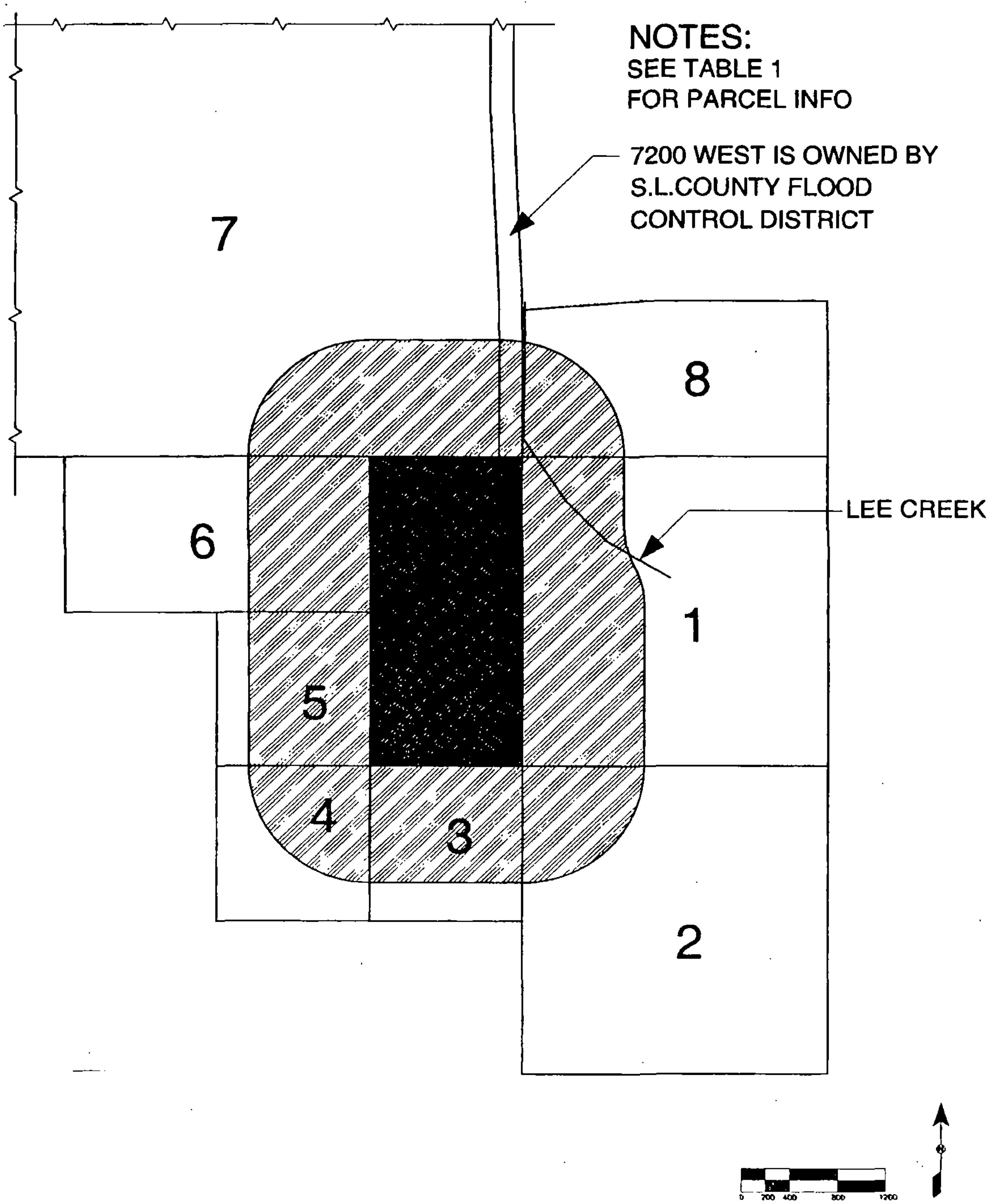
C. Financial assurances

Closure and post-closure maintenance funding for the CVWRF landfill complies with SLVHD Regulation #1 (subpart 4.1.1 (iv) c.). An irrevocable letter of credit will be provided to SLVHD to cover the completion of all work specified in the approved plans for closure and post-closure activities for the largest closure phase of the project. The final bond estimate is based on the total closure and post-closure maintenance cost to enable a third party to complete the work. The following key assumptions were made in compiling these estimates.

- The source of final cover material including the 6-inch topsoil layer is available from on-site sources, and

- All closure activities will be observed and documented by a registered civil engineer or a certified engineering geologist, and

- The maximum area that could be closed at any one time is about 20 acres, Phase 5 closure.



PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008

FIGURE 1

TITLE

PROPERTY OWNERSHIP
WITHIN (1000 FEET)

PROJECT

CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

CENTRAL VALLEY WATER

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

FAX

451 South State Street, Room 406
Salt Lake City UT 84111

Date: 9/4/08

No. of Pages, including cover sheet: 2

To: Greg Bland

Phone:

Fax: 280 6530

From: Doug Dansie

Salt Lake City Planning

Phone: 801-535-7757
Fax: 801-535-6174

REMARKS: ☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

COMMENTS:

The attached list represents those who received notice of the Planning Commission Public Hearing

[14-16-400-011-0000]
ROKICH, JEANNINE C; TR
179 HACIENDA CARMEL
CARMEL, CA 93923

[14-16-400-012-0000]
ROKICH, JEANNINE C; TR
179 HACIENDA CARMEL
CARMEL, CA 93923

[14-16-400-014-0000]
ROKICH, JEANNINE C; TR
179 HACIENDA CARMEL
CARMEL, CA 93923

[14-16-400-015-0000]
ROKICH, JEANNINE C; TR
179 HACIENDA CARMEL
CARMEL, CA 93923

[14-10-300-011-0000]
MOUNTAINVIEW LANDFILL INC
PO BOX 1450
CHICAGO, IL 60690 1450

[14-09-100-003-4002]
KENNECOTT UTAH COPPER CORPORATION
PO BOX 6001
MAGNA, UT 84044 6001

[14-16-400-002-0000]
KENNECOTT UTAH COPPER CORPORATION
PO BOX 6001
MAGNA, UT 84044 6001

[14-10-100-002-0000]
KENNECOTT UTAH COPPER CORP
PO BOX 6001
MAGNA, UT 84044 6001

[14-15-100-001-0000]
STATE OF UTAH
450 N STATE OFFICE #4110
SALT LAKE CITY, UT 84114

[14-15-300-001-0000]
STATE OF UTAH
450 N STATE OFFICE #4110
SALT LAKE CITY, UT 84114

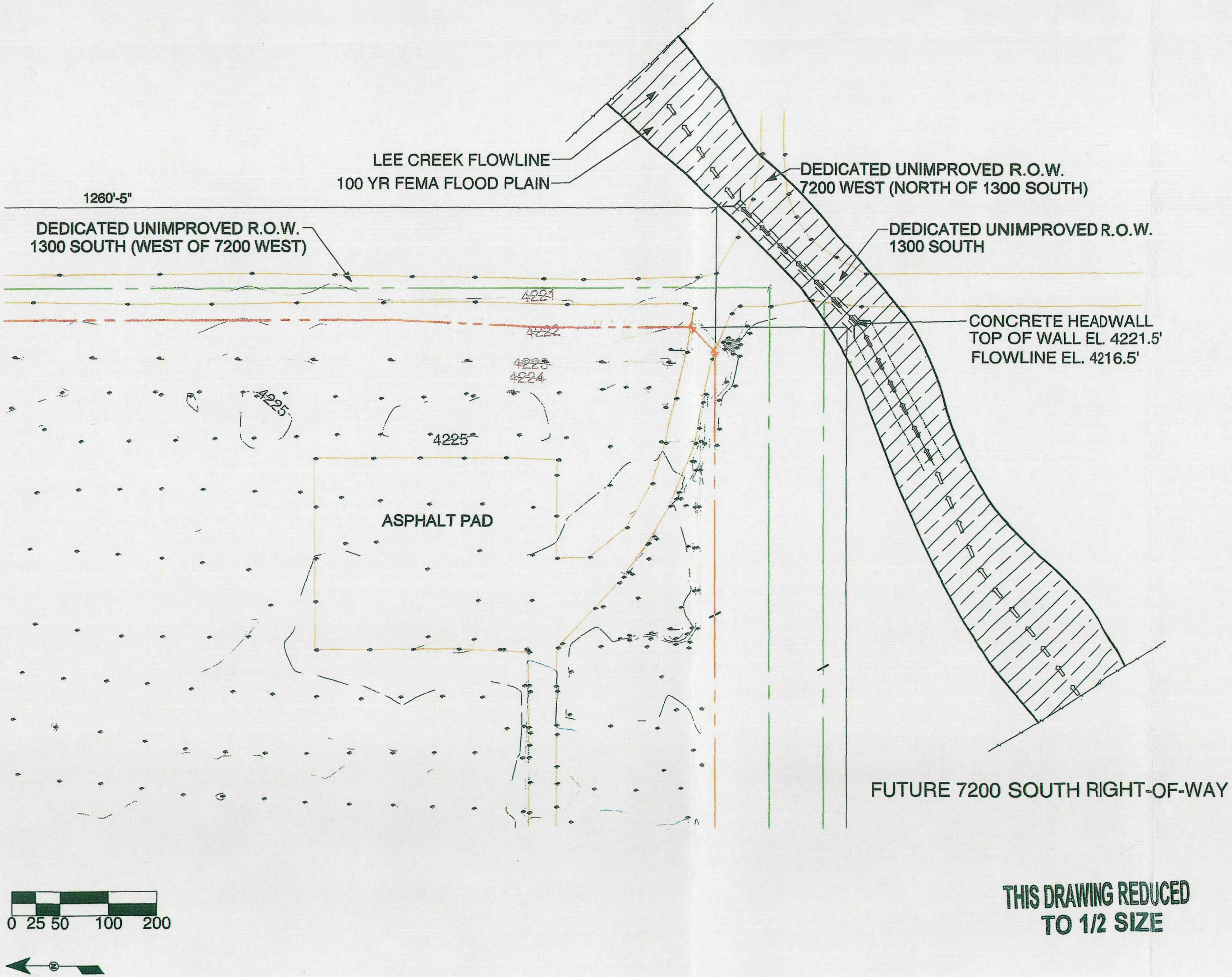
[14-16-400-016-0000]
KING, WILLIAM L JR & MARIAN M; TRS
4520 S 4150 W
WEST VALLEY, UT 84120

[14-16-400-013-0000]
CHRISTENSEN, LYNN D & CHARLOTTE K
3323 S 6400 W
WEST VALLEY, UT 84128 1333

[14-16-200-010-0000]
CENTRAL VALLEY WATER RECLAMATION FACILITY
BOARD
800 W CENTRAL VALLEY RD
WEST VALLEY, UT 84119

[14-16-200-011-0000]
CENTRAL VALLEY WATER RECLAMATION FACILITY
BOARD
800 W CENTRAL VALLEY RD
WEST VALLEY, UT 84119

[14-16-200-012-0000]
CENTRAL VALLEY WATER RECLAMATION FACILIT
BOARD
800 W CENTRAL VALLEY RD
WEST VALLEY, UT 84119



THIS DRAWING REDUCED
TO 1/2 SIZE

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT:

Central Valley Landfill

7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

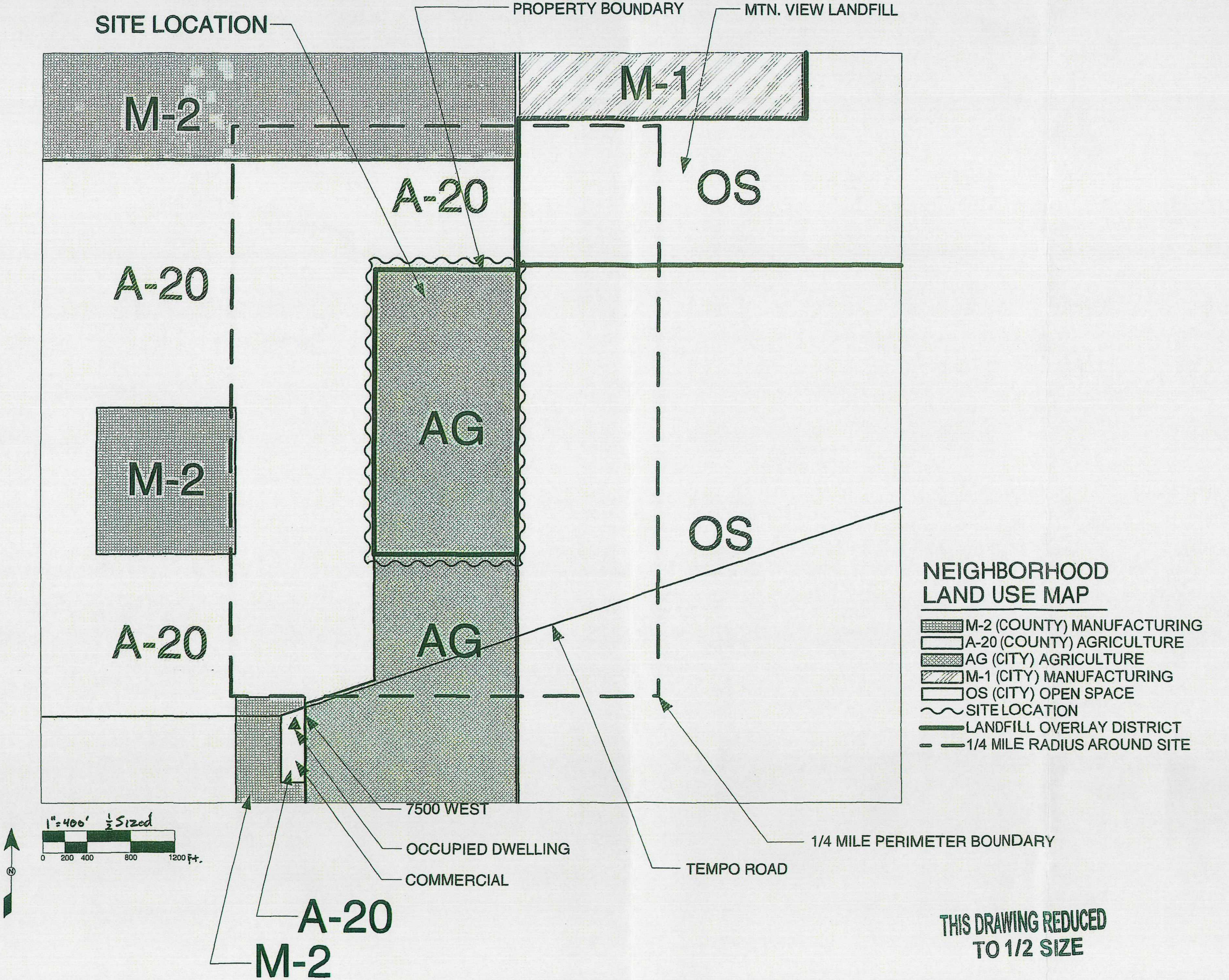
CENTRAL VALLEY WATER

TITLE:

FEMA 100 YR
FLOOD MAP

PROJECT
NUMBER: BASP 1006
PROJECT DATE 09/2008

FIGURE 1



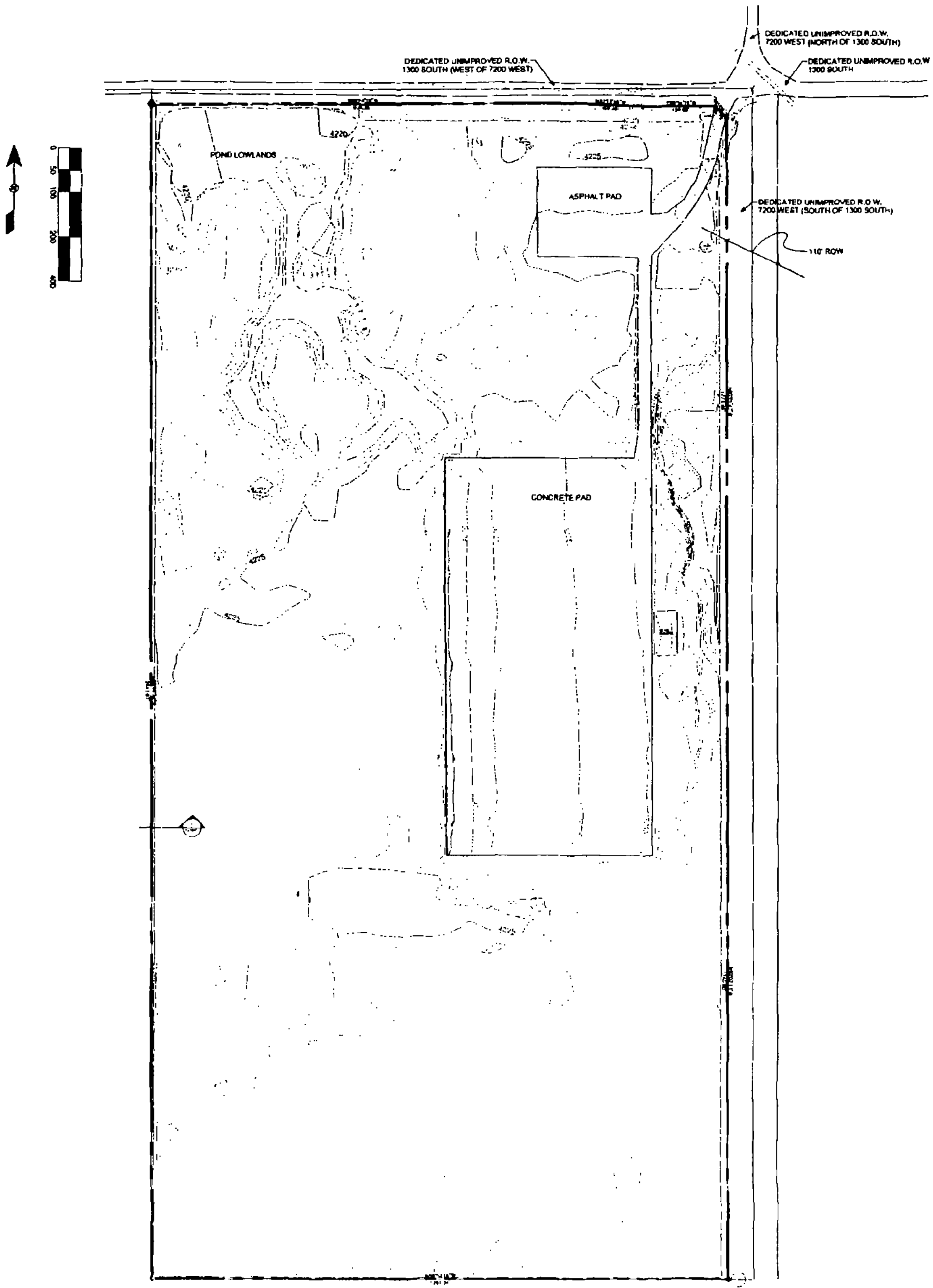
BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT:
Central Valley Landfill
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

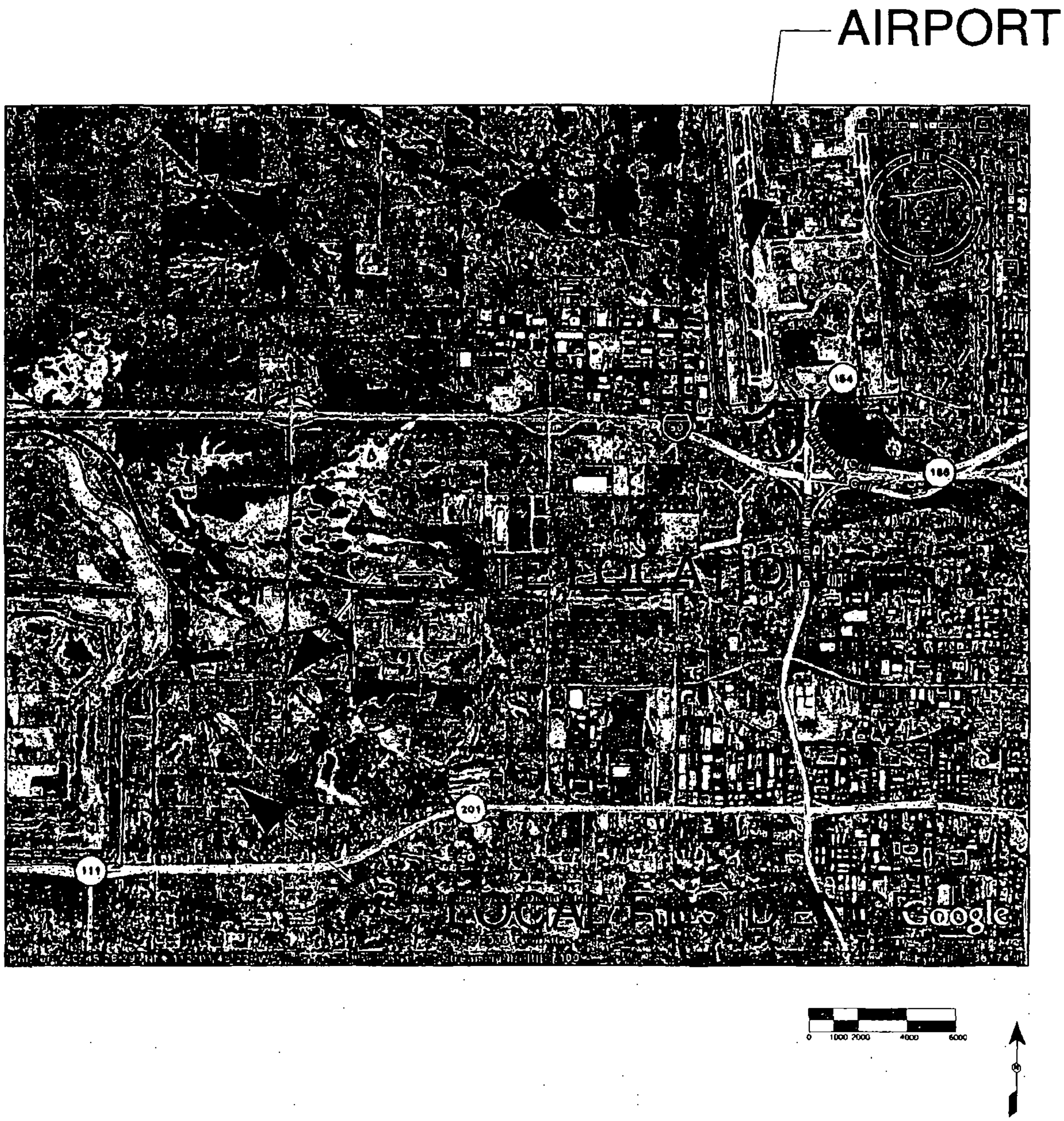
TITLE:
NIEGHBORING
LAND USES

PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008

FIGURE 3

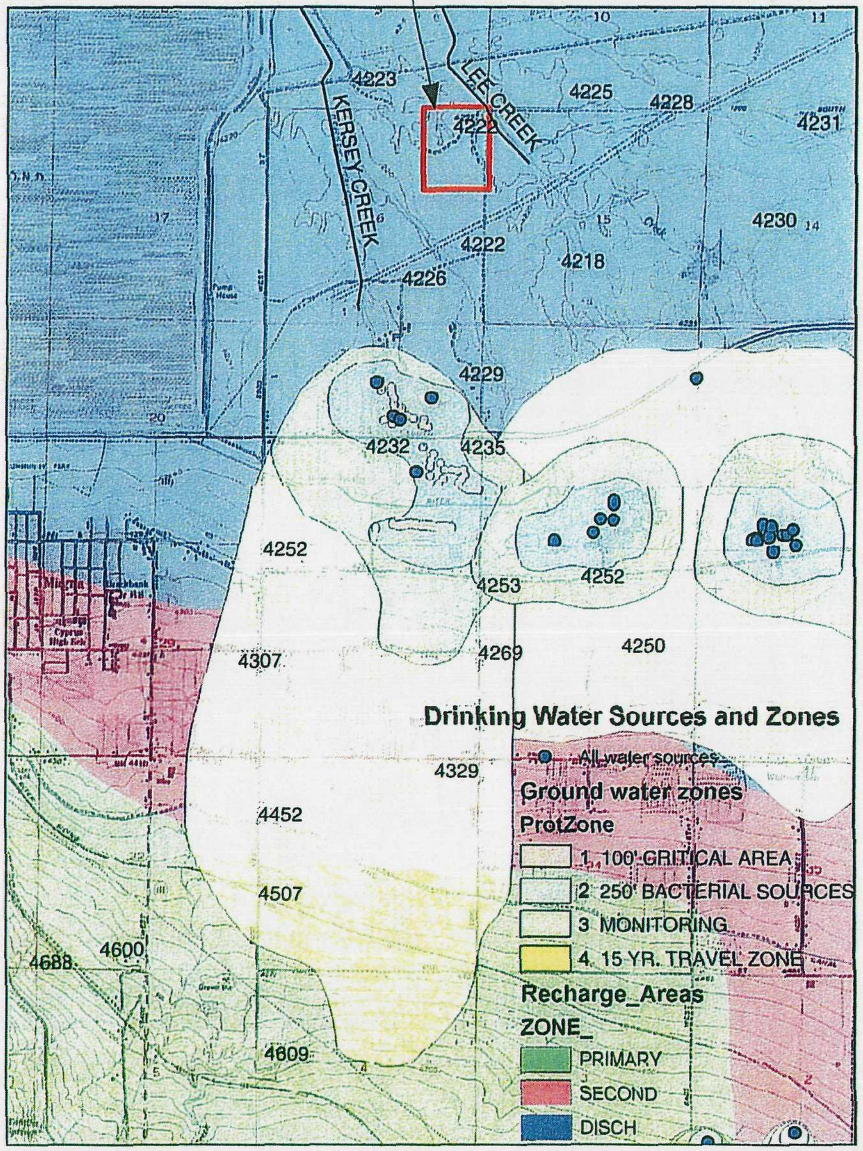


PROJECT NUMBER: BASP 1006 PROJECT DATE 09/2008 FIGURE 4	TITLE. CONTOUR MAP	PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO, CA



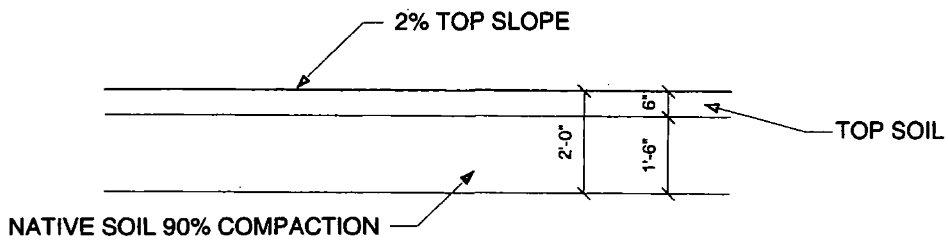
PROJECT NUMBER: BASP 1006 PROJECT DATE 09/2008 FIGURE 5	TITLE: TOPOGRAPHIC FEATURES MAP	PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO, CA

PROPOSED SITE



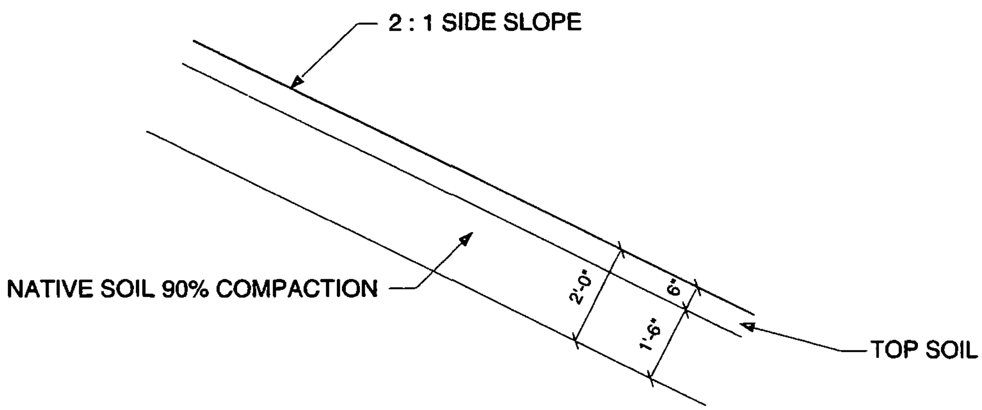
SCALE: NTS

PROJECT NUMBER: BASP 1006 PROJECT DATE 09/2008 FIG 2	TITLE: GROUND WATER PROTECTION ZONES	PROJECT: Central Valley Landfill 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO, CA



TOP SLOPE FINAL COVER LAYER

TYPICAL CROSS SECTION

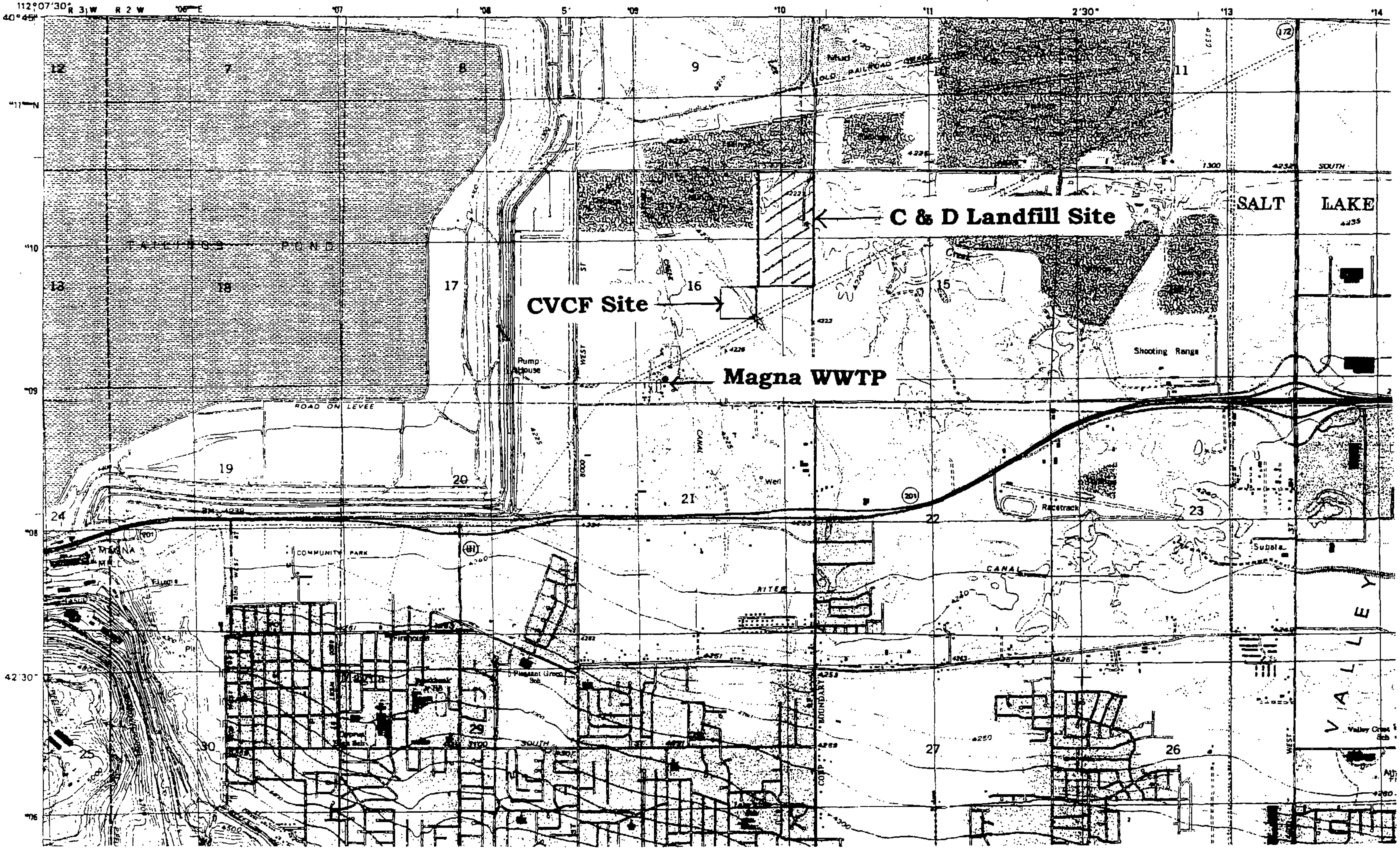


SIDE SLOPE FINAL COVER LAYER

TYPICAL CROSS SECTION

PROJECT NUMBER: BASP 1006 PROJECT DATE 09/2008 FIGURE 5	TITLE: FINAL COVER CROSS SECTION	PROJECT: Central Valley Landfill 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO, CA

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



Tables

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2. GROUNDWATER ELEVATIONS IN JULY 2008

3. SURFACE WATER QUALITY

4. GROUNDWATER QUALITY

5. ESTIMATED SOIL LOSS DUE TO EROSION

6. ESTIMATED FINAL COVER VOLUMES

7. STORM DRAIN SIZES AND CAPACITIES

8. ESTIMATED FILL VOLUMES BY PHASE

9. WORST CASE CLOSURE AND POST-CLOSURE BOND COST ESTIMATES

Table 1. Property Ownership within 1,000 Feet

Percel number	Owner	Figure location	Area, acres	Owners's address
1415100001	State of Utah	1	160	450 North State Office # 4110, Salt Lake City, UT 84114
1415300001	State of Utah	2	160	450 North State Office # 4110, Salt Lake City, UT 84114
1416400002	Kennecott Copper	3	37	P. O. Box 6001, Magna, UT 84044-6001
1416400001	MKN Development LLC	4	39.5	1338 West 4800 South, Taylorsville, UT 84123-432338
1416200007	Kennecott Copper	5	40	P. O. Box 6001, Magna, UT 84044-6001
1416200001	Salt Lake County & Salt Lake City	6	70.69	Real Estate Division, 2001 South State Street, # N4500, Salt Lake City, UT 84115-234101
1409100003 (4001 &4002)	Kennecott Copper	7	572.31	P. O. Box 6001, Magna, UT 84044-6001
1410300011	Waste Management	8	77.83	P.O. Box 1450, Chicago, IL 60690-1450

Note; Also included within the 1,000 foot property radius the Lee Creek Channel adjacent

7200West is owned by Salt Lake County Flood Control District

Salt Lake City 451 S. State St. SLC, UT 84111

Table 2 Depth to Groundwater

Well number	Ground elevation, ft (msl)	Depth to groundwater, ft	Groundwater elevation, ft (msl)
1	4,226.50	8	4,218.50
2	4,226.50	8	4,218.50
3	4,227	7	4,220.00
4	4,225	6	4,219.00
5	4,224.50	5.5	4,219.00
6	4,223.50	5	4,218.50

TABLE 2

Surface Water Quality near the Landfill Project

Location	C-7 Ditch	Lee Creek	Kersey Creek
	KCSW458	LCSW459	KCSW460
Reference	Kennecott EIS	Kennecott EIS	Kennecott EIS
Date Sampled	1991/92	1991/92	1991/92
pH, standard units	7.8	8.2	7.9
Temperature, degrees C	33	13.6	17.1
Dissolved oxygen, mg/l	0	7.9	8.8
Hardness		403	294
Total dissolved solids, mg/l	1357	3,014	1,802
Chloride, mg/l		1,267	569
Flouride, mg/l	3.21	1.3	0.7
Nitriates as N, mg/l	2	0.8	9.9
Sulfate, mg/l		529	345
Arsenic, mg/l	0.215	0.089	0.33
Cadmium, mg/l	0.55	0.002	0.002
Chromium, mg/l	na	0.015	0.11
Copper, mg/l	0.27	0.045	0.24
Iron, mg/l	1.74	0.54	0.38
Lead, mg/l	0.1	0.012	0.009
Nickel, mg/l	0.23	0.012	0.006
Selenium, mg/l	0.008	0.009	0.004
Silver, mg/l	0.15	0.002	0.002
Zinc, mg/l	0.05	0.078	0.04

TABLE 3 Groundwater Quality (mg/l)

Location	Reference	pH, units	Conductivity, umhos/cm	TDS	Hardness	Chloride	Nitrate as N	Arsenic	Cadmium	Copper	Iron	Lead	Selienium	Zinc
Gypsum Stack NET 1300B	Kennecott EIS	7.48	23,300	na	1,843	7,380	na	0.0070	0.0020	0.0070	0.3000	0.0050	0.0030	0.0100
NET 1300C	Kennecott EIS	7.71	28,000	na	3,057	10,900	na	0.0060	0.0020	0.0060	1.0000	0.0050	0.0030	0.0300
Tailings impound-ment	Kennecott EIS	7.3	5,900					0.039	0.0030	0.0220		0.0005	0.0070	0.1040
Well #1	CVWRF Compost Facility	8.8		3,404	na	na	0.51	1.605	< 0.004	0.015	na	< 0.005	0.01425	0.0785
Well #2	CVWRF Compost Facility	8.6		11,891	na	na	0.02	0.9585	< 0.004	0.005	na	< 0.005	0.06	0.845
Section 17 Well	Kennecott	7		3,661	776	1,400	0.05	0.021	0.002	0.03	na	0.005	0.011	0.01

Table 5. Estimated Soil Erosion of Landfill Slopes

Area number	Average area, acres	Slope length, ft	Average gradient, %	R	K	LS	C	P
Side slopes	43	45	0.5	20	0.31	5.16	0.03	1
	43	45	0.33	20	0.31	3.52	0.03	1
Corner slopes	33	150	0.5	20	0.31	5.16	0.03	1
	33	150	0.33	20	0.31	3.52	0.03	1

Slope	Annual erosion, ton/acre/yr	Soil loss, ton/year	Soil loss, yd3/year	Soil loss, inches/year	30 year cover loss, inches
2H:1V	26.5	1140	706	0.0034	0.1018
3H:1V	24.86	1069	663	0.0032	0.0955
2H:1V	26.5	875	542	0.0034	0.1018
3H:1V	24.86	820	509	0.0032	0.0955

TABLE 4 Estimated Final Cover Volumes

Final Cover Layers	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Total
	Volume, 1,000 yd3					
Low hydraulic conductivity layer	58	24	38	42	100	262
Erosion resistant (vegetative) layer	29	12	19	21	50	131
Total volume required for final cover	87	36	57	63	150	393
Sources of soil materials						
On- site borrow	167	78	0	0	130	375
Organic mix, 3-inch soil amendment form CVWRF	15	6	10	10	25	66
Total volume from on-site and off-site sources	182	84	10	10	155	441

Table 7. Run-off Collection System Flows, Pipe Sizes and Capacities

Storm water facility			
Line 1			
		22	21
	Area, ac	1.47	1.59
	Sum area,ac	1.47	3.06
	Sum Q, cfs (Tc=30 min)	1.97	4.34
	Sum Q, cfs (Tc=45 min)		
	Sum Q, cfs (Tc=60 min)		
Line 2			
		28	27
	Area, ac	2.54	1.68
	Sum area,ac	2.54	4.22
	Sum Q, cfs (Tc=30 min)	3.63	6.03
	Sum Q, cfs (Tc=45 min)		
	Sum Q, cfs (Tc=60 min)		
Line 3			
		32	31
	Area, ac	0.99	1.18
	Sum area,ac	0.99	2.17
	Sum Q, cfs (Tc=30 min)	1.42	3.1
	Sum Q, cfs (Tc=45 min)		
	Sum Q, cfs (Tc=60 min)		
Line 4			
		37	36
	Area, ac	1.14	1.36
	Sum area,ac	1.14	2.5
	Sum Q, cfs (Tc=30 min)	1.63	3.58
	Sum Q, cfs (Tc=45 min)		
	Sum Q, cfs (Tc=60 min)		

Line 5			
		42	41
	Area, ac	2.42	1.9
	Sum area,ac	2.42	4.32
	Sum Q, cfs (Tc=30 min)	3.46	6.18
	Sum Q, cfs (Tc=45 min)		
	Sum Q, cfs (Tc=60 min)		
Line 6			
		8	7
	Area, ac	1.3	1.77
	Sum area,ac	1.3	3.07
	Sum Q, cfs (Tc=30 min)	1.87	4.4
	Sum Q, cfs (Tc=45 min)		
	Sum Q, cfs (Tc=60 min)		
Line 7			
		13	12
	Area, ac	0.41	0.83
	Sum area,ac	0.41	1.24
	Sum Q, cfs (Tc=30 min)	0.58	1.77
	Sum Q, cfs (Tc=45 min)		
	Sum Q, cfs (Tc=60 min)		
Line A			
Line A1			
Line B			
Storm Water Retention Pond 1			
Storm Water Retention Pond 2			

Drop inlet number					Pipe line des	
					Capacity, cfs	Pipe size, in
20	19	MH-F				
1.72	1.19	1.18				
4.78	6.69	7.87				
6.84	9.57	11.25				
26	25	24	23			
0.38	1.4	1.88	2.48			
4.6	6	7.8	10.28			
6.58	8.59	11.15	14.07			
30	29					
1.28	2.23					
3.45	5.68					
4.93	8.12					
35	34	33				
1.85	2.2	2.9				
4.35	6.55	9.45				
6.22	9.37	13.51				

40	39	38				
1.94	2.18	2.26				
6.26	8.44	11.06				
8.95	12.07	15.82				
7.16	9.66	12.65				
		11.87				
6	5	4				
1.62	1.67	1.62				
4.69	6.36	7.98				
6.71	9.09	11.41				
11	10	9				
1.83	1.3	1.5				
3.07	4.37	5.87				
4.39	6.25	8.39				

TABLE 6 **Estimated Fill Volumes by Phase**

Phase	Volume, yd^3 As received	Volume, yd^3 compacted[1]	Estimated life[2], years	Active landfill area, acres
1	5.4	4.4	14.3	20.5
2	1.8	1.5	4.9	12.7
	0.0			
3	2.2	1.8	5.9	14.7
	0.0			
4	1.8	1.5	4.9	11.9
	0.0			
5	2.9	2.4	7.8	16.2
	0.0			
Totals	15.5	12.7	37.7	76

Note 1. Based on 22 percent compaction rate

Note 2. Based on 2,250 ton/day, 220 day/year,
2,700 lb/yd3

Table 1

Worst Case Closure and Post-Closure Bond Cost Estimate

Description	Unit	Unit Cost, Dollars	Quantity	Cost, Dollars	
Closure Costs					
Contractor Mobilization	LS	250	4	1,000	*1
Final Grading, Ditches and Swales	Ft	2	9,820	19,640	
Final Cover	Yd3	2	130,000	260,000	
Hydroseeding	Yd2	1,000	20	20,000	*2
Pipe	LS			8,000	*3
QA/QC Soils Testing	Ac	420	42	17,640	
			1		*4
Closure Report and Certification	LS	3,000		3,000	*5
			1		*6
Deed Recording	LS	500		500	
			1		
Final Clean-Up/Building Removal	LS	5,000	1	5,000	
Cap Survey	LS	3,500	1	3,500	
Final Site Fencing and Security	LS	5,000		5,000	
Total Exit Closure Site Costs				343,280	
Post-Closure Costs					
Slope, Cap Repair and Maintenance	LS	2,690	1	2,690	
Drainage System Maintenance Activities	LS	1,000	1	1,000	*7
Re-Seeding	ac	500	1	500	
Ground Water Monitoring	LS	4,820	1	4,820	
Landfill Gas Monitoring	Ea	1,080	1	1,080	
Surface Water Monitoring	LS	1,260	1	1,260	*8
Annual Reporting	LS	6,700	1	6,700	*9
Total Annual Post-Closure Costs				18,050	
Total 30 Year Post-Closure Costs				541,500	
Inflation Factor 1.81				181,027	
Total Bonding Costs Closure and Post-Closure				1,065,807	

*1. 1-grader, 1-dozer, 2-scrapers
*2. On-site material moved with scraper
*3. Total estimated cuts 556000cy
*4. 8 boxes, 300 ft 8" pipe
*5. American testing- attbg, proctor,moisture,density/compact-42 test total $840.00
*6. Agec-perm test 5 at a time $400 each totaling $16800
*7. Site inspect,track,skid, 2lds soil,labor clean up
*8. Ground water sampling and analyses
*9. Surface water sampling and analyses

Appendices

LIST OF APPENDICES

A. LEGAL AGREEMENTS

B. CULTURAL RESOURCES REPORT

C. NOTIFICATION OF INTENT MAILINGS

D. WETLANDS DELINEATION REPORT

E. CALCULATIONS

F. SAFETY AND EMERGENCY PREPAREDNESS PLANS

G. SAMPLE INSPECTION AND REPORTING FORMS

ATTACHMENT:

GEOTECHNICAL STUDY

State of Utah

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

Department of Community and Culture

PALMER DePAULIS
Executive Director

State History

PHILIP F. NOTARIANNI
Division Director

October 23, 2008

Dennis R. Downs, Executive Secretary
Utah Solid and Hazardous Waste Control Board
P. O. Box 144880
Salt Lake city UT 84114-4880

RE: Cultural Resources Inventory for Central Valley Compost and Landfill Facility

In Reply Please Refer to Case No. 08-1742

Dear Mr. Downs:

The Utah State Historic Preservation office received your request for our comment on the above referenced project on October 16, 2008. From the information you provided, it appears that no cultural resources were located in the project Area of Potential Effects. We concur with your determination of **No Historic Properties Affected** for this project.

Utah Code 9-8-404(1)(a) denotes that your agency is responsible for all final decisions regarding cultural resources for this undertaking. Our comments here are provided as specified in U.C.A. 9-8-404(3)(a)(i). If you have questions, please contact me at (801-533-3555 or Lhunsaker@utah.gov.

Sincerely,

FOR.

Lori Hunsaker
Deputy State Historic Preservation Officer - Archaeology

INTENSIVE CULTURAL RESOURCES INVENTORY OF 120 ACRES FOR PROPOSED COMPOSTING AND LANDFILL FACILITIES IN SALT LAKE COUNTY, UTAH

Cultural Resources Report 5305-01-20803

by

Alan R. Schroedl

Submitted to

Bay Area Soil Products, Inc.
9312 Skyline Blvd.
Oakland, CA 94611

Submitted by

P-III Associates, Inc.
2759 South 300 West, Suite A
Salt Lake City, UT 84115

February 2008

Work Completed Under State of Utah Project-Specific Permit U-08-PD-026p

P-III ASSOCIATES, INC.

P-III Associates, Inc.
Cultural Resource Consultants

May 9, 2008

Mr. John Bouey
Bay Area Soil Products, Inc.
9312 Skyline Blvd.
Oakland, CA 94611

RE: Intensive Cultural Resources Inventory of 120 Acres for Proposed Composting and Landfill Facilities in Salt Lake County, Utah – State of Utah Project-Specific Permit U-08-PD-026p

Dear Mr. Bouey:

During February of 2008, P-III Associates, Inc. conducted an intensive cultural resources inventory of approximately 120 acres of land in anticipation of future developments in the project area. The project area is limited to two parcels (A and B) in the eastern portion of Section 16 of T. 1S, R. 2W. No newly recorded sites were noted in either of these parcels, but two previously recorded sites, 42SL231 and 42SL273, were revisited and reassessed. Neither of these sites is considered archeologically significant; consequently, no additional cultural resource investigations are recommended for the project area.

Sincerely,

Alan R. Schroedl
Senior Consultant

ARS/drc

2759 South 300 West, Suite A • Salt Lake City, Utah 84115-2955 • (801) 467-5446 • fax (801) 467-9978 • www.p-iii.com

INTENSIVE CULTURAL RESOURCES INVENTORY OF 120 ACRES FOR PROPOSED COMPOSTING AND LANDFILL FACILITIES IN SALT LAKE COUNTY, UTAH

Cultural Resources Report 5305-01-20803

by
Alan R. Schroedl

Submitted to

Bay Area Soil Products, Inc.
9312 Skyline Blvd.
Oakland, California 94611

Submitted by

P-III Associates, Inc.
2759 South 300 West, Suite A
Salt Lake City, Utah 84115-2955

February 2008

Work Completed Under State of Utah Project-Specific Permit U-08-PD-026p

COVER PAGE
Must Accompany All Project Reports
Submitted to Utah SHPO

Project Name: Intensive Cultural Resources Inventory of 120 Acres for Proposed Composting and Landfill Facilities in Salt Lake County, Utah

State Proj. No.: U-08-PD-026p

Report Date: February 2008

County(ies): Salt Lake County

Principal Investigator: Alan R. Schroedl

Field Supervisor(s): Robert I. Birnie

Record search completed at what office(s)? Utah Division of State History and the BLM Utah State Office

Record search date(s): January 28, 2008

Area surveyed - Intensive *(<15 m intervals):* 120 acres **Recon/Intuitive** *(>15 m intervals):* 0 acres

7.5' Series USGS Map Reference(s): Magna, Utah (Photorevised 1969 and 1975)

SITES REPORTED	COUNT / SMITHSONIAN SITE NUMBERS	
Archaeological Sites		
Revisits (no inventory form update)	0	
Update (updated IMACS site inventory form attached)	2	42SL231 and 42SL273
New Recordings (IMACS site inventory form attached)	0	
Total Count of Archaeological Sites	2	
Historic Structures (USHS 106 site info form attached)	0	
Total National Register Eligible Sites	0	

COVER PAGE
Must Accompany All Project Reports Submitted to Utah SHPO

Checklist of Required Items, attached	*For UDSH office use only*

Checklist of Required Items, attached

1. ☑ 1 Copy of the final report
2. ☑ Copy of 7.5' Series USGS map with surveyed/excavated area clearly identified
3. Completed IMACS site inventory forms,
   - ☑ Parts A and B or C,
   - ☑ the IMACS Encoding Form,
   - ☑ Site Sketch Map,
   - ☑ Photographs, and
   - ☑ Copy of the appropriate 7.5' Series USGS map w/ site location marked and Smithsonian site number clearly labeled
4. ☑ Completed "Cover Page" accompanying final report and survey materials

For UDSH office use only

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Introduction and Project Description

In the spring of 2008, P-III Associates, Inc. (P-III Associates) conducted an intensive cultural resources inventory of approximately 120 acres of Salt Lake County and Salt Lake District land in the western portion of Salt Lake County, Utah (Figure A-1). This inventory was conducted in anticipation of future ground disturbing activities that will be carried out by Bay Area Soil Products, Inc. The project area is limited to two parcels (A and B) in the eastern portion of Section 16 of T. 1S, R. 2W (Figure A-2). Topographic map coverage of the project area is provided by the Magna, Utah (Photorevised 1969 and 1975) 7.5' U.S.G.S. quadrangle.

The cultural resources inventory was performed on behalf of Bay Area Soil Products, Inc. to help them comply with federal and state cultural resource protection and preservation laws. It was conducted under the provisions of the State of Utah Project-Specific Permit No. U-08-PD-026p. Alan R. Schroedl was the principal investigator, and Robert I. Birnie was the project director. The goals of the project were to locate, record, and evaluate all cultural resource properties within the project area and to identify those properties that are potentially eligible for inclusion in the National Register of Historic Places (NRHP).

The investigations were initiated with a review of the cultural resource records and other pertinent documents on file at the Utah Division of State History on January 28, 2008. In addition, General Land Office (GLO) maps on file at the Utah State Bureau of Land Management (BLM) Office were also examined. Fieldwork and report preparation took place in February of 2008.

The cultural resources inventory of the project area resulted in the identification and documentation of one isolated find (IF) (Figure A-2) and two previously recorded sites (42SL231 and 42SL273 [Schroedl 1993]). No newly recorded sites were located during the inventory. Supporting data for this report are located in the appendices. Figures are presented in Appendix A. A description of the IF and its location is located in Appendix B. A list of the legal locations for each parcel is in Appendix C, and the updated previously recorded site forms are in Appendix D.

Environmental Setting

The project area is located on a lake plain and lake terrace northeast of the Oquirrh Mountains and east of a tailings pond directly associated with evaporator operations on the Great Salt Lake. Parcel A is located directly to the northeast of Parcel B and comprises the area immediately surrounding the Central Valley Land Fill facilities. Elevations in the project area range from approximately 4220 to 4227 ft above mean sea level. There are no permanent springs or streams in the area; however, two channeled, perennial streams are present. Kersey Creek trends approximately northwest to southeast through the northeastern corner of Parcel B, and Lee Creek is located directly east of Parcel A and also trends in a northwest to southeast direction. Several remnants of meandering creeks also exist within the boundaries of the project area parcels. Water flow within the channeled creeks occurs on a seasonal basis due to snowmelt and as a result of intense local precipitation events (i.e., thunderstorms).

Soil types present in Parcel A include Saltair-Playas-Lasil complex located in the extreme northwestern corner of the parcel as well as the northeastern corner and a portion of the upper lateral margin of the eastern edge of the parcel. All other soil types in this area are of a Jordan-Saltair complex. Saltair soils are classified as fine-silty, mixed, superactive, mesic Typic aquisalids, while Lasil soils are classified as fine-silty, mixed, superactive, mesic Typic Natrixeralfs. Both occur on slopes that range from 0 to 3 percent. Saltair soils are on lake plains and basin floors and formed in lacustrine deposits and some alluvium derived mainly from limestone, shale, and quartzite. Lasil soils occur on smooth to channeled low lake terraces and lake plains and formed in calcareous lacustrine deposits derived from mixed sedimentary and igneous rocks. Surface soils associated with Saltair soil are gray (5YR 6/1) to dark grayish-brown (2.5YR 4/2) silt loam, while surface soils associated with Lasil soils are light brownish-gray (10YR 6/2) to dark grayish-brown (10YR 4/2) silt loam. Jordan series soils are classified as fine, mixed, active, mesic Calcic Aquisalids. Typical Jordan soils occur on low lake terraces and slopes ranging from 0 to 1 percent. They formed in lacustrine deposits derived from mixed rocks. Surface soils associated with Jordan series soils are grayish-brown (2.5YR 5/2) to very dark grayish-brown silt loam. Soil types present in Parcel B include a Saltair silty clay loam, which exists along the northeast- to southwest-trending banks of the Kersey Creek drainage. All other soil types in this parcel are comprised of a Jordan-Saltair complex. Saltair soils are classified as fine-silty, mixed, superactive, mesic Typic Aquisalids. Saltair soils are on lake plains and basin floors and formed in lacustrine deposits and some alluvium derived mainly from limestone, shale, and quartzite. Surface soils associated with Saltair soil are gray (5YR 6/1) to dark grayish-brown (2.5YR 4/2) silt loam. Jordan soils are classified as fine, mixed, active, mesic Calcic Aquisalids. Typical Jordan soils occur on low lake terraces and slopes ranging from 0 to 1 percent. They formed in lacustrine deposits derived from mixed rocks. Surface soils associated with Jordan series soils are grayish-brown (2.5YR 5/2) to very dark grayish-brown silt loam (Natural Resources Conservation Service 2008).

The project area is in the Upper Sonoran Life Zone (University of Utah et al. 1992 455:1-2 and 460:1-23) of the western United States. Plant species in this Greasewood/Shadscale community include shadscale (*Atriplex confertifolia*), budsage (*Artemisia spinescens*), saltbush (*Atriplex nuttallii*), rabbitbrush (*Chrysothamnus* spp.), Mormon tea (*Ephedra nevadensis*), winter fat (*Eurotia lanata*), snakeweed (*Gutierrezia sarothrae*), greasewood (*Sarcobatus vermiculatus*), Indian ricegrass (*Oryzophsis* hymenoides), cheatgrass (*Bromus tectorum*), alkali sacaton (*Sporobolus airoides*), and peppergrass (*Lepidium perfoliatum*) (Albee et al. 1988; USGS National Gap Analysis Program 2004).

Animal species that are present in Shadscale/Greasewood communities and may have been present as well as economically important to prehistoric peoples include pygmy rabbit (*Sylvilagus idahoensis*), mountain cottontail (*Sylvilagus nuttallii*), desert cottontail (*Sylvilagus auduboni*), black-tailed jackrabbit (*Lepus californicus*), various rodents, coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), grizzly bear (*Ursus arctos*), raccoon (*Procyon lotor*), long-tailed weasel (*Mustela frenata*), black-footed ferret (*Mustela nigripes*), western spotted skunk (*Spilogale gracilis*), striped skunk (*Mephitis mephitis*), mountain lion (*Felis concolor*), elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), and pronghorn antelope (*Antilocapra americana*) (Zeveloff 1988).

Habitats for various bird species do not tend to be mutually exclusive because birds are highly mobile, but many families have species that tend to inhabit certain zones for feeding and nesting. Some birds that can be found in Shadscale/Greasewood communities include several species of sparrows (Emberizidae); bird hawks (Accipiter); buzzard hawks (Buteo); typical owls (Strigidae); barn owls (Tytonidae); grouse, quail, and pheasant (Phasianidae); pigeons and doves (Columbidae); larks (Alaudidae); crows, ravens, jays, and magpies (Corvidae); chickadees and titmice (Paridae); wrens (Troglodytidae); mockingbirds and thrashers (Mimidae); shrikes (Laniidae); and starlings (Sturnidae) (Peterson 1990).

Common reptiles in Shadscale/Greasewood communities include the common gartersnake (*Thamnophis sirtalis*), sagebrush lizard (*Sceloporus graciosus*), sideblotched lizard (*Uta stansburiana*), eastern collared lizard (*Crotaphytus collaris*), eastern fence lizard (*Sceloporus undulatus*), eastern racer (*Coluber constrictor*), gophersnake (*Pituophis catenifer*), western rattlesnake (*Crotalus oreganus*), Great Basin collared lizard (*Crotaphytus bicinctores*), greater short-horned lizard (*Phrynosoma hernandesi*), long-nosed leopard lizard (*Gambelia wislizenii*), nightsnake (*Hypsiglena torquata*), striped whipsnake (*Masticophis taeniatus*), and terrestrial gartersnake (*Thamnophis elegans*). Of the amphibians, the Great Basin spadefoot (*Spea intermontana*), Great Plains toad (*Bufo cognatus*), Mexican spadefoot (*Spea multiplicata*), and red-spotted toad (*Bufo punctatus*) can be found in Shadscale/Greasewood communities (Utah Division of Wildlife Resources 2006).

Regional Prehistoric and Historic Overview

The project area is located in the northeastern Great Basin on the western side of Salt Lake County. This region has evidence of intermittent occupation for at least the past 10,000 years by Paleoindian, Archaic, Fremont, Late Prehistoric, and ethnohistoric populations, followed by Euroamericans, who marked the beginning of the Historic period. There is no published culture history specific to the project area, although Jennings' (1978) summary of Utah archeology and Bassett and Hunsaker's (1996) chronology for Dugway Proving Ground are both relevant.

The Bonneville Period (11,000-9,500 B.P.)

The Bonneville period marked the beginning of prehistoric occupation in the region and correlates with the early part of the Late Pluvial. The Late Pluvial was a time "marked by prolonged warming and drying trends but with a glacial and lacustral resurgence from ca. 11,000 to 10,000 B.P." (Bassett and Hunsaker 1996:12). Diagnostic projectile points of the Bonneville period include large, fluted projectile points such as Clovis and Folsom, as well as other Paleoindian projectile point types that have been classified under the Western Stemmed projectile point tradition. Some early Great Basin sites have also yielded scrapers and crescents, which appear to correlate with early Paleoindian occupation in the region. According to Aikens and Madsen (1986), the Bonneville period marked a transition from Paleoindian big game hunting to the Desert Archaic lifeway of foraging for plants and small game.

The Wendover Period (9500-6000 B.P.)

The Wendover period, which was characterized by widespread warming and drying, generally corresponds with the Early Archaic period, as described in traditional chronologies of the eastern Great Basin. "It overlaps the last one-third of the Late Pluvial and most of the Post Pluvial" (Bassett and Hunsaker 1996:15). This period is relatively well known based on the extensive excavations at Danger Cave (Jennings 1957) and a variety of other dry cave sites in the region. The relative frequency of sites during this period probably increased relative to the preceding period, and sites appear to have occurred in a wider range of altitudinal and topographic settings (Bassett and Hunsaker 1996). There was a marked increase in the use of plant resources, correlating with a greater abundance of groundstone. A wide variety of new atlatl dart point types also appeared. Significant Early Archaic projectile point types include Pinto, Northern Side-notched, and Humboldt Lanceolate.

The Black Rock Period (6000-1500 B.P.)

According to Aikens and Madsen (1986), the Black Rock period corresponds with the Middle Archaic period in other parts of the Great Basin. This period apparently overlapped with the end of the Post-Pluvial and the beginning of the Neopluvial, and was clearly marked by extensive climatic changes to an even hotter and drier climatic regime than those during the preceding period (Bassett and Hunsaker 1996). The economic strategy during the Black Rock period focused on seed and plant foods in addition to animal resources (Grayson 1993). In some areas, there was a major reliance on lacustrine environments that later shifted to include upland spring areas. This shift is believed to have occurred as a result of changing lake levels, diminished lacustrine resources, and increased population pressure (Janetski 1986; Madsen 1982; Madsen and Berry 1975). Such an expanded resource base is characteristic of Jennings' (1957, 1978) classic "Archaic" or "Desert" culture, based on Steward's (1938) model of Western Shoshoni settlement and subsistence.

Danger Cave (Jennings 1957) and Hogup Cave (Aikens 1970) are two examples of excavated sites in the northeastern Great Basin that produced extensive archeological evidence of Archaic occupation during the Black Rock period. The Sparrow Hawk site at the southern end of the Oquirrh Mountains (Janetski 1983), Spotten Cave at the southern end of Utah Valley (Mock 1970), and American Fork Cave northeast of Utah Lake (Hansen and Stokes 1941) are closer examples of sites with Archaic components that likely date to the Black Rock period.

Archaic period material culture from this time period includes large lanceolate and triangular projectile points, atlatls, dart shafts, basketry, z-twist cordage, sandals or moccasins, milling implements, digging sticks, bone awls, and imported shells (James and Singer 1980; Madsen and Berry 1975). Diagnostic projectile points from the Black Rock period include crudely flaked lanceolate points and Elko, Gypsum, and various other regional point types. Bassett and Hunsaker (1996:15-16) extend this period to include the early portion of the Formative period, as indicated by the adoption of the bow and arrow. We prefer to end the Black Rock period slightly earlier so that it encompasses only an Archaic lifeway; we include Formative traits and lifeways in the subsequent period.

The Fremont Period (1500-700 B.P.)

The Fremont period is identified not on the basis of environmental changes, but instead upon the introduction of new technologies, settlement and subsistence strategies, and dietary components that are typical of the Formative lifeway. The Fremont period was marked by more significant architecture and more sedentary occupation, at least in some areas and at some times; a change in subsistence strategy to include corn horticulture and small-scale agriculture; and the introduction of pottery and bow and arrow technology. Smaller projectile point types replaced the larger lanceolate and triangular dart points associated with the Archaic period hunter-gatherers. Fremont material culture includes grayware pottery, ceramic figurines, bone gaming pieces, s-twist cordage, and distinctive basketry (Grayson 1993; Madsen and Berry 1975). The Fremont archeological tradition is believed to have gradually grown "to reach a maximum presence around A.D. 900 and then precipitously declined after A.D. 1150-1200" (Massimino and Metcalfe 1999:13). The project area is within the area inhabited by the Sevier Fremont in the classic Fremont variant typology (Marwitt 1973). Excavated sites near the project area that contained Fremont cultural remains include the Sparrow Hawk site (Janetski 1983), Spotten Cave (Mock 1970), American Fork Cave (Hansen and Stokes 1941), Woodward Mound (Richens 1983), and Hinkley Farm northeast of Utah Lake (see Marwitt 1973).

The Late Prehistoric and Protohistoric Periods (700 B.P.-present)

The Late Prehistoric period was marked by a shift from a more sedentary, horticulturally based lifeway to a wide-ranging, foraging lifestyle that was typical of the earlier, Archaic period hunter-gatherers. This period correlates with Numic occupation in the region. Numic-speaking populations are thought to have migrated into the Great Basin region from southeastern California ca. A.D. 1300-1500 (Dalley 1976). Artifacts from this period include small projectile points, basketry, and crude brownware pottery. Protohistoric period artifacts are distinct from similar classes of artifacts that are associated with Fremont occupation. Such material distinctions have led some researchers to postulate a lack of cultural continuity existing between Fremont and Numic populations, in support of the theory of Numic expansion (Adovasio 1986; Madsen 1989).

Various Numic-speaking groups (e.g., Goshute, Western Shoshoni, Ute, and Northern Paiute, among others) occupied the eastern Great Basin during Protohistoric times (Steward 1938). The general project area, just west of Utah Lake, lies near a linguistic boundary between the Tooele Valley Goshute and the Tumpanogots Utes (Steward 1938:Figure 1). The project area appears to have been primarily in the realm of the Tumpanogots Utes, who inhabited the area around Utah Lake. Janetski (1986:156), who has conducted considerable research regarding Ute occupation and adaptation in the nearby Utah Lake and Utah Valley area, describes local Ute hunter-gatherer land-use patterns for the start of the Contact period (Janetski 1990):

> Prehistoric settlement in the valley appears to have consisted of numerous, small, essentially permanent villages located along the lower reaches of the feeder streams and the eastern shore of Utah Lake. Houses took several forms but the most prevalent was the domed willow wickiup, which varied in size and stability with duration of intended use. The diet was broad with a large number of plant and animal resources utilized; lacustral items, especially fish, which was dried and stored for later use, dominated, however. Subsistence-related technology is rather typical of Great Basin groups, the bow and arrow, nets, baskets, grinding tools, and

chipped stone items being very important. The ceramic technology, though present, is not well defined.

The Historic Period (150 B.P.-present)

The Historic period began when Escalante and Dominguez visited Utah in 1776. They were followed by a variety of other explorers and trappers approximately 40 years later. The first Euroamerican to penetrate the Great Basin proper was Jedediah Smith in 1826 (Hull and Avery 1980). Fur trappers soon followed Smith, as did several exploratory expeditions led by Jim Bridger, Etienne Provost, Peter Skene Ogden, and John C. Fremont.

Emigrant wagon trains to California began passing through the Salt Lake region in 1846 when Lansford Hastings established a route around the southern shore of the Great Salt Lake and across the Salt Desert. Several wagon trains traversed the Hastings Cutoff, the most notable being the Donner-Reed Party (James and Singer 1980). The Donner-Reed group also were known to have camped at Garfield during their travels (Hulse 1964). The migration of Mormons into Utah and the discovery of gold in California soon followed. Expeditions led by Captain Howard Stansbury and Captain John Gunnison provided information about new routes for transportation and communication in the region (Bassett and Hunsaker 1996).

Transportation

Once travel routes had been established and mapped through the Great Basin, gold miners and homesteaders quickly entered the region and crossed the area via the Overland Trail bound for California and Oregon. The U.S. government soon followed with survey teams and established permanent routes for stage, mail, and railroads.

With the driving of the golden spike at Promontory, Utah on May 10, 1869, the Central Pacific and Union Pacific railroads were linked, and the first transcontinental railroad line was completed. Completion of this line allowed Utah and nearby regions to participate in the national economic market. These railroad operations made large-scale mining commercially feasible, and a variety of mining districts were established in the mountains of western Utah, including the area around the project area. The railroad also provided opportunities for the development of large-scale ranching and livestock operations, including sheep ranching (Bassett and Hunsaker 1996).

Prior to the 1880s, access to the Oquirrh Mountains and the southern shore of the lake was limited to wagon and stagecoach. In the 1860s, the stagecoach route from Salt Lake City to California closely followed the Hastings Cutoff between the Oquirrh Mountains and South Salt Lake (Hulse 1964; James and Singer 1980). Construction of the Bingham and Camp Floyd Railroad, the Utah and Nevada railway, and the San

Pedro, Los Angeles, and Salt Lake Railroad between 1870 and 1890 eased access to the study area from Salt Lake City for recreational and industrial needs (Arrington and Hansen 1963; Fuller 1983; James and Singer 1980).

Salt Production

The first nonagricultural use of the area was for the extraction of salt from the water of the Great Salt Lake in 1847. Early settlers, such as Charlie White, were producing 300 pounds of salt per day for Salt Lake City residents (Fuller 1983). Large-scale salt production began with the establishment of the Inland Salt Company (later known as the Inland Salt Crystal Company) in 1889. By 1955, four salt companies were in operation around the Great Salt Lake: Royal Crystal, Morton, Stansbury, and Deseret Salt Company (Hulse 1964; James and Singer 1980).

Mining

Copper mining in the Oquirrh Mountains began in earnest at the end of the 19th Century with the discovery of veins of copper sulphuride ore and the perfection of mechanized open pit mining. In 1898, the Boston Consolidated Copper Mining Company, Ltd., was one of the first to mine copper ores in the area (Arrington and Hansen 1963). The Utah Copper Company was established in 1903, implementing some experimental techniques in copper extraction. The Garfield Concentrator, or Magna Mill, was constructed in 1907. The Denver and Rio Grande Western Railroad Company was contracted to run rails between the Utah Copper Mine and the new Magna Mill, before the mill was complete (Arrington and Hansen 1963:29-56; Hulse 1964:31-43). During World War I, Utah ranked fourth in the nation in copper production. However, after the war, mining operations were halted. It was at this point that the Kennecott Copper Corporation, which had been formed by the Guggenheims in 1915, absorbed the Utah Copper Company (Arrington and Hansen 1963). Kennecott Copper Corporation remains one of the top copper producers in the U.S. today.

Towns

Development of the mining industry on the northern Oquirrh Mountains and south of Salt Lake inspired greater occupation of the area. A railway station and associated town was established at Riter in 1906. In addition, a small community of tents, dugouts, and shanties known as Ragtown developed near the construction sites of the Magna Mill in 1905 and 1906. It was located east of the mill and was made up of approximately 60 houses. It was abandoned in 1917 due to the construction of a tailings pond. Several structures remained until the 1960s; however, Ragtown was ultimately absorbed by the town of Magna (Hulse 1964).

The towns of Magna and Garfield were established in 1914. The Town of Bacchus was established between 1913 and 1915 as a residence for workers at the Bacchus Powder Plant. In the 1920s, a small barrack community of Japanese smelter workers was formed east of the Magna Mill, near the old site of Ragtown. Due to the onset of the Great Depression, the Japanese community was abandoned and the populations of Bacchus, Magna, and Garfield were greatly depleted. By the 1950s, Bacchus and Garfield were abandoned, and many of their structures were relocated to Magna (Hulse 1964).

Background Research: Methods and Results

Archival research was conducted before fieldwork was initiated to determine if any cultural resource projects have been conducted within the project area, whether any cultural properties have been recorded in the project area, and whether any such sites are listed or are considered eligible for inclusion in the NRHP. Mineral survey records, land patent records, and various historical documents were also researched to identify known but previously unrecorded historic sites (e.g., mines, roads, and ranches) that might exist in the project area. The pertinent information regarding the background research is presented below.

File Search

Robert I. Birnie conducted a file search at the Utah Division of State History on January 28, 2008 and examined internal records at P-III Associates on January 29, 2008. Site files, report files, and maps showing known site locations and the locations of previous cultural resource projects were examined. The background research of internal records at P-III Associates indicated that P-III Associates had conducted a reconnaissance level inventory in 1991 and 1992 that encompassed the current project area (Schroedl 1993). This inventory documented four prehistoric sites, three historic sites, 47 houses or other types of architectural features, and three historic IFs. Four of these sites are situated in Section 16, two of which are inside or extend through Parcel B. These sites are discussed in detail below in the inventory results section.

Historic Records Search

On January 29, 2008, Robert I. Birnie of P-III Associates examined two GLO maps from 1856 and 1894 on file at the Utah State BLM Office that pertained to the project area. No historic roads or features were identified on either map that would be effected by the current project.

Field and Laboratory Methods

The project area parcels were inventoried through a series of parallel pedestrian transects. Bay Area Soil Products, Inc. provided aerial photos delineating the project area to P-III Associates. Ground control was maintained through the use of topographic maps, compasses, and hand-held global positioning system (GPS) units to ensure that the correct project area was inventoried.

For this project, sites are defined as consisting of 10 or more artifacts in a 10-m-diameter area, a feature with associated artifacts, or two or more associated features. When an artifact was discovered, the area around the artifact was examined for the presence of additional cultural material. If no features or additional artifacts were observed, then the location and material present were recorded as an IF. All IFs were described, illustrated if the artifact is a tool, and located with a GPS unit accurate to within 5-10 meters. Modern or recent historic material and properties less than 50 years old were not recorded. Any previously recorded sites were revisited and site information was updated.

Inventory Results

The cultural resources inventory of the project area parcels did not discover any newly recorded sites. However, one IF, a reddish-brown chert flake (Appendix B, Figure A-2), was discovered, and two previously recorded sites (42SL231 and 42SL273 [Schroedl 1993]) were reassessed during the inventory.

Site 42SL231 was first discovered and recorded during a reconnaissance inventory in 1991 of a 1965-acre parcel on behalf of Kennecott Mining Corporation. At that time, the site consisted of an Elko projectile point and a scraper that were apparently eroding out of a deflating sandy hummock. Nine shovel probes in the vicinity of the tools were excavated to sterile sand (with an average depth of 62 cm), but no subsurface artifacts were noted. Based on the lack of other artifacts and no subsurface deposits, the site was recommended as being not eligible for inclusion in the NRHP.

Site 42SL231 was relocated during this inventory and UTM coordinates were obtained using a GPS unit. The UTM coordinates provided for the datum in 1991 were inaccurate because they were hand-calculated from USGS maps prior to public availability of GPS technology. In 2008, a one-handed mano and a single white chert flake were noted near the location where the scraper was noted. Some modern trash was also noted at this location. The isolated flake was found approximately 60 m west-northwest of the site. The lack of other artifacts in deflating areas on site 42SL231 indicates that there are no significant subsurface deposits at this location, and the site is not eligible for inclusion in the NRHP.

Site 42SL273 was also first discovered and recorded during the same reconnaissance inventory in 1991 of a 1965-acre parcel on behalf of Kennecott Mining Corporation. At that time, the site consisted of a raised roadbed of the old Salt Lake to Tooele Highway. No artifacts were observed, and the site had evidence of recent use. Based on the lack of site integrity due to modern developments and recent use, the site was recommended as being not eligible for inclusion in the NRHP.

In 2008, site 42SL273 was still in use and extremely rutted, and no associated historic artifacts were observed. In addition, no clearly intact historic segments of the road were observed. The lack of artifacts and recent and heavy use of site 42SL273 indicate that no historic segments remain within Parcel B, and the site is not eligible for inclusion in the NRHP. No other cultural sites or IFs were observed in either parcel.

Summary and Management Recommendations

In summary, P-III Associates conducted an intensive cultural resources inventory of two parcels (A and B), covering approximately 120 acres, in February of 2008. The project area is situated on a lake plain and lake terrace northeast of the Oquirrh Mountains and south of the Great Salt Lake in the western portion of Salt Lake County. No newly recorded sites were noted in either of these parcels, but two previously recorded sites, 42SL231 and 42SL273, were revisited and reassessed. One IF was also discovered in Parcel B. After the reassessment in 2008, both sites are still not considered eligible for inclusion in the NRHP. The IF is also recommended as being not eligible for inclusion in the NRHP. Cultural resource clearance for the proposed undertaking is recommended.

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APPENDIX A

FIGURES

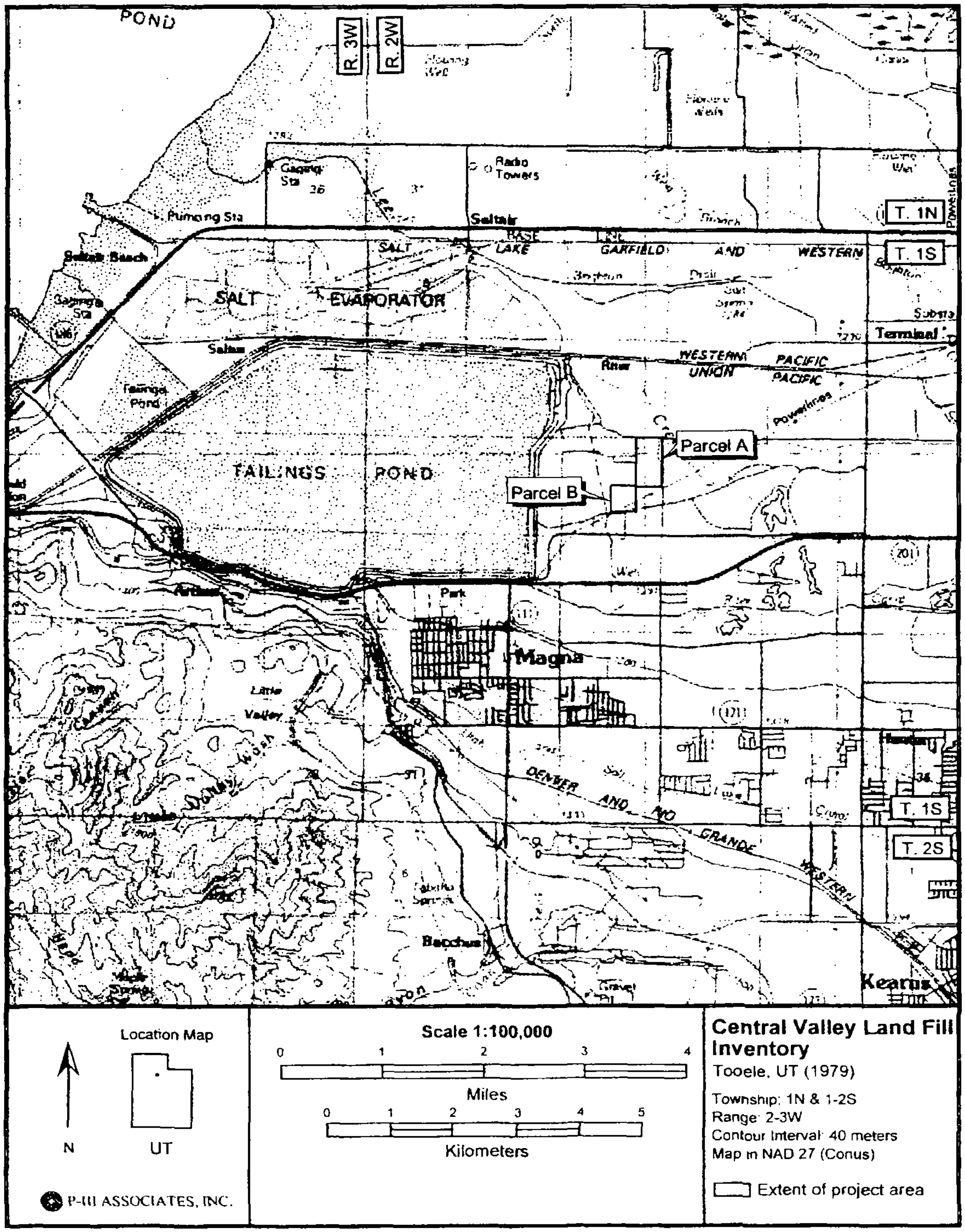


Figure A-1. A portion of the U.S.G.S. Tooele, Utah 1979 1:100,000 topographic map showing the general location of the project area parcels in Salt Lake County, Utah.

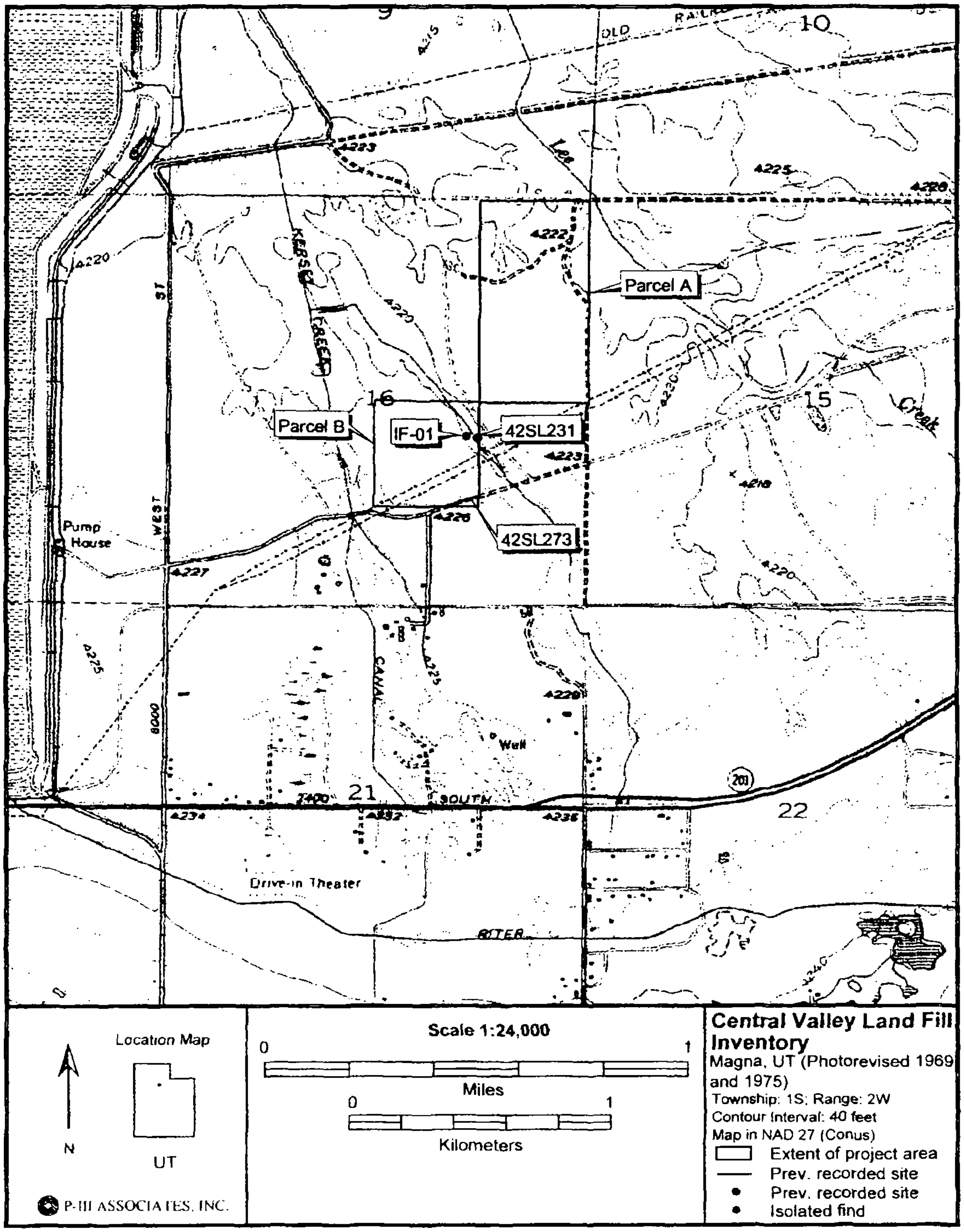


Figure A-2. A portion of the U.S.G.S. Magna, Utah (Photorevised 1969 and 1975) 7.5' topographic map showing the locations of two previously recorded sites and an isolated find located during the inventory.

APPENDIX B

LIST OF ISOLATED FINDS, THEIR DESCRIPTIONS, AND THEIR UTM LOCATIONS

Appendix B. List of isolated finds, their descriptions, and their UTM locations.

Isolate No.	UTM Coordinates [1] Easting	Northing	Isolate Type and Description
IF-01	409813	4509316	**Debitage** 1 late-stage core reduction flake, reddish-brown chert.

[1] All isolates are in Zone 12. All UTM coordinates are corrected unless there was an error in collecting the field data, and are from the NAD 1927 Conus datum.

APPENDIX C

A LIST OF THE LEGAL LOCATIONS BY PARCEL FOR THE PROJECT AREA

Appendix C. List of the legal locations for the Central Valley Landfill Inventory (U-08-PD-026p).

1/4 or 1/2[1]	1/4 or 1/2[1]	1/4 or 1/2[1]	Section	Township	Range
	E	NE	16	1S	2W
	NW	SE	16	1S	2W

[1]All or portions

APPENDIX D

IMACS SITE FORMS

IMACS SITE FORM

*1. State No: 42SL231
*2. Agency No:
3. Temp. No: 5305-01

Part A - Administrative Data

INTERMOUNTAIN ANTIQUITIES COMPUTER SYSTEM
Form approved for use by
BLM - Utah, Idaho, Wyoming, Nevada
Division of State History - Utah, Wyoming
USFS - Intermountain Region
NPS - Utah, Wyoming

4. **State** Utah **State Code** 42 **County** Salt Lake **County Code** SL
5. **Project** Central Valley Land Fill Inventory **P-III Associates Project No.** 5305
*6. **Agency Report No.** U-08-PD-026p **P-III Associates Report No.** 5305-01-20803
*7. **Site Name / Property Name** N/A
8. **Class** ☑ Prehistoric ☐ Historic ☐ Multicomponent ☐ Paleontologic ☐ Ethnographic
9. **Descriptive Site Type** Lithic artifact/groundstone scatter
*10. **Elevation at site datum** 4,222 ft
*11. **UTM Grid at site datum** Zone 12 409856 m E 4509311 m N 409791 m E 4509517 m N
1927 Datum 1983 Datum
*12. **Legal Location**

Quarter Sections	*Section*	*Township*	*Range*
NE NW SE	16	1S	2W

*13. **Meridian** Salt Lake (1)
*14. **Map Reference (USGS 7.5 min)** Magna, Utah (Photorevised 1969 and 1975)
15. **Aerial Photo** N/A
16. **Location and Access**

The site can be reached by traveling west on State Route 201 from Redwood Road in Salt Lake City to 7500 West. Turn right (north) and drive for just under 0.25 mi to an intersection with a road that extends to the west and a road that extends to the northeast along a fenceline. Turn right (northeast) and drive for approximately 0.14 mi (750 ft) to a point where a second fenceline extends to the north and stop. Walk north along the western side of the fence for approximately 240 m. The site datum is situated on the terrace on the north side of the drainage and approximately 7.00 m west of the fence. The site is located on a terrace above a stream in a wide valley. The site datum consists of an aluminum-capped rebar stake. The cap is stamped with "P-III Associates", the original temporary site number, "478-1", and the year, "1991", that the site was recorded.

*17. **Land Owner** County (CO) and Other (OT)
*18. **Federal Administrative Units** N/A
*19. **Location of Curated Materials** N/A
20. **Description**

This site was originally recorded by P-III Associates in 1991 (Schroedl 1993). The site consists of one Elko Corner-notched projectile point and a steep end and side scraper exposed on the eroded slope of a natural levee adjacent to a slough. The tools are located 0.6 and 0.8 m below the modern ground surface and are 5.0 m apart. No pieces of lithic debitage were noted. The site was tested on February 4 and 5, 1992. Nine shovel probes were excavated down to the whitish tan lake bottom sediments. No cultural material was recovered from the test probes.

On February 11, 2008, P-III Associates revisited the site. Observed artifacts consisted of a late-stage core reduction white chert flake and one mano (A-01).

*21. **Site Condition** ☐ Excellent (A) ☐ Good (B) ☐ Fair (C) ☑ Poor (D)
*22. **Impact Agents** ☐ Deflation (DE) ☐ Demolition (DM) ☑ Erosion (ER) ☑ Fence (PR) ☑ Grazing (GR) ☐ Road (RD) ☐ Development (PR) ☐ Range Fire (OT) ☐ Vandalism (VA) ☐ Rodent Damage (RO) ☑ Recreational Use (RC) ☑ Other (OT)

Describe
Natural erosion, primarily sheetwash erosion, has affected the western portion of the site. East of the site, the ground surface is well sodded, inhibiting erosion.

IMACS SITE FORM

*1. State No: 42SL231
*2. Agency No:
3. Temp. No: 5305-01

The site is even more eroded in 2008 than when it was originally recorded in 1991. The site has also been impacted by minimal grazing, a fenceline, and all-terrain vehicle use. The site is in poor condition.

***23. National Register Status** Non-eligible

Justify

This site was originally recommended as being not eligible for inclusion in the National Register of Historic Places (NRHP). No additional data was observed to alter the original recommendation.

24. Photos

Date	Project No.	Image No.	Item No.	Caption
2/11/2008	5305	4467		Site overview facing southwest from datum.
2/11/2008	5305	4468		Site overview facing northwest from datum.

25. Recorded by Robert I. Birnie

***26. Survey Organization** P-III Associates, Inc. (PD) ***28. Survey Date** 11-Feb-2008

27. Assisting Crew Members James A. Nyman, Samantha L. Kirkley, and Courtney P. Neilson

List of Attachments
- ☑ Part B
- ☐ Part C
- ☐ Part E
- ☑ Topo Map
- ☑ Site Map
- ☑ Photos
- ☐ Artifact/Feature Illustrations
- ☐ Other
- ☐ Continuation Sheets

Part A - Environmental Data

***29. Slope** 3 **(Degrees)** 220 **Aspect (Degrees)**

***30. Distance to Permanent Water** 5 **x 100 Meters**

***Type of Water Source** Stream/River (B)

Name of Water Source Kersey Creek

***31. Geographic Unit** Wasatch Front Valleys (BEC)

***32. Topographic Location** *- See Guide for additional information. Choose only one primary and one secondary landform.*

Primary Landform Valley (E)

Secondary Landform Cutbank (X)

Describe The site is located on the slope of a natural levee adjacent to a large slough. Traditionally, the area was a marshy freshwater plain.

***33. On-site Depositional Context** Alluvial Plain (H)
(Choose one)

Describe Presently, the depositional content of the site is an alluvial plain, but traditionally the area was a large freshwater marsh. Sediments consist of yellowish-brown silty clay (over whitish-tan lake bottom sediments). The yellowish-brown silty clay extends from the surface to an average depth of 62 cm.

***34. Vegetation**

a. Life Zone

☐ Artic-Alpine (A) ☐ Hudsonian (B) ☐ Canadian (C) ☐ Transitional (D) ☑ Upper Sonoran (E) ☐ Lower Sonoran (F)

b. Community

Primary On-Site Shadscale Community (O)

Secondary On-Site Grassland/Steppe (M)

Surrounding Site Shadscale Community (O)

Describe Traditionally, the vegetation would have been marsh/swamp. Today, the vegetation consists of greasewood, pickleweed, iodine bush, and indeterminate bunch grasses.

Vegetation observed in 2008 includes shadscale, saltbush, and other unidentified, nonwoody species.

IMACS SITE FORM

***1. State No:** 42SL231
***2. Agency No:**
3. Temp. No: 5305-01

***35. Miscellaneous Text** None

36. Comments/Continuations

The area on site and for several miles surrounding the site there were a series of freshwater lakes, streams, and springs with associated marshes and swamps. The traditional vegetation would have included pickleweed, iodine bush, sedges, reeds, scirpus, eleochris, and possibly cattail (Typha). The artifacts constituting the site have eroded from the cut bank of the slough which traditionally would have been a high point along the waterways and marshes.

Reference(s) used on this site form:

Schroedl, Alan R. (compiler)
1993
Cultural and Paleontological Inventory and Testing of 1965 Acres in Sections 16, 17, 20, 21 of Township 1S, Range 2W, Salt Lake County, Utah. Cultural Resources Report 478-01-9129. P-III Associates, Inc., Salt Lake City, Utah. Submitted to Kennecott Utah Copper, Bingham Canyon, Utah.

Part B - Prehistoric Site

State No 42SL231
Agency No
Temp. No 5305-01

1. Descriptive Site Type Lithic artifact/groundstone scatter

2. Culture CULTURAL AFFILIATION — Archaic; DATING METHOD — Lithic cross-dating

Describe The cultural assemblage includes an Elko Corner-notched projectile point.

3. Site Dimensions 5 m X 5 m ***Area** 20 sq m

4. Surface Collection/Method
- ☐ None (A)
- ☐ Designed Sample (C)
- ☑ Grab Sample (B)
- ☐ Complete Collection (D)

Sampling Method Both formal lithic tools, PP1 and IH1, were pace plotted from datum then collected in 1991. Nothing was collected in 2008.

5. Estimated Depth of Cultural Fill
If tested, show location on site map.
- ☑ Surface (A)
- ☐ 20 - 100 cm (C)
- ☐ Fill noted but unknown (E)
- ☐ 0 - 20 cm (B)
- ☐ 100 cm+ (D)
- ☐ Depth Suspected, but not tested (F)

How Estimated Nine shovel probes were excavated in 1991 (see map) down to the sterile lake bottom sediments. No cultural material was recovered from the probes. No shovel probes were excavated in 2008.

6. Excavation Status ☐ Excavated (A) ☑ Tested (B) ☐ Unexcavated (C)

Testing Method None

7. Summary of Artifacts and Debris *(Refer to Guide for additional categories, i.e., LS, GS, CS, CB, BS)*

Lithic scatter (LS)
Groundstone scatter (GS)

Describe Artifacts/Debris

When the site was recorded in 1991 (Schroedl 1993), the site comprised of an Elko Corner-notched projectile point (PP1) and a steep end and side scraper (IH1). The two artifacts are located on the southwestern-facing eroded slope of a freshwater slough. The point is located 0.8 m and the scraper is 0.6 m below the modern ground surface. The artifacts are separated by 5 m in a more or less north-south direction. Lacking in the assemblage are pieces of lithic debitage.

The 2008 revisit observed a late-stage core reduction white chert flake and one mano (A-01).

***8. Chipped Stone, Ground Stone, and Other Implements**

Number	Artifact Type
1	Scraper
1	Projectile point
1	Mano

Describe: One Elko Corner-notched projectile point (PP1), one side and end scraper (IH1), and one mano (A-01).

Artifact No.	Artifact Type	IMACS Code	Length (cm)	Width (cm)	Thickness (cm)	Material
A-01	Mano	NA	14.0	7.7	4.0	Quartzite
IH1	Scraper	IH	3.4	2.6		White and tan chalcedony (heat-treated)

A-01: This is a one-handed mano. It is not very heavily ground.

IH1 is a nearly complete side and end scraper made from a heat-treated flake of white and tan chalcedony with small brick red-colored inclusions. It is lacking a portion of one lateral margin. The end has been modified into a steep working edge while the angle of the sides are of a lesser angle. This scraper was collected in 1991.

Part B - Prehistoric Site

State No 42SL231
Agency No
Temp. No 5305-01

PP1	Projectile point	CA	3.5	3.4	0.6	Grayish-white chalcedony

PP1 is an Elko Corner-notched projectile point of grayish-white chalcedony. It is lacking a portion of its distal tip and midsection. It has a neck width of 1.2 cm. This point was collected in 1991.

*Incomplete

***9. Lithic Debitage - Estimated Quantity** 1 - 9 (B)

Material Type White chert (dominant).

Flaking Stages **(0) Not Present** **(1) Rare** **(2) Common** **(3) Dominant**

Decortication 0 **Secondary** 0 **Tertiary** 3 **Shatter** 0 **Core** 0

10. Maximum Density - # / sq m (all lithics) 1

***11. Ceramics Artifacts**

Describe: None

12. Maximum Density - # / sq m (ceramics) 0

***13. Non-Architectural Features (locate on site map)** *- See Guide for additional categories*

Describe: None

***14. Architectural Features (located on site map)**

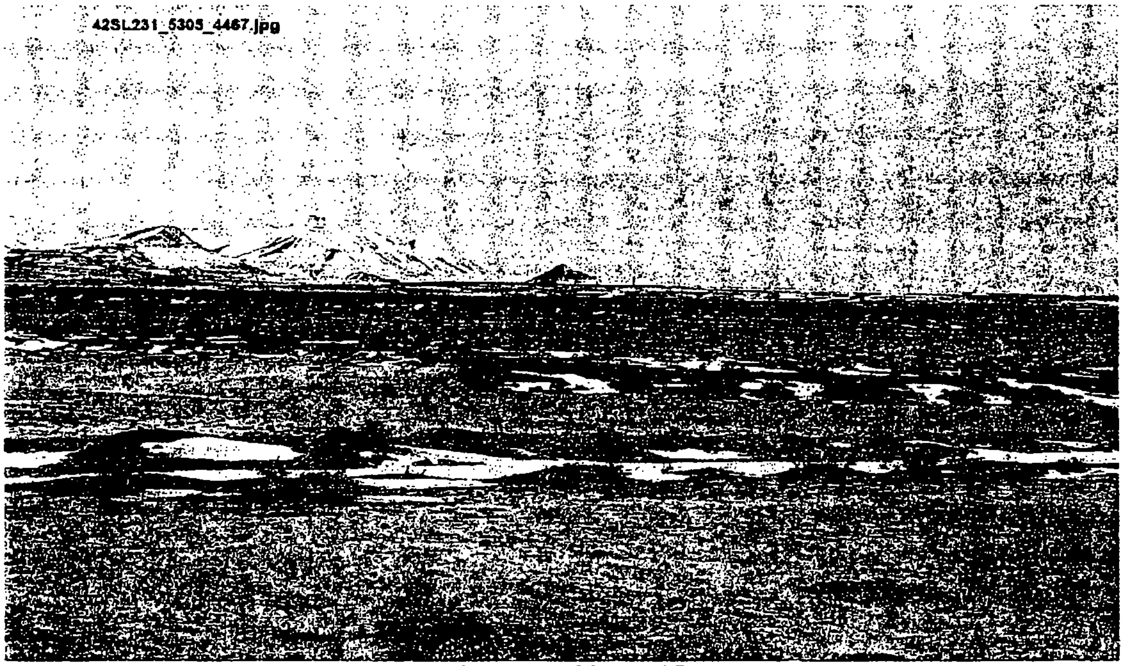
Describe: None

15. Comments / Continuations

Describe:

Test Pit Information:

The site was tested using nine shovel probes (see map) in 1991. The probes averaged 38 cm in diameter and all were excavated down to the sterile lake bottom sediments (average depth of 62 cm). A north-south, east-west grid system was established over the area with datum as the 0, 0 point. The probes were placed at 2-m intervals north, east, and west of datum. Soil was screened through one-quarter inch wire mesh. No cultural material was recovered from the shovel probes. No testing was conducted in 2008.



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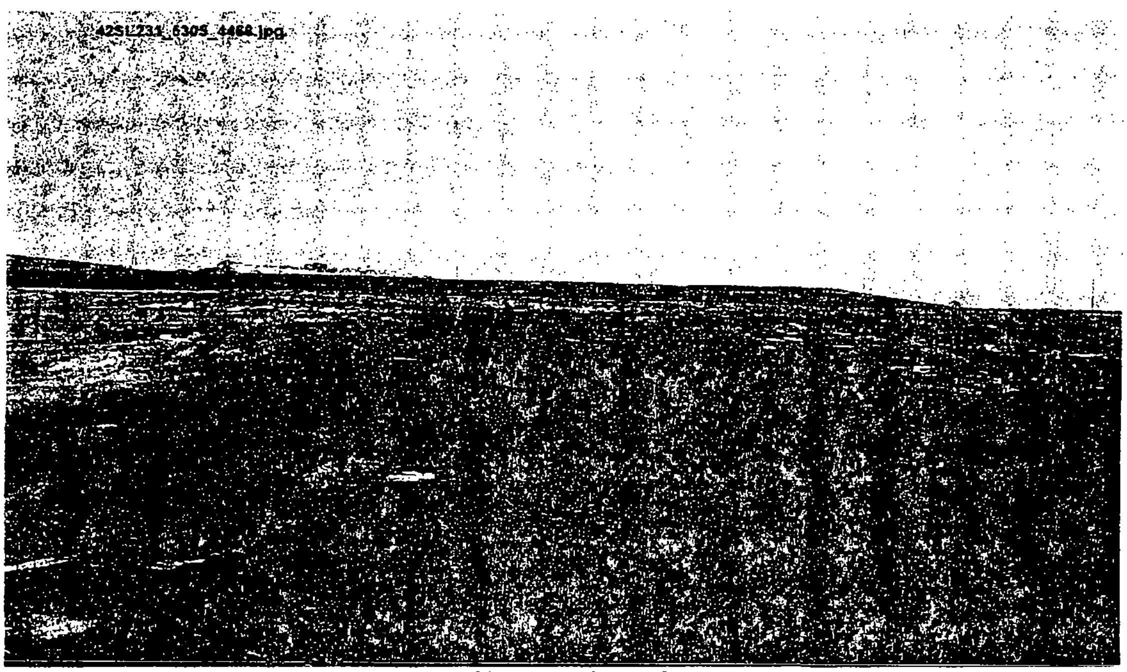

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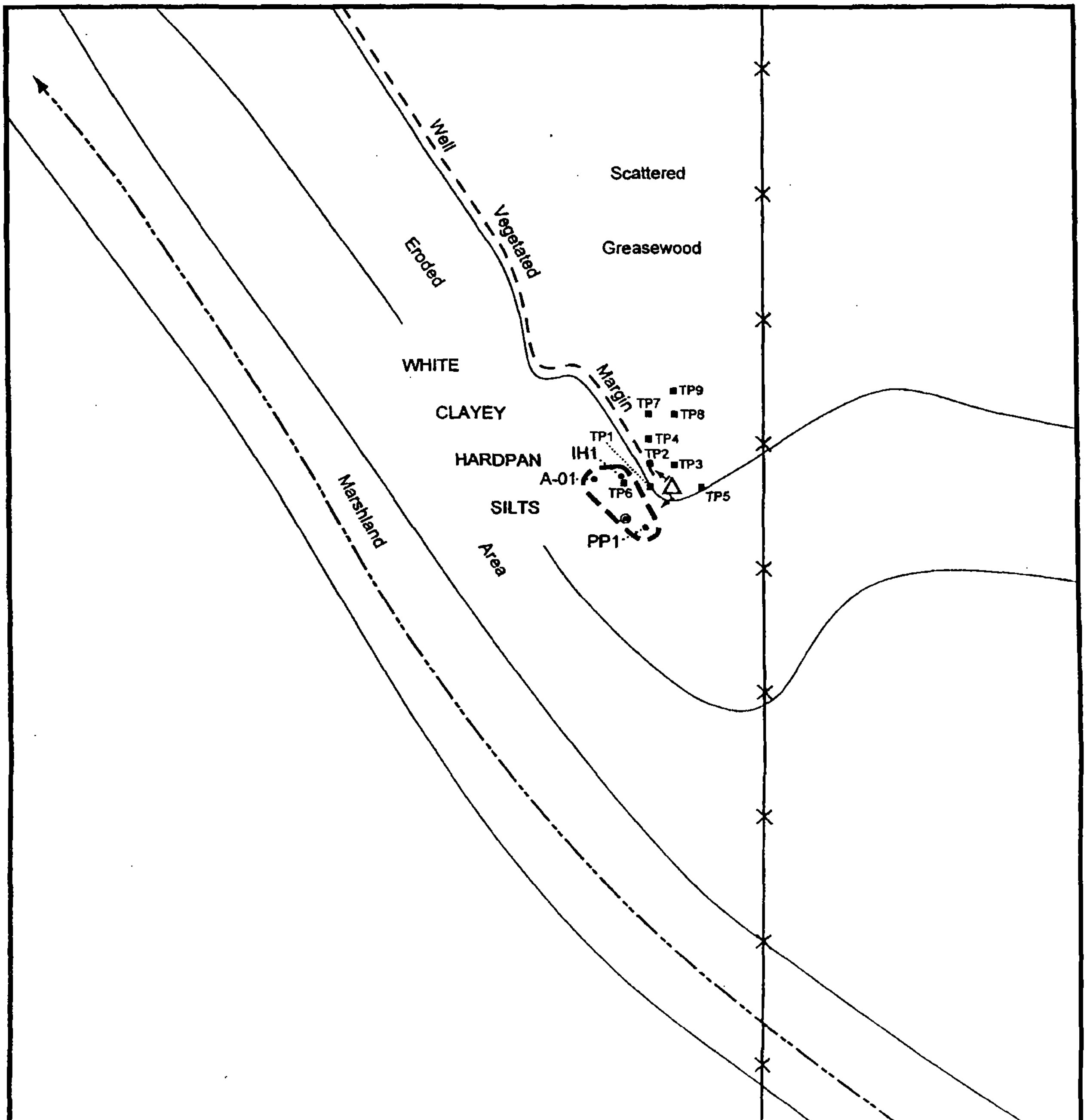


42SL231 Site Map

TN

0 10
m

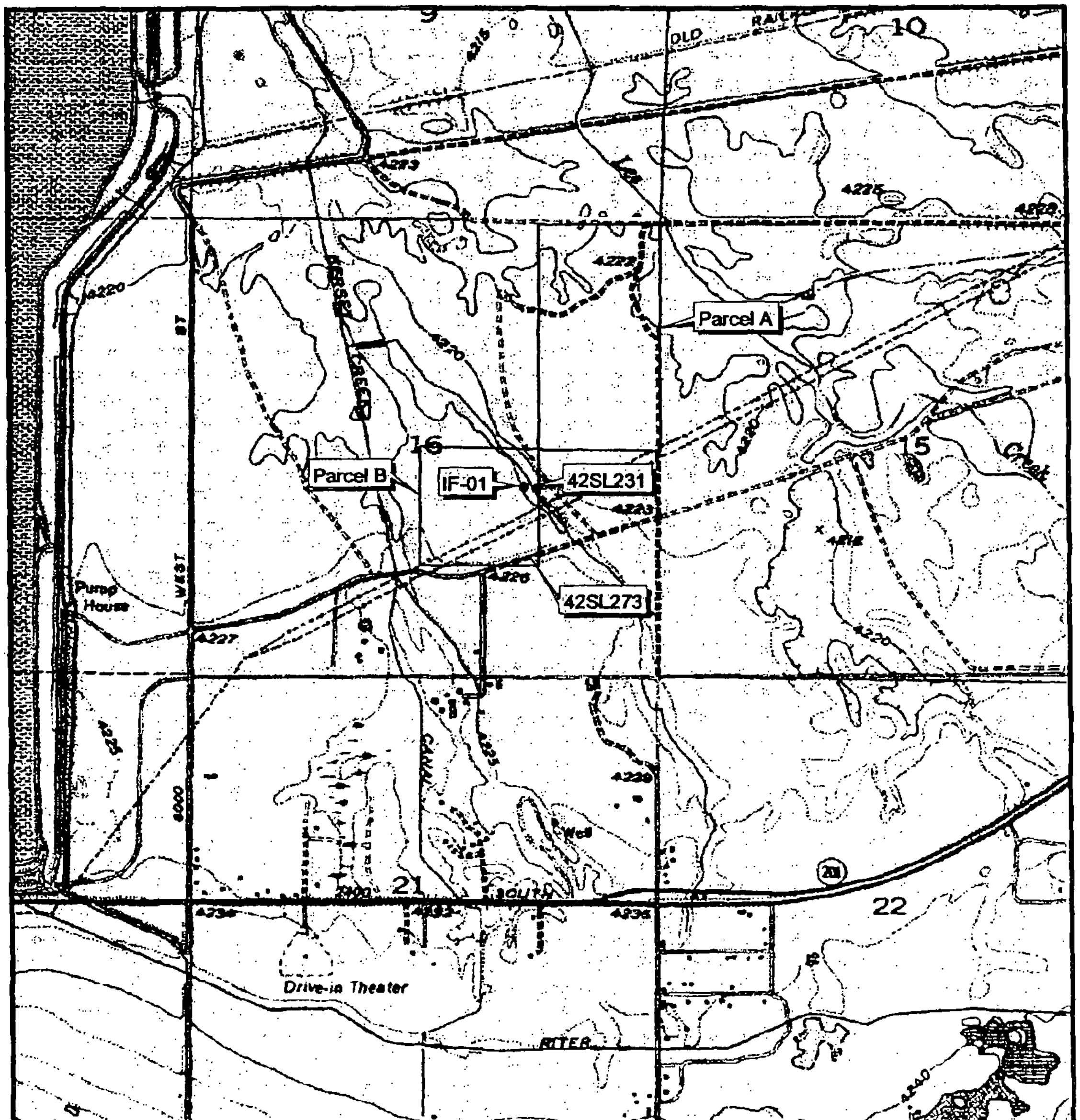
Contour interval: 1.0 m

Scale ratio: 1:500

P-III ASSOCIATES, INC.

Datum
Extent of surface artifacts
Well vegetated margin
A-01 Artifact
Photo point
Intermittent drainage
Fenceline
Chert flake

5305-01



Location Map

UT

N

P-III ASSOCIATES, INC.

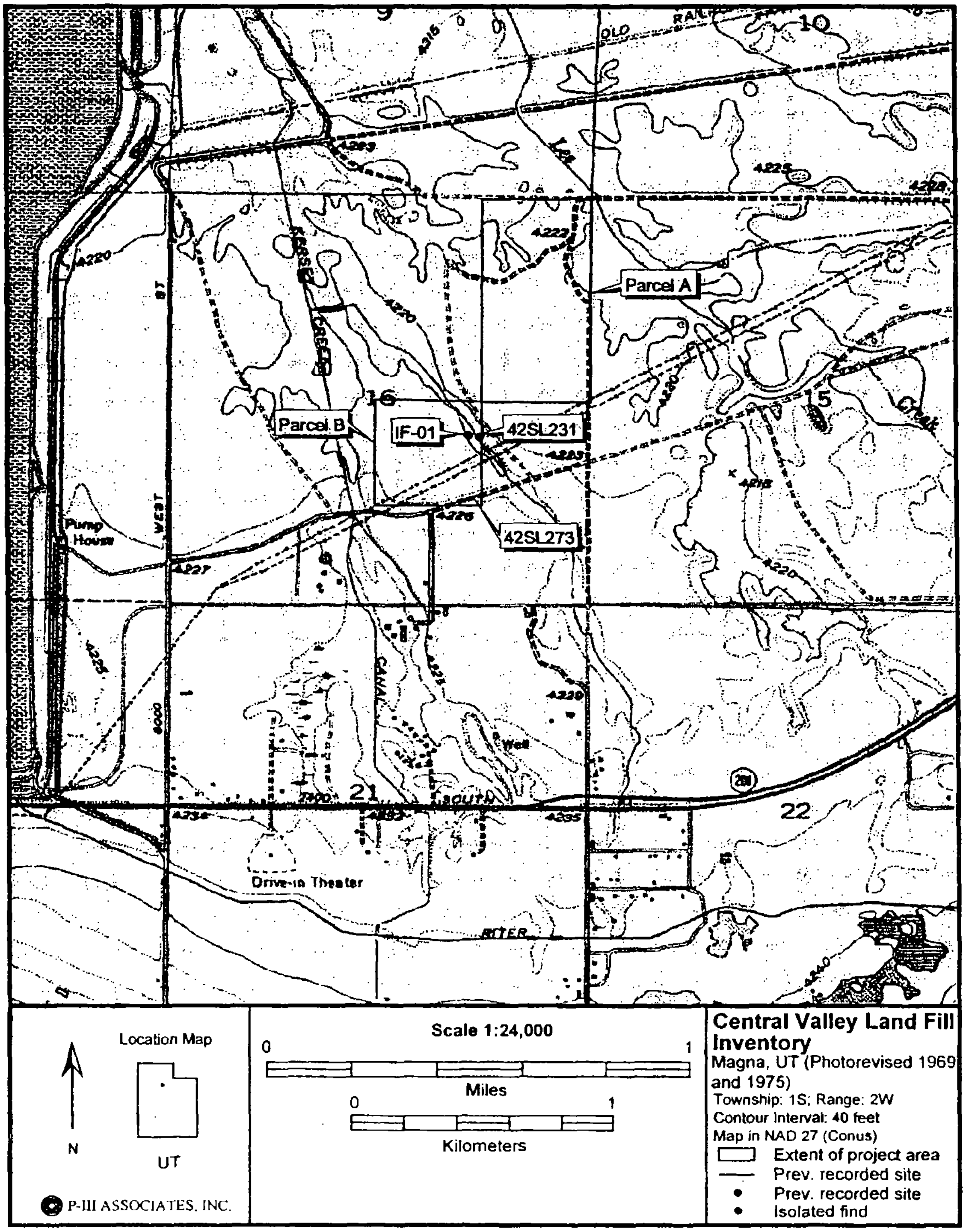
Scale 1:24,000

0 — 1 Miles

0 — 1 Kilometers

Central Valley Land Fill Inventory
Magna, UT (Photorevised 1969 *and 1975*)
Township: 1S; Range: 2W
Contour Interval: 40 feet
Map in NAD 27 (Conus)

- Extent of project area
- Prev. recorded site
- Prev. recorded site
- Isolated find



9
10
OLD
16
15
21
22
Parcel A
Parcel B
IF-01
42SL231
42SL273
Pump House
WEST
Drive-in Theater
Well
4220
4222
4225
4226
4227
4229
4235
Location Map
N
UT
P-III ASSOCIATES, INC.
Scale 1:24,000
0
1
Miles
0
1
Kilometers
Central Valley Land Fill Inventory
Magna, UT (Photorevised 1969 and 1975)
Township: 1S; Range: 2W
Contour Interval: 40 feet
Map in NAD 27 (Conus)
Extent of project area
Prev. recorded site
Prev. recorded site
Isolated find

1990

IMACS ENCODING FORM

Encoder's Name Diane R. Collett

To be completed for each site form.
For instructions and codes, see IMACS Users Guide.

A

1 42 - SL - 231 State Site Number

2 - Agency Site Number

6 U-08-PD 026p Agency Report Number

10 4222 Elevation

11 12 | 409791 | 4509517 — Zone | Easting | Northing

12 NE | NW | SE | 16 | 1 S | 2 W — 1/4 | 1/4 | 1/4 | Sec. | T. | R.

13 1 Merid.

14 Magna, Utah (Photorevised 1969 and 1975) USGS Map

17 CO Owner

18 Forest | Dist./Park

19 N/A Loc. Cur. Materials

21 D Cond.

22 ER PR RC Impacts

23 D N.R.

26 PD Organ.

28 2 - 11 - 08 Survey Date

29 3 Slope | 220 Aspect

30 5 B Water: dstance/type

31 BEC Geog. Unit

32 E 1st | X 2st — Topographic Location

33 H Dep.

34 E | O 1 | M 2 | O 3 — Vegetation

35 Misc. Text, Site Name

B

2 AR N Culture/Dating Method

3 20 Area

4 B Collect

5 A Depth

6 B Excav. Status

7 LS GS Prehistoric Artifacts

8 Lithic Tools: # / type

#	type
1	NA
1	IH
1	CA

9 A # | 0 0 3 0 0 Flaking Stages

11 Ceramics: #/type

13 Features: # / type

14 Architecture: # / material / type

C

2 Historic Themes

3 Culture/Dating Method

4 Dates

5 Area

6 Collect

7 Depth

8 Excav. Status

9 Artifacts

14 Features: # / type

15 Architecture: # / material / type

Printed on 2/20/2008 4:38:07 P

IMACS SITE FORM ADDENDUM

State No: 42SL273
Agency No:

A20. Site Description

This site was originally recorded by P-III Associates in 1991 (Schroedl 1993). The site consists of the raised roadbed of the old Salt Lake to Tooele Highway. The road first appears on the County Surveyor Township and Range map dated 1902. On this map, the road bisects the following sections going from east to west in T. 1S, R. 2W, Sections 14-17 and 19-20. In Section 14, the road diagonally bisects the NW1/4 then follows the section line eastward which is presently 1300 South. By 1917, portions of the road were abandoned. Sections 14 and 15 in T. 1S, R. 2W, are no longer bisected by the road but rather the road follows the western boundary of Section 15 northward then east along 1300 South. It is possible that this road follows the original stage route to and from Salt Lake City, "the Hasting's Cutoff", and the path traveled by John C. Fremont in 1845 though presently no evidence of this exists today.

No changes were noted to the site in 2008.

A21. Site Condition

The road has been affected by natural erosion and by recent use. It is extremely rutted, and no clearly historic segments were observed. The site is in poor condition.

A23. National Register Justification

This site was originally recommended as being not eligible for inclusion in the National Register of Historic Places (NRHP). The original NRHP recommendation is agreed with here.

A25. Recorded by Robert I. Birnie

A26. Survey Organization P-III Associates, Inc. (PD) **A28. Survey Date** 11-Feb-2008

A27. Assisting Crew Members James A. Nyman, Samantha L. Kirkley, and Courtney P. Neilson

List of Attachments

- ☑ Topo Map
- ☐ Site Map
- ☐ Photos and Captions
- ☐ Artifact/Feature Illustrations
- ☐ Continuation Sheets

Comments/Continuations:

None

References Cited:

Schroedl, Alan R. (compiler)
1993
Cultural and Paleontological Inventory and Testing of 1965 Acres in Sections 16, 17, 20, 21 of Township 1S, Range 2W, Salt Lake County, Utah. Cultural Resources Report 478-01-9129. P-III Associates, Inc., Salt Lake City, Utah. Submitted to Kennecott Utah Copper, Bingham Canyon, Utah.

42SL273

FAX

451 South State Street, Room 406
Salt Lake City UT 84111

Date: 9/4/98

No. of Pages, including cover sheet: 2

To: Greg Bland

Phone:

Fax: 280 6530

From: Doug Dansie

Salt Lake City Planning

Phone: 801-535-7757

Fax: 801-535-6174

REMARKS: □ Urgent □ For your review □ Reply ASAP □ Please comment

COMMENTS:

The attached list represents those who received notice of the Planning Commission Public Hearing

[14-16-400-011-0000]
ROKICH, JEANNINE C; TR
179 HACIENDA CARMEL
CARMEL, CA 93923

[14-16-400-012-0000]
ROKICH, JEANNINE C; TR
179 HACIENDA CARMEL
CARMEL, CA 93923

[14-16-400-014-0000]
ROKICH, JEANNINE C; TR
179 HACIENDA CARMEL
CARMEL, CA 93923

[14-16-400-015-0000]
ROKICH, JEANNINE C; TR
179 HACIENDA CARMEL
CARMEL, CA 93923

[14-10-300-011-0000]
MOUNTAINVIEW LANDFILL INC
PO BOX 1450
CHICAGO, IL 60690 1450

[14-09-100-003-4002]
KENNECOTT UTAH COPPER CORPORATION
PO BOX 6001
MAGNA, UT 84044 6001

[14-16-400-002-0000]
KENNECOTT UTAH COPPER CORPORATION
PO BOX 6001
MAGNA, UT 84044 6001

[14-10-100-002-0000]
KENNECOTT UTAH COPPER CORP
PO BOX 6001
MAGNA, UT 84044 6001

[14-15-100-001-0000]
STATE OF UTAH
450 N STATE OFFICE #4110
SALT LAKE CITY, UT 84114

[14-15-300-001-0000]
STATE OF UTAH
450 N STATE OFFICE #4110
SALT LAKE CITY, UT 84114

[14-16-400-016-0000]
KING, WILLIAM L JR & MARIAN M; TRS
4520 S 4150 W
WEST VALLEY, UT 84120

[14-16-400-013-0000]
CHRISTENSEN, LYNN D & CHARLOTTE K
3323 S 6400 W
WEST VALLEY, UT 84128 1333

[14-16-200-010-0000]
CENTRAL VALLEY WATER RECLAMATION FACILITY BOARD
800 W CENTRAL VALLEY RD
WEST VALLEY, UT 84119

[14-16-200-011-0000]
CENTRAL VALLEY WATER RECLAMATION FACILITY BOARD
800 W CENTRAL VALLEY RD
WEST VALLEY, UT 84119

[14-16-200-012-0000]
CENTRAL VALLEY WATER RECLAMATION FACILIT BOARD
800 W CENTRAL VALLEY RD
WEST VALLEY, UT 84119

Appendix D

WETLAND DELINEATION
7301 West 1300 South
Salt Lake City
Salt Lake County, Utah

May 2, 2008

WETLAND DELINEATION
7301 West 1300 South
Salt Lake City
Salt Lake County, Utah

May 2, 2008

Managed Organic Recycling, Inc.
9312 Skyline Blvd
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Prepared By:

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Amy Findley
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Executive Summary

A wetland delineation was conducted on a parcel of property approximately 83 acres in size located at 7301 West and 1300 South (Section 16, T 1S, R 2W, Salt Lake Base and Meridian), Salt Lake City, Utah. The purpose of this assessment was to determine whether any portion of the subject property may be considered wetlands, as defined by Section 404 of the Clean Water Act.

The results of this delineation indicate that there are approximately 9.59 acres of wetland on the subject property. Of the wetlands identified, it appears that approximately 7.71 acres may be considered jurisdictional, and 1.88 acres may be considered isolated wetlands by the U.S. Army Corps of Engineers (ACOE). The final decision as to jurisdiction will be made by the ACOE after field verification of the site.

This delineation was conducted according to the guidelines and procedures outlined in the US Army Corps of Engineers' Wetlands Delineation Manual (Technical Report Y-87-1) and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, December, 2006.

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1.0 INTRODUCTION

A wetland delineation was conducted on a parcel of property approximately 83 acres in size located at 7301 West and 1300 South (Section 16, T 1S, R 2W, Salt Lake Base and Meridian), Salt Lake City, Utah. The purpose of this assessment was to determine whether any portion of the subject property might be considered wetlands, as defined by Section 404 of the Clean Water Act.

The U.S. Army Corps of Engineers (ACOE) and EPA define wetlands as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Generally, saturated soil conditions are further described as saturated to the surface for at least two weeks during the normal growing season.

The current property owner is the Central Valley Water Reclamation Facility. The contact for the property is Mr. Reed Fisher, Central Valley Water Reclamation Facility. The phone number for Mr. Fisher is (801) 973-9100.

2.0 SITE DESCRIPTION

The site is located at 7301 West 1300 South, Salt Lake City, Utah. To access the site, access UT-201 West toward West Valley. Take the 56th West Street exit, and turn right onto 5600 West Street. Turn left (west) on California Avenue. The site is located approximately 0.25 miles west down the unpaved road, on the left (south) side of the road. The site is currently a composting facility and is secured with a chain-link fence. Site direction is presented as **Figure 1**. A topographic map is presented as **Figure 2**. A site map is presented as **Figure 3**.

Land in the surrounding area is primarily used for light industrial purposes or is currently undeveloped. The Salt Lake County landfill is located to the north-northeast of the property. Site photographs are presented in **Appendix 4**.

3.0 METHODS

This delineation was conducted according to the guidelines and procedures outlined in the US Army Corps of Engineers' Wetlands Delineation Manual (Technical Report Y-87-1) and in compliance with the Interim Regional Supplement to the Corps of Engineers' Wetland Delineation Manual: Arid West Region, December, 2006.

Using this method, the upland areas are differentiated from wetland areas based on three parameters: vegetation, soils, and hydrologic features. At each data point, all of these parameters must exhibit wetland characteristics for that point to be within the wetland boundary. Dominant vegetation species at each data point were identified by visual estimation of coverage. Generally, any species with 20% cover or greater was considered a dominant species. However, the Wetland Delineation Manual specifies that for areas where only one layer of vegetation is present, five dominant species should be identified for each data point. Therefore, if five dominant species were not present at 20% cover, species with less cover were also noted, but not generally counted as dominants.

Soils were removed at each data point to depths between 18 to 20 inches. Soil moisture, texture, and color were observed, and any observations of organic content, redoximorphic conditions or gleyed soils were noted. Soils were moistened and compared to the Munsell Color Charts (Macbeth, 1990) for determination of value, chroma, and hue.

Hydrologic features were noted for each data point, based primarily on depth to groundwater, surface water, soil moisture, and field observations, for indications of hydrologic characteristics, such as water marks and drift lines. Where available, irrigation, seasonal influences, recent precipitation events, annual and long-term precipitation data, and historical information were also considered. As specified in the Wetlands Delineation Manual, information collected from each data point was recorded on data forms presented in **Appendix 2**.

4.0 FIELD SURVEY RESULTS

Complete documentation of vegetation, soils, and hydrology is provided for 14 data points, starting with data point DP-3, through data point DP-16.

4.1 Vegetation

The dominant wetland plant species identified were saltgrass *(Distichlis spicata)* and unidentifiable species of plants in the Ranunculaceae family.

Dominant upland plants consisted of rye grass (*Elymus cincereus)* and greasewood (*Sacrobatus vermiculatus).* Speciation of upland plants was difficult due to the time of year. Unidentifiable species of upland grasses, *Cirsium*, as well as species from the Asteraceae family were emerging at the time of the site visit. Tables 1 and 2 summarize the dominant vegetation.

Table 1
Dominant Wetland Species

Scientific Name	Common Name	Indicator Status
Distichlis spicata	Inland saltgrass	FAC
Ranunculus sp	buttercup	FAC-FACW

Table 2
Non-wetland or Upland Vegetation

Scientific Name	Common Name	Indicator Status
Elymus cinereus	Basin wild-rye	NI
Sarcobatus vermiculatus	greasewood	FACU
Cirsium sp	thistle	FACU

4.2 Soils

The soil series identified on the project site consist of two series: the Jordan-Saltair complex, 0 to 1 percent slopes, and the Saltair-Playas-Lasil complex, 0 to 1 percent slopes. The soil survey map is presented as **Figure 4**. The Jordan-Saltair complex comprises most of the site, and is described as somewhat poorly drained. The Saltair-Playas-Lasil complex is found in the playa area located on eastern portion of the site, and is described as poorly drained.

4.3 Hydrology

Hydrologic conditions were assessed based on observations of soil characteristics and depth to groundwater.

Surface water covered a large portion of the northwest corner of the site at the time of the site visit (Photograph 16). A seep or spring is suspected to supply water to this area.

Surface water was also observed in a depression south of the concrete composting pad at the time of the site visit (Photograph 4). According to Mr. Bouey, the soils in this area were excavated and used as a base for the concrete pad, which was built in approximately 1994. Water accumulates on the west side of pad, and is occasionally pumped into the excavated depression (Photograph 5 and 6).

A playa area is located on the eastern fence line, and extends onto the east-adjoining property. This area was saturated at the surface at the time of the site visit. It appeared that the western boundary of this wetland area had been covered with soils during the construction of the road that runs through the property in approximately 1994 (Photograph 11). It could not be estimated how much of the playa area had been filled by the development of the property.

A 1990 National Wetlands Inventory (NWI) Map is presented as **Figure 5**. Two wetland areas are identified on the map that correspond with wetland areas identified on the northwest corner and eastern fence line of the property.

5.0 CONCLUSIONS

The 6.63 acres of wetland area in the northwest corner of the property may be considered jurisdictional wetlands by the ACOE. The 1.08 acres of playa area along the eastern fence line may be considered jurisdictional non-wetlands by the ACOE. It is IHI's opinion that the

1.88 acres of wetland area on the central portion of the property created by development of the building pad may be considered isolated wetlands.

The final decision as to jurisdiction will be made by the ACOE after field verification of the site.

PROJECT LIMITATIONS

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by environmental consultants performing similar services.

The procedures used attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time and other limitations, the conclusions should not be construed as a guarantee that all environmental liabilities have been identified and fully evaluated. Where sample collection and testing have been performed, IHI's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. IHI assumes no responsibility for omissions or errors resulting from inaccurate information, or data, provided by sources outside of IHI or from omissions or errors in public records.

Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since IHI is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

References

Environmental Laboratory, 1987. *Corps of Engineers' Wetlands Delineation Manual, Technical Report Y-87-1.* US Army Engineer Waterways Experiment Station, Vicksburg, MS.

Macbeth, 1990. *Munsell Soil Color Charts.* Division of Kollmorgen Instruments Corp., PO Box 230, Newburg, NY 12551-0230.

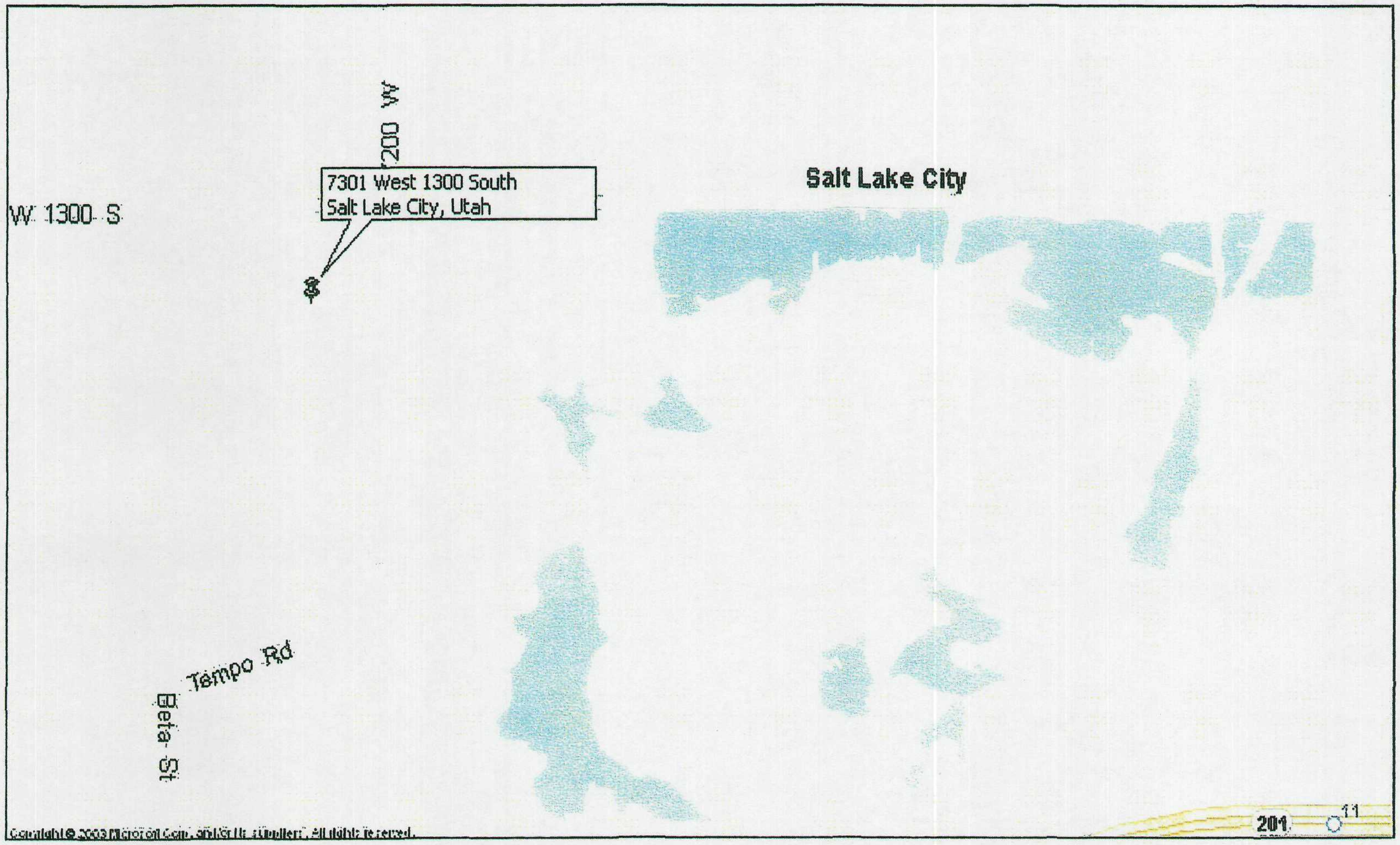
National Technical Information Service, 1988. *National List of Plant Species That Occur in Wetlands: Intermountain (Region 8) Biological Report 88 (26.8).*

United States Army Engineer Research and Development Center, 2006. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.*

United States Department of Agriculture, Natural Resources Conservation Service. *Custom Soil Resource Report for Salt Lake Area, Utah.*

Appendix 1

Figures



North

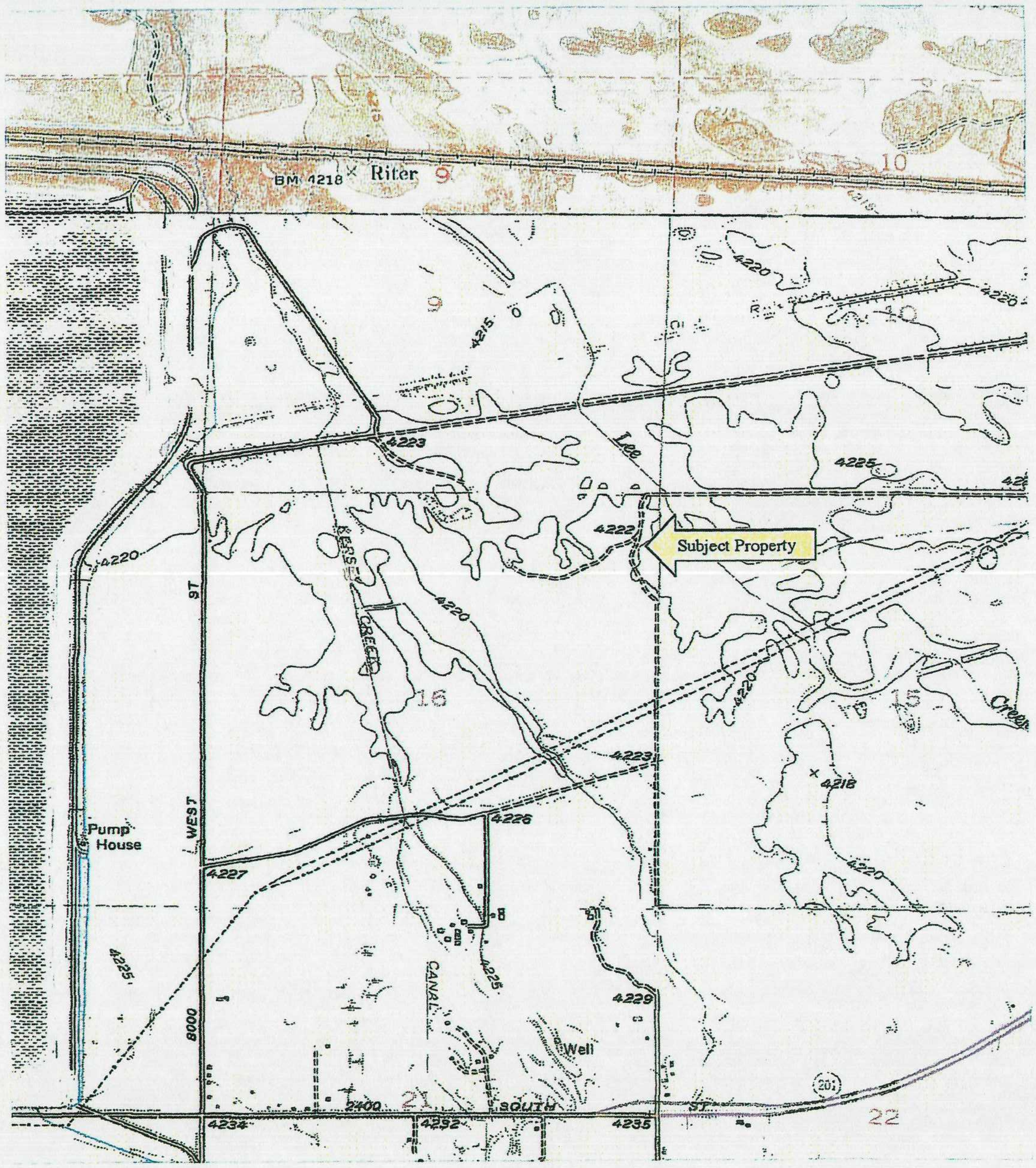
Scale: 1" = 1,300'

IHI
ENVIRONMENTAL
640 East Wilmington Avenue
Salt Lake City, Utah 84106
(801) 466-2223

7301 West 1300 South
Salt Lake City, Utah
08N-8007

Figure 1

Site Direction Map



1927 North American Datum; UTM grid zone 12
Generated by BigTopo7 (www.igage.com)
Map compiled from USGS Quads: Saltair; UT Magna; UT

0 ¼ ½ Mile
0 1000 2000 Feet
0 0.5 Kilometer

N

Map Dated 1952

IHI ENVIRONMENTAL
640 East Wilmington Avenue
Salt Lake City, Utah 84106
(801) 466-2223

7301 West 1300 South
Salt Lake City, Utah
08N-8007

Figure 2
Topographic Map

Legend

Wet Land Area

Approximate Property Line

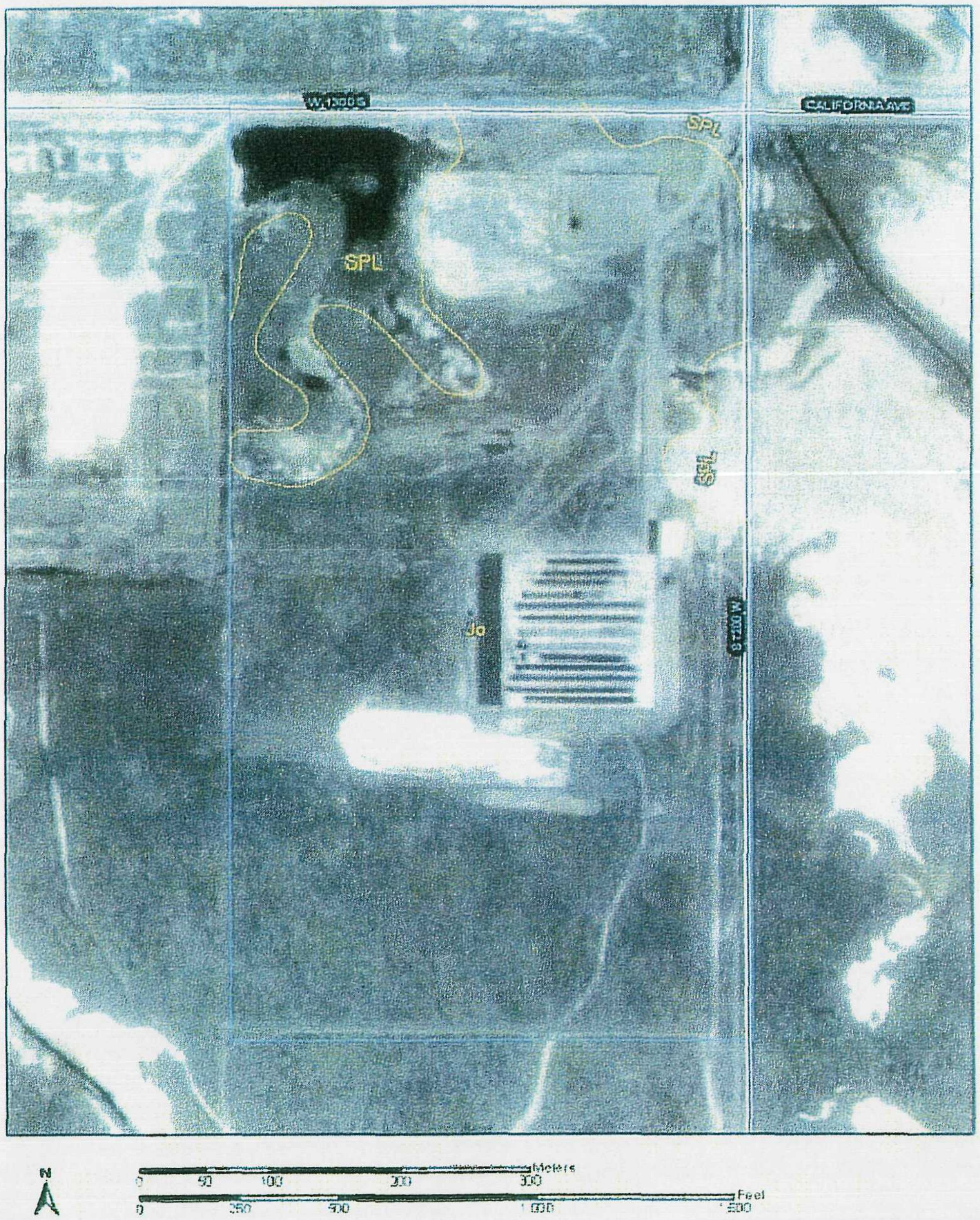
DP-14 Data Point And Number

N

CLIENT INFO.		PROJECT No.:	08N-8007
Managed Organic Recycling 7301 West 1300 South 80-Acre Parcel	IHI ENVIRONMENTAL	CAD No.:	08N8007A-1
		DRAWN BY:	S. Rahman
	APPROXIMATE SCALE 200 ft	DATE:	4/23/08
		REVISED BY:	
		DATE:	

Figure 3: Site Map

Custom Soil Resource Report
Soil Map

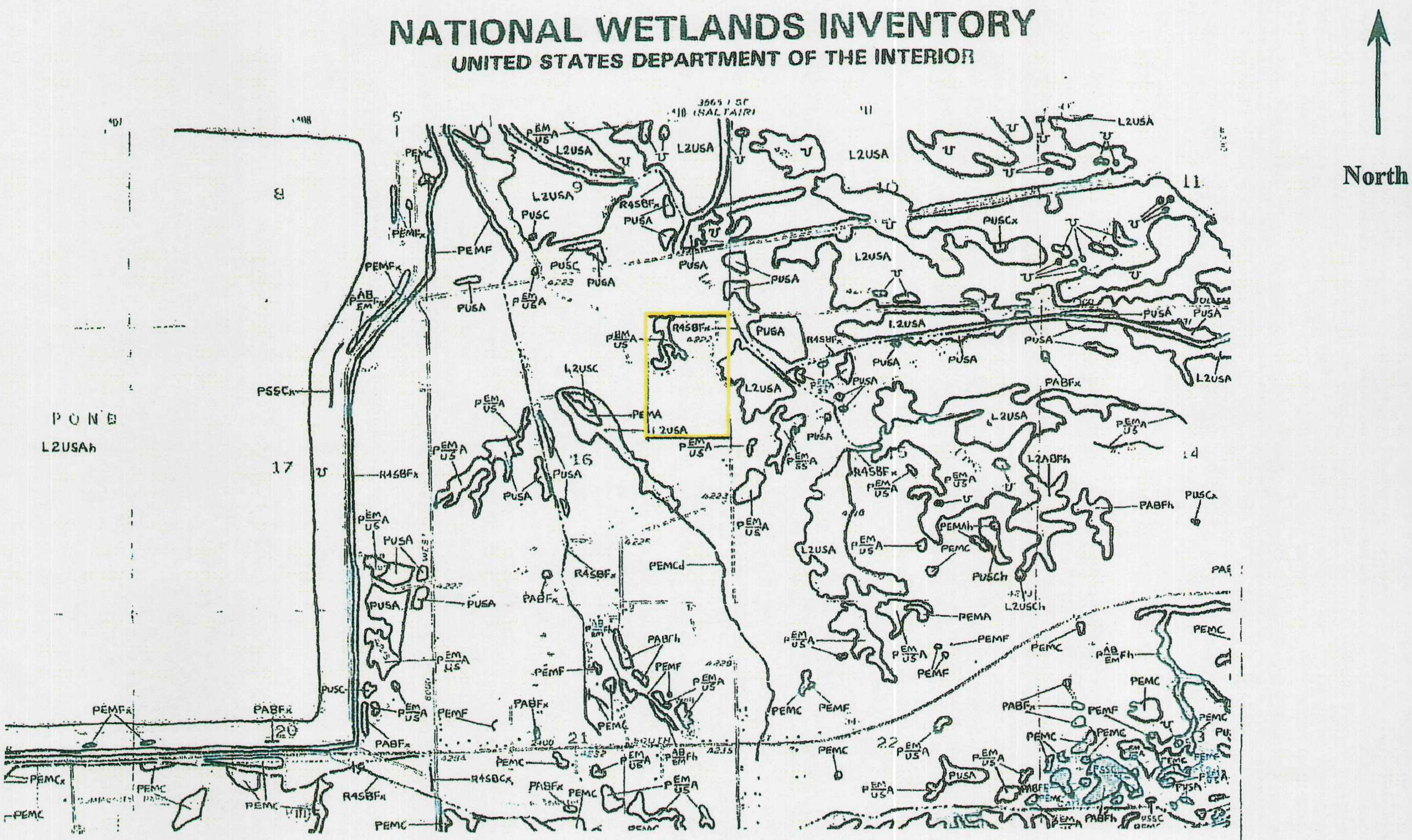


N

HI
ENVIRONMENTAL
640 East Wilmington Avenue
Salt Lake City, Utah 84106
(801) 466-2223

7301 West 1300 South
Salt Lake City, Utah
08N-8007

Figure 4
Soil Survey Map



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7301 West 1300 South
Salt Lake City, Utah
08N-8007

Figure 5

NWI Wetland Map

APPENDIX 2

Field Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc State: UT Sampling Point: DP-3

Investigator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): none Slope (%): ____

Subregion (LRR): Desert Lat: ____ Long: ____ Datum: ____

Soil Map Unit Name: Jo NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: upland area on west fence

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	70	Y	FAC
2. Convolvulus sp.	30	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 5/3						Silt	
14-20	10YR 7/3						Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? Yes ______ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): ______________

Water Table Present? Yes ______ No X Depth (inches): ______________

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______________

Wetland Hydrology Present? Yes ______ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc State: UT Sampling Point: DP-4

Investigator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: JD NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks: south fence suspect area

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	60	Y	FAC
2. Ranunculus sp	10	N	FACW
3. Linaria dalmatica	5	N	NI
4. Lactuca sp	10	N	FACU
5.			
6.			
7.			
8.			
Total Cover:	85		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- __ Dominance Test is >50%
- __ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: W-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 5/3						silt	
14-20	10YR 7/3						silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5) (**LRR C**)
__ 1 cm Muck (A9) (**LRR D**)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Loamy Mucky Mineral (F1)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

__ 1 cm Muck (A9) (**LRR C**)
__ 2 cm Muck (A10) (**LRR B**)
__ Reduced Vertic (F18)
__ Red Parent Material (TF2)
__ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1) (**Nonriverine**)
__ Sediment Deposits (B2) (**Nonriverine**)
__ Drift Deposits (B3) (**Nonriverine**)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Water-Stained Leaves (B9)
__ Salt Crust (B11)
__ Biotic Crust (B12)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Plowed Soils (C6)
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__ Water Marks (B1) (**Riverine**)
__ Sediment Deposits (B2) (**Riverine**)
__ Drift Deposits (B3) (**Riverine**)
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Thin Muck Surface (C7)
__ Crayfish Burrows (C8)
__ Saturation Visible on Aerial Imagery (C9)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ______
Water Table Present? Yes ____ No X Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ______

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc State: UT Sampling Point: DP-5

Investigator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Jo NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes ___ No X

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks: central wet area - created by landowner

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	80	Y	FAC
2. Ranunculus sp	10	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	______	x 1 =	______
FACW species	______	x 2 =	______
FAC species	______	x 3 =	______
FACU species	______	x 4 =	______
UPL species	______	x 5 =	______
Column Totals:	______ (A)		______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 8/3						clay	
6+	2.5YR 6/2		10YR 7/8	20	M		sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): ~18

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): ~18

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel   City/County: Salt Lake City / Salt Lake County   Sampling Date: 4-4-08

Appl…nt/Owner: Managed Organic Recylcing, Inc   State: UT   Sampling Point: DP-6

…tor(s): Amy Findley   Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ____   Local relief (concave, convex, none): none   Slope (%): ____

Subregion (LRR): Desert   Lat: ____   Long: ____   Datum: ____

Soil Map Unit Name: Jo   NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil X, or Hydrology X significantly disturbed?   Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ____
Hydric Soil Present?	Yes ____	No ____
Wetland Hydrology Present?	Yes ____	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: upland boundary of central wet area - created wetland

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	30	Y	FAC
2. Ranunculus sp	30	Y	FAC
3. Cirsium sp	20	N	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	80		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

…are Ground in Herb Stratum 20   % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

…arks:

SOIL

Sampling Point: DP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2						silt	
8-18	2.5YR 6/2						silty clay	
18-21	7.5YR 6/4						clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 21

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: boundary

WETLAND DETERMINATION DATA FORM – Arid West Region

roject/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

pplic...t/Owner: Managed Organic Recylcing, Inc State: UT Sampling Point: DP-7

I(...or(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

andform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

ubregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

oil Map Unit Name: 10 NWI classification: none

re climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

re Vegetation ______, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes ___ No X

re Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks: boundary of central wet area - created by property owner

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	90	Y	FAC
2. Cirsium	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% ...re Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ______

...s:

SOIL

Sampling Point: ________

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2						silt	
2-12	2.5YR 6/2						clay	
12-20	7.5YR 6/4						clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- _✓_ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes _X_ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- _X_ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No _X_ Depth (inches): ______

Water Table Present? Yes ___ No _X_ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes _✓_ No ___ Depth (inches): 20

Wetland Hydrology Present? Yes _X_ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: boundary

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recycling, Inc State: UT Sampling Point: DP-8

(...)ator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: SRL NWI classification: L2USA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes Y No ______

Remarks: playa area on east property boundary

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Ranunculus sp	70	Y	FAC
2. Halogeton glomeratus	10	N	NL
3. Sarcobatus vermiculatus	10	N	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ______

(...)s:

SOIL

Sampling Point: DP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/2						Silty clay	
5-20	8/10 Y		10YR 4/6	20	M		clay	
			10YR 4/1	20	M			

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ______
Water Table Present? Yes X No ___ Depth (inches): ~10
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): ~6

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc State: UT Sampling Point: DP-9

ator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: SPL NWI classification: L2USA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes __ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes Y	No ______
Hydric Soil Present?	Yes Y	No ______
Wetland Hydrology Present?	Yes Y	No ______

Is the Sampled Area within a Wetland? Yes Y No ______

Remarks: boundary of east wet playa

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
apling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	80	Y	FAC
2. Ranunculus sp	10	N	[illegible]
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

__ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes Y No ______

ks:

SOIL

Sampling Point: DP-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2						silty clay	
4-16	10YR 4/3						silty clay	
16-20	8/10Y		10YR 6/6	10	M			
			10YR 4/1	20	M			

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- _✓_ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes _X_ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No _X_ Depth (inches): ______
Water Table Present? Yes _X_ No ___ Depth (inches): ~16
Saturation Present? (includes capillary fringe) Yes _X_ No ___ Depth (inches): ~12

Wetland Hydrology Present? Yes _X_ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc State: UT Sampling Point: W-10

Investigator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: SPL NWI classification: L2USA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes __ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks: Upland area of east playa

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	80	Y	FAC
2. Ranunculus sp	10	Y	FAC
3. Elymus cinereus	10	N	NL
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: DP-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2							
6-18	2.5Y 4/2							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ *Water Marks (B1)* ***(Nonriverine)***
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ *Hydrogen Sulfide Odor (C1)*
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ *Dry-Season Water Table (C2)*
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): ______

Water Table Present? Yes ______ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel   City/County: Salt Lake City / Salt Lake County   Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc   State: UT   Sampling Point: DP-11

[redacted]tor(s): Amy Findley   Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______   Local relief (concave, convex, none): none   Slope (%): ______

Subregion (LRR): Desert   Lat: ______   Long: ______   Datum: ______

Soil Map Unit Name: SPL   NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed?   Are "Normal Circumstances" present? Yes __ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes Y	No ______
Hydric Soil Present?	Yes Y	No ______
Wetland Hydrology Present?	Yes Y	No ______

Is the Sampled Area within a Wetland? Yes Y No ______

Remarks: north west wet area

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
[redacted]			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Ranunculus sp	50	Y	FAC
2. Distichlis sp	25	Y	FAC
3. Elymus cinereus	5	N	NL
4.			
5.			
6.			
7.			
8.			
Total Cover:	80		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 20   % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes Y No ______

[redacted]ks:

SOIL

Sampling Point: ___________

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4						silty	
4-18	2.5Y 5/2		2.5YR 4/4				silty clay	
			7.5 4/6					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___________

Depth (inches): ___________

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?	___	X	___
Water Table Present?	___	X	___
Saturation Present? (includes capillary fringe)	X	___	~14

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: boundary of wet area

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc State: UT Sampling Point: DP-12

…ator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: SPL NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes __ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes Y	No ______
Hydric Soil Present?	Yes Y	No ______
Wetland Hydrology Present?	Yes Y	No ______
Is the Sampled Area within a Wetland?	Yes Y	No ______

Remarks: Wet area in north-west corner

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
…			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Halogeton glomeratus	40	Y	NI
2. Distichlis spicata	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	20	x 3 =	60
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	20 (A)		60 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- __ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes Y No ______

…ks:

SOIL

Sampling Point: W-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 6/3							
2-10	2.5Y 5/2							
10-18	2.5Y 4/3							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ______
Water Table Present? Yes X No ___ Depth (inches): ~10
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): ~10

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recycling, Inc State: UT Sampling Point: DP-13

Investigator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: SPL NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes __ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes Y	No ______
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? Yes ______ No Y

Remarks: upland boundary

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes V No ______

Remarks:

SOIL

Sampling Point: VY-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 5/3						Gravels	
9-18	2.5Y 4/2						Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: ____________
Depth (inches): ____________

Hydric Soil Present? Yes ______ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soils (C6)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): __________
Water Table Present? Yes _____ No X Depth (inches): __________
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): __________

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel   City/County: Salt Lake City / Salt Lake County   Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc   State: UT   Sampling Point: DP-14

ator(s): Amy Findley   Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______   Local relief (concave, convex, none): none   Slope (%): ______

Subregion (LRR): Desert   Lat: ______   Long: ______   Datum: ______

Soil Map Unit Name: SPL   NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______	No ✓	Is the Sampled Area within a Wetland? Yes ______ No ✓
Hydric Soil Present?	Yes ______	No ✓	
Wetland Hydrology Present?	Yes ______	No ✓	

Remarks: west upland boundary of NW wetland

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Elymus cinereus	75	Y	NI
2. Poa sp	25	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______   % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: — (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- __ Dominance Test is >50%
- __ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ______ No ✓

rks:

SOIL

Sampling Point: UY-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/2						Silty Clay	
6-15	10YR 7/3						Clay	
15-20	2.5Y 7/2							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc State: UT Sampling Point: DP-15

Investigator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: SPL NWI classification: VEMIA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks: southwest datapoint on west boundary of nw wetland

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Halogeton glomeratus	20	Y	NI
2. Distichlis spicata	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	20	x 3 = 60
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

__ Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:

SOIL

Sampling Point: VX-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	2.5 Y 7/1						Clay	
15-20	7.5 YR 4/3						Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ______

Water Table Present? Yes ___ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ______

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: MOR delineation 80-acre parcel City/County: Salt Lake City / Salt Lake County Sampling Date: 4-4-08

Applicant/Owner: Managed Organic Recylcing, Inc State: UT Sampling Point: WV-16

Investigator(s): Amy Findley Section, Township, Range: Section 16, T 1S, R 2W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Desert Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: SfL NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ______	Is the Sampled Area within a Wetland? Yes ✓ No ______
Hydric Soil Present?	Yes ✓	No ______	
Wetland Hydrology Present?	Yes ✓	No ______	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	90	✓	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ______

Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ______

SOIL

Sampling Point: DP-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y 5/2						Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): ~12

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): ~18

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX 3

Soil Survey

USDA United States Department of Agriculture

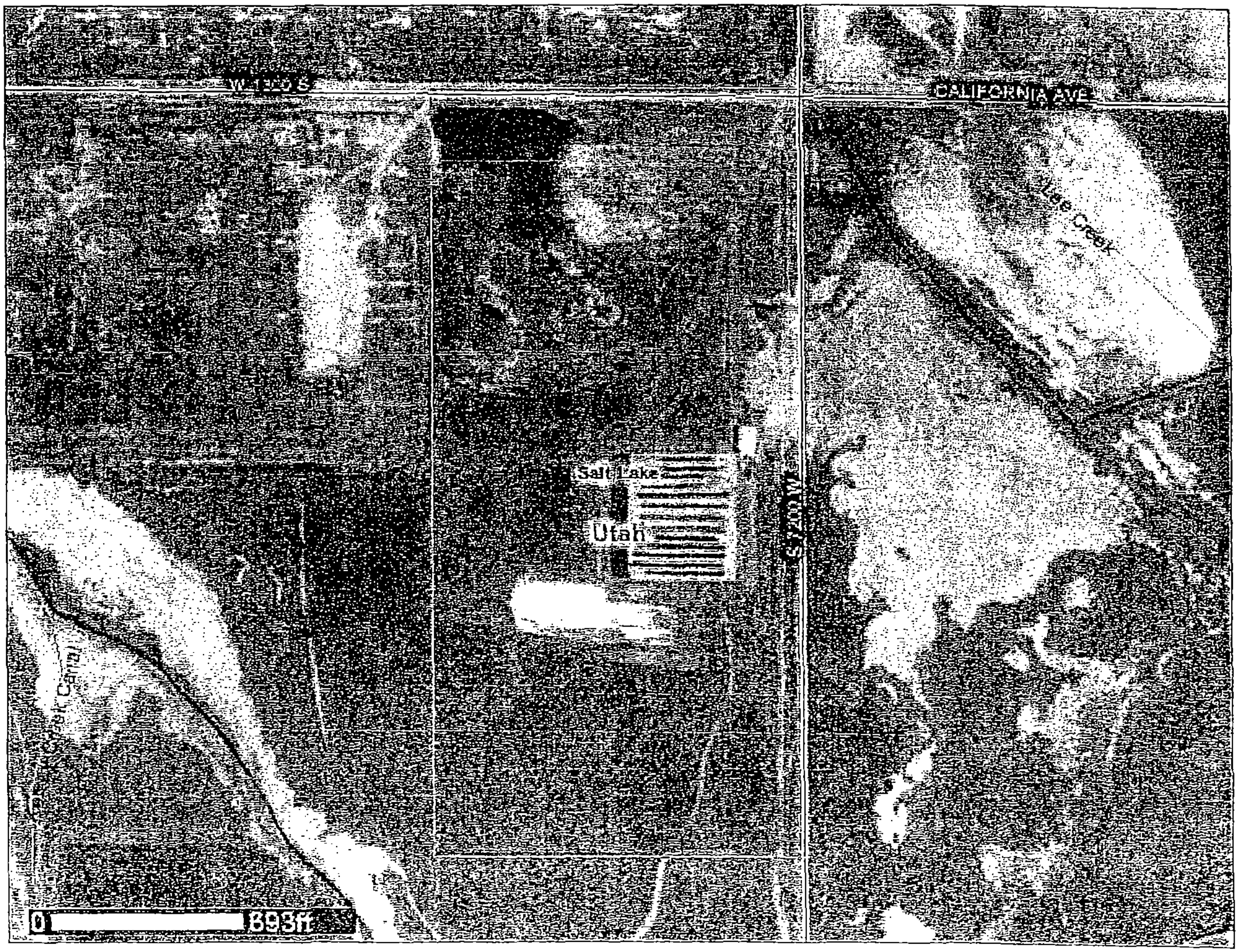
NRCS Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Salt Lake Area, Utah

MOR-80 Acre-7301 West 1300 South



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map


W 1300 S
CALIFORNIA AVE
SPL
SPL
SPL
Tp
S 7200 W
N
Meters
0
50
100
200
300
Feet

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features

Municipalities
- Cities
- Urban Areas

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

Roads
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 12N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Salt Lake Area, Utah
Survey Area Data: Version 4, Dec 12, 2006

Date(s) aerial images were photographed: 7/16/1997; 8/10/1997; 10/1/1997

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Salt Lake Area, Utah (UT612)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Jo	Jordan-Saltair complex, 0 to 1 percent slopes	70.8	84.9%
SPL	Saltair-Playas-Lasil complex, 0 to 1 percent slopes	12.6	15.1%
Totals for Area of Interest (AOI)		83.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Salt Lake Area, Utah

Jo—Jordan-Saltair complex, 0 to 1 percent slopes

Map Unit Setting

Elevation: 4,200 to 4,250 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition

Jordan and similar soils: 80 percent
Saltair and similar soils: 15 percent

Description of Jordan

Setting

Landform: Lake plains
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Strongly saline (30.0 to 60.0 mmhos/cm)
Sodium adsorption ratio, maximum: 60.0
Available water capacity: Very low (about 2.3 inches)

Interpretive groups

Land capability (nonirrigated): 7w
Ecological site: Alkali Flat (Black Greasewood) (R028AY004UT)

Typical profile

0 to 2 inches: Silt loam
2 to 5 inches: Silty clay loam
5 to 9 inches: Silty clay loam
9 to 18 inches: Silty clay
18 to 43 inches: Silty clay
43 to 60 inches: Silt loam

Description of Saltair

Setting

Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Lacustrine deposits

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Strongly saline (100.0 to 250.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1,000.0
Available water capacity: Very low (about 2.5 inches)

Interpretive groups

Land capability (nonirrigated): 8s
Ecological site: Desert Salty Silt (Pickleweed) (R028AY132UT)

Typical profile

0 to 1 inches: Silty clay loam
1 to 4 inches: Silty clay loam
4 to 8 inches: Silty clay loam
8 to 12 inches: Silty clay loam
12 to 40 inches: Silty clay loam
40 to 57 inches: Fine sandy loam

SPL—Saltair-Playas-Lasil complex, 0 to 1 percent slopes

Map Unit Setting

Elevation: 4,190 to 4,290 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Saltair and similar soils: 40 percent
Playas: 35 percent
Lasil and similar soils: 20 percent
Minor components: 3 percent

Description of Saltair

Setting

Landform: Lake plains
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits derived from mixed sources

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Strongly saline (100.0 to 250.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1,000.0
Available water capacity: Low (about 4.2 inches)

Interpretive groups
Land capability (nonirrigated): 8w
Ecological site: Desert Salty Silt (Pickleweed) (R028AY132UT)

Typical profile
0 to 7 inches: Silty clay loam
7 to 20 inches: Silty clay loam
20 to 30 inches: Silt loam
30 to 60 inches: Silty clay loam

Description of Playas

Setting
Landform: Lake plains
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Linear

Properties and qualities
Slope: 0 to 1 percent
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 40 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Strongly saline (32.0 to 100.0 mmhos/cm)
Sodium adsorption ratio, maximum: 90.0
Available water capacity: Very low (about 1.2 inches)

Interpretive groups
Land capability (nonirrigated): 8w
Ecological site: Desert Salty Silt (Pickleweed) (R028AY132UT)

Typical profile
0 to 60 inches: Stratified fine sandy loam to silty clay

Description of Lasil

Setting
Landform: Lake plains, lake terraces
Landform position (three-dimensional): Tread, talf, rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Moderately saline to strongly saline (16.0 to 32.0 mmhos/cm)
Sodium adsorption ratio, maximum: 60.0
Available water capacity: Low (about 4.7 inches)

Interpretive groups

Land capability (nonirrigated): 7w
Ecological site: Alkali Bottom (Alkali Sacaton) (R028AY001UT)

Typical profile

0 to 6 inches: Silt loam
6 to 9 inches: Silt loam
9 to 13 inches: Silty clay loam
13 to 19 inches: Silty clay loam
19 to 23 inches: Silty clay loam
23 to 60 inches: Silty clay loam

Minor Components

Eimarsh

Percent of map unit: 2 percent
Landform: Lake plains
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Wet Saline Meadow (R028AY024UT)

Pintailake

Percent of map unit: 1 percent
Landform: Lake plains
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Lakeshore Marsh (R028AY025UT)

APPENDIX 4

Site Photographs

Photograph 1
Data point DP-3 along south property boundary.

Photograph 2
Data point DP-4 along west property boundary.

Photograph 3
Data point DP-5.

Photograph 4
Wet area south of concrete composting pad.

Photograph 5
Water flows to west side of concrete composting pad.

Photograph 6
Water is pumped from concrete composting pad to the area south of the pad.

Photograph 7
Data point DP-6.

Photograph 8
Data point DP-7.

Photograph 9
Data point DP-8.

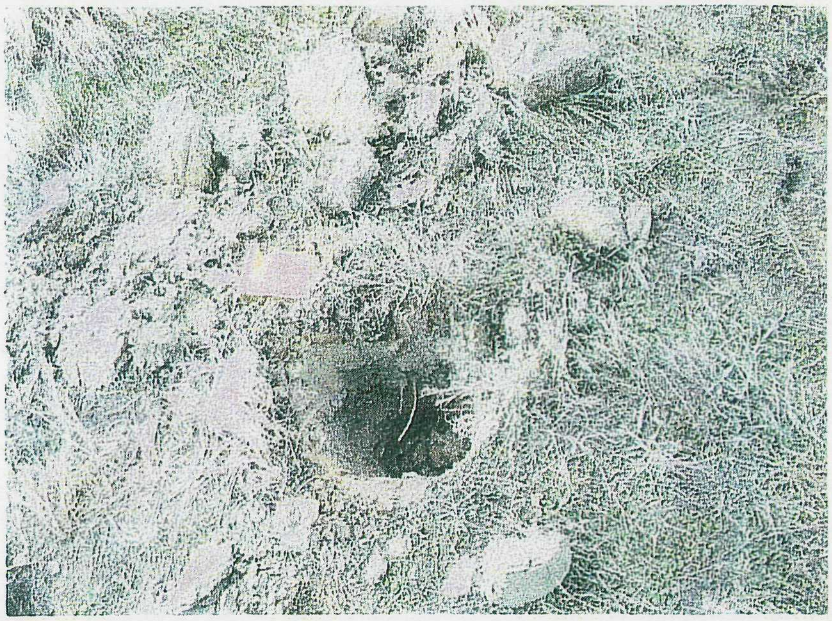
Photograph 10
Data point DP-9.

Photograph 11
Playa area on eastern property boundary, with filled area.

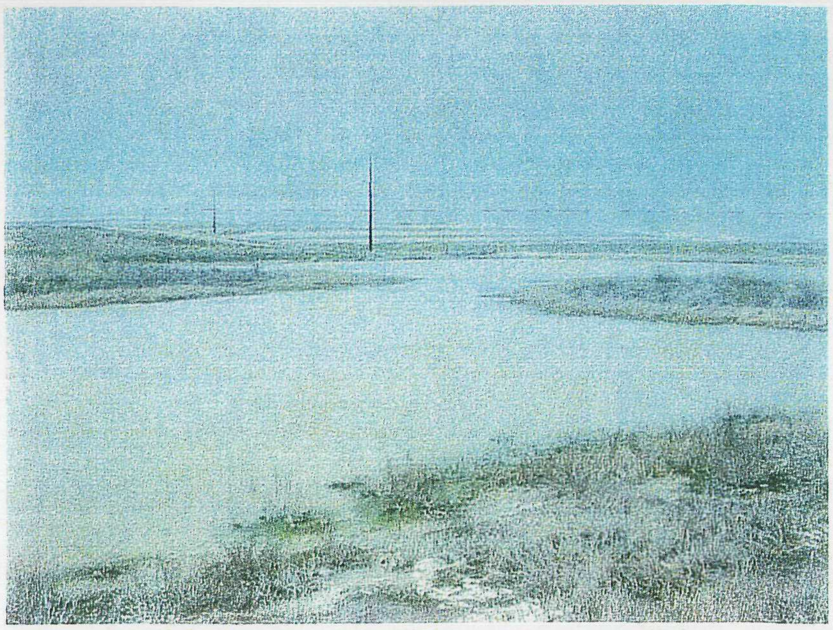
Photograph 12
Data point DP-10.

Photograph 13
Data point DP-11.

Photograph 14
Data point DP-12.



Photograph 15
Data point DP-13.



Photograph 16
Wet area on northwest corner of property.

Photograph 17
Data point DP-14.

Photograph 18
Data point DP-15.

Photograph 19
Data point DP-16.

STORM WATER RUN-OFF CALCULATIONS

Storm water run-off calculations for the proposed construction and debris landfill were calculated using the rational method where:

$$Q = CiA$$

Rainfall intensities (i) were obtained from *Rainfall Intensity Duration and Frequency Analysis Salt Lake County, Utah* by TRV North American Weather Consultants and Meteorological Solutions, Inc. (September, 1999). Rainfall for the 25-year storm event with 15-minute duration was estimated to be 0.69 inches (averaging 10 and 100-year events) and the 100-year 24-hour storm was estimated at 2.75 inches.

The areas of individual drainage areas at the site were estimated using a Planix 7 digital planimeter. These individual drainage areas were aggregated into the drop inlets (DI) to which they are tributary to. Areas are shown on Drawings C1004, C1005 and C1006.

To estimate pipe sizes and initial time of concentration of 15-minutes was used for the upstream drainage areas. As the individual aggregate drainage areas increased, time of concentration was increased to 30-minutes and finally 45-minutes. The effect of these increases in time of concentration is indicated on Table 7.

This estimate of run-off may be too high (conservative). In calculating flow (Q in cfs) C was estimated to be 0.9 due to the relatively impervious nature of the top cover layer (1×10^{-8}). However, recently published data (Canadian Compost Council paper given by Ron Alexander, Alexander and Associates September 19, 2008) indicates that when compost is used on

slopes as a soil amendment water retention capacity is greatly increased. Biosolids will be used to enhance establishment of the vegetative cover and water holding capacity of the top six inches of soil. At a biosolids land application site in California (Jess Ranch, Tracy, CA) actual observed run-off from the site over an 18-year period averaged less than half of what would have been calculated using the rational method and typical C values. Therefore, the run-off volumes are likely to be over-estimated in these calculations.

Maximum velocities in the drainage system pipes was limited, i.e., pipes were sized, to 2 feet per second (ft/s) for large diameter flat sloped pipes bordering the site, whereas the velocities in the pipes on side slopes was limited to 5 to 6 ft/s.

Total flow at closure during a 25-year storm event to Lee Creek and Kersey Creek was estimated to be 43.83 cfs and 23.71 cfs, respectively.

During a 100-year flood event the project is expected to generate about 758, 670 ft^3 or 17.4 acre-feet over a 24-hour period.

LS Table for Construction Sites

The following table shows LS factors for freshly prepared constructed and other highly disturbed soil condition with little or no cover (not applicable to thawing soil)

Slope (%)	Slope Length (ft.)																
	<3	6	9	12	15	25	50	75	100	150	200	250	300	400	600	800	1000
0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0.5	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.10	0.11	0.12	0.12	0.13
1.0	0.09	0.09	0.09	0.09	0.09	0.10	0.13	0.14	0.15	0.17	0.18	0.19	0.20	0.22	0.24	0.26	0.27
2.0	0.13	0.13	0.13	0.13	0.13	0.16	0.21	0.25	0.28	0.33	0.37	0.40	0.43	0.48	0.56	0.63	0.69
3.0	0.17	0.17	0.17	0.17	0.17	0.21	0.30	0.36	0.41	0.50	0.57	0.64	0.69	0.80	0.96	1.10	1.23
4.0	0.20	0.20	0.20	0.20	0.20	0.26	0.38	0.47	0.55	0.66	0.79	0.89	0.98	1.14	1.42	1.65	1.86
5.0	0.23	0.23	0.23	0.23	0.23	0.31	0.46	0.58	0.68	0.86	1.02	1.16	1.28	1.51	1.91	2.25	2.55
6.0	0.26	0.26	0.26	0.26	0.26	0.36	0.54	0.69	0.82	1.05	1.25	1.43	1.60	1.90	2.43	2.89	3.30
8.0	0.32	0.32	0.32	0.32	0.32	0.45	0.70	0.91	1.10	1.43	1.72	1.99	2.24	2.70	3.52	4.24	4.91
10.0	0.35	0.37	0.38	0.39	0.40	0.57	0.91	1.20	1.46	1.92	2.34	2.72	3.09	3.75	4.95	6.03	7.02
12.0	0.36	0.41	0.45	0.47	0.49	0.71	1.15	1.54	1.88	2.51	3.07	3.60	4.09	5.01	6.67	8.17	9.57
14.0	0.38	0.45	0.51	0.55	0.58	0.85	1.40	1.87	2.31	3.09	3.81	4.48	5.11	6.30	8.45	10.40	12.23
16.0	0.39	0.49	0.56	0.62	0.67	0.98	1.64	2.21	2.73	3.68	4.56	5.37	6.15	7.60	10.26	12.69	14.96
20.0	0.41	0.56	0.67	0.76	0.84	1.24	2.10	2.86	3.57	4.85	6.04	7.16	8.23	10.24	13.94	17.35	20.57
25.0	0.45	0.64	0.80	0.93	1.04	1.56	2.67	3.67	4.59	6.30	7.88	9.38	10.81	13.53	18.57	23.24	27.66
30.0	0.48	0.72	0.91	1.08	1.24	1.86	3.22	4.44	5.58	7.70	9.67	11.55	13.35	16.77	23.14	29.07	34.71
40.0	0.53	0.85	1.13	1.37	1.59	2.41	4.24	5.89	7.44	10.35	13.07	15.67	18.17	22.95	31.89	40.29	48.29
50.0	0.58	0.97	1.31	1.62	1.91	2.91	5.16	7.20	9.13	12.75	16.16	19.42	22.57	28.60	39.95	50.63	60.84
60.0	0.63	1.07	1.47	1.84	2.19	3.38	5.97	8.37	10.63	14.89	18.92	22.78	26.51	33.67	47.18	59.93	72.15

(From: USDA Agricultural Handbook No. 703).

Table 7. Run-off Collection System Flows, Pipe Sizes and Capacities (slvhd)

Storm water facility		Drop inlet number							Pipe line design		
									Capacity, cfs	Pipe size, in	Maximum velocity, ft/sec
Line 1											
		22	21	20	19	MH-F					
	Area, ac	1.47	1.59	1.72	1.19	1.18					
	Sum area,ac	1.47	3.06	4.78	6.69	7.87					
	Sum Q, cfs (Tc=30 min)	1.97	4.34	6.84	9.57	11.25			4.34	12	5.53
	Sum Q, cfs (Tc=45 min)			5.13	7.18	8.44			7.18	15	5.89
	Sum Q, cfs (Tc=60 min)					6.75			6.75	15	5.33
Line 2											
		28	27	26	25	24	23				
	Area, ac	2.54	1.68	0.38	1.4	1.88	2.48				
	Sum area,ac	2.54	4.22	4.6	6	7.8	10.28				
	Sum Q, cfs (Tc=30 min)	3.63	6.03	6.58	8.59	11.15	14.07		6.44	15	5.27
	Sum Q, cfs (Tc=45 min)				6.44	8.36	10.55		8.36	15	6.85
	Sum Q, cfs (Tc=60 min)						8.44		8.44	15	6.92
Line 3											
		32	31	30	29						
	Area, ac	0.99	1.18	1.28	2.23						
	Sum area,ac	0.99	2.17	3.45	5.68						
	Sum Q, cfs (Tc=30 min)	1.42	3.1	4.93	8.12						
	Sum Q, cfs (Tc=45 min)		2.33	3.7	6.1				3.7	12	4.47
	Sum Q, cfs (Tc=60 min)				4.72				4.72	15	3.87
Line 4											
		37	36	35	34	33					
	Area, ac	1.14	1.36	1.85	2.2	2.9					
	Sum area,ac	1.14	2.5	4.35	6.55	9.45			4.67	12	5.99
	Sum Q, cfs (Tc=30 min)	1.63	3.58	6.22	9.37	13.51			7.03	15	5.86
	Sum Q, cfs (Tc=45 min)			4.67	7.03	10.13			10.13	18	5.72
	Sum Q, cfs (Tc=60 min)										
Line 5											
		42	41	40	39	38					
	Area, ac	2.42	1.9	1.94	2.18	2.26					
	Sum area,ac	2.42	4.32	6.26	8.44	11.06					
	Sum Q, cfs (Tc=30 min)	3.46	6.18	8.95	12.07	15.82			7.16	15	5 87
	Sum Q, cfs (Tc=45 min)			7.16	9.66	12.65			9.66	18	5.46
	Sum Q, cfs (Tc=60 min)					11.87			11.87	18	6.71

Line 6											
		8	7	6	5	4					
	Area, ac	1.3	1.77	1.62	1.67	1.62					
	Sum area,ac	1.3	3.07	4.69	6.36	7.98					
	Sum Q, cfs (Tc=30 min)	1.87	4.4	6.71	9.09	11.41					
	Sum Q, cfs (Tc=45 min)			5.03	6.82	8.56			5.03	15	4.12
	Sum Q, cfs (Tc=60 min)					6.85			6.85	15	5.61
Line 7											
		13	12	11	10	9					
	Area, ac	0.41	0.83	1.83	1.3	1.5					
	Sum area,ac	0.41	1.24	3.07	4.37	5.87					
	Sum Q, cfs (Tc=30 min)	0.58	1.77	4.39	6.25	8.39					
	Sum Q, cfs (Tc=45 min)			3.39	4.68	6.69			4.68	12	6.08
	Sum Q, cfs (Tc=60 min)					5.03			5.03	15	4.12
Line 8											
	Area, ac	18	17	16	15	14					
	Sum area,ac	0.91	2.14	3.37	5.66	7.93					
	Sum Q, cfs (Tc=30 min)	1.3	3.06	5.33	8.09	11.33					
	Sum Q, cfs (Tc=45 min)			4	6.07	9.06					
	Sum Q, cfs (Tc=60 min)			3	4.55	8.8			4.55	12	5.9
						5.44			5.44	15	4.45
Line A	Structure	DI-33 to MH-I	MH-I to DI-38	DI-38 to MH-C	MH-C to DI-14						
	Distance bewteen str., ft	455	475	330	450						
	Flow, cfs	10.31	11.87	0	0				13.87	30	2.82
	Sum flow, cfs	13.51	25.38	25.38	25.38				25.38	42	1.6
Line A1	Structure	DI-14 to DI-1	DI-1 to DI-2	DI-2 to SWRP 1							
	Distance between str., ft	540	400	120							
	Flow, cfs	5.44	1.3	0.87							
	Sum flow, cfs	5.44	6.74	7.61							
Line B	Structure	MH-E to MH-F	MH-F to MH-G	MH-G to DI-23	DI-23 toMH-H	MH-H to SWRP 2					
	Distance between str., ft	385	445	400	445	380			8.44	24	2.68
	Flow, cfs			6.75	8.44		15.19		15.19	36	2.27
	Sum flow, cfs										
Storm Water Retention Pond 1											
Sum all flow inputs, cfs		Line A	Line A1	Upslope run-off	SWRP 1	Line 7 (DI-9)	Total				
		25.38	7.61	1.43	1.02	8.39					
			32.99	34.42	35.44	43.83	43.83				
Storm Water Retention Pond 2											

Sum all flow inputs , cfs		Line B	Upslope run-off (A71 and A84)	SWRP 2	Line 3 (DI-29)	Total		
		15.19	3.31	0.49	4.72	23.71		
			18.5	18.99		23.71		

SOIL LOSS CALCULATIONS

To estimate the amount of soil loss during the post-closure period (30-years) the Revised Universal Soil Loss Equation (RUSLE) was used. This equation is used by soil conservationists, storm water run-off designers and erosion control professionals to estimate soil loss due to precipitation, soil type and slope. The results of calculation are then compared to acceptable values, i.e., tolerable, for the predicted impacts.

The RULSE equation is as follows:

A = R x K x LS x C x P

Where: **R is the rainfall-runoff erosivity factor**

K is the soil-erodibility factor

LS is the length slope factor

C is the cover management factor

P is the support practice factor

For soil, climate and slope conditions at the proposed project site the following values were substituted into the RULSE equation:

R factor = 75 – 135 (ave. 105)

K = 0.3 (medium textured soils, such as, silty loam soils)

LS factor = 5.16 (length of slope/percent slope, see table attached)

C factor = 0.03

P factor = 1.0 (maximum value for up and down slope)

Therefore the RULSE formula yields the following for 2H:1V and 3H:1V, respectively.

A (2H:1V) = 105 x 0.31 x 5.16 x 0. 03 x 1 = 5.04 tons/acre/year

5.04 t/ac/yr x 76 ac = 383 tons total/yr

383 tons total/yr x 1.3 yd3/ton = 498 yd3/yr

Soil loss in inches =498 yd3/yr x27ft3/yd3/76 ac/43,560ft2/ac12in/ft2 = 0.0003 inches/yr

Total post- closure care period (30-years)

0.0003 x 30 yr = 0.008 inches

A (2H:1V) = 105 x 0.31 x 3.52 x 0.03 x 1 = 3.44 ton/acre/year

Total post-closure care period (30-years)

0.008 inches x 3.44/5.04 = 0.006 inches

These low amounts of soil loss for either slopes is well within tolerance limits for protection of the landfill top layer.

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7. US Environmental Protection Agency, *STORET (stormod)*, dated requested July 31, 2008

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9. California Integrated Waste Management Board, *Detailed Characterization of Construction and Demolition Waste*, June, 2006

Appendix F

Construction Waster Management, LLC

Employee Safety Handbook

An Employee Guide to Safety Policies and Procedures to Support a Safety-Conscious Work Environment

Commitment to Safety

Reynolds Brothers, Inc. recognizes that our people drive the business. As the most critical resource, employees will be safeguarded through training, provision of appropriate work surroundings, and procedures that foster protection of health and safety. All work conducted by Reynolds Brothers, Inc.'s employees will take into account the intent of this policy. No duty, no matter what its perceived result, will be deemed more important than employee health and safety.

Reynolds Brothers, Inc. is firmly committed to the safety of our employees. We will do everything possible to prevent workplace accidents and we are committed to providing a safe working environment for all employees.

We value our employees not only as employees but also as human beings critical to the success of their family, the local community, and Reynolds Brothers, Inc..

Employees are encouraged to report any unsafe work practices or safety hazards encountered on the job. All accidents/incidents (no matter how slight) are to be immediately reported to the supervisor on duty.

A key factor in implementing this policy will be the strict compliance to all applicable federal, state, local, and Company policies and procedures. Failure to comply with these policies may result in disciplinary actions.

Respecting this, Reynolds Brothers, Inc. will make every reasonable effort to provide a safe and healthful workplace that is free from any recognized or known potential hazards. Additionally, Reynolds Brothers, Inc. subscribes to these principles:

1. All accidents are preventable through implementation of effective Safety and Health Control policies and programs.

2. Safety and Health controls are a major part of our work every day.

3. Accident prevention is good business. It minimizes human suffering, promotes better working conditions for everyone, holds Reynolds Brothers, Inc. in higher regard with customers, and increases productivity. This is why Reynolds Brothers, Inc. will comply with all safety and health regulations that apply to the course and scope of operations.

4. Management is responsible for providing the safest possible workplace for Employees. Consequently, management of Reynolds Brothers, Inc. is committed to allocating and providing all of the resources needed to promote and effectively implement this safety policy.

5. Employees are responsible for following safe work practices and company rules, and for preventing accidents and injuries. Management will establish lines of communication to solicit and receive comments, information, suggestions and assistance from employees where safety and health are concerned.

6. Management and supervisors of Reynolds Brothers, Inc. will set an exemplary example with good attitudes and strong commitment to safety and health in the workplace. Toward this end, Management must monitor company safety and health performance, working environment and conditions to ensure that program objectives are achieved.

7. Our safety program applies to all employees and persons affected or associated in any way by the scope of this business. Everyone's goal must be to constantly improve safety awareness and to prevent accidents and injuries.

Everyone at Reynolds Brothers, Inc. must be involved and committed to safety. This must be a team effort. Together, we can prevent accidents and injuries. Together, we can keep each other safe and healthy in the work that provides our livelihood.

____

Rob Reynolds

07/19/2007

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The primary responsibility of the employees of Reynolds Brothers, Inc. is to perform his or her duties in a safe manner in order to prevent injury to themselves and others.

As a condition of employment, employees MUST become familiar with, observe, and obey Reynolds Brothers, Inc.'s rules and established policies for health, safety, and preventing injuries while at work. Additionally, employees MUST learn the approved safe practices and procedures that apply to their work.

Before beginning special work or new assignments, an employee should review applicable and appropriate safety rules.

If an employee has any questions about how a task should be done safely, he or she is under instruction ***NOT*** to begin the task until he or she discusses the situation with his or her supervisor. Together, they will determine the safe way to do the job.

If, after discussing a safety situation with his or her supervisor, an employee still has questions or concerns, he or she is required to contact the Safety Coordinator.

NO EMPLOYEE IS EVER REQUIRED to perform work that he or she believes is unsafe, or that he or she thinks is likely to cause injury or a health risk to themselves or others.

General Safety Rules

Conduct

Horseplay, 'practical jokes,' etc., are forbidden. Employees are required to work in an injury-free manner displaying accepted levels of behavior. Conduct that places the employee or others at risk, or which threatens or intimidates others, is forbidden.

Drugs and Alcohol

Use and/or possession of illegal drugs or alcohol on company property or on company time are forbidden. Reporting for work while under the influence of illegal drugs or alcohol is forbidden.

Housekeeping

You are responsible to keep your work area clean and safe. Clean-up several times throughout the day, disposing of trash and waste in approved containers, wiping up any drips/spills immediately, and putting equipment and tools away as you are finished with them.

The following areas must remain clear of obstructions:

- Aisles/exits
- Fire extinguishers and emergency equipment
- All electrical breakers, controls, and switches

Injury Reporting

All work-related injuries must be reported to your supervisor within the shift. *Failure to immediately report* injuries can result in loss of Workers' Compensation benefits. After each medical appointment resulting from a work-related injury, you must contact your supervisor to discuss your progress. You must also give your supervisor any paperwork that you received at the appointment.

Reynolds Brothers, Inc. provides Transitional Return to Work (light duty) jobs for persons injured at work. Transitional work is meant to allow the injured or ill employee to heal under a doctor's care while she/he remains productive. Employees are required to return to work immediately upon release.

Off-Site Safety

a. Employees of Reynolds Brothers, Inc. are required to follow all safety and security procedures during off-site visits.

b. If your contact person does not advise you regarding safety hazards, consider the following:

- Emergency exit location(s);
- Keep your eye on the path you are walking and avoid any tripping/slipping hazards. When on stairs maintain three point contact (hand on rail and feet on stairs);
- When visiting construction sites, eye protection, hearing protection, safety vests, long pants, sleeved shirts, leather boots and hard hats are required. This equipment will be in the possession of the Reynolds Brothers, Inc. employee and not provided by the client
- Wear shoes that support your feet and are slip resistant.
- Avoid clothing that is either constrictive or too loose; loose clothing can get caught in machinery or other equipment.

c. All drivers are to remain in their vehicle unless performing work within the scope of your employment.

These rules are established to help you stay safe and injury free. Violation of the above rules, or conduct that does not meet minimum accepted work standards, may result in discipline, up to and including discharge.

When working at a customer location, employees are required to follow the above rules, as well as all customer rules and procedures, and work in a manner that reflects positively on the company. Before operating any equipment at a customer location, permission must first be secured from the customer contact.

Safety Orientation Training

The Company is committed to providing safety and health related orientation and training for all employees at all levels of the Company. The Company will maintain and support a program to educate and familiarize employees with safety and health procedures, rules, and safe work practices. The training subjects and materials have been developed using industry best practices criteria and site-specific data.

The training may include, but not be limited to the following:

1. Company specific accident and incident data
2. Hazards associated with the work area
3. Hazards associated with a specific job or task
4. Operation of specific equipment
5. Personal protective equipment
6. Emergency procedures
7. Employee accident reporting requirements
8. Return to work program
9. Any OSHA/MSHA required training not included or addressed above

Periodic Inspections

It is the policy of our Company that workplaces are subject to periodic safety and health inspections to ensure implementation and execution of our policies and procedures as relates to employees, contractors, and vendors.

All employees are responsible for cooperating during these inspections and managers and supervisors are responsible for initiating corrective actions to improve items discovered during the walk-through inspection.

Incident Reporting

1. Any work-related injury or suspected injury must be reported within the shift to your supervisor, Job Site Foreman and to Human Resources. An accident report form must be completed. Failure to promptly report an injury may result in disciplinary action.
2. Human Resources will issue a authorization for treatment for the injured employee to take to the treating medical practitioner. The employee must return this form to Human Resources by the next business day.
3. After each practitioner appointment, the employee must report to his/her supervisor and Human Resources to review his/her progress.
4. Reynolds Brothers, Inc. provides light duty work for employees recovering from injury. Employees are required to return to light duty work immediately upon release.
5. An accident investigation will be conducted to determine the root cause of the accident. The injured employee will be asked to participate in the investigation.

It is our goal to prevent work-related injuries from happening. We are always concerned when one of our employees is injured or ill due to a work-related condition. We believe that such absences cost both Reynolds Brothers, Inc. and its employees. We want our injured employees to get the best possible medical treatment immediately to assure the earliest possible recovery and return to work.

Reynolds Brothers, Inc. has a workers' compensation program available for employees who have suffered work-related injuries. The program's administrator will determine, based upon their guidelines, whether you are eligible for wage loss or medical expenses under that program.

Reynolds Brothers, Inc. wants to provide meaningful work activity for all employees who become unable to perform all, or portions, of their regular work assignment. Thus, we have implemented a Transitional Duty program (light duty). Transitional Duty is a temporary program, not to exceed six months.

Employee Procedures

- All work-related injuries should always be reported immediately to your supervisor no later than the end of the shift on which the injury occurs.
- If a **post-accident drug screen** is not performed the **same day** as the injury, the employee will only be paid up to one hour while taking time out to have the drug screen sample collected.
- You must complete and sign an Injury Report.
- When medical treatment is sought, the injured employee must advise their supervisor that they are seeking treatment and obtain a Transitional Duty Evaluation form. Regardless of their choice of physicians, the Transitional Duty Evaluation form must be completed for each practitioner visit. Reynolds Brothers, Inc. will not accept a general note stating that you are only to be off of work.
- Under this program, temporary transitional work is available for up to sixty (60) days (with a review of your progress every 30 days) while you are temporarily unable to work in your regular job capacity. Transitional duty beyond sixty (60) days, up to a maximum of six (6) months, will be evaluated on a case-by-case basis.
- If you are unable to return to your regular job, but are capable of performing transitional duty, you must return to transitional duty. Failure to do so will result in your not being eligible for full disability benefits under the workers' compensation program, and may result in disqualification for certain employee benefits and, in some cases, be a basis for termination.
- Employees who are unable to work and whose absences Reynolds Brothers, Inc. approves must keep us informed on a weekly basis of their status. Failure to do so will result in a reduction in benefits available and discipline, up to and including termination from employment.
- If you are unable to return to your regular job or transitional duty, your absence must be approved under the Family Medical Leave Act (FMLA) program. For this purpose, you need to complete a Family Medical Leave Request form and submit it to the Human Resources Department. You must also have your practitioner complete both the Transitional Duty Evaluation and Medical Certification form.
- Employees who are not eligible for leave under FMLA must return to transitional duty or regular work if at all possible. If you are unable to return to any available work, your job position may be filled after a reasonable time. When able to do so, you will be entitled to return to a suitable position, if available and consistent with any limitations. However, you must keep us regularly informed of your status and any changes in your condition.
- Employees must provide a Transitional Duty Evaluation form indicating they are capable of returning to full-duty. Permanent restrictions will be evaluated on a case-by-case basis and relate to the performance or essential job functions. No permanent light duty positions will be created.
- Cooperate with our third-party administrator and provide accurate and complete information as soon as possible so that you receive all benefits to which you are entitled. If you have problems or concerns, please contact your Job Site Foreman and the Human Resources Department.

General Emergency Guidelines

- Stay calm and think through your actions
- Know the emergency numbers:
- Fire/Police/Ambulance 911
- Human Resources
- Operator "0"
- Know where the exits are located
- In the event of any emergency, do not take elevators; use the stairs
- Do not hesitate to call or alert others if you believe that an emergency is occurring; you will not "get in trouble."
- First aid supplies and emergency equipment are located in shop for use by those who are authorized and properly trained

Evacuation

- Employees will be notified of a fire alarm either by the fire alarm system or by a paged announcement.
- Upon becoming aware of a fire alarm, employees should immediately evacuate the job site. Do not delay evacuation to get personal belongings or to wait for co-workers. Also, all doors should be closed as the last person passes through. (Note: never use elevators during fire alarm situations).
- Supervisors should be the last persons to leave the area. Check the job site to be sure that all personnel have evacuated.
- Any employee having mobility, visual, hearing, or other condition, which may hinder them from becoming aware of an emergency or evacuating, should request special assistance through Human Resources.
- Upon exiting the building, all personnel should report for a headcount.
- If any employee is missing, an immediate report should be made to the incident commander who will in turn report to the first available fire department officer.
- Employees should stay together in a group so that periodic updates on the situation can be issued.
- The order to re-occupy a job site or building will be issued by the incident commander.
- In the event of inclement weather, the incident commander will make arrangements for all personnel to move to shelter.

Fire Safety

- Alert other persons in the immediate hazard area.
- Activate a fire alarm
- If you have been trained, you can decide to use a fire extinguisher following these instructions:

  -P=Pull the safety pin
  -A=Aim the nozzle at the base of the fire
  -S=Squeeze the operating lever
  -S=Sweep side to side covering the base of the fire

**When using a fire extinguisher, always stay between the fire and an exit; stay low and back away when the fire is extinguished.*
**Never feel that using a fire extinguisher is required. If the fire is too hot, too smoky or you are frightened, evacuate.*

- Have someone notify the incident commander of where the emergency is located. He/she will relay this information to the fire department.

Medical Emergency

- Upon discovering a medical emergency, call 911.
- Notify the supervisor and report the nature of the medical emergency and location.
- Stay with the person involved, being careful not to come in contact with any bodily fluids.
- Send two persons (greeters) to the entrance to await the fire department. One person should call and hold an elevator car. Often two fire department units will arrive, so the second greeter should wait at the entrance to receive the second unit while the first greeter escorts the fire dept. personnel to the scene.
- Employees in the immediate vicinity of the emergency, but not directly involved, should leave the area.
- Human Resources will make any necessary notifications to family members of the person suffering the medical emergency

Severe Weather

- The supervisor will monitor the weather. If a severe weather report is issued, she/he will immediately page everyone. She/he will shut down all equipment and will be instructed where to go for safety. When the severe weather warning is cancelled, she/he will send runners to advise that it is safe to return to work areas. A general announcement will also be made.

Emergency Contact Information

FIRE DEPARTMENT: ________________________________

TELEPHONE: _911____________________

POLICE DEPARTMENT: ________________________________

TELEPHONE: _911__________________

EMERGENCY MEDICAL SERVICES (AMBULANCE): ______________

TELEPHONE: __911__________________

HOSPITAL: ____

TELEPHONE: ____________________

DOCTOR: ____________________ ADDRESS: __________________

TELEPHONE: ____________________

<u>JOBSITE TELEPHONE NUMBERS:</u>

PROJECT NAME/NUMBER:

____

ADDRESS: ____

TELEPHONE: ____________________

SITE SUPERINTENDENT: ________________________________

Cell/Home TELEPHONE: _______________

CLIENT CONTACT: ____________________________________

OFFICE TELEPHONE: ____________

Cell/Home TELEPHONE: _______________

- Any employee who feels that she/he has been threatened should immediately report their concern to the supervisor and to Human Resources.
- *If any person is observed exhibiting* threatening *behavior or making* threatening statements, the person discovering the situation should warn others in the area and immediately notify Human Resources and stay away from the person exhibiting threatening behavior.
- Depending upon the level of concern, the police department (911) should be called immediately.
- Never attempt to confront any person exhibiting threatening behavior.

If you have reason to believe that events in your personal life could result in acts of violence occurring at work, you are urged to confidentially discuss the issue with Human Resources so that a prevention plan can be developed.

Access to Employee Exposure & Medical Records

Employees and former employees, who are, have been, or will be exposed to toxic substances or harmful physical agents, such as noise, can have access to exposure and medical records maintained by the Company upon request.

Vehicle Use Policy

To: All drivers of Reynolds Brothers, Inc.
Effective: 07/19/2007

- This policy applies to:
  - Vehicles owned, leased, or rented to Reynolds Brothers, Inc..
  - Personally owned vehicles driven by employees on behalf of Reynolds Brothers, Inc..

The following policy has been established to encourage safe operation of vehicles, and to clarify insurance issues relating to drivers and Reynolds Brothers, Inc..

- All drivers must have a valid driver's license.
- Motor Vehicle Records will be checked periodically. Driving privileges may be suspended or terminated if your record indicates an unacceptable number of accidents or violations. Should your record fall into our insurance carrier's guidelines of an 'unacceptable driver,' your employment may be terminated.
- Your supervisor must be notified of any change in your license status or driving record.

When operating your own vehicle for Reynolds Brothers, Inc. business:

- Your Personal Auto Liability insurance is the primary payer. Reynolds Brothers, Inc.'s insurance is in excess of your coverage.
- You should carry at least $100,000 per occurrence liability coverage. Evidence of insurance coverage is to be provided to Reynolds Brothers, Inc. each year, by a copy of your policy's Declaration page or a Certificate of Insurance.
- Reynolds Brothers, Inc. is not responsible for any physical damage to your vehicle. You must carry your own collision and comprehensive coverage.

In the event of an accident:

- Take necessary steps to protect the lives of yourself and others.
- Comply with police instructions.
- Do not assume or admit fault. Others will determine liability and negligence after thorough investigation.
- Report the accident to Reynolds Brothers, Inc. as soon as possible.

By signing this document, you are agreeing that you have read and understood the Vehicle Use policy and will compl with it.

____________________ Employee's Signature

____________________ Date

Motor Vehicle Record (MVR) Grading Criteria [Last 3 Years]

The following chart serves as a guideline for evaluating an employee's Motor Vehicle Record (MVR). An employee with an MVR grade of "poor" will possibly not be insurable by our insurance carrier and could jeopardize their employment if they are unable to be insured. Note that any "major" violation is a "poor" score.

Minor Violations	Number of at-fault accidents			
	0	1	2	3
0	Clear	Acceptable	Borderline	Poor
1	Acceptable	Acceptable	Borderline	Poor
2	Acceptable	Borderline	Poor	Poor
3	Borderline	Poor	Poor	Poor
4	Poor	Poor	Poor	Poor
Any Major violation	Poor	Poor	Poor	Poor

Minor Violation	**Major Violations**
All moving violations not listed as a major violation.	• Driving under influence of alcohol/drugs • Failure to stop/report an accident • Reckless driving/speeding contest • Driving while impaired • Making a false accident report • Homicide, manslaughter or assault arising out of the use of a vehicle • Driving while license is suspended/revoked • Careless driving • Attempting to elude a police officer

Hazard Communication

1. All Reynolds Brothers, Inc. employees have a right to know what chemicals they work with, what the hazards are, and how to handle them safely.

2. Material Safety Data Sheets (MSDS) are documents provided by the supplier of a chemical. MSDS detail the chemical contents, associated hazards, and general safe handling guidelines. At Reynolds Brothers, Inc., the MSDS collection is located at jobsite, shop, or office. Employees are free to utilize the MSDS as needed.

3. General rules for handling chemicals in an office environment are:
   - Read all label warnings and instructions.
   - Follow instructions for quantity. More is not better.
   - Minimize contact with chemicals. Use double layer cloths or gloves to protect your skin and keep your face clear of the area to reduce inhalation.
   - Always wash your hands after handling chemicals.
   - If a chemical enters your eye(s) immediately hold open the injured eye(s) and rinse it/them with clean, cool water for 15 minutes. Then be sure to report the injury immediately.
   - Any questions or concerns regarding chemicals should be reported to your Job Site Manager and Human Resources.

4. All chemical containers must be labeled to identify contents and hazards. Most labels use numbers to rank the hazard level in three important areas:
   - **FIRE** (red background color) - will the material burn?
   - **HEALTH** (blue background) - is the material dangerous to my body?
   - **REACTIVITY** (yellow background) - is the material dangerously unstable?

   After each hazard (Fire, Health, and Reactivity), a number from 1-4 will be assigned. The number reflects the degree (or amount) of hazard:

   -**0** Minimal
   -**1** Slight
   -**2** Moderate
   -**3** Serious

Bloodborne Pathogens

1. Blood and other bodily fluids can carry pathogens, which are capable of causing diseases in others. This includes HIV, which leads to AIDS, and hepatitis.

2. Because we cannot tell by looking at a person if they are infected with a pathogenic disease, we must take precautions following an illness or injury when bodily fluids are released.

3. In the event of a person losing bodily fluids, stay away from the area and warn others to also do so. You can still stay close to the ill/injured person to support him/her, just be sure to stay out of contact any bodily fluids.

4. In the event that you find spilled bodily fluids, a syringe, or other medically contaminated materials, do not attempt clean up by yourself. Call Human Resources immediately for instructions.

Personal Protective equipment (PPE)

Inspect PPE prior to each use. Do not use damaged PPE. You are required to maintain and keep PPE clean.

a) Safety Glasses - must be worn at all times in this facility and on jobsites.

b) Hard Hats - must be worn at all times in designated areas.

c) Gloves - work gloves must be worn at all times when handling sharp or rough stock, welding, or performing other jobs, which could cause hand injuries. Synthetic gloves must be worn when handling chemicals.

d) Welding - appropriate filter lens, welding helmet, gloves, and sleeves are required for welders at all times.

e) Respirators - only employees trained and authorized to use respirators are allowed to do so.

f) Hearing Protection - is required in areas where noise exposure is more than 90dBA (85dBA if you already have experienced a hearing loss.

g) Safety Vests - must be worn at all times in this facility and on jobsites.

h) Long Pants and sleeved shirts - must be worn at all times in this facility and on jobsites.

i) Leather Boots - must be worn at all times in this facility and on jobsites.

j) Face Shields - must be worn anytime sawing or grinding is taking place.

Lockout/Tagout

Prior to working on any machinery when guards are removed, every energy source (electrical, hydraulic, chemical, mechanical, etc.) must be deactivated, stored energy dissipated, and the control locked in the off (safe) position.

Never remove or tamper with a lockout performed by another employee or contractor. A lockout could consist of a lock applied to a control such as a switch, breaker, or valve. A tag containing words such as "DANGER - DO NOT OPERATE" may also be used for lockout. If you see the lock, the tag, or both applied to an energy control device it means, "Keep your hands off."

1. Do not perform any maintenance, inspection, cleaning, adjusting or servicing of any equipment without following the company's lockout/tagout program.
2. If required to work on powered equipment (hydraulic, electrical, air, etc.), you must have your personal padlock with your name on it and personal key on your person at all times.
3. Disconnect and padlock all machine power disconnects in the off position before removing guards for the purpose of working "ON" or "IN" the machinery or approaching its unguarded parts. (NOTE: When more than one employee is working on a single piece of equipment, each employee must use his own padlock along with lock-out tongs to lock out the equipment. When the work is completed, he must remove only his lock.
4. Do not commence equipment repair or maintenance work until you have verified that the tagged/locked out switch or control cannot be overridden or bypassed.
5. Replace all guards before removing personal padlocks from the control.
6. Do not use or remove another employee's protective lock. Do not remove a lock from equipment unless you placed it there.
7. Before machinery is put back into use after LOCKOUT/TAGOUT, give a verbal announcement or sound a warning to fellow employees.

Confined Space

Only trained and authorized employees are permitted to enter confined spaces. If you believe that your job requires confined space entry, contact your supervisor prior to undertaking the work. Confined spaces are areas not meant for human occupancy, have limited means of entry/exit, and have electrical, chemical, thermal, atmospheric, or entrapment hazards.

Respiratory Protection

1. Do not perform operations requiring respirators, unless you have been approved for use of respirators, fitted and trained the company's respiratory protection program.
2. Inspect respirators for cracked or worn parts before and after each use and after cleaning.
3. Do not work in an area that requires the use of respiratory equipment, if you fail to obtain a tight seal between the respirator and your face.
4. Do not wear a respirator if facial hair prevents a tight seal between the respirator and your face.
5. Clean and sanitize respiratory equipment according to manufactures recommendations after each use.
6. Store respiratory equipment in a clean and sanitary location.

Fire Prevention

1. Smoking is only allowed in designated exterior smoking areas.
2. No candles or open flames are allowed within the office facility.
3. Contractors performing hot work must contact Rob Reynolds for approval.
4. Only space heaters provided by the company are approved for use within the facility. Employees using space heaters are responsible to turn the heater off when leaving their desk for extended periods of time (lunch, end of the workday, etc.).
5. No flammable chemicals are allowed inside the building at any time. If you feel that there is a work-related need to use a flammable chemical, contact the supervisor for guidance on Hazard Communication and fire safety.

Electrical Safety

1. With the exception of independently fused multi-tap cords for computers, extension cords are not allowed in office areas.
2. Keep electrical cords out of areas where they will be damaged by stepping on or kicking them.
3. Turn electrical appliances off with the switch, not by pulling out the plug.
4. Turn all appliances off before leaving for the day.
5. Never run cords under rugs or other floor coverings.
6. Any electrical problems should be reported immediately.
7. The following areas must remain clear and unobstructed at all times:
    - Exit doors,
    - Aisles,
    - Electrical panels, and
    - Fire extinguishers.

Lifting

1. Plan the move before lifting; ensure that you have an unobstructed pathway.
2. Test the weight of the load before lifting by pushing the load along its resting surface.
3. If the load is too heavy or bulky, use lifting and carrying aids such as hand trucks, dollies, pallet jacks and carts, or get assistance from a co-worker.
4. If assistance is required to perform a lift, coordinate and communicate your movements with those of your co-worker.
5. Position your feet 6 to 12 inches apart with one foot slightly in front of the other.
6. Face the load.
7. Bend at the knees, not at the back.
8. Keep your back straight.
9. Get a firm grip on the object using your hands and fingers. Use handles when they are present.
10. Hold the object as close to your body as possible.
11. While keeping the weight of the load in your legs, stand to an erect position.
12. Perform lifting movements smoothly and gradually; do not jerk the load.
13. If you must change direction while lifting or carrying the load, pivot your feet and turn your entire body. Do not twist at the waist.
14. Set down objects in the same manner as you picked them up, except in reverse.
15. Do not lift an object from the floor to a level above your waist in one motion. Set the load down on a table or bench and then adjust your grip before lifting it higher.
16. Never lift anything if your hands are greasy or wet.
17. Wear protective gloves when lifting objects that have sharp corners or jagged edges.

Ladders & Stepladders

1. Read and follow the manufacturer's instructions label affixed to the ladder if you are unsure how to use the ladder.
2. Do not use ladders that have loose rungs, cracked or split side rails, missing rubber foot pads, or are otherwise visibly damaged.
3. Keep ladder rungs clean and free of grease. Remove buildup of material such as dirt or mud.
4. Do not place ladders in a passageway or doorway without posting warning signs or cones that detour pedestrian traffic away from the ladder. Lock the doorway that you are blocking with the ladder and post signs that will detour traffic away from your work.
5. Do not place a ladder at a blind corner or doorway without diverting foot traffic by blocking or roping off the area.
6. Allow only one person on the ladder at a time.
7. Face the ladder when climbing up or down it.
8. Maintain a three-point contact by keeping both hands and one foot or both feet and one hand on the ladder at all times when climbing up or down the ladder.
9. When performing work from a ladder, face the ladder and do not lean backward or sideways from the ladder. Dc not jump from ladders or step stools.
10. Do not stand on tables, chairs, boxes or other improvised climbing devices to reach high places. Use the ladder o stepstool.
11. Do not stand on the top two rungs of any ladder.
12. Do not stand on a ladder that wobbles, or that leans to the left or right of center.
13. When using a straight or extension ladder, extend the top of the ladder at least three feet above the edge of th landing.
14. Secure the ladder in place by having another employee hold it if it cannot be tied to the structure.
15. Do not move a rolling ladder while someone is on it.
16. Do not place ladders on barrels, boxes, loose bricks, pails, concrete blocks or other unstable bases.
17. Do not carry items in your hands while climbing up or down a ladder.

Housekeeping

1. Shop is to be cleaned after each job is completed.
2. Do not place materials such as boxes or trash in walkways and passageways.
3. Sweep up shavings from around equipment such as drill presses, lathes or planers by using a broom and a dust pan.
4. Mop up water around drinking fountains, drink dispensing machines and ice machines immediately.
5. Do not store or leave items on stairways.
6. Do not block or obstruct stairwells, exits or accesses to safety and emergency equipment such as fire extinguishers or fire alarms.
7. Do not block the walking surfaces of elevated working platforms, such as scaffolds, with tools or materials that are not being used.
8. Straighten or remove rugs and mats that do not lie flat on the floor.
9. Remove protruding nails or bend them down into the lumber by using a claw hammer.
10. Return tools to their storage places after using them.
11. Do not use gasoline for cleaning purposes.
12. Use caution signs or cones to barricade slippery areas such as freshly mopped floors.

Heavy Equipment Operation

1. Driver must be certified by Reynolds Brothers to operate any piece of equipment.
2. Blue Stakes must be called prior to any excavation can begin.
3. No passengers are permitted on heavy equipment.
4. Keep windows and windshield clean.
5. Do not use heavy equipment if the horn or backup alarm do not sound.
6. Turn off the engine before leaving heavy equipment unattended.
7. Do not jump off of or onto any heavy equipment.
8. Keep heavy equipment in gear when going down grade. Do not use neutral.
9. Display the "Slow Moving Vehicle" sign when operating heavy equipment on roads.
10. Do not operate backhoes, power shovels and other heavy equipment within two (2) feet from the edge of an excavation.
11. Do not use a bucket or other attachments for a staging or temporary platform for workers.
12. Do not operate a backhoe over or across underground utilities that are marked by paint, flagged or staked.
13. Set swing brake of a backhoe bucket arm when moving the vehicle to and from the digging site.
14. Stay in the compartment during operation of heavy equipment. Do not reach in or attempt to operate controls from outside the piece of equipment.

Crane Safety

1. Do not use load hooks that are cracked, bent or broken.
2. Do not use cranes that do not have their rated load capacity indicated on each side of the crane or on its load block.
3. Passengers are not permitted to ride inside the operator's cab of a truck crane.
4. Keep crane windows clean. Do not use a crane if its windows are broken.
5. Do not exceed the rated load capacity as specified by the manufacturer.
6. Do not operate a crane on soft ground without using cribbing and mats.
7. Fully extend outriggers before attempting a lift.
8. Stay outside the barricades of the posted swing radius.
9. Do not perform any crane refits or modifications without the manufacturer's approval.
10. Do not leave the crane unattended with a hoisted load.
11. Do not hoist loads over people.
12. Do not drive on the road shoulders.
13. Wear a high visibility vest when working as a signalman.
14. Only follow the signals of the person designated to give you signals when operating a crane.
15. Replace the belts, gears or rotating shaft guards after servicing a crane; do not use the crane if guards are missing from these areas.

Sling Safety

1. Do not use chain slings if links are cracked, twisted, stretched or bent.
2. Do not shorten slings by using make-shift devices such as knots or bolts.
3. Do not use a kinked chain.
4. Protect slings from the sharp edges of their loads by placing pads over the sharp edges of the items that have been loaded.
5. Wear work gloves when handling rough, sharp-edged or abrasive chains, cables, ropes or slings.
6. Do not alter or remove the safety latch on hooks. Do not use a hook that does not have a safety latch, or if the safety latch is bent.
7. Do not place your hands between the sling and its load when the sling is being tightened around the load.
8. Lift the load from the center of hooks, not from the point.

Labor Personnel Safety

1. Do not start work until barricades, barrier logs, fill or other protection have been installed to isolate the work area from local traffic.
2. Reflective warning vests must be worn by traffic flagmen who are assigned to controlling traffic.
3. Do not approach any heavy equipment until the operator has seen you and has signaled to you that it is safe to approach.
4. Walk around or step over holes, rocks, roots, materials or equipment in your pathway.
5. Do not work outdoors during lightning storms.
6. Drink plenty of clear liquids during your breaks.
7. Take breaks in shaded areas.

Scaffold Safety

1. Follow the manufacturer's instructions when erecting the scaffold.
2. Do not work on scaffolds outside during stormy or windy weather.
3. Do not climb on scaffolds that wobble or lean to one side.
4. Initially inspect the scaffold prior to mounting it. Do not use a scaffold if any pulley, block, hook or fitting is visibly worn, cracked, rusted or otherwise damaged. Do not use a scaffold if any rope is frayed, torn or visibly damaged.
5. Do not use any scaffold tagged "Out of Service."
6. Do not use unstable objects such as barrels, boxes, loose brick or concrete blocks to support scaffolds or planks.
7. Do not work on platforms or scaffolds unless they are fully planked.
8. Do not use a scaffold unless guardrails and all flooring are in place.
9. Level the scaffold after each move. Do not extend adjusting leg screws more than 12 inches.
10. Do not walk or work beneath a scaffold unless a wire mesh has been installed between the midrail and the toeboard or planking.
11. Use your safety belts and lanyards when working on scaffolding at a height of 10 feet or more above ground level. *Attach the lanyard to a secure member of the scaffold.*
12. Do not climb the cross braces for access to the scaffold. Use the ladder.
13. Do not jump from, to, or between scaffolding.
14. Do not slide down cables, ropes or guys used for bracing.
15. Keep both feet on the decking. Do not sit or climb on the guardrails.
16. Do not lean out from the scaffold. Do not rock the scaffold.
17. Keep the scaffold free of scraps, loose tools, tangled lines and other obstructions.
18. Do not throw anything "overboard" unless a spotter is available. Use the debris chutes or lower things by hoist or by hand.
19. Do not move a mobile scaffold if anyone is on the scaffold.
20. Chock the wheels of the rolling scaffold, using the wheel blocks, and also lock the wheels by using your foot to depress the wheel-lock, before using the scaffold.

Electrical – Hot Line Safety

1. Clean all protective line equipment after each use, prior to storage.
2. Wear rubber gloves or use hot sticks when removing tree branches, limbs, or similar objects from contact with high voltage lines, panels or equipment.
3. Do not wear rubber protective gloves while climbing or descending a pole.
4. Wear 100% cotton or flame resistant shirts or jumpers (with sleeves rolled down) and protective hats when working on or near live parts, lines, and panels or when climbing poles.
5. Wear body belts with straps or lanyards when working at an elevated position (poles, towers, etc.).
6. Visually inspect body belts and straps before use for defects, wear, and damage.
7. When working with lines of 600 volts or more:
   - Wear rubber gloves or use hot sticks when placing protective equipment around energized voltage conductors.
   - Do not work on a line that is removed from service until the line is cleared, tagged, tested, and grounded.
   - Treat bare wire communication conductors on structures as energized lines unless they are protected by insulated conductors.
8. Treat bare wire communication conductors on power poles and structures as energized lines (with voltages in excess of 600 volts) unless the conductors are protected by insulating materials.
9. Do not remove any ground until all employees are clear of the temporary grounded lines or equipment.
10. After a capacitor has been disconnected from its source of supply, wait five minutes before short-circuiting and grounding it.
11. Do not contact the terminals, jumpers or line wires connected directly to capacitors until the capacitors have been short-circuited and/or grounded.
12. Visually inspect and wipe down all hot line tools each day before use.
13. Do not wear rubber gloves with protectors while using hot line tools.
14. Do not use defective hot line tools. Mark them as defective and turn them in for repair or replacement.

Job-Specific Safety Precautions

Hazardous Materials

1. Follow the instructions on the label and in the corresponding Material Safety Data Sheet (MSDS) for each chemical product you will be using in your workplace.
2. Do not use protective clothing or equipment that has split seams, pin holes, cuts, tears, or other visible signs of damage.
3. Each time you use your gloves, wash them, before removing the gloves, using cold tap water and normal hand washing motion. Always wash your hands after removing the gloves.
4. Do not use chemicals from unlabeled containers or unmarked cylinders.
5. Always use chemical goggles and a face shield before handling chemicals labeled "Corrosive" or "Caustic."
6. Do not store chemical containers labeled "Oxidizer" with containers labeled "Corrosive" or "Caustic."
7. Do not smoke while handling chemicals labeled "Flammable."

Machine Safety

1. Do not remove, alter or bypass any safety guards or devices when operating mechanical equipment such as mechanical power presses, press brakes, metal working lathes, radial arm saws, drills, horizontal mill, punch press, or when bending or forming materials.
2. Replace guards, before starting the machine, after making adjustments or repairing the machine.
3. Do not try to stop a workpiece as it goes through any machine. If the machine becomes jammed, disconnect the power before clearing the jam.
4. Do not wear loose clothing, jewelry or ties in the machine shop.
5. Read and obey safety warnings posted on or near any machinery.
6. Long hair must be contained under a hat or hair net, regardless of gender.

Power Saws

1. Wear the prescribed personal protective equipment of face shields, gloves, dust masks and hearing protection when operating the power saw.
2. Turn the saw power switch "Off" before making measurements, adjustments or repairs.
3. Keep your hands away from the exposed blade.
4. Operate the saw at full cutting speed, with a sharp blade, to prevent kickbacks.
5. If the saw becomes jammed, turn the power switch of the saw to "Off" before pulling out the incomplete cut.
6. Do not alter the anti-kickback device or blade guard.

Abrasive Cut-Off Saws and Chop Saws

1. Proper personal protective equipment must be worn, including face shields, gloves, and hearing protection.
2. Do not use the saw if the lower portion of the blade hood is not adjusting itself to the thickness of the material being cut as the blade passes through the material.
3. Allow the saw to return to its stored position before removing the cut material from the table.
4. Lay the material squarely and solidly down before sawing it.
5. Use a clamp to secure cylindrical materials to the saw "table" before cutting.
6. Do not use the abrasive cut off saw for grinding or sharpening any tool or material.

Drill Press

1. Replace the belt and pulley guard before starting the press and after making adjustments or repairs to the press.
2. Make sure the press table is locked into place and the depth adjustment is set before turning on the power.
3. Remove the chuck key before turning on the power.
4. Clamp small pieces of stock that are to be drilled in the drill vise or to the work bench.
5. Do not wear rings, wristwatches or gloves when working with the drill press.
6. Turn off the power and wait until the machine has come to a complete stop before reaching for the piece of stock.
7. Keep the drill press and the area around the drill press clear of metal cuttings and lubricants.
8. When adjusting the chuck size, do not turn on the power to the drill press while holding the chuck with your hand.

Grinders & Grinding Wheels

1. Prior to installing a new grinding wheel, inspect the wheel for cracks or other visible damage by conducting a "ring test." Tap the wheel gently with a plastic screwdriver handle to detect cracks that are not visible. If the wheel has a dead sound rather than a ring sound, do not use the wheel.
2. Do not use a grinding wheel that has chips, cracks or grooves.
3. Do not use the grinding wheel if it wobbles. Tag it "Out of Service."
4. Adjust the tongue guard so that it is no more than 1/4 inch from the grinding wheel.
5. Adjust the tool rest so that it is no more than 1/8 inch from the grinding wheel.
6. Do not use a bench grinder if it is not firmly anchored to the work bench or other secure platform.
7. Do not install a grinding wheel whose labeled RPM is lower than the rated speed of the grinder.
8. Stand to one side of the plane of a rotating grinding wheel during the first few seconds of operation.
9. Grind on the side of the wheel only when it is made for side grinding.
10. Turn the grinder "off" when you have finished working with it and remain at the machine until it has completely stopped turning.

Portable Grinders

1. Do not use a portable hand held grinder with a wheel diameter larger than 2" unless the grinder has a positive action switch to ensure the switch can not be locked in the on position.
2. Do not use a portable grinder if the grinding wheel guard is missing.
3. Do not clamp a portable grinder in a vice to use it as a bench grinder.

Pneumatic & Hydraulic Tools

1. Do not point a charged compressed air hose at bystanders or use it to clean your clothing.
2. Lock and/or tag tools "Out of Service" to prevent usage of the defective or damaged tool.
3. Do not use tools that have handles with burrs or cracks.
4. Do not use compressors if their belt guards are missing. Replace the belt guards before using the compressor.
5. Turn the power switch of the tool to "Off" and let it come to a complete stop before leaving it unattended.
6. Disconnect the tool from the air line before making any adjustments or repairs to the tool.

Electrical Powered Tools

1. Do not use power equipment or tools on which you have not been trained.
2. Keep power cords away from the path of drills, saws, vacuum cleaners, floor polishers, mowers, knives, and grinders.
3. Do not use cords that have splices, exposed wires, or cracked or frayed ends.
4. Do not carry plugged in equipment or tools with your finger on the switch.
5. Do not carry equipment or tools by the cord.
6. Disconnect the tool from the outlet by pulling on the plug, not the cord.
7. Turn the tool off before plugging or unplugging it.
8. Do not leave tools that are "On" unattended.
9. Do not handle or operate electrical tools when your hands are wet or when you are standing on wet floors.
10. Do not operate spark inducing tools such as grinders near containers labeled "Flammable."
11. Turn off the electrical tool and unplug it from the outlet before attempting repairs or service work. Tag the tool "Out of Service."
12. Do not use extension cords or other three pronged power cords that have a missing prong.
13. Do not use an adapter such as a cheater plug that eliminates the ground.
14. Do not run extension cords through doorways, through holes in ceilings, walls or floors.
15. Do not drive over, drag, step on or place objects on a cord.
16. Do not use a power hand tool while wearing wet cotton gloves or wet leather gloves.
17. Never operate electrical equipment barefooted. Wear rubber-soled or insulated work boots.
18. Do not operate a power hand tool or portable appliance while holding a part of the metal casing or while holding the extension cord in your hand. Hold all portable power tools by the plastic hand grips or other nonconductive areas designed for gripping purposes.

Hand Tool Safety

1. Do not continue to work if your safety glasses become fogged. Stop work and clean the glasses until the lenses are clear and defogged.
2. Tag worn, damaged or defective tools "Out of Service" and do not use them.
3. Do not use a tool if the handle surface has splinters, burrs, cracks or splits.
4. Do not use impact tools such as hammers, chisels, punches or steel stakes that have mushroomed heads.
5. When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
6. Do not carry sharp or pointed hand tools such as screwdrivers, scribes, chisels or files in your pocket unless the tool or your pocket is sheathed.
7. Do not perform "make-shift" repairs to tools.
8. Do not throw tools from one location to another or from one employee to another.
9. Transport hand tools only in tool boxes or tool belts. Do not carry tools in your hand or clothing when climbing.

Forklift Safety

1. Only employer authorized personnel may operate forklifts.
2. Do not exceed the forklift lift capacity (refer to the lift capacity plate on the forklift).
3. Follow the manufacturer's guidelines concerning changes in the lift capacity before adding an attachment to a forklift.
4. Lift the load an inch or two to test for stability: If the rear wheels are not in firm contact with the floor, take a lighter load or use a forklift with a higher lift capacity.
5. Do not raise or lower a load while you are in route. Wait until you are in the loading area and have stopped before raising or lowering the load.
6. After picking up a load, adjust the forks so that the load is tilted slightly backward for added stability.
7. Drive with the load at a ground clearance height of 4-6 inches at the tips and 2 inches at the heels in order to clear most uneven surfaces and debris.
8. Drive at a walking pace and apply brakes slowly to stop when driving on slippery surfaces such as icy or wet floors.
9. Approach railroad tracks at a 45 degree angle.
10. Do not drive over objects in your pathway.
11. Do not drive into an area with a ceiling height that is lower than the height of the mast or overhead guard.
12. Steer wide when making turns.
13. Do not drive up to anyone standing or working in front of a fixed object such as a wall.
14. Do not drive along the edge of an unguarded elevated surface such as a loading dock or staging platform.
15. Obey all traffic rules and signs.
16. Sound the horn when approaching blind corners, doorways or aisles to alert other operators and pedestrians.
17. Do not exceed a working speed of five miles per hour and slow down in congested areas.
18. Stay a minimum distance of three fork truck lengths from other operating mobile equipment.
19. Drive in reverse and use a signal person when your vision is blocked by the load.
20. Look in the direction that you are driving; proceed when you have a clear path.
21. Do not use bare forks as a man-lift platform.
22. Do not load pallets of wood that are not banded on to the forklift.
23. Do not drive the forklift while people are on an attached aerial lift platform.
24. Drive loaded forklifts forward up ramps and in reverse when driving down a ramp.
25. Drive unloaded forklifts in reverse when going up a ramp & forward when going down a ramp.
26. Raise the forks an additional two inches to avoid hitting or scraping the ramp surface as you approach the ramp.
27. Do not attempt to turn around on a ramp.
28. Do not use "Reverse" to brake.
29. Lower the forks completely, turn off the engine and set the parking brake before leaving your forklift.

Compressed Gas Cylinders – Storage & Handling

1. Do not handle oxygen cylinders if your gloves are greasy or oily.
2. Store all cylinders in the upright position.
3. Place valve protection caps on gas cylinders that are in storage or not in use.
4. Do not lift cylinders by the valve protection cap.
5. Do not store compressed gas cylinders in areas where they can come in contact with chemicals labeled "Corrosive."
6. Do not place cylinders against electrical panels or live electrical cords where the cylinder can become part of the circuit.
7. Do not store oxygen cylinders near fuel gas cylinders such as propane or acetylene, or near combustible material such as oil or grease.
8. If a cylinder is leaking around a valve or a fuse plug, move it to an outside area away from where work is performed and tag it to indicate the defect.

Hand Truck Safety

1. When loading hand trucks, keep your feet clear of the wheels.
2. Do not exceed the manufacturer's load rated capacity. Read the capacity plate on the hand truck if you are unsure.
3. Place the load so that it will not slip, shift or fall. Use the straps, if they are provided, to secure the load.
4. For extremely bulky or pressurized items, such as gas cylinders, strap or chain the items to the hand truck.
5. Tip the load slightly forward so that the tongue of the hand truck goes under the load.
6. Push the tongue of the hand truck all the way under the load that is to be moved.
7. Keep the center of gravity of the load as low as possible by placing heavier objects below the lighter objects.
8. Push the load so that the weight will be carried by the axle and not the handles.
9. If your view is obstructed, ask a spotter to assist in guiding the load.
10. Do not walk backward with the hand truck, unless going up ramps.
11. When going down an incline, keep the hand truck in front of you so that it can be controlled at all times.
12. Move hand trucks at a walking pace.
13. Store hand trucks with the tongue under a pallet, shelf, or table.

Welding/Cutting/Brazing

1. Obey all signs posted in the welding area.
2. Do not leave oily rags, paper such as blueprints or other combustible materials in the welding, cutting or brazing area.
3. Do not perform "hot work," such as welding, metal grinding or other spark producing operations, within 50 feet of containers labeled "Flammable" or "Combustible."
4. Use the red hose for gas fuel and the green hose for oxygen.
5. Do not use worn, burned or cracked hoses.
6. Do not use oil, grease or other lubricants on the regulator.
7. "Blow Out" hoses before attaching the torch.
8. Ignite torches with friction lighters only. Do not use a cigarette lighter.
9. Do not change electrodes with bare hands; use dry rubber gloves.
10. Bleed oxygen and fuel lines at the end of the work-shift.
11. Do not wear contact lenses when welding.
12. When welding, wear a welding helmet with filter plates and lenses, welding gloves, a long sleeve shirt, long pants, and an apron.
13. Wear clothing made of cotton, wool, or non-synthetic fibers. Wear long sleeve shirts, long pants, boots, and gloves.
14. Use the welding screen to shield other employees from flying slag and intense light.
15. Before welding place the floor fan behind you to keep welding fumes away from your face.
16. Do not use a torch on any container that is labeled "Flammable" or "Combustible."

Electrical Arc Welding

1. Obey all signs posted in the welding area.
2. Use the welding screen to shield other employees from flying slag and intense light.
3. Wear a welding helmet with filter plates and lenses, welding gloves, a long sleeve shirt and long pants when welding.
4. Do not perform welding tasks while wearing wet cotton gloves or wet leather gloves.
5. Do not change electrodes with bare hands; use dry welder's gloves.
6. Do not use the welding apparatus if the power cord is cut, frayed, split or otherwise visibly damaged or modified.

Spray Painting

1. Store rags that have oil or paint on them in closed metal containers labeled "oily rags."
2. Press the pressure relief valve on painting canisters and painting guns prior to disconnecting them.
3. Do not eat, drink, smoke or apply cosmetics where spray painting is taking place.
4. Do not operate spark inducing tools such as grinders, drills or saws near containers labeled "Flammable " or in an explosive atmosphere such as paint spray booths or rooms.
5. Perform all spray painting operations in the spray booth or room.
6. Do not point the spray gun toward any part of your body or at anyone else.
7. Turn the control switch to the "on" position to operate the mechanical ventilation system before and during all spraying operations.

Employee Acknowledgement Form

Reynolds Brothers, Inc. is firmly committed to your safety. We will do everything possible to prevent workplace accidents and are committed to providing a safe working environment for you and all employees. We value you not only as an employee but also as a human being critical to the success of your family, the local community, and Reynolds Brothers, Inc.. You are encouraged to report any unsafe work practices or safety hazards encountered on the job. All accidents/incidents (no matter how slight) are to be immediately reported to the supervisor on duty.

A key factor in implementing this policy will be the strict compliance to all applicable federal, state, local, and Reynolds Brothers, Inc. policies and procedures. Failure to comply with these policies may result in disciplinary actions. Respecting this, Reynolds Brothers, Inc. will make every reasonable effort to provide a safe and healthful workplace that is free from any recognized or known potential hazards. Additionally, Reynolds Brothers, Inc. subscribes to these principles:

1. All accidents are preventable through implementation of effective Safety and Health Control policies and programs.
2. Safety and Health controls are a major part of our work every day.
3. Accident prevention is good business. It minimizes human suffering, promotes better working conditions for everyone, holds Reynolds Brothers, Inc. in higher regard with customers, and increases productivity. This is why Reynolds Brothers, Inc. will comply with all safety and health regulations which apply to the course and scope of operations.
4. Management is responsible for providing the safest possible workplace for Employees. Consequently, management of Reynolds Brothers, Inc. is committed to allocating and providing all of the resources needed to promote and effectively implement this safety policy.
5. Employees are responsible for following safe work practices, company rules, and for preventing accidents and injuries. Management will establish lines of communication to solicit and receive comments, information, suggestions, and assistance from employees where safety and health are concerned.
6. Management and supervisors of Reynolds Brothers, Inc. will set an exemplary example with good attitudes and strong commitment to safety and health in the workplace. Toward this end, management must monitor the company's safety and health performance, working environment, and conditions to ensure that program objectives are achieved.
7. Our safety program applies to all employees and persons affected or associated in any way by the scope of this business. Everyone's goal must be to constantly improve safety awareness and to prevent accidents and injuries.

Everyone at Reynolds Brothers, Inc. must be involved and committed to safety. This must be a team effort. Together, we can prevent accidents and injuries and keep each other safe and healthy in the work that provides our livelihood.

By signing this document, I confirm the receipt of Reynolds Brothers, Inc.'s employee safety handbook. I have read and understood all policies, programs, and actions as described, and agree to comply with these set policies.

______________________________ ______________________

Employee Signature Date

EMPLOYEE INJURY POLICY

OBJECTIVE: Instructions that will guide the employee through the process of receiving care for the injury and reporting the injury. Following these procedures will make it so that the required reports will be completed accurately and timely. The billing will be directed toward the proper responsible party instead of the employee.

PROCEDURES:

Employee is injured.
Employee determines if injury is life threatening or not.

Is the injury life threatening? If no go to **Section A** – NON LIFE THREATING INJURY. If yes go to **Section B** – LIFE THREATING INJURY.

SECTION A – NON LIFE THREATING INJURY

Step 1 -Employee goes to supervisor to report injury and what happened.
Step 2 –Employee will get an AUTHORIZATION FOR MEDICAL TREATMENT FORM from their supervisor
Step 3 –Employee will go to the clinic that has been circled. **NOTE:** There is a map on the back of the form to get employee to the clinic of choice with ease.
Step 4 –Employee is to report back to the supervisor after going to the clinic with a work release form.

SECTION B – LIFE THREATING INJURY

Step 1 –Employee gets the attention of someone else to let them know that they are injured.
Step 2 –The person who is notified is to determine whether to call 911 or get the injured employee to the nearest emergency room.
Step 3 –The notified person, if it is not the supervisor, is to report to the supervisor as soon as possible their knowledge of the accident.

Step 4 –Employee will contact supervisor as soon as they are able to report their status and progress.

Step 5 –Employee will return to work with a work release form detailing limitations. IE: Can only lift up to 50lbs. **Not this: Light lifting.**

AUTHORIZATION FOR MEDICAL TREATMENT

Employee Name: ______________________________

Company Name: ______________________________

Check Treatment Requested:

- ☐ Drug Screen ☐ DOT ☐ Non-DOT
- ☐ EBT
- ☐ Physical
- ☐ Injury Care
- ☐ FCE
- ☐ Other: ______________________________

____

- ☐ Work Comp. Carrier (please specify carrier):

____

This is your authorization to render medical treatment to the employee identified above.

AUTHORIZATION BY: ______________________________

DATE/TIME: ______________________________

Present this authorization form immediately upon arrival to the provider.

Salt Lake Industrial Clinic at Redwood Road
441 South Redwood Road
Salt Lake City, Utah 84104
Phone: (801) 973-2588
Fax: (801) 973-6985
7:00 a.m. - 7:00 p.m.
Monday - Friday

FIRST MED
Urgent Care • Industrial Medicine • Physical Therapy
1990 West 7800 South
West Jordan, Utah 84088
Phone: (801) 256-0009
Fax: (801) 256-1133
Monday through Friday: 9:00 a.m. - 9:00 p.m.
Saturday: 9:00 a.m. - 3:00 p.m.

Weekend & After-Hour Care:

Pioneer Valley Hospital - Emergency Room
3460 South 4155 West • West Valley City, Utah 84120 • 801-964-3600

Jordan Valley Hospital - Emergency Room
3580 West 9000 South • West Jordan, Utah 84088 • 801-562-4242

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Waste Inspection Report

Inspector:________________________ Date:________________ Time:__________

Vehicle License Number:______________ Vehicle Description:____________________

Vehicle Weight Gross:____________ Tare:________________ Net:________________

Vehicle Owner:______________________________ Phone Number:______________
Owner Address:____
Street City State Zip

Driver/s Name:________________________ Driver/s Signature:____________________

Waste Generator Name:____
Waste Generator Address:____
Street City State Zip

Inspector Load Description:____
____
____

Waste Type
Household:_____ Commercial:______ Industrial: ____ Medical:______ Ash:______Sludge:_____ Wood:
Asbestos:_______ Contaminated Soil:_____ C/D Debris:_______ Tires:_____ PCBs (<50 ppm):______
Household or Conditionally Exempt Hazardous Waste:______Other:____________________
(Describe material, pre-authorization, and/or disposal method)

Suspicious Load (check potential for hazardous material content)
Sealed Containers:_______ Dry Chemicals:____ Liquid:_______ Radioactive:______ PCBs:___________
Flammable Material:________ Oxidizers:________ Other:____________________________

Field Tests Performed:________________________________ By:________________
Test Results:____

Generator Non-Hazardous Certification Not Needed:________________ Requested:______________

Inspection Results
Load Accepted:______________ Load Rejected:______________

Follow-up (if needed):____

Division of Solid and Hazardous Waste notified of hazardous waste load rejected:______________
Inspector=s Signature:____

Mail to:
Dennis R. Downs, Director
Division of Solid and Hazardous Waste
P.O. Box 144880
Salt Lake City, Utah 84114-4880

www.hazardouswaste.utah.gov

SOLID WASTE LANDFILL ANNUAL REPORT

For Calendar year 2007 or most recent fiscal year

Administrative Information (Please enter all the information requested below - type or print legibly)

Facility Name:______________________________

Facility Mailing Address:______________________________
(Number & Street, Box and/or Route)

City:______________________________ Zip Code:______________

County:______________________________

Owner

Name:____________________ Phone No.:(______)______________

Mailing Address:______________________________
(Number & Street, Box and/or Route)

City:____________ State:____________ Zip Code:______________

Contact's Name:________________ Title:______________

Contact's Mailing Address:______________________________

Phone No.:(___)__________ Contact's Email Address:______________

Operator *(Complete this section only if the operator is not an employee of the Owner shown above)*

Name:____________________ Phone No.:(______)______________

Mailing Address:______________________________
(Number & Street, Box and/or Route)

City:____________ State:____________ Zip Code:______________

Contact's Name:________________ Title:______________

Contact's Mailing Address:______________________________

Phone No.:(___)__________ Contact's Email Address:______________

Facility Type and Status

☐ Class I ☐ Class IIIb ☐ Class V

☐ Class II ☐ Class IVa ☐ Class VI

☐ Class IIIa ☐ Class IVb

C/D cell not operated under a separate permit number. Yes ☐ No ☐

If facility was permanently closed during the year enter date closed:______________

Annual Disposal

Total tons received at facility for disposal:

Waste Type	Waste Origin In-State	Waste Origin Out-of-State	Total	Measurement Tons	Measurement Cubic Yards
Municipal	______	______	______	☐	☐
Industrial	______	______	______	☐	☐
C/D[1]	______	______	______	☐	☐

[1]C/D waste includes all waste going to a Class IV or VI landfill cell

Conversion Factor Used

☐ No conversion factors used
☐ Conversion factor from rules (R315-302-2(4)(c)) used
☐ Site specific conversion used Please list:______________________

Recycling

Material Recycled:______________________Tons/Cubic Yds.
(Material recycled should not be included in disposed tons reported. Report compost on separate form. Circle tons or yards)

Utah Disposal Fee

Disposal Fee Required to be Paid to State Yes ☐ No ☐

Fee Paid	Municipal	$__________	C/D	$__________
	Industrial	$__________	Annual	$__________

Landfill Capacity

Current Landfill Remaining Capacity

Tons:__________ Cubic Yards:__________
Years:__________ Acres:__________

Financial Assurance

Current Closure Cost Estimate:______________________
Current Post-Closure Cost Estimate:______________________
Current Amount or Balance in Mechanism:______________________
(If balance does not equal or exceed total for closure and post-closure care please contact the Division)
Current Financial Assurance Mechanism:______________________
(ie. Bond, Trust Fund, Corporate or government Test etc.)
Mechanism Holder and Account Number:______________________
(ie. Name of Bond Company, Bank etc. Account number)

Financial Assurance: Each facility must recalculate the cost of closure and post-closure care to account for inflation and design changes each year. The inflation factor can be found on the Division web page. Facilities that are using a trust account should include a copy of the most recent account statement.
Note Facilities using "Local Government Financial Test" or the "Corporate Financial Test" must provide the information required in R315-309-8(4) or R315-309-9(3) each year.

Other Required Reports

Ground Water Monitoring: Class I and V landfills only. Check if exempt ☐

Explosive Gas Monitoring: Class I, II and V landfills only. Check if exempt ☐

Training Report: A report of all training programs or procedures completed by facility personnel during the year.

Signature:______________________ **Date:**__________
Signature should be by an executive officer, general partner, proprietor, elected official, or a duly authorized representative. A duly authorized representative must meet the requirements of the solid waste rules (UAC R315-310-2(4)(d)).

Print name:______________________Title:______________________

Mail to:
Dennis R. Downs, Director
Division of Solid and Hazardous Waste
P.O. Box 144880
Salt Lake City, Utah 84114-4880

www.hazardouswaste.utah.gov

SOLID WASTE POST-CLOSURE CARE ANNUAL REPORT

For Calendar year 2007 or most recent fiscal year

Administrative Information (Please enter all the information requested below - type or print legibly)

Facility Name:____
Mailing Address:____
(Number & Street, Box and/or Route)
City:____________________Zip Code:________________

Owner
Name:__________________ Phone No.:(______)____________
Mailing Address:__________________________________
(Number & Street, Box and/or Route)
City:______________ State:______ Zip Code:____________

Post-Closure Care Provider (if different from Owner above)
Name:__________________ Phone No.:(______)____________
Mailing Address:__________________________________
(Number & Street, Box and/or Route)
City:______________ State:______ Zip Code:____________

Contact Person
Name:______________________ Phone No.:(______)____________
Title:____
Mailing Address:____________________________________
Email Address:_____________________________________

Permit Information To insure complete records and proper filing please complete the following.

Permit No.:________________Permit Date:________________
(shown on the second page permit) (Date permit was effective)

Post-Closure Care Status

Date Post-Closure care began________________
(The date post-closure care began is the date that the landfill final cover construction was completed)

Financial Assurance

Current Post-Closure Cost Estimate:______________________
Current Financial Assurance Mechanism:______________________
(ie. Bond, Trust Fund, Corporate or government Test etc.)
Financial Assurance Mechanism Holder:______________________
(ie. Name of Bond Company, Bank etc.. If PTIF Account give account number)
Current Amount or Balance in Mechanism:______________________

Financial Assurance: Each facility must recalculate the cost of closure and post-closure care to account for inflation and design changes each year. The inflation factor can be found on the Division web page. Facilities that are using a trust account should include a copy of the most recent account statement.

Note Facilities using "Local Government Financial Test" or the "Corporate Financial Test" must provide the information required in R315-309-8(4) or R315-309-9(3) each year.

Other Required Reports

Cover inspection: Each facility must report the inspection dates and actions taken to maintain the final cover.

Ground Water Monitoring: Each facility required to conduct ground water monitoring must submit a ground water monitoring report, which contains water elevations, sampling results, and statistical analyses. Check if exempt ☐

Explosive Gas Monitoring: Each facility required to conduct gas monitoring must submit a gas monitoring report. Check if exempt ☐

Signature:______________________ **Date:**______________________

Signature should be by an executive officer, general partner, proprietor, elected official, or a duly authorized representative. A duly authorized representative must meet the requirements of the solid waste rules (UAC R315-310-2(4)(d)).

Print name:______________________ **Title:**______________________

Financial Assurance Inflation Adjustment

Each year's "Solid Waste Facility Annual Report" must contain, when applicable, inflation adjusted cost estimates for closure, post-closure care, and corrective action or a new cost estimate. If an inflation adjusted cost estimate is to be used, it must be based on US Department of Commerce, Bureau of Economic Analysis' (BEA) Gross Domestic Product implicit price deflator. To assist in the preparation of inflation adjusted cost estimates and to provide consistency the Division uses the March 31 number. For the 2008 annual reports the 2007 cost estimates must be multiplied by **1.029325.**

If you have used an incorrect multiplier in the past or you do not have a 2007 cost estimate please contact Mr. Ralph Bohn (801.538.6170 or rbohn@utah.gov.) for assist in obtaining the correct previous value(s) of the inflation multiplier to use.

Y² Geotechnical, P.C.

GEOTECHNICAL STUDY
CENTRAL VALLEY LANDFILL
7300 WEST 1300 EAST
SALT LAKE COUNTY, UTAH

P.O. Box 983
Layton, UT 84041-0983
Phone: (801) 546-6505 • Fax: (801) 546-3367
Toll-Free: 1-866-771-4209
E-Mail: jay@y2geotech.com

GEOTECHNICAL STUDY
CENTRAL VALLEY LANDFILL
7300 WEST 1300 EAST
SALT LAKE COUNTY, UTAH

Prepared By:

Y² GEOTECHNICAL, P.C.
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LAYTON, UT 84041-0983
(801) 546-6505

Y² JOB NUMBER: 08G-014

Prepared for:

JOHN BOUEY
BAY AREA SOILS PRODUCTS
9312 SKYLINE BLVD.
OAKLAND, CALIFORNIA 93611

February 13, 2008

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1.0 INTRODUCTION

This report presents the results of a geotechnical investigation for the proposed Class IV Construction Debris Landfill to be located at approximately 7300 West 1300 South in Salt Lake County, Utah. The general location of the site, with respect to existing roadways, is shown on Figure No. 1, *Vicinity Map*, at the end of this report.

This investigation was done to assist in evaluating the subsurface conditions and engineering characteristics of the foundation soils and in developing our opinions and recommendations concerning appropriate foundation types, floor slabs, and pavements. This report presents the results of our geotechnical investigation including field exploration, laboratory testing, engineering analysis, and our opinions and recommendations. Data from the study is summarized on Figures 4 thru 23 and in the Laboratory Results.

2.0 PROPOSED CONSTRUCTION

We understand that the proposed construction will consist of Class IV construction debris landfill of approximately 80-acres with associated receiving buildings, scales, and access ways. We understand that the proposed project will be approximately 300 feet high with slopes of 2:1 (horizontal:vertical) and structures will be one story slab on grade construction. We estimate that the maximum loads for the proposed structures will not exceed 4 kips per linear foot for bearing walls, 40 kips for columns, and 150 to 200 pounds per square foot for floor slabs. If structural loads are significantly greater than those discussed herein or if the project is substantially different than described above, our office should be notified so that we may review our recommendations, and if necessary, make modifications.

In addition to the structures described above it is anticipated that utilities will be constructed to service the buildings, that exterior concrete flatwork will be placed in the form of curb and gutter, and that access ways will be constructed.

3.0 CONCLUSIONS

The following is a brief summary of our findings and conclusions:

1. The subject site is suitable for the proposed construction provided the recommendations presented in this report are followed.

2. Based upon the six boreholes drilled, and six cone penetration tests (CPT) pushed for this investigation this site is covered with up to 12 inches of topsoil. The native soils below the topsoil generally consisted of very soft to medium stiff lean clay (CL) with minor lenses of loose silty sand (SM) to a depth of between 17 and 20 feet below ground surface. The lean clay (CL) is underlain by very loose to dense well-graded sands (SW-SM), poorly graded sand with silt (SP-SM), silty sand (SM), and silt (ML) which extended to the maximum depth investigated with the boreholes (28½ feet). Results of the CPT indicate that the various silt and sand units extended to between 30 and 42 feet below ground surface and graded into a gravel with sand (GM) to a depth of 63 feet. The gravel with sand (GM) extended to approximately 78 feet below ground surface and graded into sand (SM) to the maximum depth investigated (82 feet). These sand seams prevented further penetration of the 20-ton CPT rig.

3. Groundwater was encountered at the time of our investigation between 5 to 8 feet below ground surface. No surface water was encountered at the time of our site investigation, however, 2 areas of depressed ground has standing water during wetter periods as indicated in the photo used in Figure 1.

4. The deeper sand soils are susceptible to liquefaction and total settlement of up to 5.75 inches, up to 4.5 inches differential settlement may be expected during a seismic event.

5. Conventional strip and spread footings are recommended for supporting any small structures proposed for the site. Footings should be founded on at least 2 feet of properly placed and compacted structural fill. Footings may be designed using a maximum bearing capacity of 1500 psf on the properly placed and compacted structural fill. More detailed information pertaining to the construction of foundations is provided in Section 10.0, Foundations of this report. A specific geotechnical investigation conducted at the building location may allow for an increased bearing capacity.

6. Much of the native soil is highly compressible. Under the maximum proposed load, of 200 feet, 9½ to 12½ feet of settlement should be expected. Construction should be staged to allow the pore water pressure to dissipate and prevent a bearing failure due to excessive pore pressures.

7. The maximum proposed slopes for the landfill material were analyzed for stability. Ultimate effects such as strain hardening of the native soils were not taken into account. These effects will serve to increase the factors of safety. The factors of safety for the static and pseudo-static conditions were found to be within acceptable limits for embankments and should be considered safe. More information on the slope stability is given in section 9.4 of this report.

4.0 SITE CONDITIONS

This site is a rectangular shaped parcel of land located at approximately 7300 West and 1300 South in Salt Lake County, Utah. Currently the site is relatively flat with areas of seasonal ponds and lakes of approximately 10 feet deep. The site is currently operated as a chipping and mulching facility with a large concrete pad and associated storage building. The other portions of the property is undeveloped and vegetated with native grasses, sage brush, and weeds. This site is located in the landfill district of Salt Lake County and is bound by to the north by the extension of 1300 South and surrounded by undeveloped land. No standing water sources were observed on the site at the time of our visit, however, surface water is indicated in wetter years in two areas of the site as indicated in the photo used in the Vicinity Map (Figure 1).

5.0 FIELD INVESTIGATION

The field investigation consisted of drilling six boreholes and pushing six CPTs to depths of between 17 and 82 feet below the existing site grade. The maximum depth achieved was only 82 feet due to soil conditions causing refusal of the 20-ton CPT rig. The approximate locations of the test holes are shown on Figure 2 at the end of this report. The soils encountered at the site were continuously logged by a qualified member of our geotechnical staff. Both disturbed and relatively undisturbed samples were obtained and returned to our laboratory for testing. Groundwater levels were measured and piezometers installed in the six boreholes.

6.0 LABORATORY TESTING

The samples obtained during the field investigation were sealed and returned to our laboratory where samples were selected for laboratory testing. Laboratory tests included natural moisture and density determinations, Atterberg Limits tests, consolidation tests, torvame tests, and grain size distribution analyses. The results of these tests are shown at the end of this report.

Samples will be retained in our laboratory for 30 days following the date of this report at which time they will be disposed of unless a written request for additional holding time is received prior to the disposal date.

7.0 SUBSURFACE CONDITIONS

Based upon the six boreholes drilled, and six cone penetration tests (CPT) pushed for this investigation this site is covered with up to 12 inches of topsoil. The native soils below the topsoil generally consisted of soft to very soft lean clay (CL) with minor lenses of loose silty sand (SM) to a depth of between 17 and 20 feet below ground surface. The lean clay (CL) is underlain by loose to medium dense well-graded sands (SW-SM), poorly graded sand with silt (SP-SM), silty sand (SM), and silt (ML) which extended to the maximum depth investigated with the boreholes (28½ feet). Results of the CPT indicate that the various silt and sand units extended to between 30 and 42 feet below ground surface and graded into a gravel with sand (GM) to a depth of 63 feet. The gravel with sand (GM) extended to approximately 78 feet below ground surface and graded into sand (SM) to the maximum depth investigated (82 feet).

Groundwater was encountered at the time of our investigation between 5 to 8 feet below ground surface. No surface water was encountered at the time of our site investigation, however, 2 areas of depressed ground has standing water during wetter periods as indicated in the photo used in Figure 1.

Graphical representations of the soil conditions encountered are shown on the Test Hole and CPT Logs, Figures 3 thru 14. The stratification lines shown on the logs represent the approximate boundaries between soil units; the actual transition may be gradual. The soil types indicated on the CPT log represent the soil behavior type, averaged every ½ foot.

8.0 SITE GRADING

8.1 General Site Grading

Prior to construction of buildings and roadways, unsuitable material and vegetation should be removed from below areas which will ultimately support structural loads. This includes areas below foundations, floor slabs, exterior concrete flatwork, and asphaltic concrete paved parking lots. Unsuitable material consists of topsoil, organic soils, undocumented fill, soft, loose or disturbed native soils, and any other deleterious materials. Topsoil was encountered to a maximum depth of 12 inches at the borehole locations. The topsoil, any uncontrolled fill, and any other unsuitable material, should be completely removed.

8.2 Excavations

Due to the nature of the soils at this site, we recommend that temporary construction slopes for excavations into the native soils or structural fill, less than five feet in depth, not be made steeper than ½:1 (horizontal:vertical). Excavations deeper than 5 feet should be sloped at 1:1 or be shored prior to anyone entering the excavation. If unstable conditions or groundwater seepage are encountered, flatter slopes or shoring and bracing may be required. All excavations should meet applicable OSHA[1] Health and Safety Standards for type C soils.

[1] Occupational Safety and Health Administration

8.3 Structural Fill

If fill is needed, all fill placed below the buildings, pavements, and concrete flatwork should be compacted structural fill. All other fills should be considered backfill. All structural fill should meet the requirements of the agency under which approval will be granted. Unless more restrictive criteria are given, structural fill may consist of the native sand or silt soils or imported structural material. The native clay soils are too cohesive for use as structural fill and should not be used. Imported structural fill material should consist of well-graded sandy gravels to silty sands with a maximum particle size of 3 inches and 5 to 20 percent fines (materials passing the No. 200 sieve). The liquid limit of the fines should not exceed 35 and the plasticity index should be below 15. Clean gravel ranging from pea gravel to 6 inches with less than 5 percent fines and sand combined may also be used as structural fill as long as it is wrapped with a separator fabric. All fill soils should be free from topsoils, highly organic material, frozen soil, and other deleterious materials.

8.4 Backfill

The native soils may be used as backfill in utility trenches and against outside foundation walls. Backfill, not under structural elements, should be placed in lift heights suitable to the compaction equipment used and compacted to at least 90 percent of the maximum dry density (ASTM D-1557).

8.5 Fill Placement and Compaction

The thickness of each lift should be appropriate for the compaction equipment that is used. We recommend a maximum lift thickness of 6 inches for hand operated equipment, 8 inches for most "trench compactors", and 12 inches for larger rollers, unless it can be demonstrated by in-place density tests that the required compaction can be obtained throughout a thicker lift. The full thickness of each lift of structural fill placed should be compacted to at least the percentages listed in Table 1 below, as determined by ASTM D-1557:

TABLE 1: STRUCTURAL FILL COMPACTION

Structural fill	Percent of Maximum Dry Density
Below foundations, flatwork, and pavements:	95%
For fills thicker than 6 feet:	98%
In landscape areas not supporting structural loads:	90%

Generally, placing and compacting fill at a moisture content within 2% of the optimum moisture content, as determined by ASTM D-1557, will facilitate compaction. The further the moisture content is from the optimum, the more difficult it will generally be to achieve the required compaction.

We recommend that fill be tested frequently during placement by a qualified materials testing technician. Early testing is recommended to demonstrate that placement and compaction methods are achieving the required compaction for the entire depth of fill. It is the contractor's responsibility to ensure that fill materials and compaction efforts are consistent so that tested areas are representative of the entire fill.

Clean gravel fill used as structural fill may be placed in loose lifts up to 2 feet thick. The gravel will need to be compacted with at least 4 passes of a vibratory plate or slow moving vibratory smooth drum compactor. Typically, the gravel will settle 2 to 3 inches when properly compacted. Gravel compaction should be verified by either an engineer from Y^2 Geotechnical or a materials testing technician trained in proper gravel placement techniques.

8.6 Stabilization

The native soils at the site may be susceptible to rutting and pumping. The likelihood of rutting and/or pumping, and the depth of disturbance, is proportional to the moisture content in the soil, the load applied to the ground surface, and the frequency of the load. Consequently, rutting and pumping can be minimized by avoiding concentrated traffic, minimizing the load applied to the ground surface by using lighter equipment and/or partial loads, by working in dry times of the year, or by providing a working surface for equipment.

The soil in any obvious soft spots should be removed and replaced with granular material. If rutting occurs traffic should be stopped in the area of concern and the soil should be removed and replaced with granular material. In areas where pumping occurs the soil should either be allowed to sit until pore pressures dissipate (several hours to several days) and the soil firms up, or be removed and replaced with granular material. Typically, we recommend removal to a minimum depth of 18 inches. Depending on the amount of unstable soil, removal and replacement to a greater depth may be required.

For granular material, we recommend using angular well-graded gravel, such as pit run, or crushed rock with a maximum particle size of six inches. We suggest that the initial lift be approximately 12 inches thick and be compacted with a static roller-type compactor. A finer granular material such as sand, gravelly sand, sandy gravel or road base may also be used. The more angular and coarse the material, the thinner the lift that will be required. We recommend that the fines content (percent passing the no. 200 sieve) be less than 15%, the liquid limit be less than 35, and the plastic index less than 15.

Using a geosynthetic fabric such as Mirafi HP570, GeoTex 4x4, or an approved equivalent, will also reduce the amount of material required and avoid mixing of the granular material and the subgrade. Selected fabrics should allow for water to flow through the fabric to prevent water pockets. If a fabric is used, following removal of disturbed soils and water, the fabric should be placed over the bottom and up the sides of the excavation. The fabric should be placed in accordance with the manufacturer's recommendations, including proper overlaps. The granular material should be placed over the fabric in compacted lifts. Again, we suggest that the initial lift be approximately 12 inches thick and be compacted with a static roller-type compactor.

9.0 GEOLOGIC CONSIDERATIONS

The property is located in Salt Lake Valley about 7 miles southwest of the Salt Lake Salient at the western base of the Wasatch Range. The Salt Lake Salient is a large, sediment filled Cenozoic basin bounded by the Oquirrh Mountains to the west and Wasatch Range to the east, and lies in the eastern edge of the Basin and Range province. Late Cenozoic normal faulting is a result of a roughly east-west directed, regional extensional stress regime that has continued to the present.

9.1 Faulting

The Wasatch Fault Zone extends for 213 miles along the western base of the Wasatch Range from southeastern Idaho to north-central Utah. The fault zone generally trends north-south and can form a zone of deformation up to several hundred feet wide containing many subparallel west-dipping main faults and east-dipping antithetic faults. The Granger fault comprises a portion of the active West Valley Fault Zone (WVFZ), an intrabasin graben-bounding fault west of the Wasatch Fault Zone. Movement on the WVFZ may be independent or directly tied to movement on the Salt Lake City section of the Wasatch Fault Zone.

Based on published data, no active faults are known to traverse the site and no faulting was indicated during our field investigation. The nearest known active fault is the West Valley Fault Zone (Granger Fault) located approximately 3½ miles east of the property. The Wasatch Fault located is located approximately 11 miles east of the property[2].

---

[2] Salt Lake County Public Works, "Surface Rupture and Liquefaction Potential Special Study Areas, Salt Lake County, Utah", 1989.

9.2 Seismic Design Criteria

Any structures should be designed in accordance with the IBC building codes. Based on section 1613.5.2 of the 2006 IBC and our field investigation, this site is classified as a Site Class F (due to the potential for liquefaction) and is located in an area where soils of this type require a site-specific dynamic site response analysis. A site specific seismic ground acceleration study was not performed on this site. A site specific ground acceleration study provides a more accurate dynamic response. This additional service can be provided upon request. A generalized dynamic response analysis has been provided using commonly accepted geotechnical ground acceleration values. The table below lists the IBC information for this site.

TABLE 2: IBC SITE CLASSIFICATION

Site Class (soil)	F (g)
Mapped Spectral Response Acceleration at Short Periods	1.313
Mapped Spectral Response Acceleration at 1 Second Periods	0.494

The response spectrum for this site was calculated using the weighted average of five separate response spectrum procedures. The procedures used were "Abraham & Silva", "Boors, Joyner, & Fumal", "Campbell", "Sadigh et al", and Spudich et al (SEA99)". The table below summarizes the controlling seismic information for this site.

TABLE 3: SITE SPECIFIC SEISMIC INFORMATION

Controlling Fault Segment[3]	**West Valley Fault Zone - Granger Fault**
Distance to Fault[2]	**6.4 kilometer or 4 mile**
Rupture Length of Fault[3]	**16.0 kilometers or 10 miles**
Maximum Anticipated Earthquake	**6.5**
Estimated Shear Wave Velocity Top 100 feet	**180 m/s or 591 ft/s**

The Pseudoacceleration Response Spectrum calculated for this site is shown graphically on Figure 23, at the end of this report. The maximum acceleration for this site is 0.88g at a period of 0.20 seconds. The table below lists some of the common periods with the associated maximum acceleration.

TABLE 4: SITE SPECTRAL RESPONSE

Period (s)	**Maximum Spectral Response Acceleration (S_m)**
0.1	0.68
0.15	0.81
0.2	0.88
0.3	0.88
0.4	0.81
0.5	0.72
0.75	0.55
1.0	0.42
2.0	0.19

---

3 Utah Geologic Survey, Selected Critical Facilities and Geologic Hazards, Salt Lake County, Utah

9.3 Liquefaction

Liquefaction is a phenomenon where soils lose their intergranular strength due to an increase of pore pressures during a dynamic event such as an earthquake. The potential for liquefaction is based on several factors, including 1) the grain size distribution of the soil, 2) the plasticity of the fine fraction of the soil (material passing the No. 200 sieve), 3) relative density of the soil, 4) earthquake strength (magnitude) and duration, and 5) overburden pressures. In addition, the soils must be near saturation for liquefaction to occur. Earthquakes of Richter magnitude 5 are generally regarded as the lower threshold for liquefaction. Saturated slopes in susceptible sediments may also fail when subjected to strong ground shaking, producing flow-failures or lateral spreads.

According to the Salt Lake County liquefaction map, this site is in an area classified as having a high potential for liquefaction[2]. Based on our evaluation this site has potential for up to 5.75 inches of liquefaction induced settlement with up to 4.5 inches of differential settlement at the surface. The amount of liquefaction induced settlement presents a concern for any structures on this site. Liquefaction varied from 1.39 inches to 5.73 inches depending on the location within the parcel. Due to the size of the site and the distance between holes structures have a specific liquefaction analysis conducted at the desired location or should be designed to withstand the full amount of differential settlement. Y² Geotechnical would be happy to provide additional liquefaction studies at building sites.

9.4 Slope Stability

The stability of the proposed artificial slopes were analyzed using GEO- SLOPE. The Morgenstern-Price model, a very rigorous model, was chosen for this analysis as being the most likely mode of failure. We understand that the construction is planned with 3 to 1 (horizontal to vertical) slopes on the sides. Based on the site geometry a steeper side slope was analyzed for stability. The proposed site was modeled with having 2 to 1 slopes extending to an elevation of 300 foot above ground surface. Data for input into the program was obtained from laboratory results, site investigation, a study of the topography and field observation. The parameters for "C" and friction angle, or "Phi," were taken as the average values obtained from the CPT and experience in modeling the type of material found on site.

One representative section was investigated for stability. The profile was generated using an estimated height of 300 feet above ground surface with constructed slopes of 2:1 (horizontal:vertical). Diagrammatic output from the analysis is shown in Figures 21 and 22. In essence, the factor of safety for the section was analyzed, under static conditions, using the natural slope and superimposing a theoretical extreme water table in the soil, representing a highly abnormal rain fall over a prolonged period. Where no habitable structures will be constructed on this slope a factor of safety above 1.30 for embankment conditions is considered stable. A second analysis for each slope was then carried out by applying a pseudo-static load representing a 10% probability exceedance (PE) in 50 years. A factor of safety above 1.00 for the described conditions is considered safe. The static factor of safety is 1.44 and the puesudo-static factor of safety is 1.0. All factors of safety are at or above engineering design criteria, therefore the slope is considered stable.

The slope stability analysis did not take into consideration any ultimate effects such as strain hardening which will occur as a result of the high loads which will be applied to this site. Strain hardening will increase the strength of the subsurface soils and will increase the factors of safety for the slope. Construction should be staged to allow pore pressures to dissipate over time and prevent a bearing failure occurring as a result of high pore pressures caused by settlement of the native soils.

9.5 Site Settlement

Much of the native soil is highly compressible. Under the maximum proposed load, of 200 feet, 9½ to 12½ feet of settlement should be expected. Construction should be staged to allow the pore water pressure to dissipate and prevent a bearing failure due to excessive pore pressures.

10.0 FOUNDATIONS

The liquefiable sand layers encountered on this site could cause differential settlement on the order of 4.5 inches. The amount of liquefaction induced settlement presents a concern for any structures on this site. Liquefaction varied from 1.39 inches to 5.73 inches depending on the location within the parcel. Due to the size of the site and the distance between holes, structures should have a liquefaction analysis conducted at the desired location or should be designed to withstand the full amount of differential settlement. Y^2 Geotechnical would be happy to provide additional liquefaction studies at building

1. Conventional strip and spread footings are recommended for supporting any small structures proposed for the site. Footings should be founded on at least 2 feet of properly placed and compacted structural fill. Footings may be designed using a maximum bearing capacity of 1500 psf on the properly placed and compacted structural fill. A specific geotechnical investigation conducted at the building location may allow for an increased bearing capacity. A one-third increase is allowed for short term transient loads such as wind and seismic events. Footings should be uniformly loaded.

2 Continuous and spot footings should have minimum widths of 24 and 36 inches, respectively.

3. Exterior footings should be placed below frost depth which is determined by local building codes. Generally 30 inches is adequate in this area. Interior footings, not subject to frost, should extend at least 18 inches below the lowest adjacent final grade.

4. Foundation walls on continuous footings should be well reinforced both top and bottom. We suggest a minimum amount of steel equivalent to that required for a simply supported span of 12 feet.

5. Footing excavations should be observed by the geotechnical engineer prior to placement of structural fill and construction of footings to evaluate whether suitable bearing soils have been exposed and verify that excavation bottoms are free of loose or disturbed soils.

10.2 Estimated Settlement

If footings are designed and constructed in accordance with the recommendations presented above, the risk of total non-seismic settlement exceeding 1 inch and differential settlement exceeding 0.5 inch for a 25-foot span will be low. Additional settlement up to 4.5 inches should be expected during a strong seismic event.

11.0 LATERAL EARTH PRESSURES

Resistance to lateral loads (including those due to wind or seismic loads) on foundations may be achieved by frictional resistance between the foundations and underlying soils, and by passive earth pressures of backfill soils placed against the sides of foundations. Retaining walls and below grade walls acting as soil retaining structures and should be designed to resist pressures induced by the backfill soils.

The lateral pressures imposed on a retaining structure are dependant on the rigidity of the structure and its ability to resist rotation. Retaining walls which are free to rotate at least 0.2 percent of the wall height, develop an active lateral soil pressure condition. Structures that are not allowed to rotate or move laterally, develop an at-rest lateral earth pressure condition. Lateral pressures applied to structures may be computed by multiplying the vertical depth of backfill material by the appropriate equivalent fluid density. Any surcharge loads in excess of the soil weight applied to the backfill should be multiplied by the appropriate lateral pressure coefficient and added to the soil pressure. The lateral pressures presented in Table 5, *Lateral Earth Pressures* below, are based on drained, horizontally placed soils as backfill material. As a preliminary estimate for computing lateral forces we recommend the following equivalent fluid densities:

TABLE 5: LATERAL EARTH PRESSURES

Condition	Static Lateral Pressure Coefficient	Static Equivalent Fluid Pressure (pcf)
Active	0.36	41.5
At-Rest	0.53	61.0
Passive	2.77	318.5

Preliminary estimates indicate that the friction acting along the base of foundations may be computed by using a coefficient of friction of 0.30 for contact with the native sand, silt and clay soils. These values may be increased by one-third for transient wind and seismic loads.

The values presented above are based on drained conditions and are ultimate, therefore, an appropriate factor of safety (minimum of 2.0) should be applied to these values for design purposes.

12.0 FLOOR SLABS

The native soils below floor slabs should be proof rolled and a minimum 4 inch thick layer of free-draining gravel or imported structural fill should be placed immediately below the floor slab to help distribute floor loads, break the rise of capillary water, and aid in the concrete curing process. For slab design, we recommend a modulus of subgrade reaction of 100 psi/in be used. To help control normal shrinkage and stress cracking, the floor slabs should have adequate reinforcement for the anticipated floor loads with the reinforcement continuous through interior floor joints and frequent crack control joints.

Special precautions should be taken during placement and curing of concrete slabs and flatwork. Excessive slump (high water-cement ratios) of the concrete and/or improper finishing and curing procedures used during hot or cold weather conditions may lead to excessive shrinkage, cracking, spalling, or curling of slabs. We recommend all concrete placement and curing operations be performed in accordance with American Concrete Institute (ACI) codes and columns.

13.0 SURFACE DRAINAGE

Wetting of the foundation soils may cause some degree of volume change within the soil and should be prevented after construction. We recommend that the following precautions be taken at this site:

1. The ground surface should be graded to drain away from the structures in all directions. We recommend a minimum fall of 6 inches in the first 10 feet for landscaped areas and 1 inch in the first 20 feet for paved surfaces.

2. Roof runoff should be collected in rain gutters with down spouts designed to discharge well outside of the backfill limits.

3. Sprinkler heads, should be aimed away and kept at least 12 inches from foundation walls.

4. Provide adequate compaction of foundation backfill i.e. a minimum of 90% of ASTM D-1557. Water consolidation methods should not be used.

5. Other precautions which may become evident during design and construction should be taken.

14.0 GENERAL CONDITIONS

The exploratory data presented in this report was collected to provide geotechnical design recommendations for this project only and is not intended for application to other sites or buildings. Boreholes and CPTs conditions may not be indicative of subsurface conditions outside the study area and thus have limited value in depicting subsurface conditions for contractor bidding. If it is necessary to define subsurface conditions in sufficient detail to allow accurate bidding we recommend an additional study be conducted which is designed for that purpose. An experienced geotechnical engineer or technician should observe fill placement and conduct testing as required to confirm the use of proper structural fill materials and placement procedures.

Variations from the conditions portrayed in the boreholes and CPTs may occur and can only be confirmed during earthwork and foundation construction. If subsurface conditions are found to be different than those presented in this report, we should be notified immediately to determine if changes in the recommendations are required. If Y^2 Geotechnical, P.C. is not contacted about variations in the soil conditions we can not be responsible for the impact of those conditions on the performance of the project.

It should be remembered that geotechnical engineering conclusions and recommendations are generated through analytical methods which are not an exact science. Conclusions and recommendations presented in a geotechnical engineering report are not based only on the analytical empirical tools generally used but rely on engineering judgment in conjunction with the tools. The fact that professional judgments must be used in making recommendations means that the conclusions, solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The conclusions and recommendations presented in this report represent the Y^2 Geotechnical, P.C., professional findings regarding the proposed structures and pavements on this project based on the information generated and referenced during this evaluation and Y^2 Geotechnical, P.C.'s experience in working with these conditions.

The geotechnical investigation as presented in this report was conducted within the limits prescribed by our Client. The findings and recommendations which have been presented in this report have been made in accordance with generally accepted professional geotechnical engineering practice in the area at the time of report preparation. Standards of practice are subject to change with time. No other warranty or representation, either expressed or implied is intended in our proposals, contracts or report.

This geotechnical report has been prepared for John Bouye and Bay Area Soils Products for use in the design and construction of the proposed Class IV Construction Debris Landfill to be located at 7300 West 1300 South in Salt Lake County, Utah. This report is site specific and should not be relied upon for use in other investigations and is not for the use or benefit of, nor may it be relied upon by any other person or entity, for any purpose without the advance and express written consent of John Bouye, Bay Area Soils Products, and Y^2 Geotechnical, P.C.; therefore, any use or reliance upon this geotechnical evaluation by a party other than the Client shall be solely at the risk of such third party and without legal recourse against Y^2 Geotechnical, P.C., its employees, officers, or directors, regardless of whether the action in which recovery of damages is brought is based upon contract, tort, statue, or otherwise. The client has the responsibility to see that all parties to the project including the designer, contractor, subcontractor, and building official, etc., are aware of the geotechnical report in its complete form. Y^2 Geotechnical, P.C., assumes no responsibility or liability for work or testing performed by others.

We appreciate the opportunity of providing our services on this project. If we can answer questions or be of further service, please call.

Respectfully;

Y² GEOTECHNICAL, P.C.
Not Official Unless Stamped and dated.

Torrey J. Copfer, P.G.
Senior Engineering Geologist

Reviewed by,

2/26/08

LICENSED PROFESSIONAL ENGINEER
RUSSELL JAY YAHNE
STATE OF UTAH

R. Jay Yahne, P.E.
Principal Geotechnical Engineer

3 copies sent

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Geotechnical, Geologic, & Environmental

NORTH

Figure 1: VICINITY MAP

GEOTECHNICAL STUDY
Central Valley Landfill
Salt Lake County, Utah

Y² Job No. 08G-014

Y² Geotechnical, P.C.
Geotechnical, Geologic, & Environmental

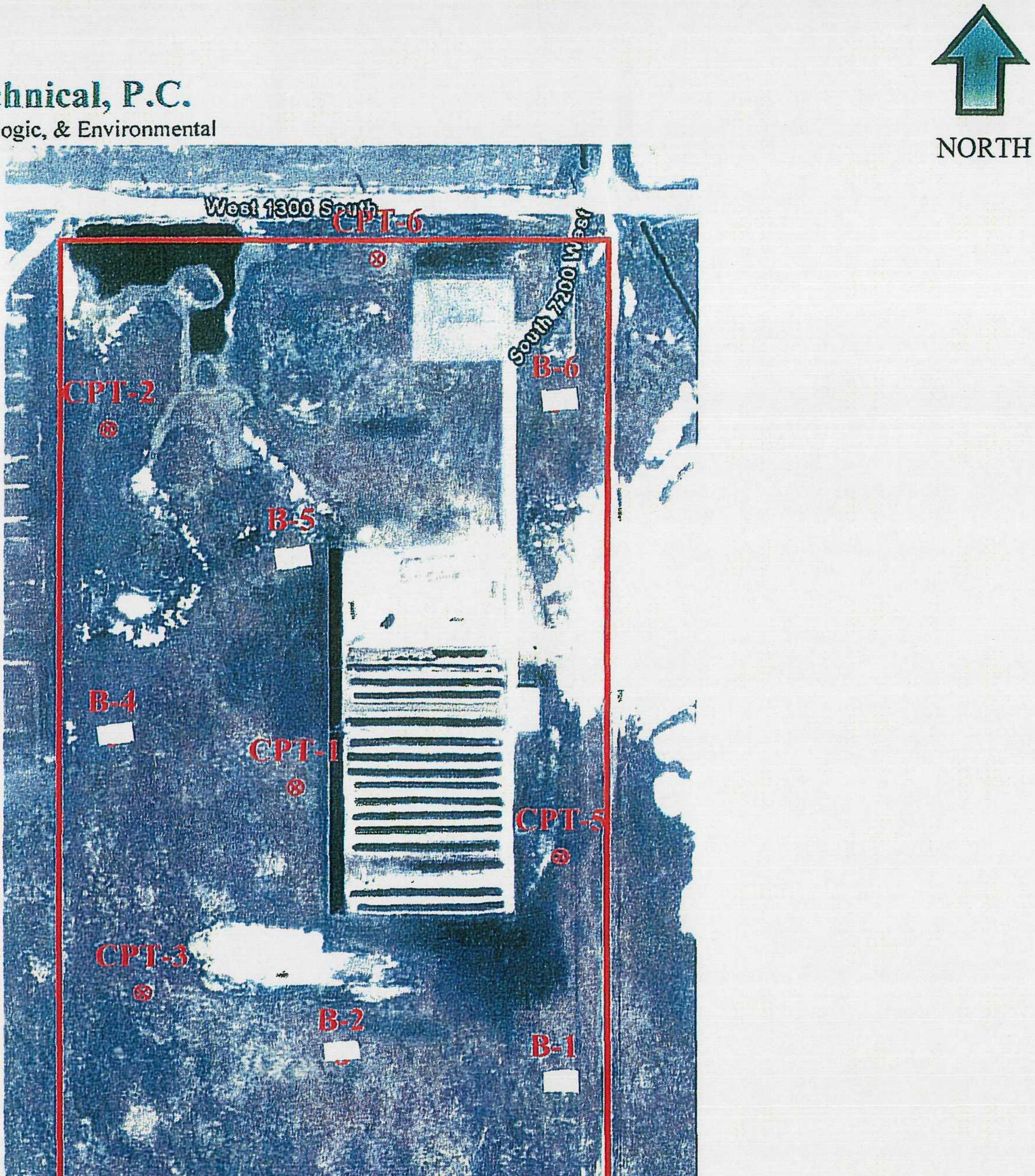

Figure 2: TEST HOLE LOCATIONS

GEOTECHNICAL STUDY
Central Valley Landfill
Salt Lake County, Utah

Y² Job No. 08G-014

Project No. 08G-014	LOG OF BOREHOLE NO. B-1	Figure 3

PROJECT Central Valley Landfill	CLIENT Bay Area Soil Product
LOCATION 7300 West 1300 South Salt Lake County, Utah	Surface Elev.:

Sample Type legend: Standard Penetration Test; Shelby Tube

Depth in Feet	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, %	Sand, %	Fines, %	Other Tests
0		Topsoil - silty clay, organic, moist, brown.									
		Lean Clay (CL) - soft, moist, reddish brown.									
	Standard Penetration Test		3								
5		Silty Sand (SM) - loose, moist, brown.									
		Lean Clay (CL) - soft to very soft, moist, light brown to grey.									
	Standard Penetration Test	▽ Wet below 8 feet.	4								
10											
	Shelby Tube			42.6	81	48	24	0.0	0.9	99.1	TV: 0.87 tsf
	Standard Penetration Test		1								
15	Standard Penetration Test		1								
	Standard Penetration Test	Well-Graded Sand with Silt (SW-SM) - very loose to medium dense, wet, black. Flowing sands extending 8 feet up augers.	2								
20											
25											
	Standard Penetration Test		11	15.9		NP	NP	0.0	88.3	11.7	
		End of borehole at 28.5 feet.									
30											

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Geotechnical & Environmental Services

WATER LEVELS					
▽ 8 2/4/08	STARTED	2/4/08	FINISHED	2/4/08
	DRILL CO.	Y2-Geotechnical	DRILL RIG	VTR 9500
	DRILL TYPE	3.5" Hollow Stem		
	LOGGED BY	Torrey J. Copfer, P.G.		

Project No. 08G-014

LOG OF BOREHOLE NO. B-2

Figure 4

PROJECT	CLIENT
Central Valley Landfill	**Bay Area Soil Product**
LOCATION **7300 West 1300 South, Salt Lake County, Utah**	Surface Elev.:

Sample Type legend: Shelby Tube; Standard Penetration Test

Depth in Feet	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, %	Sand, %	Fines, %	Other Tests
0		Topsoil - silty clay, organic, moist, brown.									
1		Lean Clay (CL) - soft to medium stiff, moist, light brown.									
3–5	Shelby Tube			32.9	89	44	23	0.0	1.4	98.6	TV: 0.93 tsf
5	SPT		2								
7	SPT	Wet below 8 feet.	4								
11	SPT		5								
15	Shelby Tube										
17	SPT		3	28.5		NP	NP	0.0	30.6	69.4	
18		Silty Sand (SM) - very loose, wet, black. Flowing sands extending 1 foot up auger.									
19		End of borehole at 19 feet.									

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Geotechnical & Environmental Services

WATER LEVELS		STARTED	2/4/08	FINISHED	2/4/08
∇ 8	2/4/08	DRILL CO.	Y2-Geotechnical	DRILL RIG	VTR 9500
		DRILL TYPE	3.5" Hollow Stem		
		LOGGED BY	Torrey J. Copfer, P.G.		

Project No. 08G-014	LOG OF BOREHOLE NO. B-3	Figure 5

PROJECT Central Valley Landfill	CLIENT Bay Area Soil Product
LOCATION 7300 West 1300 South, Salt Lake County, Utah	Surface Elev.:

Sample Type legend: Standard Penetration Test; Shelby Tube

Depth in Feet	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, %	Sand, %	Fines, %	Other Tests
0		Topsoil - silty clay, organic, moist, brown.									
		Lean Clay (CL) - soft to very soft, moist, reddish brown to grey.									
4	Standard Penetration Test		6								
7		▽ Wet below 7 feet.									
8	Shelby Tube			27.1	100	31	11	0.0	14.6	85.4	TV: 0.85 tsf
10	Standard Penetration Test		5								
12	Standard Penetration Test		2								
15	Standard Penetration Test		2								
18		Poorly Graded Sand with Silt (SP-SM) - very loose, wet, black. Flowing sands extending 5 feet up augers.									
20	Standard Penetration Test		1	24.5		NP	NP	0.0	91.3	8.7	
21		End of borehole at 21 feet.									

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WATER LEVELS		
▽	7	2/4/08

STARTED	2/4/08	FINISHED	2/4/08
DRILL CO.	Y2-Geotechnical	DRILL RIG	VTR 9500
DRILL TYPE	3.5" Hollow Stem		
LOGGED BY	Torrey J. Copfer, P.G.		

Project No. 08G-014

LOG OF BOREHOLE NO. B-4

Figure 6

PROJECT: Central Valley Landfill

CLIENT: Bay Area Soil Product

LOCATION: 7300 West 1300 South, Salt Lake County, Utah

Surface Elev.:

Sample Type legend: Standard Penetration Test; Shelby Tube

Depth in Feet	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, %	Sand, %	Fines, %	Other Tests
0	Topsoil - silty clay, organic, moist, brown.									
	Lean Clay (CL) - soft to very soft, moist, reddish brown to grey.									
		2								
5										
	▽ Wet below 6 feet.									
			28.7	101	31	15	0.0	7.8	92.2	TV: 0.25 tsf
10		1								
		3								
	Fat Clay (CH) - soft, wet, grey to green.									
15										
			40.8	81	50	31	0.0	1.7	98.3	TV: 0.27 tsf
	Silty Sand (SM) - loose, wet, black. Flowing sands extending 5 feet up augers.	6								
	End of borehole at 19 feet.									
20										
25										
30										

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WATER LEVELS		STARTED	2/4/08	FINISHED	2/4/08
▽ 6	2/4/08	DRILL CO.	Y2-Geotechnical	DRILL RIG	VTR 9500
		DRILL TYPE	3.5" Hollow Stem		
		LOGGED BY	Torrey J. Copfer, P.G.		

Project No. 08G-014

LOG OF BOREHOLE NO. B-5

Figure 7

PROJECT: **Central Valley Landfill**

CLIENT: **Bay Area Soil Product**

LOCATION: **7300 West 1300 South, Salt Lake County, Utah**

Surface Elev.:

Shelby Tube | Standard Penetration Test

Depth in Feet	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, %	Sand, %	Fines, %	Other Tests
0	Topsoil - silty clay, organic, moist, brown.									
	Lean Clay (CL) - soft to very soft, moist, reddish brown to grey.									
4 (Shelby Tube)			31.8	90	43	22	0.0	1.1	98.9	TV: 0.70 tsf
5.5	Wet below 5.5 feet.									
8 (SPT)		2								
12 (Shelby Tube)			28.6	93	NP	NP	0.0	12.0	88.0	TV: 0.73 tsf
14.5	Silt (ML) - loose, wet, black.									
16 (SPT)		6								
17	Flowing sands extending 2 feet up auger. End of borehole at 17 feet.									

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Geotechnical & Environmental Services

WATER LEVELS		
∇	5.5	2/4/08

STARTED	2/4/08	FINISHED	2/4/08
DRILL CO.	Y2-Geotechnical	DRILL RIG	VTR 9500
DRILL TYPE	3.5" Hollow Stem		
LOGGED BY	Torrey J. Copfer, P.G.		

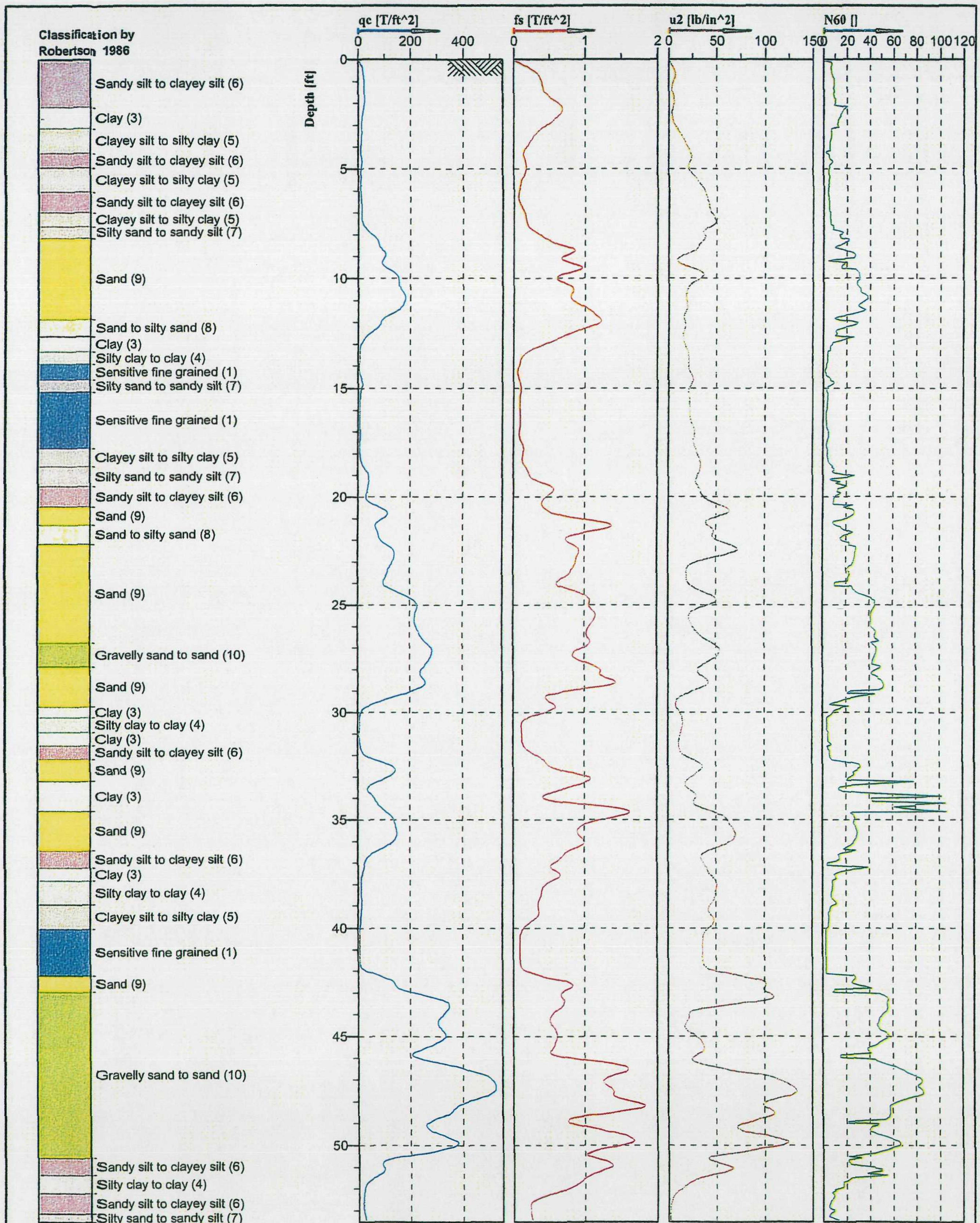
Project No. 08G-014	LOG OF BOREHOLE NO. B-6	Figure 8

PROJECT	CLIENT
Central Valley Landfill	Bay Area Soil Product
LOCATION: 7300 West 1300 South, Salt Lake County, Utah	Surface Elev.:

Sample types: Standard Penetration Test; Shelby Tube

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, %	Sand, %	Fines, %	Other Tests
			Topsoil - silty clay, organic, moist, brown.									
			Fat Clay (CL) - medium stiff to stiff, moist, light brown to grey.									
		Standard Penetration Test		13								
5		Shelby Tube	Wet below 5 feet.		29.3	92	50	29	0.0	1.0	99.0	TV: 1.0 tsf
		Standard Penetration Test		8								
10			Silty Sand (SM) - medium dense to dense, wet, black.									
		Standard Penetration Test	Flowing sands extending 5 feet up augers.	11	30.5		NP	NP	0.0	59.9	40.1	
15												
		Standard Penetration Test		30								
			End of borehole at 18.5 feet.									
20												
25												
30												

Y² Geotechnical, P.C. Geotechnical & Environmental Services	WATER LEVELS			
	▽ 5 2/5/08	STARTED 2/5/08	FINISHED 2/5/08	
		DRILL CO. Y2-Geotechnical	DRILL RIG VTR 9500	
		DRILL TYPE 3.5" Hollow Stem		
		LOGGED BY Torrey J. Copfer, P.G.		

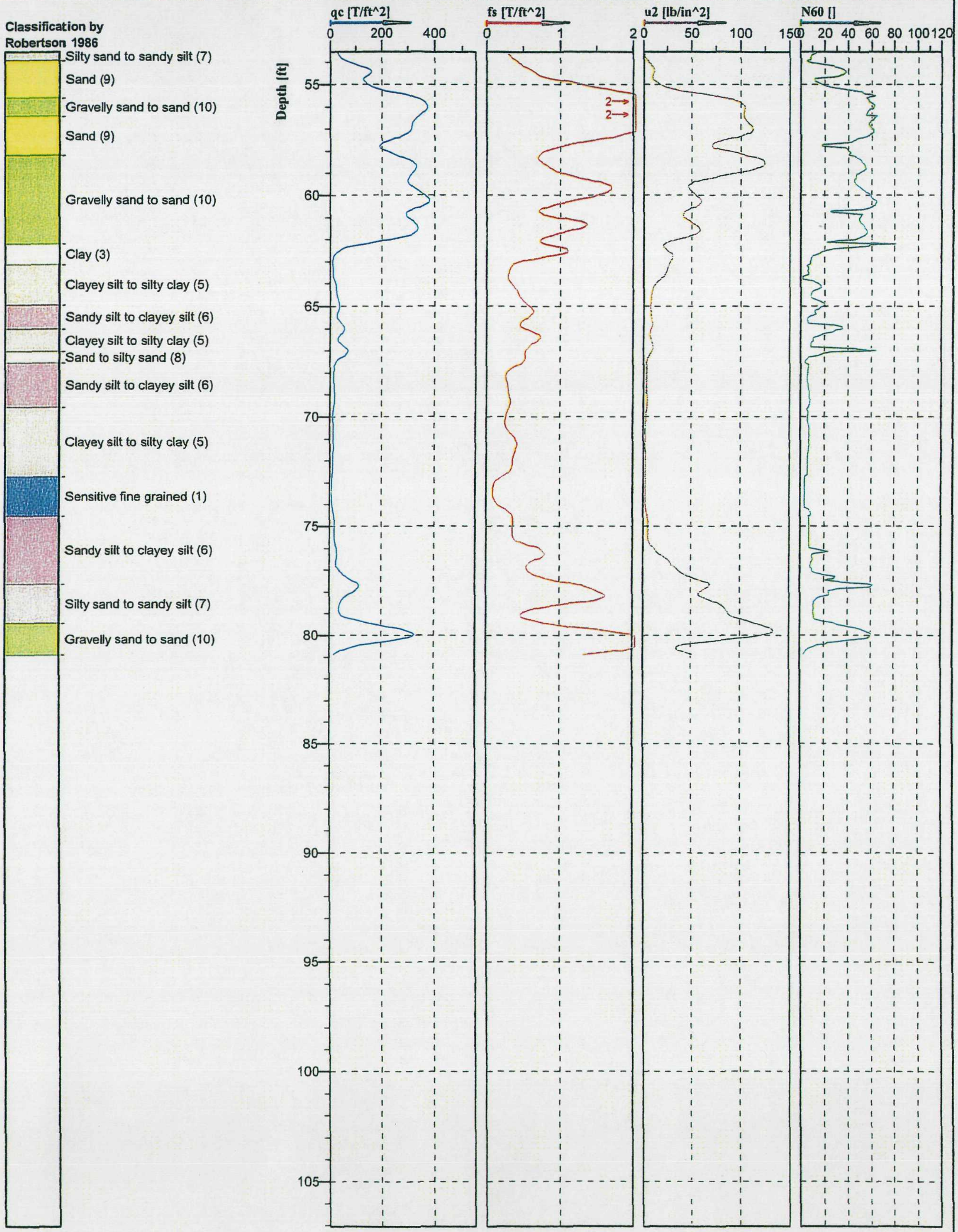


Y2 Geotechnical, P.C.
Geotechnical, Geologic & Environmental

U2

Cone No: 10616
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Salt Lake County, UT	Position:	Ground level:	Test no: CPT-1
Project ID: 08G-014	Client: Bay Area Soils Project	Date: 2/7/2008	Scale: 1 : 75
Project: Central Valley Landfill		Page: 1/2	Fig: 9
		File: Land Fill Magna.STD	

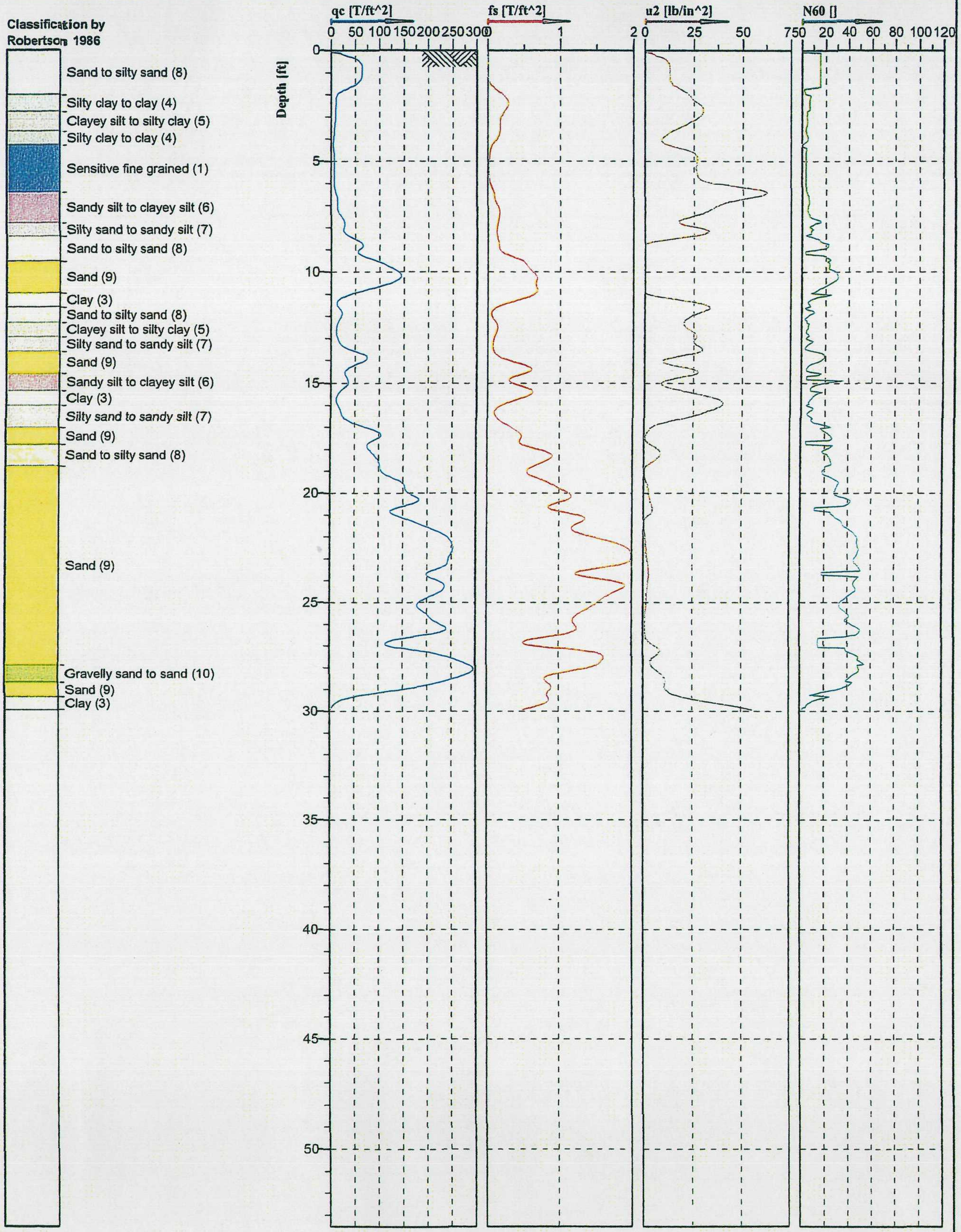


Y² Geotechnical, P.C.
Geotechnical, Geologic & Environmental

U2

Cone No: 10616
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Salt Lake County, UT	Position:	Ground level:	Test no: CPT-1
Project ID: 08G-014	Client: Bay Area Soils Project	Date: 2/7/2008	Scale: 1 : 75
Project: Central Valley Landfill		Page: 2/2	Fig: 9
		File: Land Fill Magna.STD	

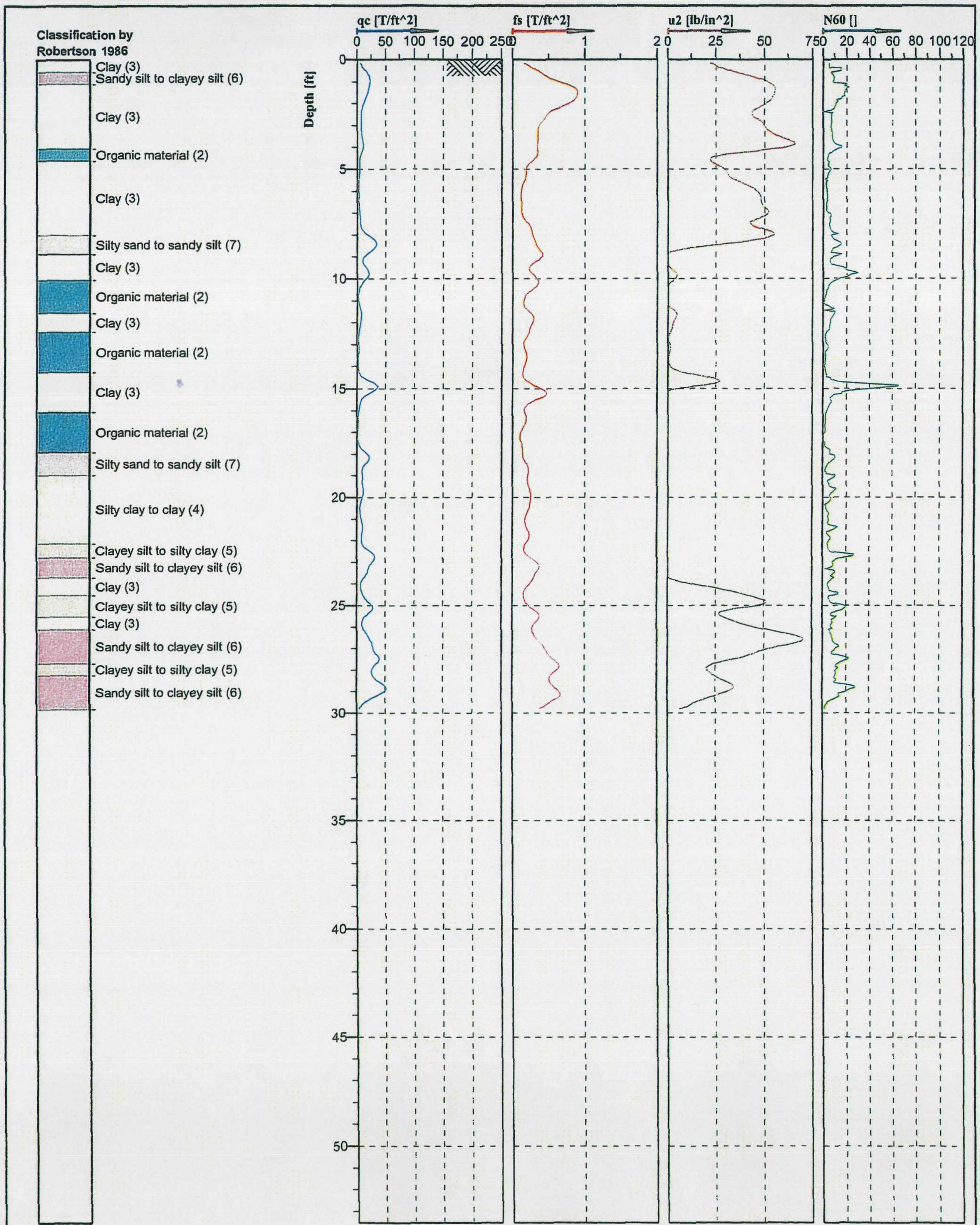


Y2 Geotechnical, P.C.

U2

Cone No: 10616
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Salt Lake County, UT	Position:	Ground level:	Test no: CPT-2
Project ID: 08G-014	Client: Bay Area Soils Project	Date: 2/7/2008	Scale: 1 : 75
Project: Central Valley Landfill		Page: 1/1	Fig: 10
		File: Land Fill Magna.STD	

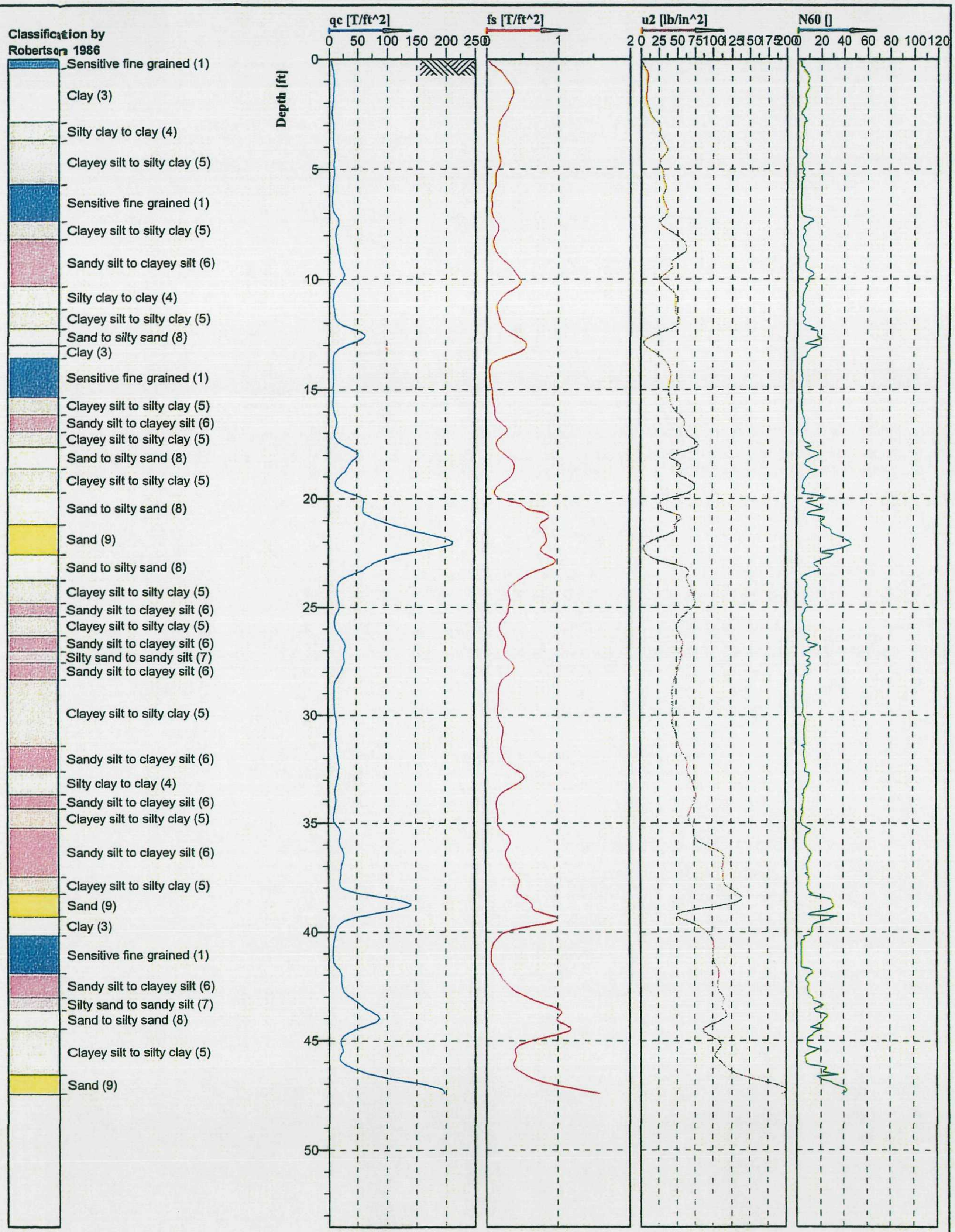


Y2 Geotechnical, P.C.
Geotechnical, Geologic & Environmental

U2

Cone No: 10616
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Salt Lake County, UT	Position:	Ground level:	Test no: CPT-3
Project ID: 08G-014	Client: Bay Area Soils Products	Date: 2/7/2008	Scale: 1 : 75
Project: Central Valley Landfill		Page: 1/1	Fig: 11
		File: Land Fill Magna.STD	

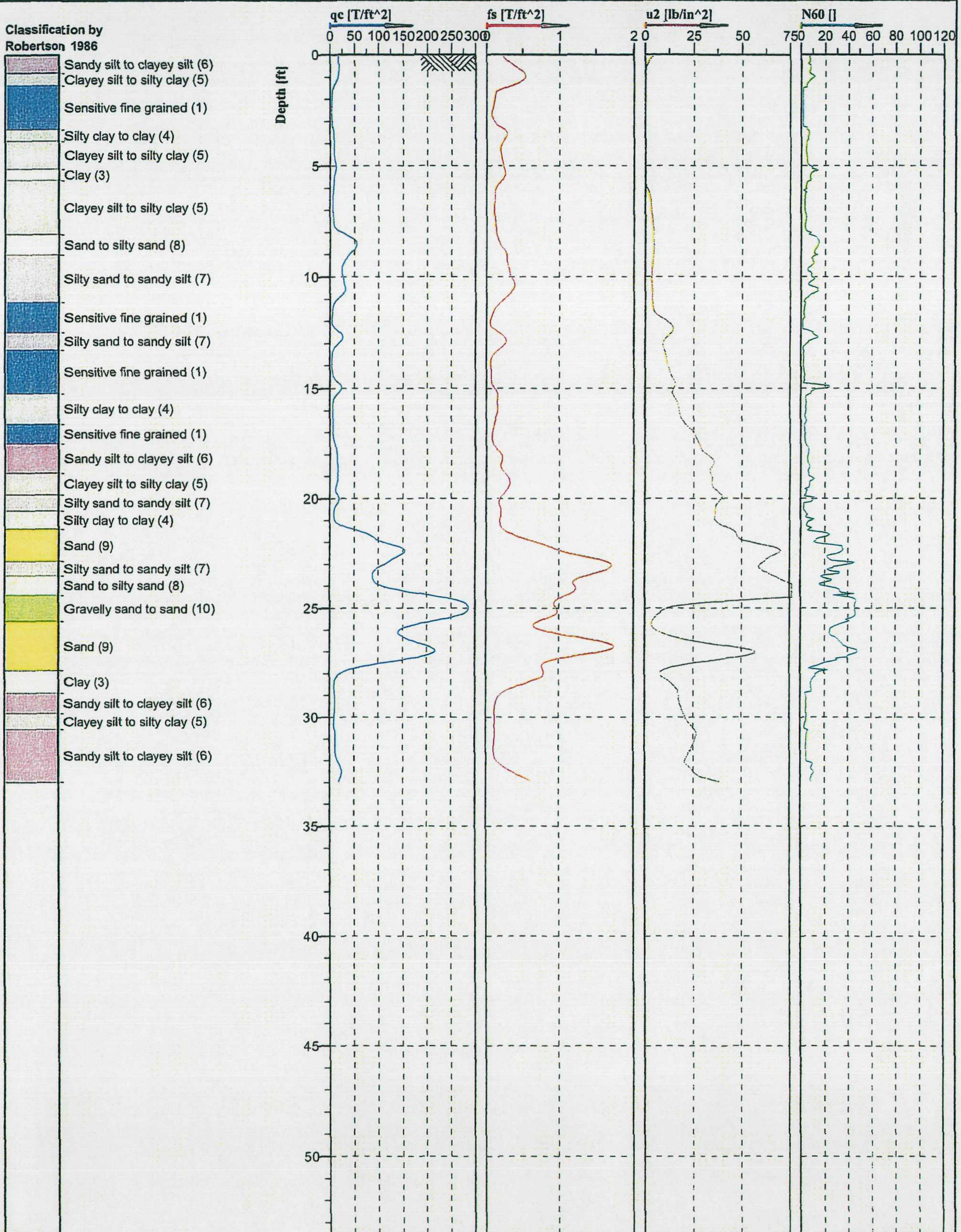


Y2 Geotechnical, P.C.
Geotechnical, Geologic & Environmental

U2

Cone No: 10616
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Salt Lake County, UT	Position:	Ground level:	Test no: CPT-4
Project ID: 08G-014	Client: Bay Area Soils Products	Date: 2/7/2008	Scale: 1 : 75
Project: Central Valley Landfill		Page: 1/1	Fig: 12
		File: Land Fill Magna.STD	



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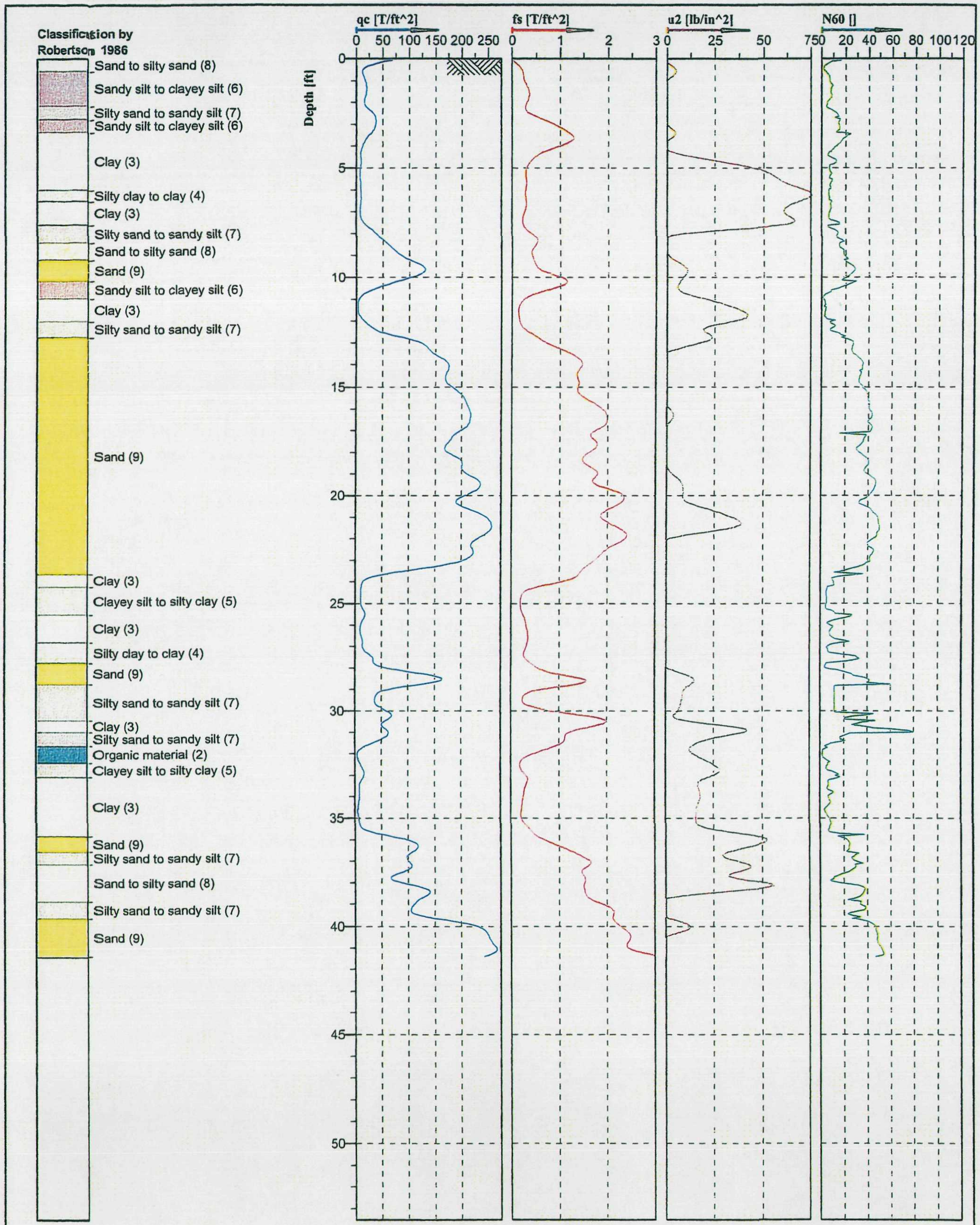
Cone No: 10616
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Salt Lake County, UT	Position:	Ground level:	Test no: CPT-5
Project ID: 08G-014	Client: Bay Area Soil Products	Date: 2/7/2008	Scale: 1 : 75
Project: Central Valley Landfill		Page: 1/1	Fig: 13
		File: Land Fill Magna.STD	



Location: Salt Lake County, UT	Position:	Ground level:	Test no: CPT-6
Project ID: 08G-014	Client: Bay Area Soil Products	Date: 2/8/2008	Scale: 1 : 75
Project: Central Valley Landfill		Page: 1/1	Fig: 14
		File: Land Fill Magna.STD	

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U2

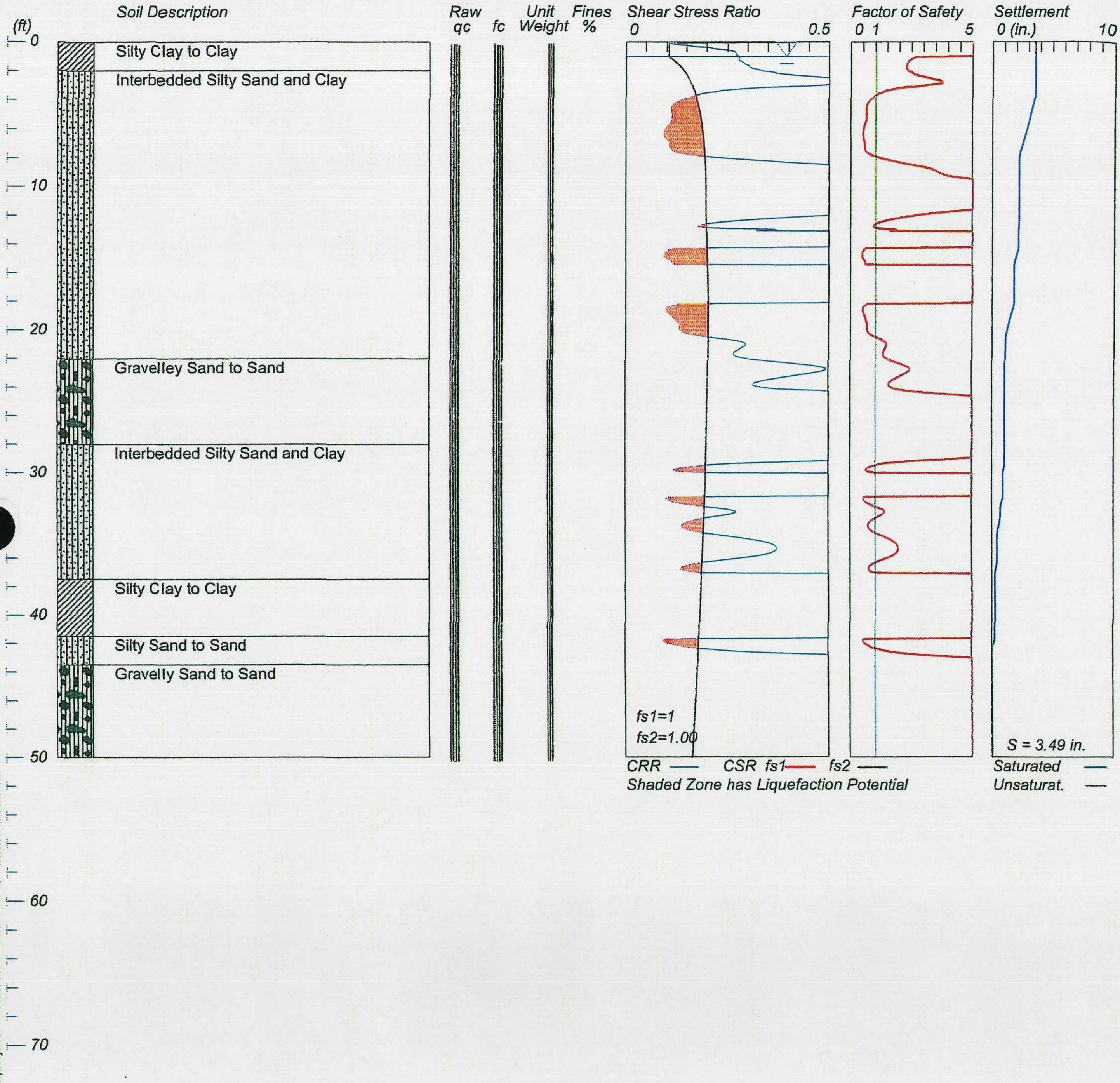
Cone No: 10703
Tip area [cm2]: 10
Sleeve area [cm2]: 150

LIQUEFACTION ANALYSIS

Central Valley Landfill Facility

Hole No.=CPT-1 Water Depth=1 ft

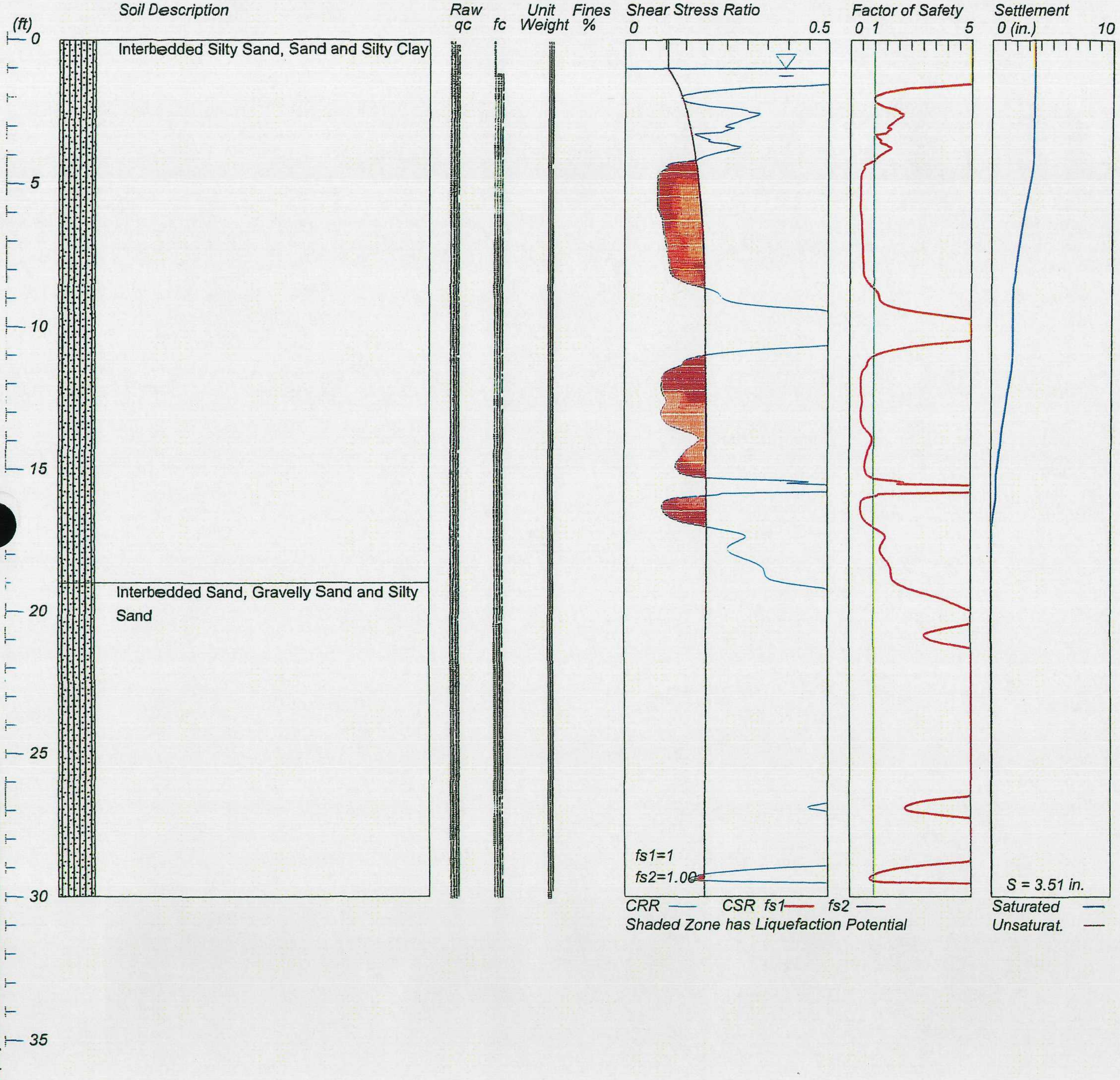
Magnitude=7.5
Acceleration=0.16g



LIQUEFACTION ANALYSIS

Central Valley Landfill Facility

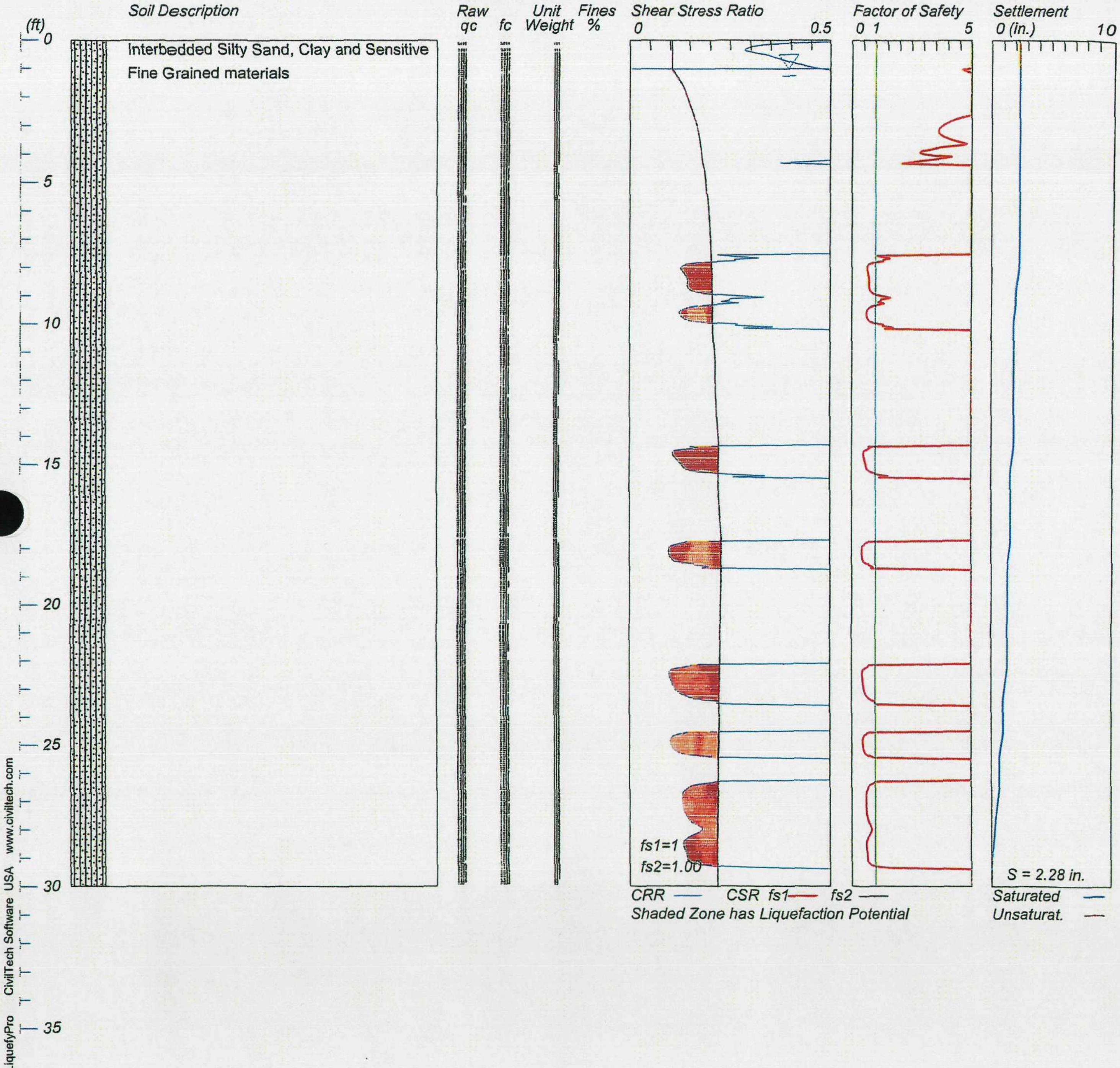
Hole No.=CPT-2 Water Depth=1 ft **Magnitude=7.5**
Acceleration=0.16g



LIQUEFACTION ANALYSIS

Central Valley Landfill Facility

Hole No.=CPT-3 Water Depth=1 ft *Magnitude=7.5*
Acceleration=0.16g

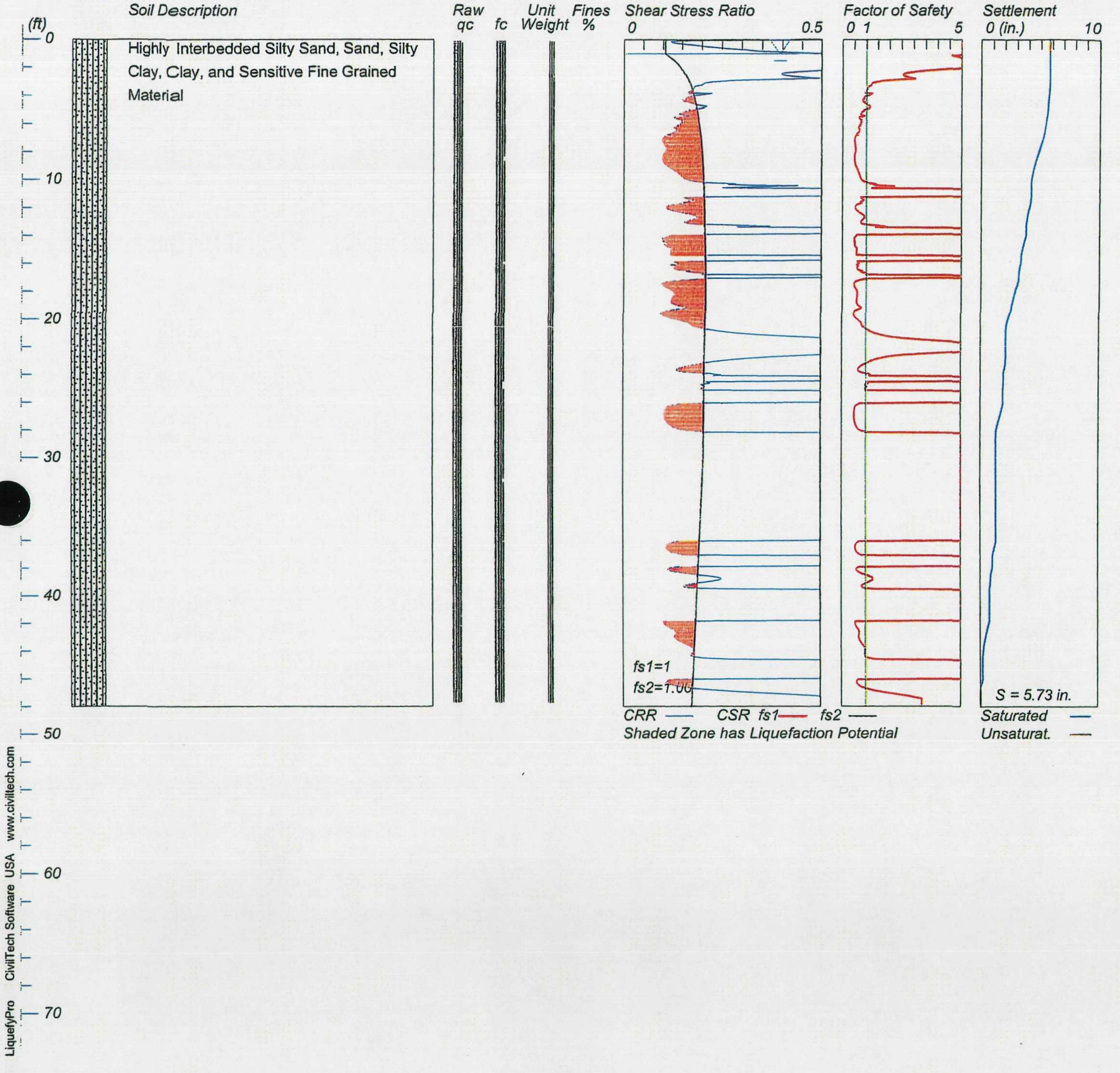


LIQUEFACTION ANALYSIS

Central Valley Landfill Facility

Hole No.=CPT-4 Water Depth=1 ft

Magnitude=7.5
Acceleration=0.16g

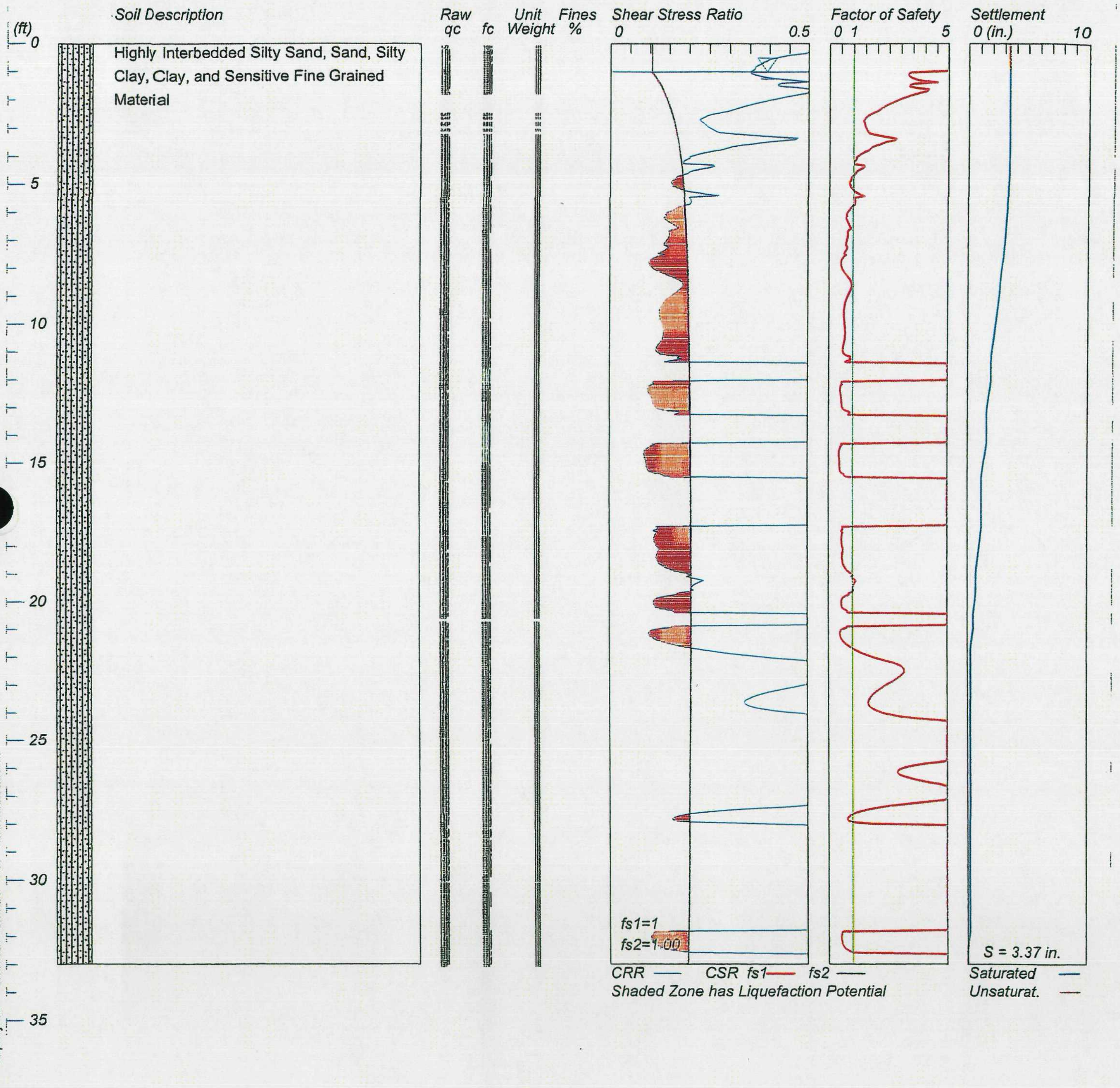


LIQUEFACTION ANALYSIS

Central Valley Landfill Facility

Hole No.=CPT-5 Water Depth=1 ft

Magnitude=7.5
Acceleration=0.16g

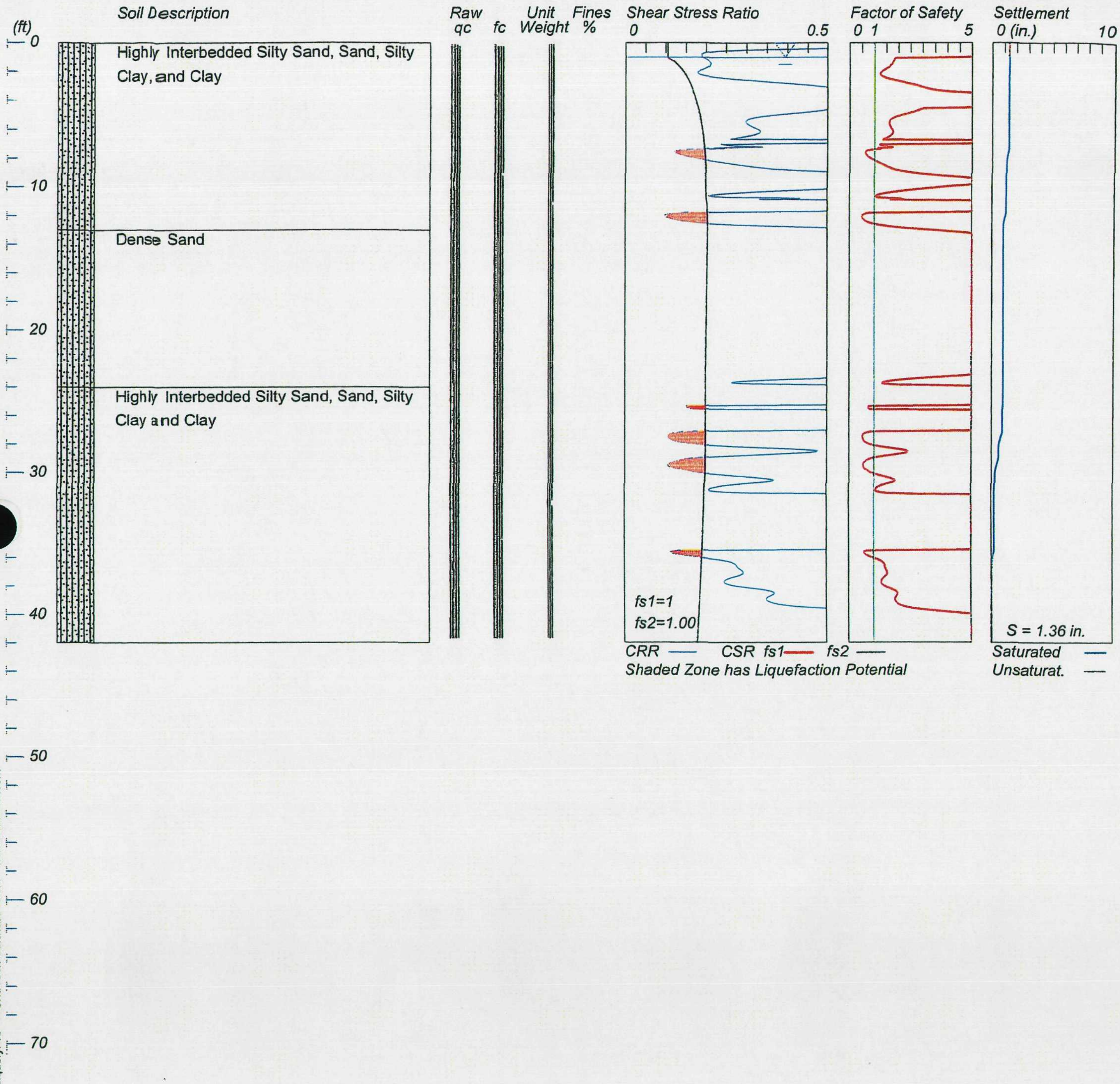


LIQUEFACTION ANALYSIS

Central Valley Landfill Facility

Hole No.=CPT-6 Water Depth=1 ft

Magnitude=7.5
Acceleration=0.16g



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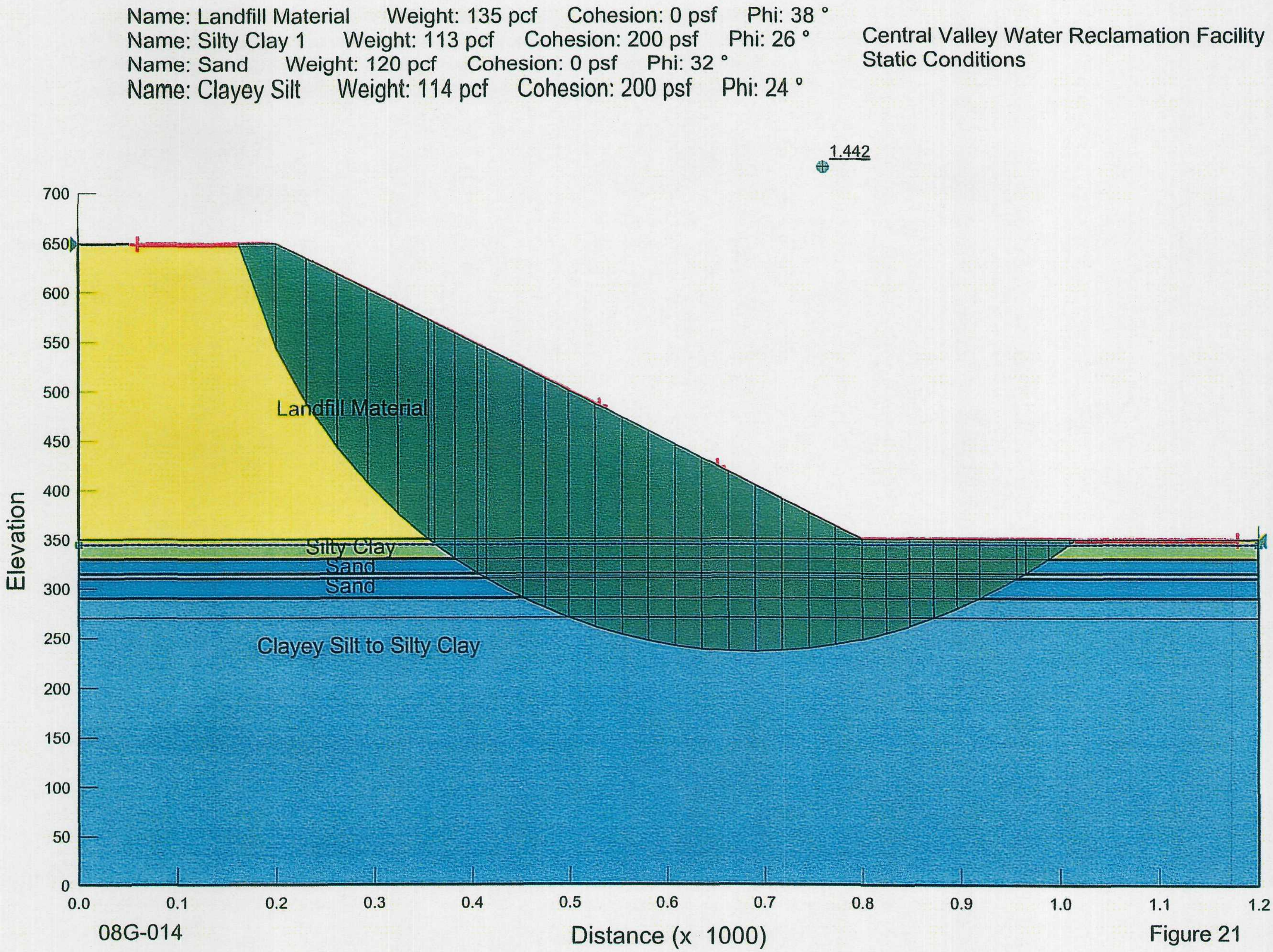

08G-014

Figure 21

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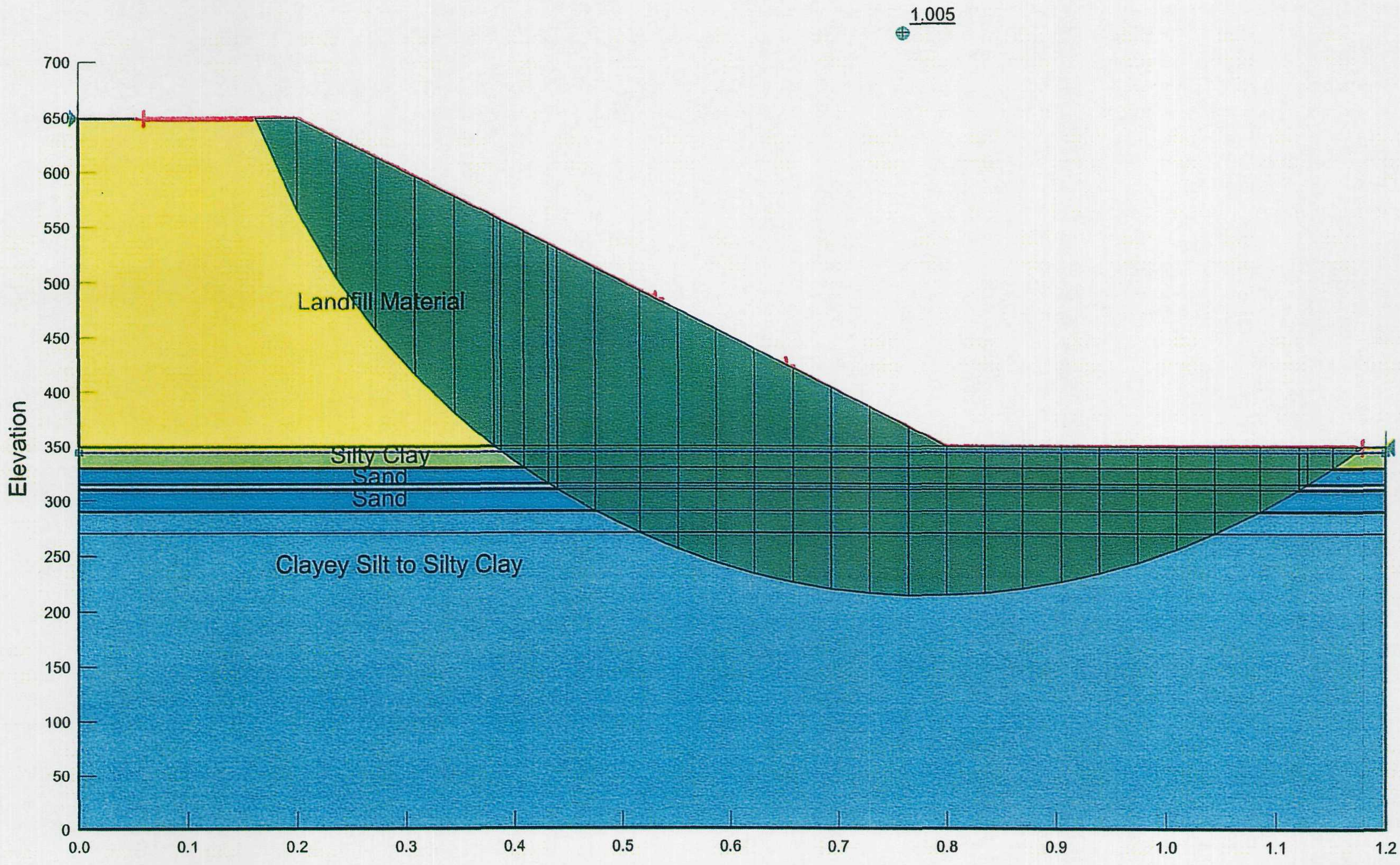
Name: landfill material Weight: 135 pcf Cohesion: 0 psf Phi: 38 °
Name: Silty Clay 1 Weight: 113 pcf Cohesion: 200 psf Phi: 26 °
Name: Sand Weight: 120 pcf Cohesion: 0 psf Phi: 32 °
Name: Clayey Silt Weight: 114 pcf Cohesion: 200 psf Phi: 24 °

Central Valley Landfill Facility
Psuedo-static Conditions
P.G.A. = 0.15g



08G-014

Figure 22

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Geotechnical, Geologic, & Environmental

Using Emperical Response Spectral Attentuation Relationships

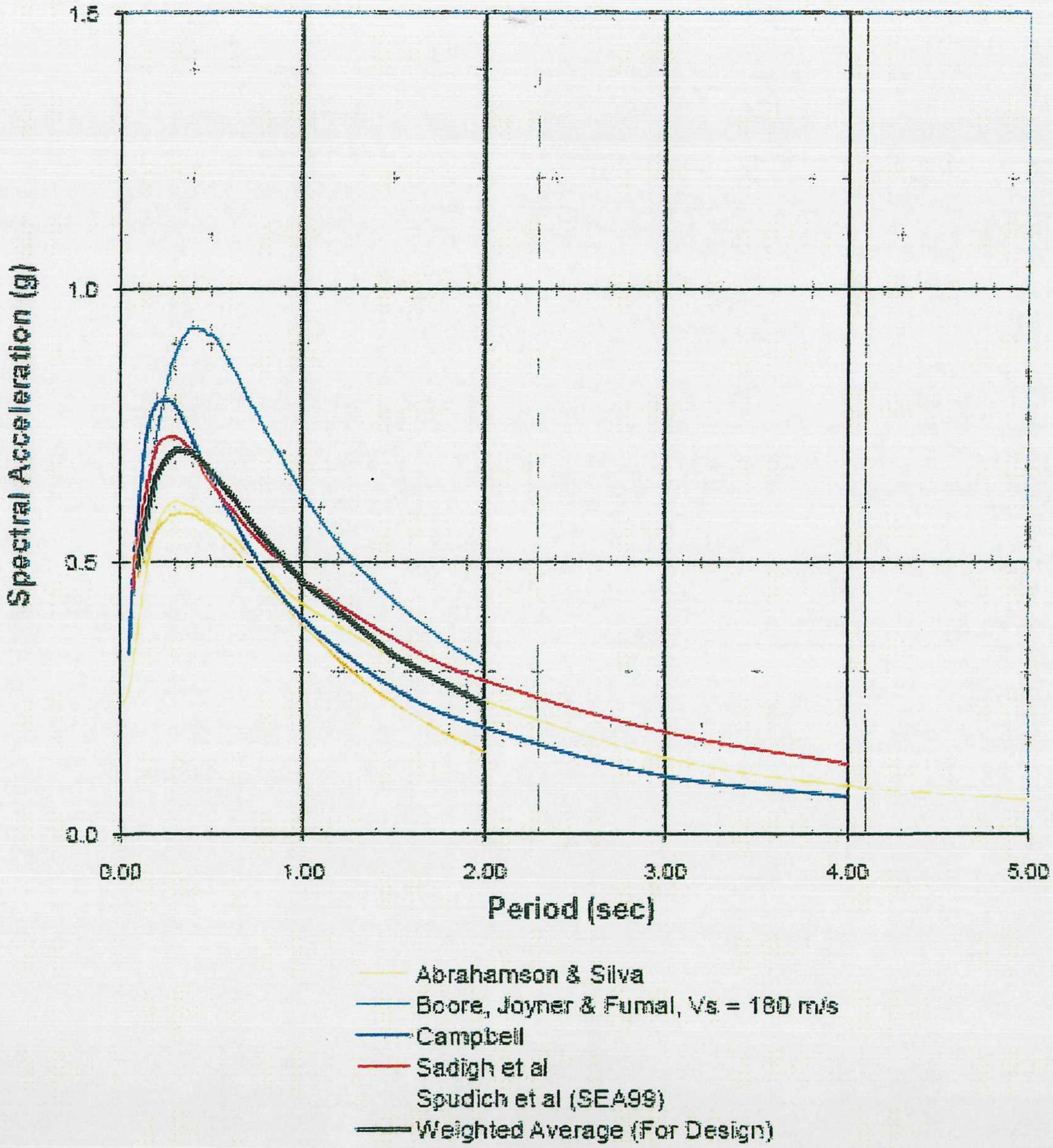

Figure 23: Response Spectra

GEOTECHNICAL STUDY
Central Valley Landfill Facility
Salt Lake County, Utah

Y2 Job No. 08G-014

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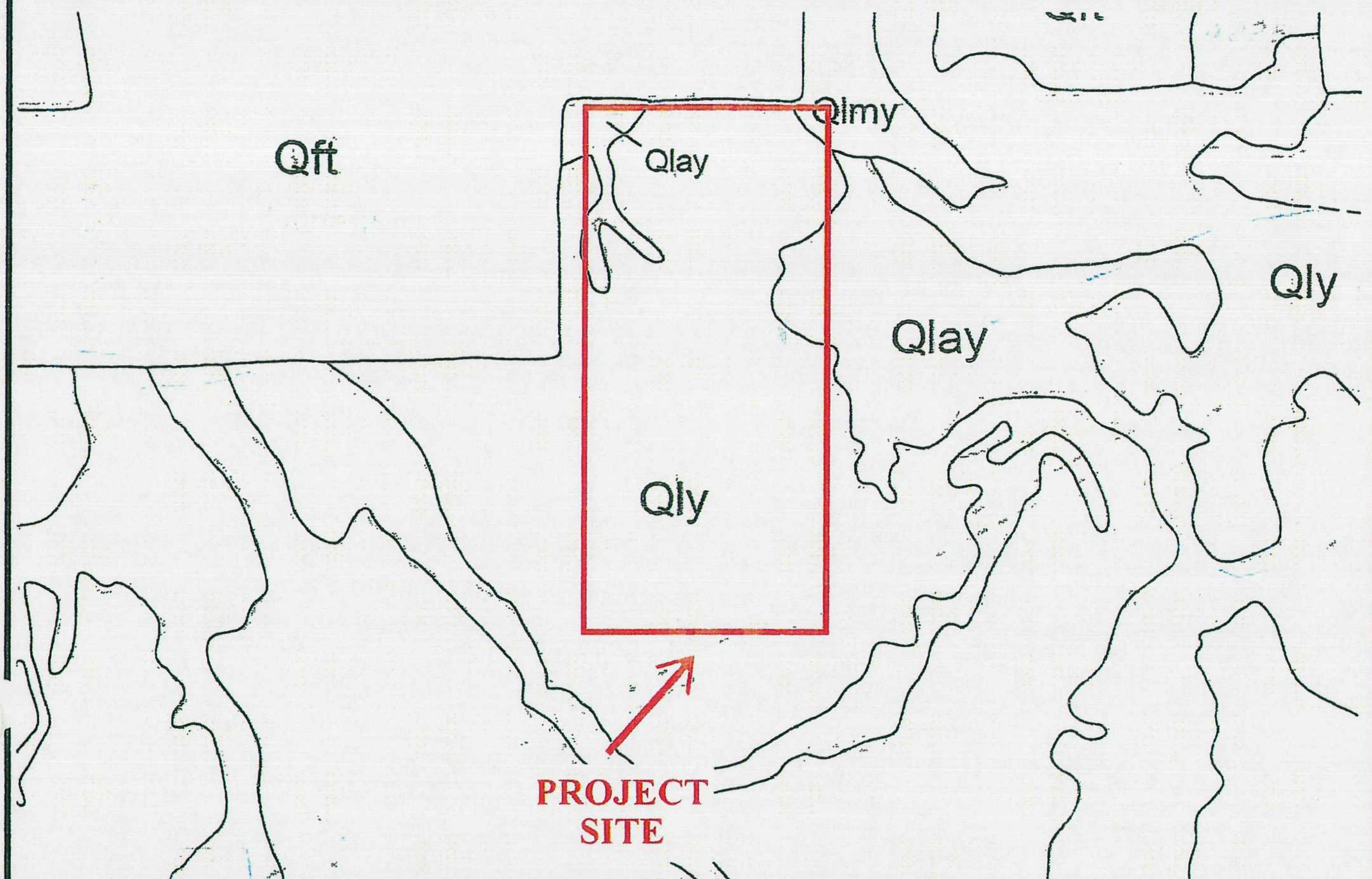
NORTH



Qft	**Tailings** (historical) – A large active tailings pond containing the waste from washed or milled ore from Kennecott operations occupies the northwest corner of the Magna quadrangle; smaller ponds and disposal sites are mapped east of the large pond and north of State Route 201.
Qly	**Young lacustrine deposits** (Holocene) – Poorly sorted silt, clay, and minor sand deposited by Great Salt Lake after regression of Lake Bonneville from the Gilbert shoreline; grades into deposits of lacustrine silt and clay of Lake Bonneville that are not mapped separately because of similar sediment type and appearance; generally less than 15 feet (5 m) thick.
Qlay	**Young lacustrine and alluvial deposits** (Holocene) – Silt, clay, and minor sand deposited by streams draining the Great Salt Lake flood plain, and in shallow lakes, ponds, and marshes associated with the streams; mapped in areas of standing water or where the water table is or has recently been at the ground surface; commonly organic rich; less than 10 feet (3 m) thick.

1000 0
Scale in feet

Figure 24: GEOLOGIC FEATURES

GEOTECHNICAL STUDY
Central Valley Landfill Facility
Magna, Salt Lake County, Utah

Y² Job No. 08G-014

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Geotechnical, Geologic, & Environmental

NORTH

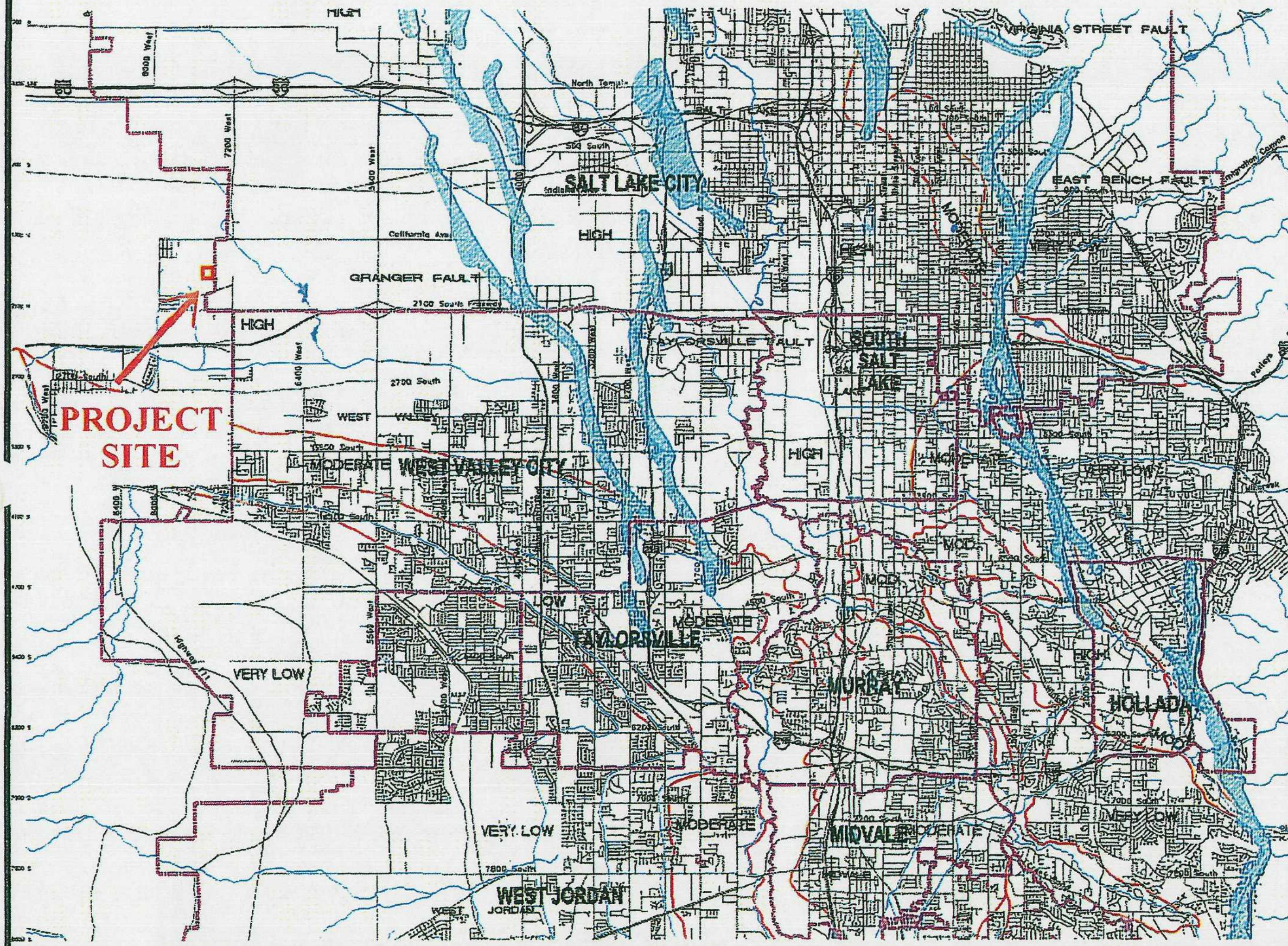


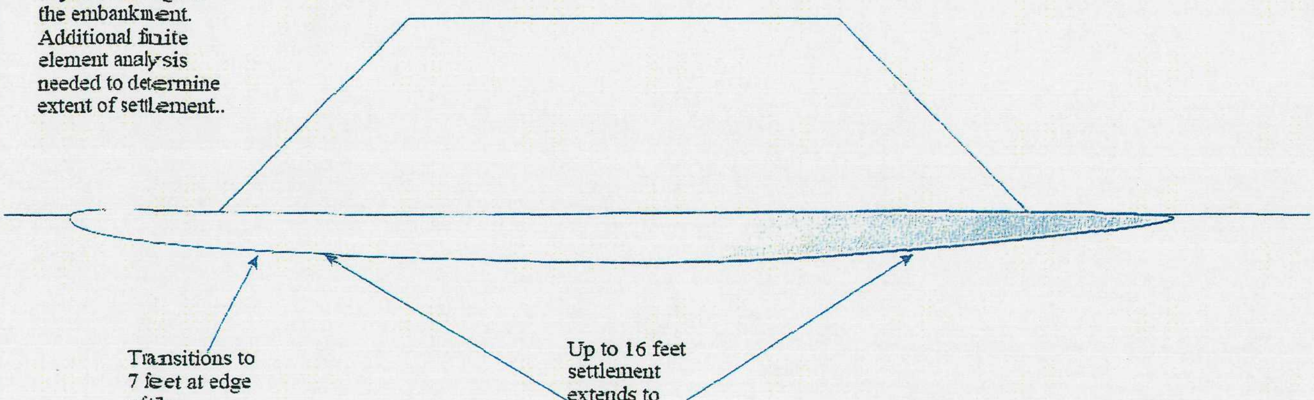
Figure 25: FAULT PROXIMITIES

GEOTECHNICAL STUDY
Central Valley Landfill Facility
Salt Lake County, Utah

Y² Job No. 08G-014

Y² Geotechnical, P.C.
Geotechnical, Geologic, & Environmental

NORTH

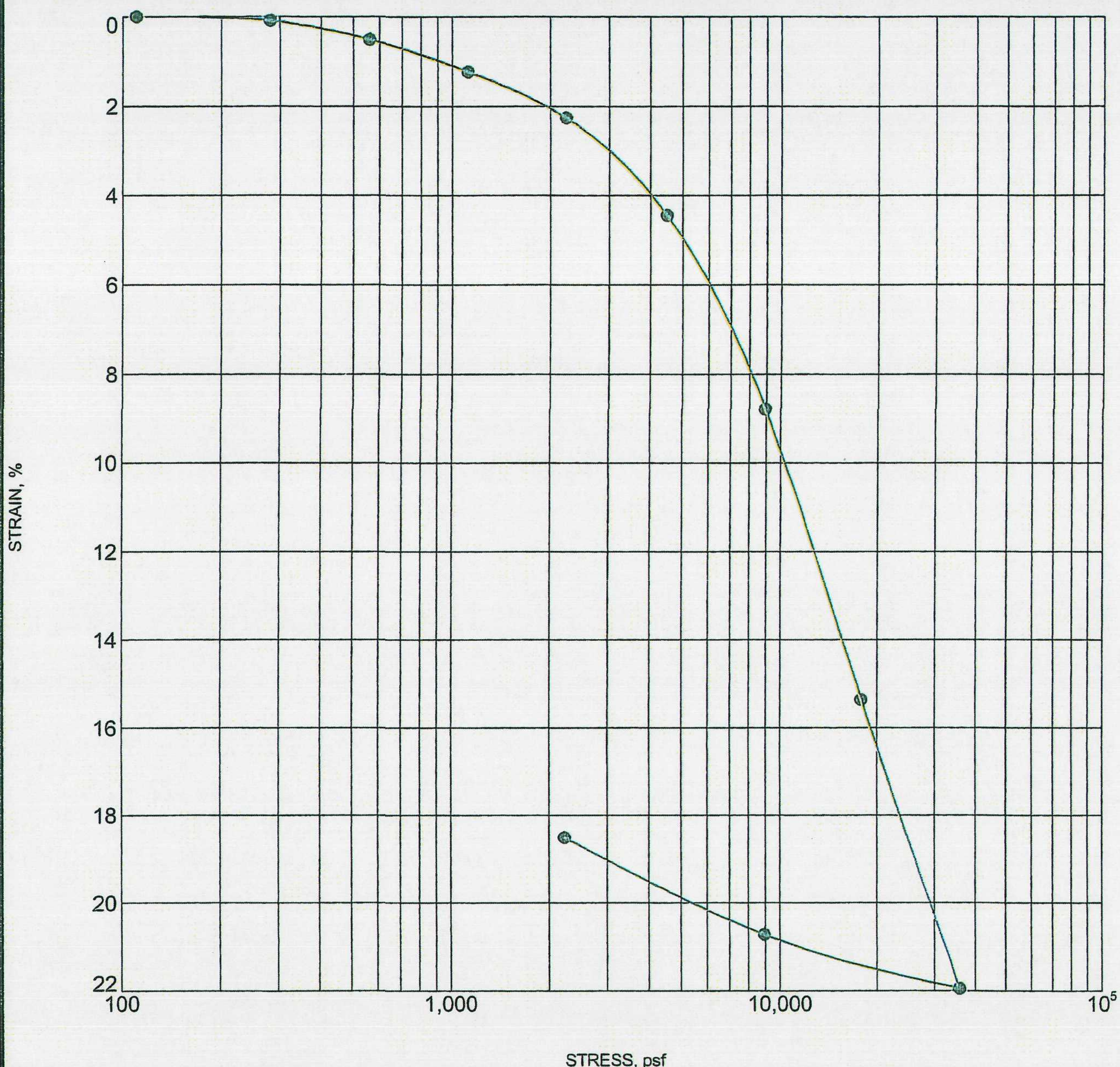


This estimated settlement bulb is based of other experienced with smaller loads. To accurately determine the settlement influence bulb a finite element analysis will be necessary.

Figure 26: Estimated Settlement Bulb

GEOTECHNICAL STUDY
Central Valley Landfill Facility
Salt Lake County, Utah

Y² Job No. 08G-014



	Specimen Identification		Classification	γ_d	MC%
●	**B-1**	**11.0**	**LEAN CLAY(CL)**	**81**	**43**

US CONSOL STRAIN 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08

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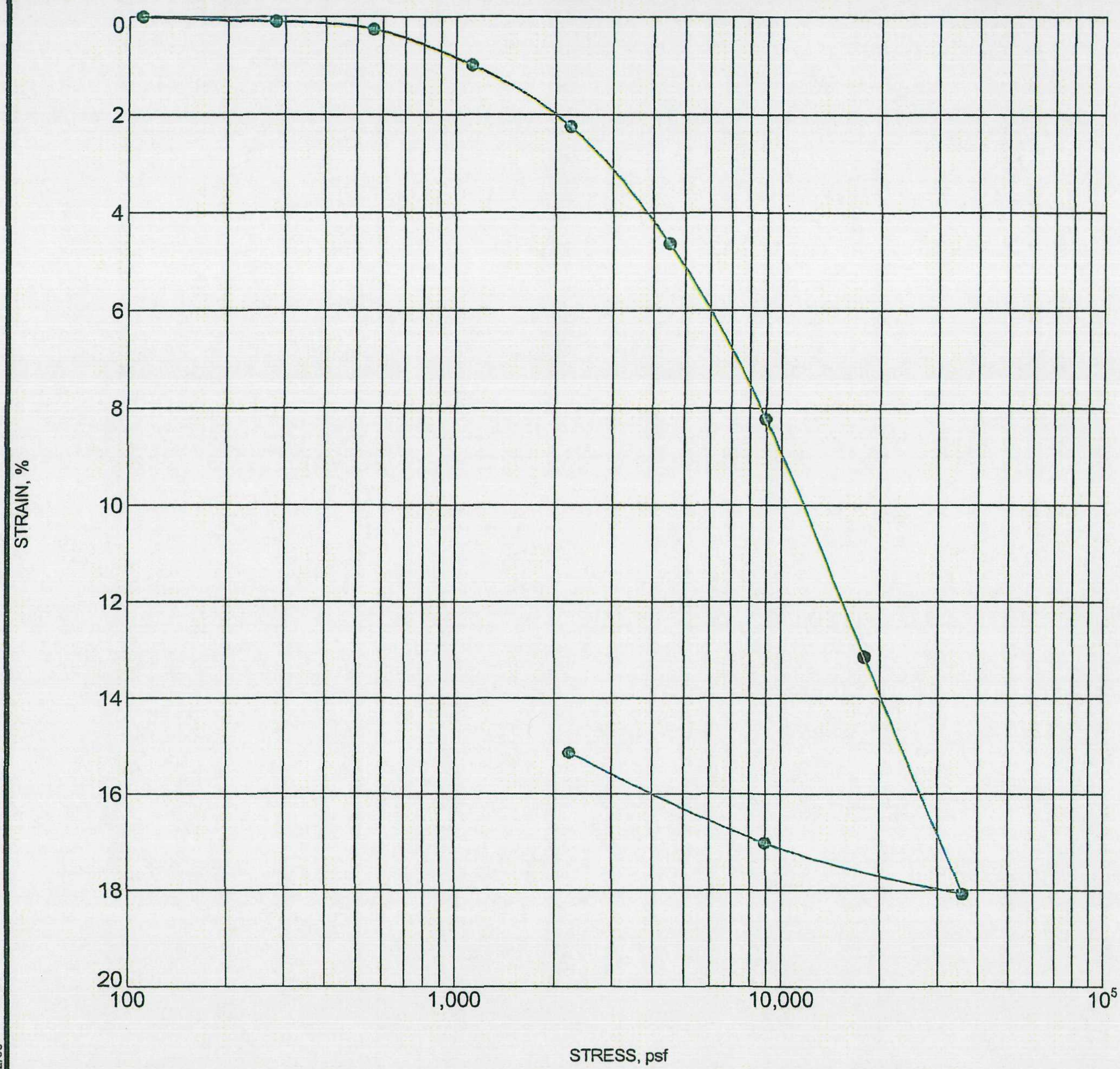
CONSOLIDATION TEST

Project: Central Valley Landfill Facility

Location: 7300 West 1300 South Salt Lake County, Utah

Number: 08G-014



Specimen Identification			Classification	γ_d	MC%
●	**B-2**	**3.0**	**LEAN CLAY(CL)**	**89**	**33**

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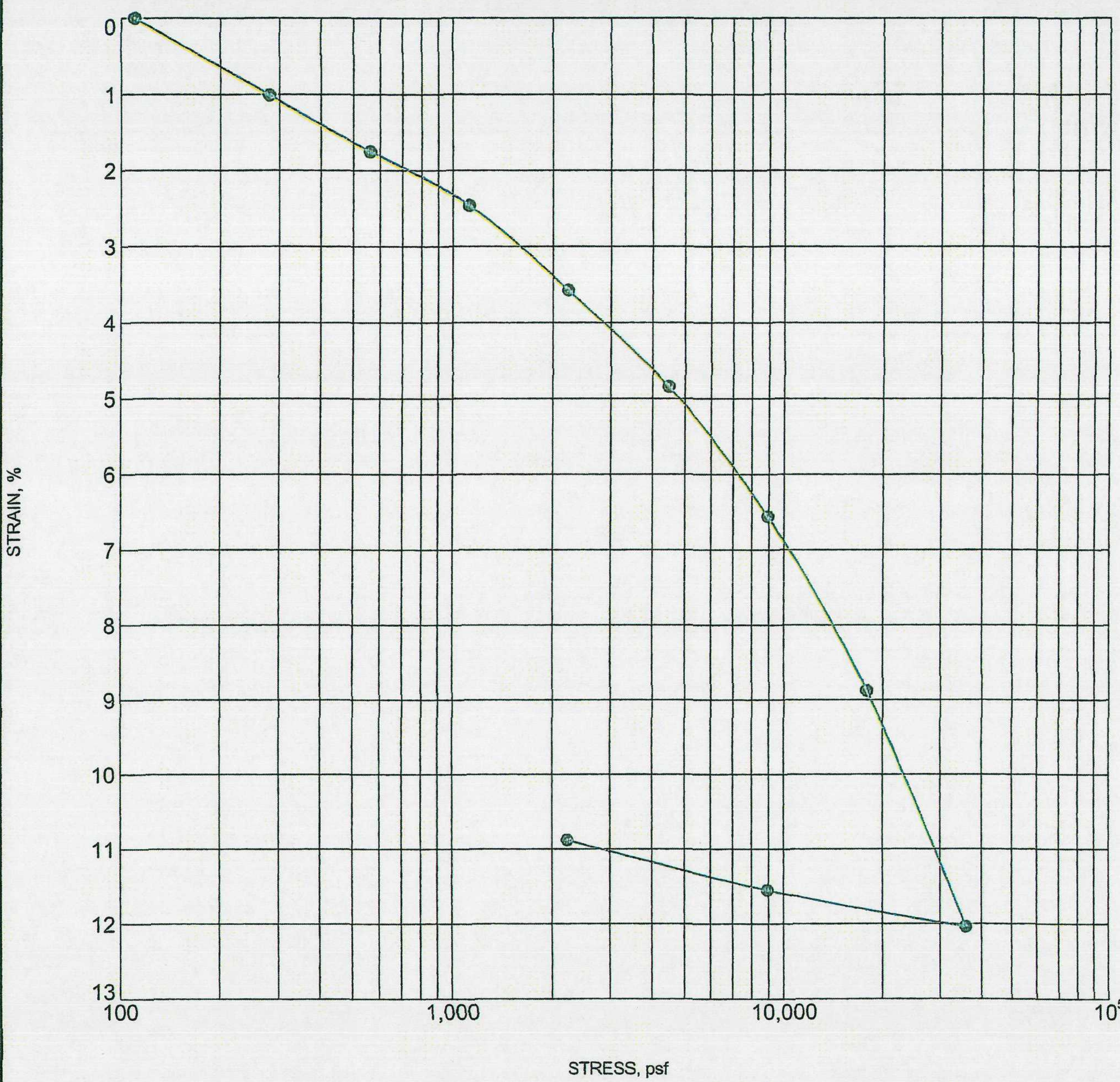
CONSOLIDATION TEST

Project: Central Valley Landfill Facility
Location: 7300 West 1300 South Salt Lake County, Utah
Number: 08G-014

US CONSOL STRAIN 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08



	Specimen Identification		Classification	γ_d	MC%
●	B-3	7.0	LEAN CLAY(CL)	100	27

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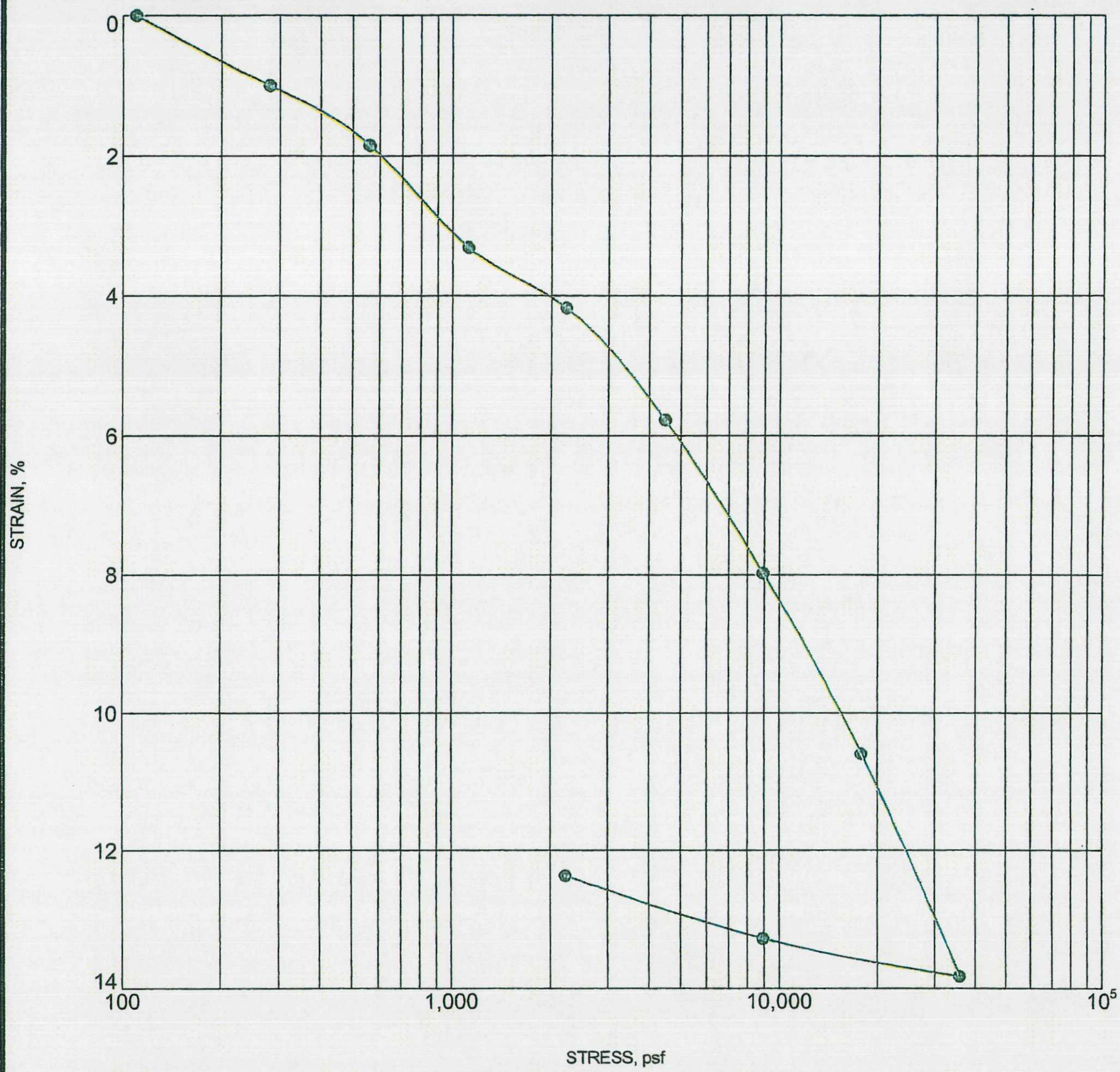
CONSOLIDATION TEST

Project: Central Valley Landfill Facility

Location: 7300 West 1300 South Salt Lake County, Utah

Number: 08G-014

US CONSOL STRAIN 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08



	Specimen Identification		Classification	γ_d	MC%
●	**B-4**	**7.0**	**LEAN CLAY(CL)**	**101**	**29**

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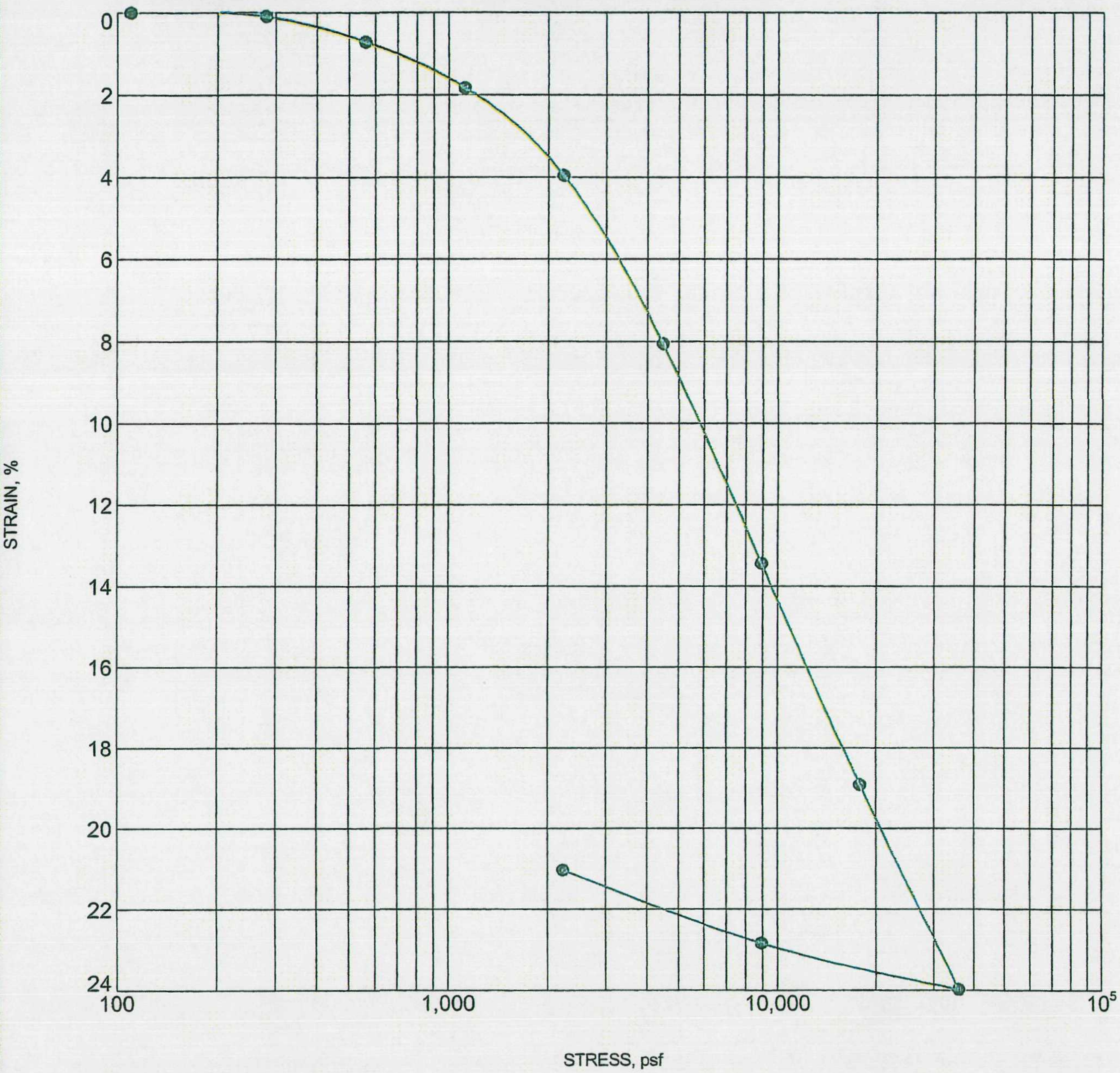
CONSOLIDATION TEST

Project: Central Valley Landfill Facility

Location: 7300 West 1300 South Salt Lake County, Utah

Number: 08G-014



Specimen Identification		Classification	γ_d	MC%
● B-4	15.0	**FAT CLAY(CH)**	**81**	**41**

US CONSOL STRAIN 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08

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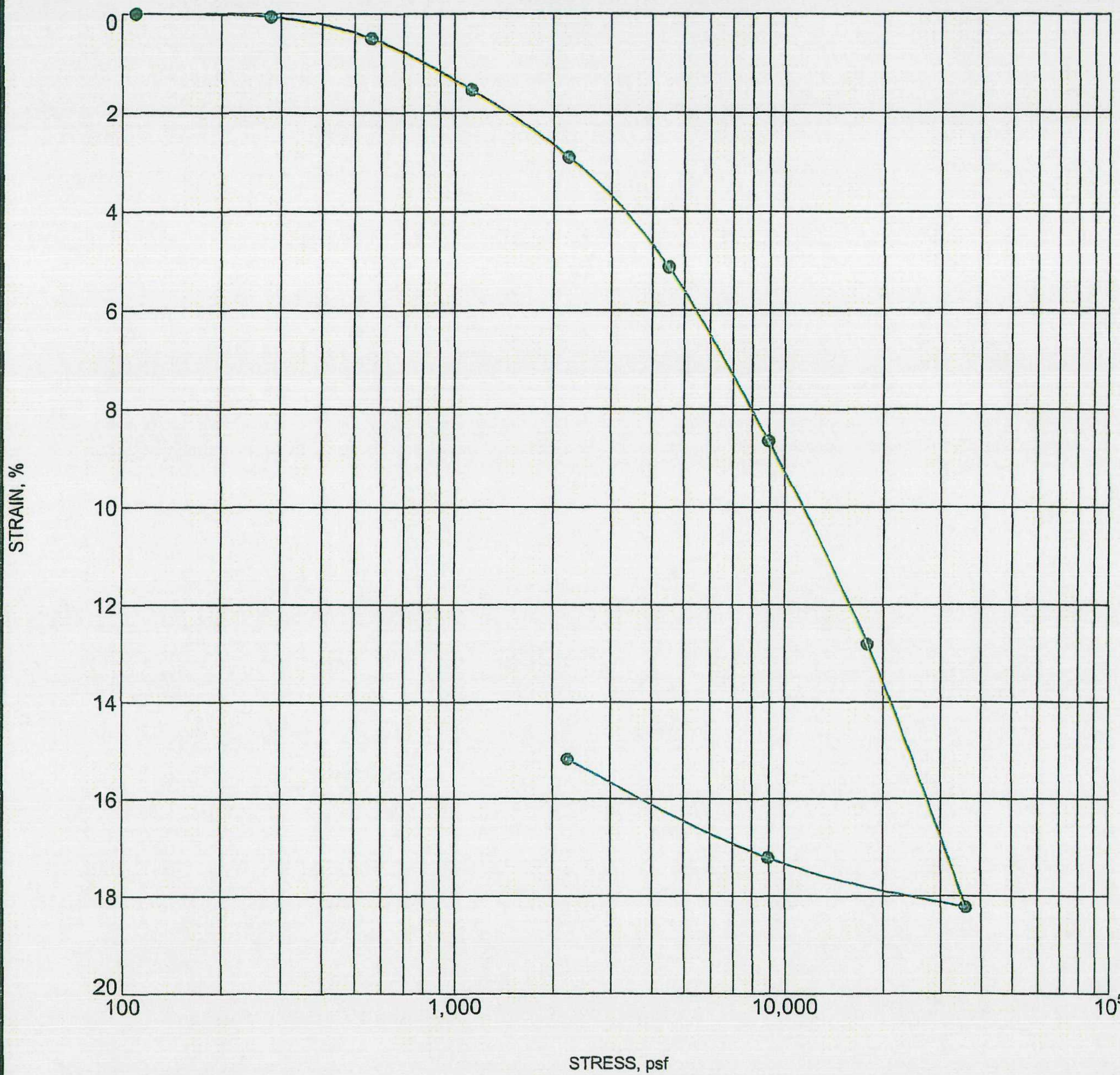
Geotechnical & Environmental Services

CONSOLIDATION TEST

Project: Central Valley Landfill Facility

Location: 7300 West 1300 South Salt Lake County, Utah

Number: 08G-014



	Specimen Identification		Classification	γ_d	MC%
●	**B-5**	**3.0**	**LEAN CLAY(CL)**	**90**	**32**

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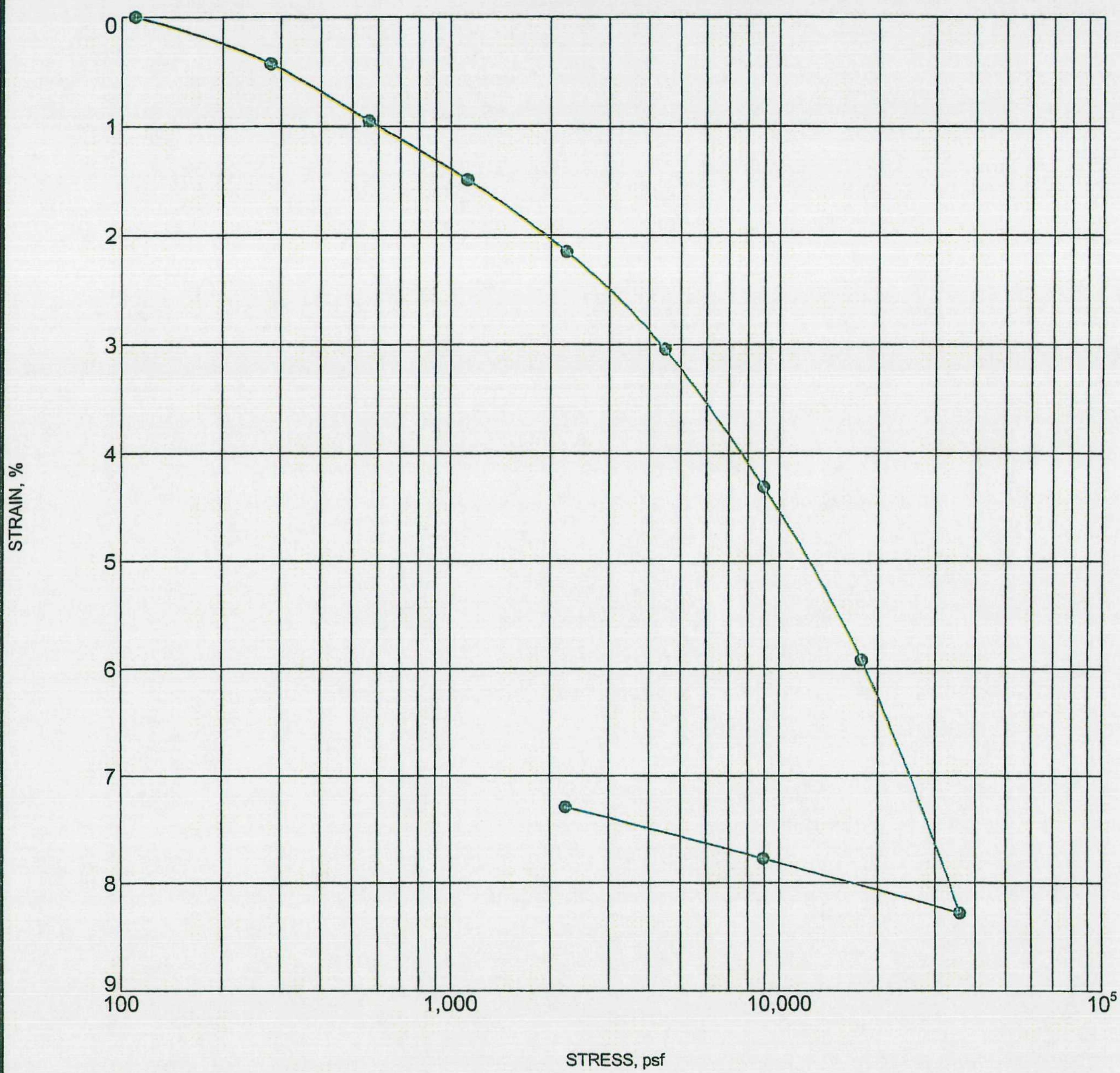
CONSOLIDATION TEST

Project: Central Valley Landfill Facility

Location: 7300 West 1300 South Salt Lake County, Utah

Number: 08G-014

US CONSOL STRAIN 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08



	Specimen Identification		Classification	γ_d	MC%
●	**B-5**	**11.0**	**SILT(ML)**	**93**	**36**

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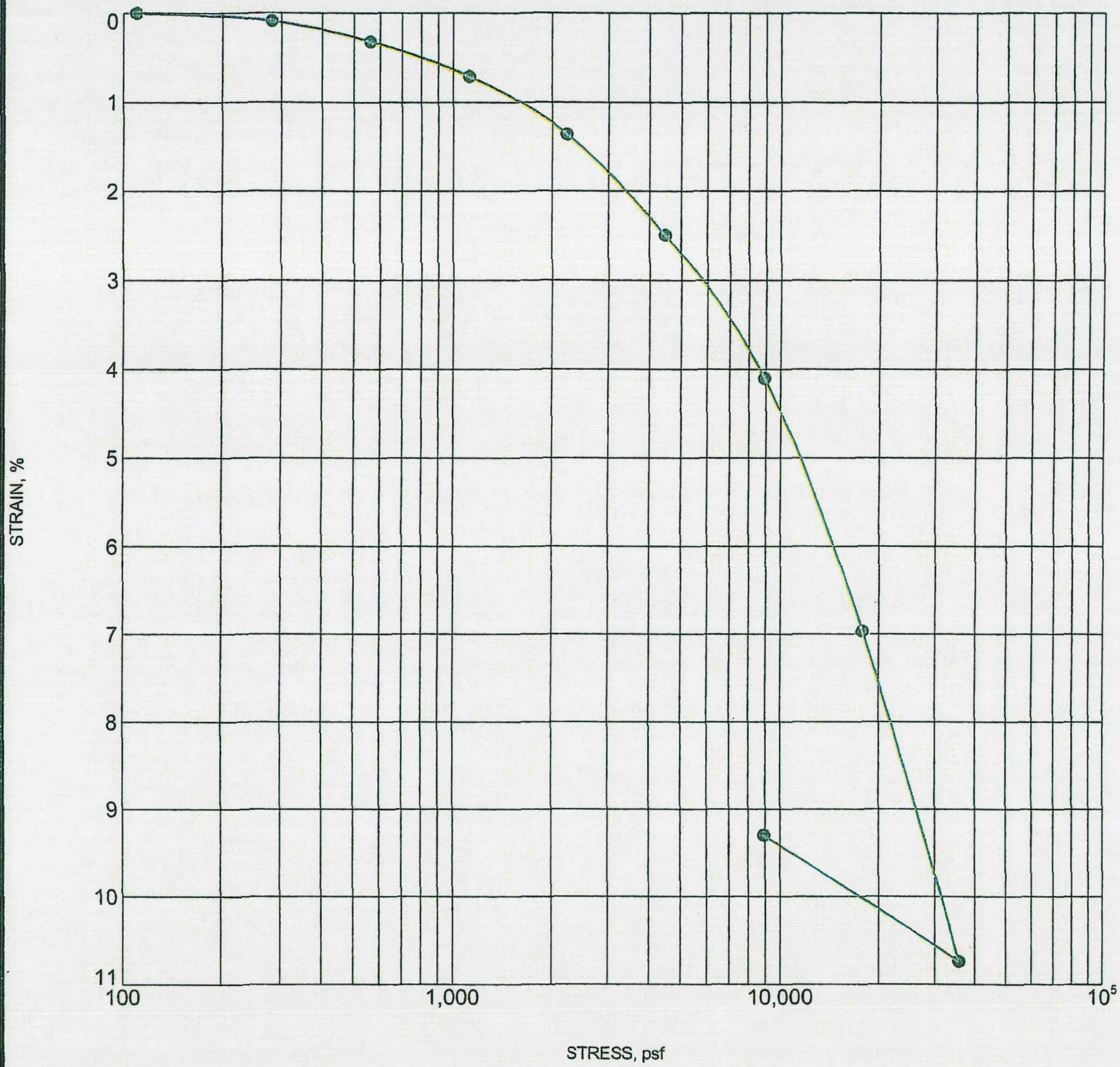
CONSOLIDATION TEST

Project: Central Valley Landfill Facility
Location: 7300 West 1300 South Salt Lake County, Utah
Number: 08G-014

US CONSOL STRAIN 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08



	Specimen Identification		Classification	γ_d	MC%
●	B-6	5.0	FAT CLAY(CH)	92	29

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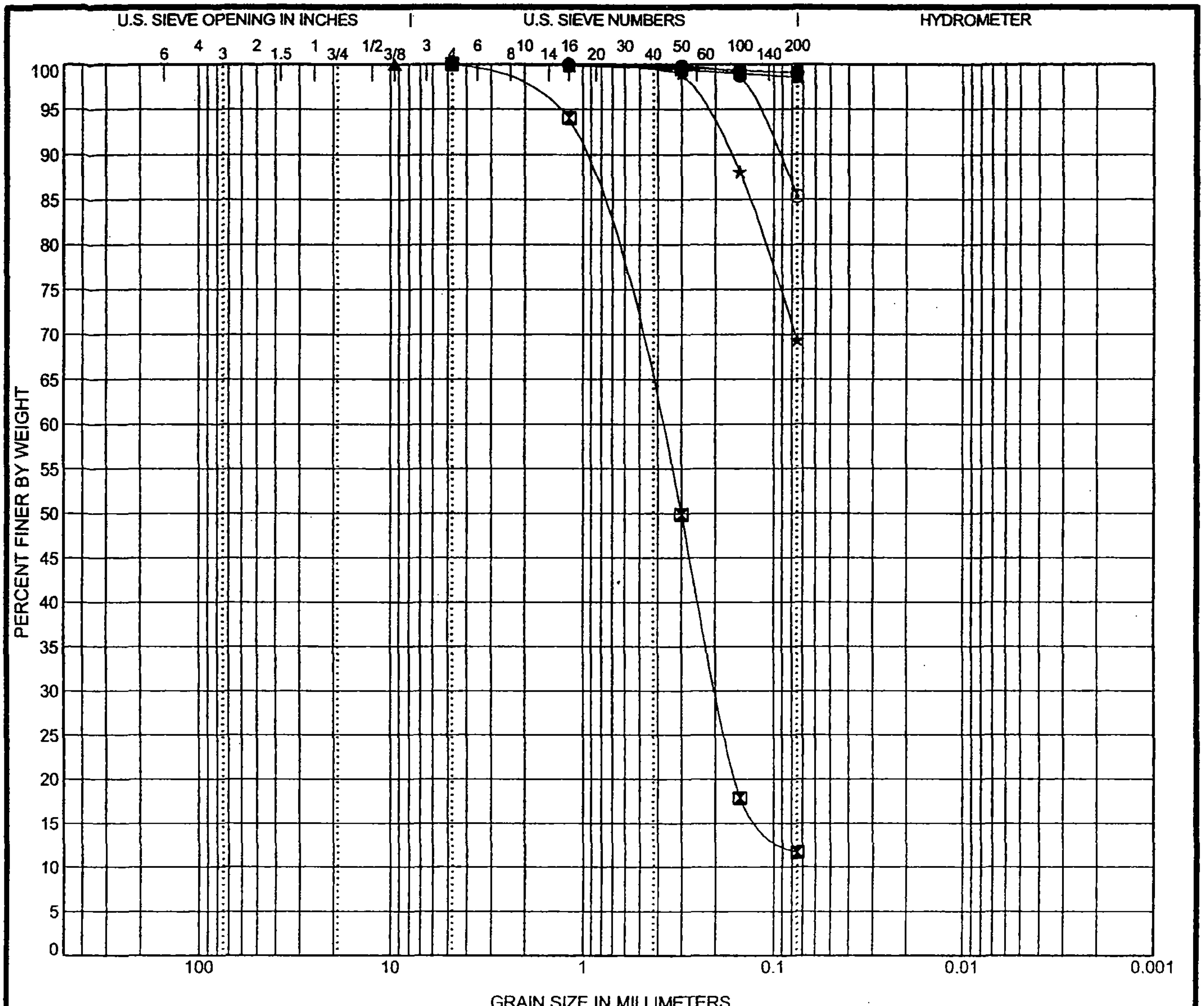
CONSOLIDATION TEST

Project: Central Valley Landfill Facility
Location: 7300 West 1300 South Salt Lake County, Utah
Number: 08G-014



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	B-1	11.0	LEAN CLAY(CL)	48	24	24		
⊠	B-1	27.0	WELL-GRADED SAND with SILT(SW-SM)	NP	NP	NP	1.5	6.6
▲	B-2	3.0	LEAN CLAY(CL)	44	21	23		
★	B-2	17.0	SANDY SILT(ML)	NP	NP	NP		
⊙	B-3	7.0	LEAN CLAY(CL)	31	20	11		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1	11.0	4.75				0.0	0.9	99.1	
⊠	B-1	27.0	4.75	0.41	0.2		0.0	88.3	11.7	
▲	B-2	3.0	9.53				0.0	1.4	98.6	
★	B-2	17.0	4.75				0.0	30.6	69.4	
⊙	B-3	7.0	1.18				0.0	14.6	85.4	

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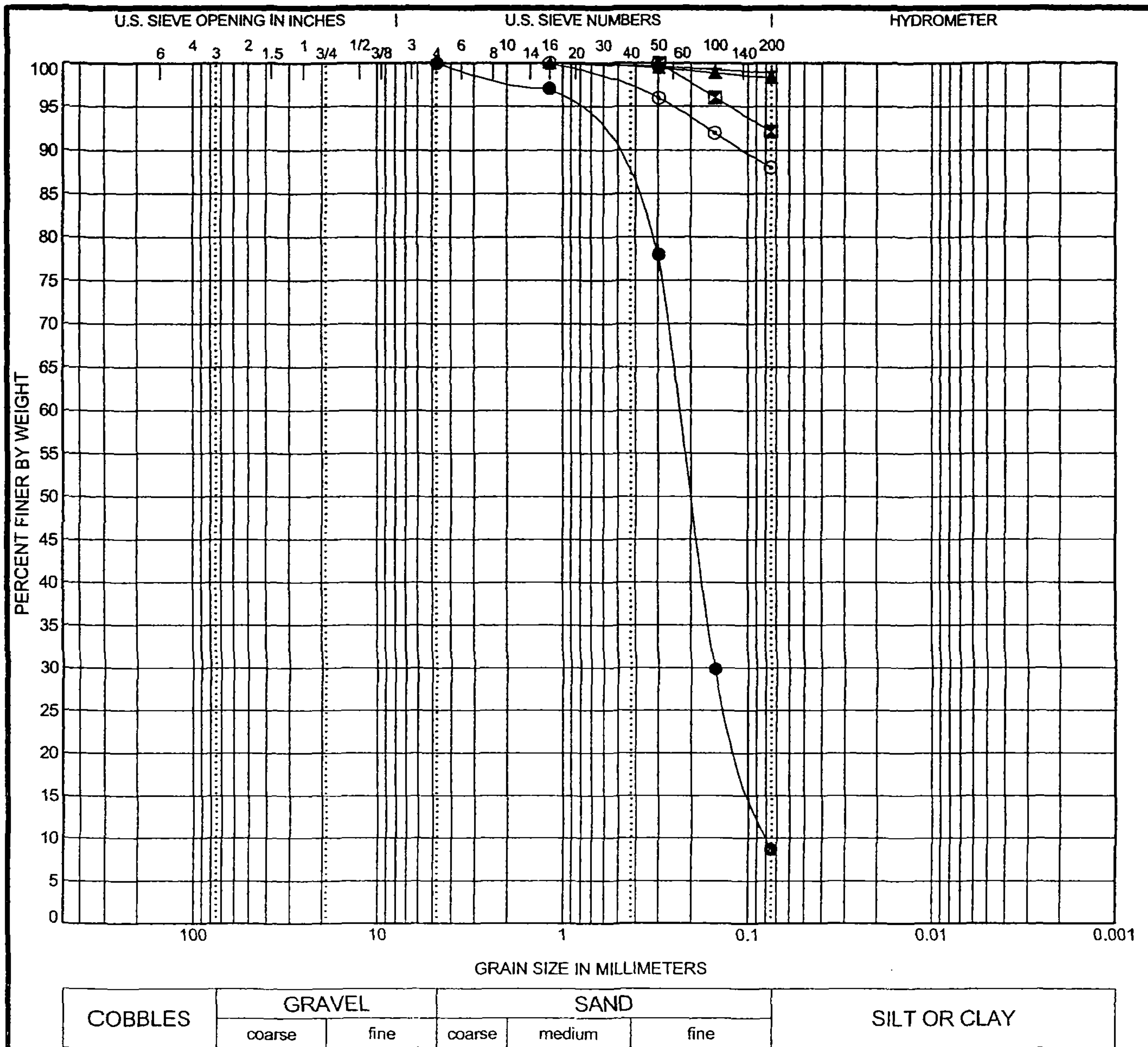
GRAIN SIZE DISTRIBUTION

Project: Central Valley Landfill Facility
Location: 7300 West 1300 South Salt Lake County, Utah
Number: 08G-014

US GRAIN SIZE 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08



Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	B-3	19.0	**POORLY GRADED SAND with SILT(SP-SM)**	**NP**	**NP**	**NP**	**1.2**	**3.0**
⊠	B-4	7.0	**LEAN CLAY(CL)**	**31**	**16**	**15**		
▲	B-4	15.0	**FAT CLAY(CH)**	**50**	**19**	**31**		
★	B-5	3.0	**LEAN CLAY(CL)**	**43**	**21**	**22**		
⊙	B-5	11.0	**SILT(ML)**	**NP**	**NP**	**NP**		

Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-3	19.0	4.75	0.23	0.15	0.08	0.0	91.3	8.7	
⊠	B-4	7.0	0.3				0.0	7.8	92.2	
▲	B-4	15.0	1.18				0.0	1.7	98.3	
★	B-5	3.0	4.75				0.0	1.1	98.9	
⊙	B-5	11.0	1.18				0.0	12.0	88.0	

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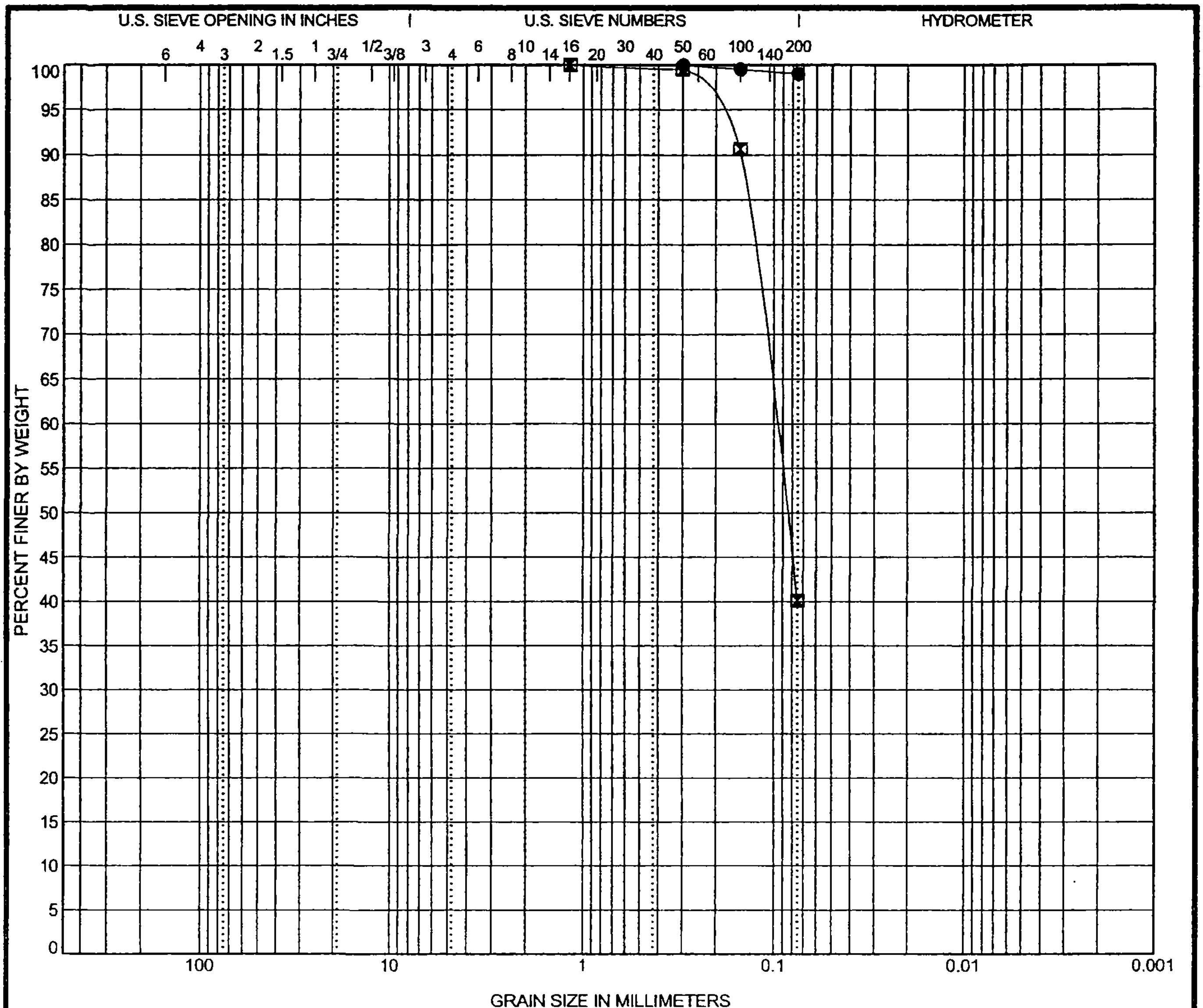
GRAIN SIZE DISTRIBUTION

Project: Central Valley Landfill Facility

Location: 7300 West 1300 South Salt Lake County, Utah

Number: 08G-014

US GRAIN SIZE 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	B-6	5.0	**FAT CLAY(CH)**	**50**	**21**	**29**		
⊠	B-6	11.0	**SILTY SAND(SM)**	**NP**	**NP**	**NP**		

Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-6	5.0	0.3				0.0	1.0	99.0	
⊠	B-6	11.0	1.18	0.1			0.0	59.9	40.1	

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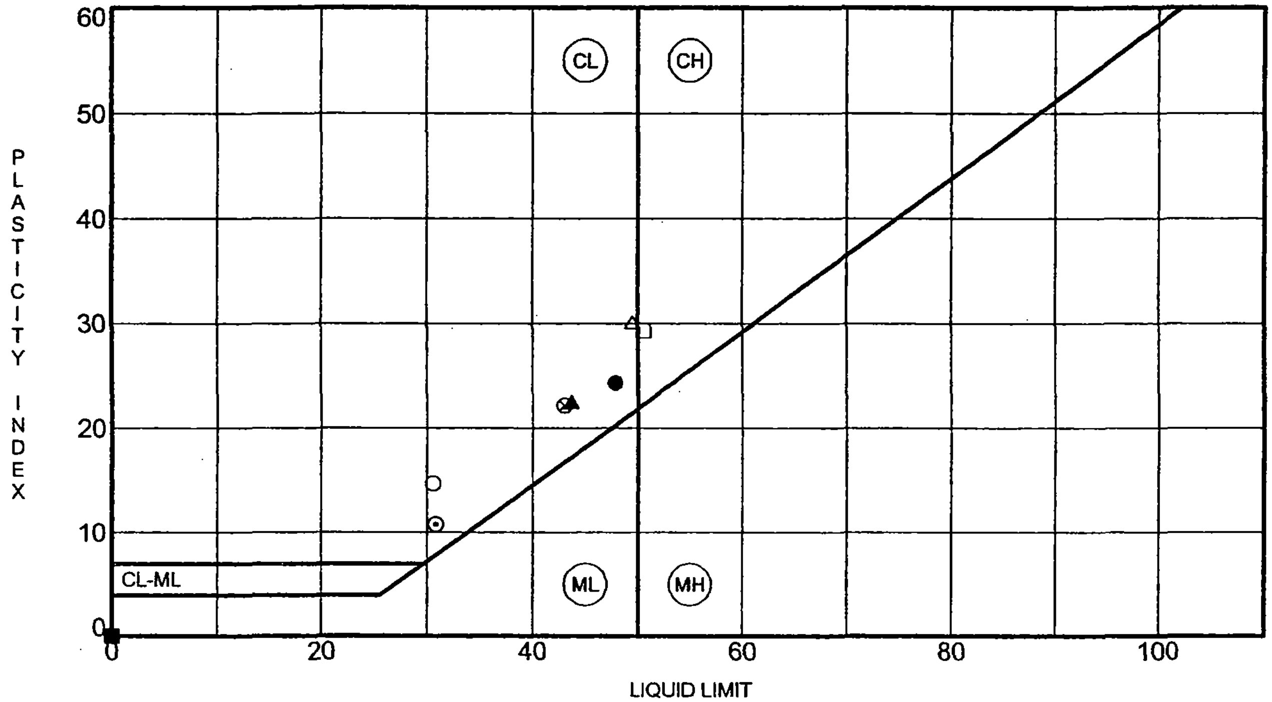
GRAIN SIZE DISTRIBUTION

Project: Central Valley Landfill Facility
Location: 7300 West 1300 South Salt Lake County, Utah
Number: 08G-014

US GRAIN SIZE 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08



	Specimen Identification		LL	PL	PI	Fines	Classification
●	B-1	11.0	48	24	24	99	LEAN CLAY(CL)
⊠	B-1	27.0	NP	NP	NP	12	WELL-GRADED SAND with SILT(SW-SM)
▲	B-2	3.0	44	21	23	99	LEAN CLAY(CL)
★	B-2	17.0	NP	NP	NP	69	SANDY SILT(ML)
⊙	B-3	7.0	31	20	11	85	LEAN CLAY(CL)
✪	B-3	19.0	NP	NP	NP	9	POORLY GRADED SAND with SILT(SP-SM)
○	B-4	7.0	31	16	15	92	LEAN CLAY(CL)
△	B-4	15.0	50	19	31	98	FAT CLAY(CH)
⊗	B-5	3.0	43	21	22	99	LEAN CLAY(CL)
⊕	B-5	11.0	NP	NP	NP	88	SILT(ML)
□	B-6	5.0	50	21	29	99	FAT CLAY(CH)
⊖	B-6	11.0	NP	NP	NP	40	SILTY SAND(SM)

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Geotechnical & Environmental Services

ATTERBERG LIMITS' RESULTS

Project: Central Valley Landfill Facility
Location: 7300 West 1300 South Salt Lake County, Utah
Number: 08G-014

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Class-ification	Water Content (%)	Dry Density (pcf)	Satur-ation (%)	Void Ratio
B-1	11.0	48	24	24	4.75	99	CL	42.6	80.8		
B-1	27.0	NP	NP	NP	4.75	12	SW-SM	15.9			
B-2	3.0	44	21	23	9.53	99	CL	32.9	89.5		
B-2	17.0	NP	NP	NP	4.75	69	ML	28.5			
B-3	7.0	31	20	11	1.18	85	CL	27.1	100.1		
B-3	19.0	NP	NP	NP	4.75	9	SP-SM	24.5			
B-4	7.0	31	16	15	0.3	92	CL	28.7	100.8		
B-4	15.0	50	19	31	1.18	98	CH	40.8	80.8		
B-5	3.0	43	21	22	4.75	99	CL	31.8	90.0		
B-5	11.0	NP	NP	NP	1.18	88	ML	28.6	93.0		
B-6	5.0	50	21	29	0.3	99	CH	29.3	92.2		
B-6	11.0	NP	NP	NP	1.18	40	SM	30.5			

US LAB SUMMARY 08G-014 REYNOLDS GINT.GPJ Y2 GEOTECH.GDT 2/22/08

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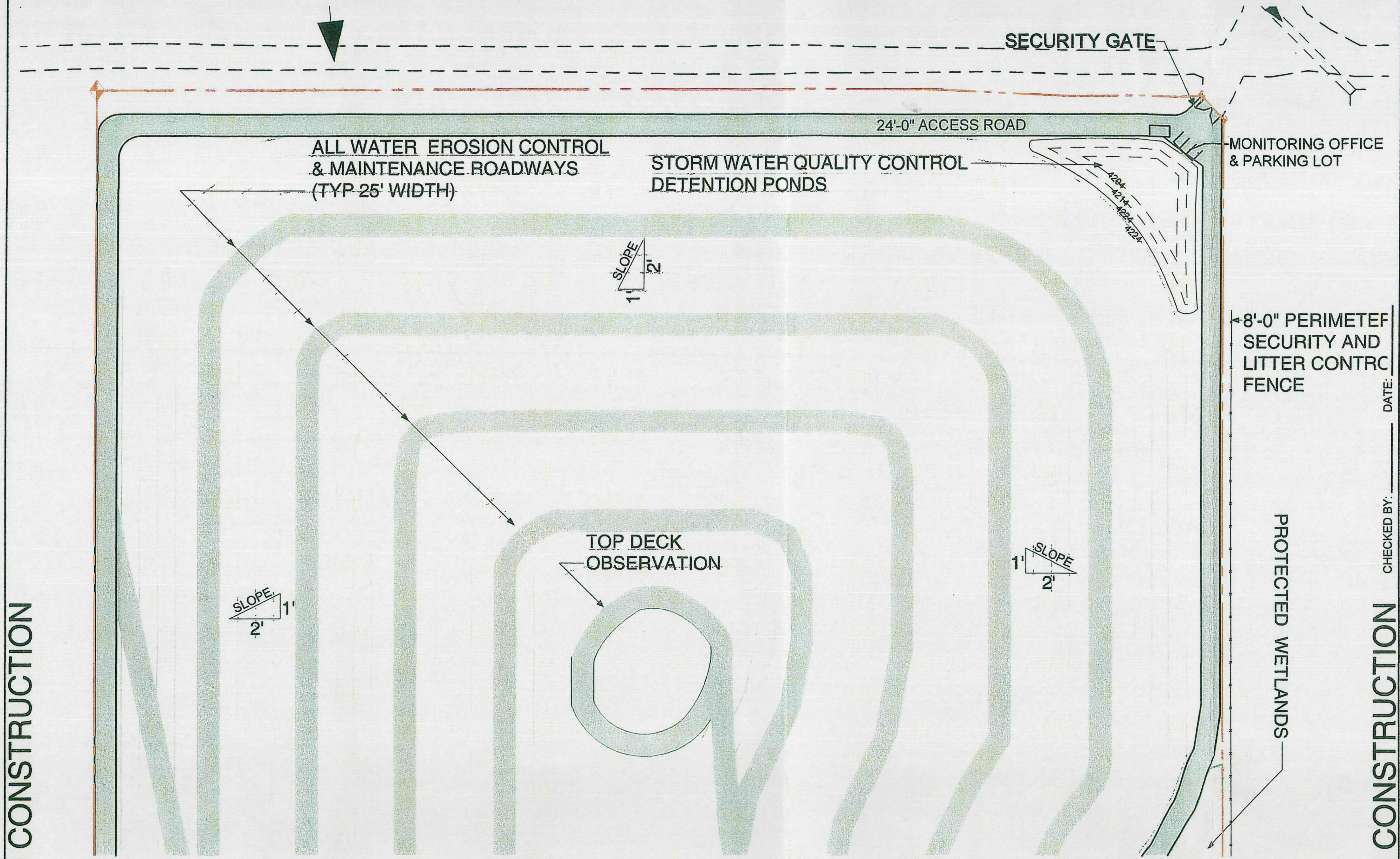
Geotechnical & Environmental Services

Summary of Laboratory Results

Project: Central Valley Landfill Facility
Location: 7300 West 1300 South Salt Lake County, Utah
Number: 08G-014



NOT FOR CONSTRUCTION

GRADING PARTIAL PLAN NORTH @ CLOSURE

N

SCALE 1" = 50'

0 25 50 100 200

LEGEND

PROTECTED WETLANDS AREA

EROSION CONTROL & MAINTANENCE ROAD (TYP)

THIS DRAWING REDUCED TO 1/2 SIZE

REGISTERED PROFESSIONAL ENGINEER
157996-2202
JOHN THOMAS BOUEY
STATE OF UTAH

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
Central Valley Landfill

DATE:

CHECKED BY:

NUMBER	DESCRIPTION	DATE

SHEET DESCRIPTION
FINAL GRADING PLAN (1)

PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008
SHEET NUMBER
C1001

NOT FOR CONSTRUCTION

GRADING PARTIAL PLAN
CENTRAL @ CLOSURE

SCALE 1" = 50'

0 25 50 100 200

LEGEND

- PROTECTED WETLANDS AREA
- EROSION CONTROL & MAINTANENCE ROAD (TYP)

THIS DRAWING REDUCED TO 1/2 SIZE

REGISTERED PROFESSIONAL ENGINEER 157996-2202 JOHN THOMAS BOUEY STATE OF UTAH

NOT FOR CONSTRUCTION

CHECKED BY: ________ DATE: ________

NUMBER	DATE	DESCRIPTION

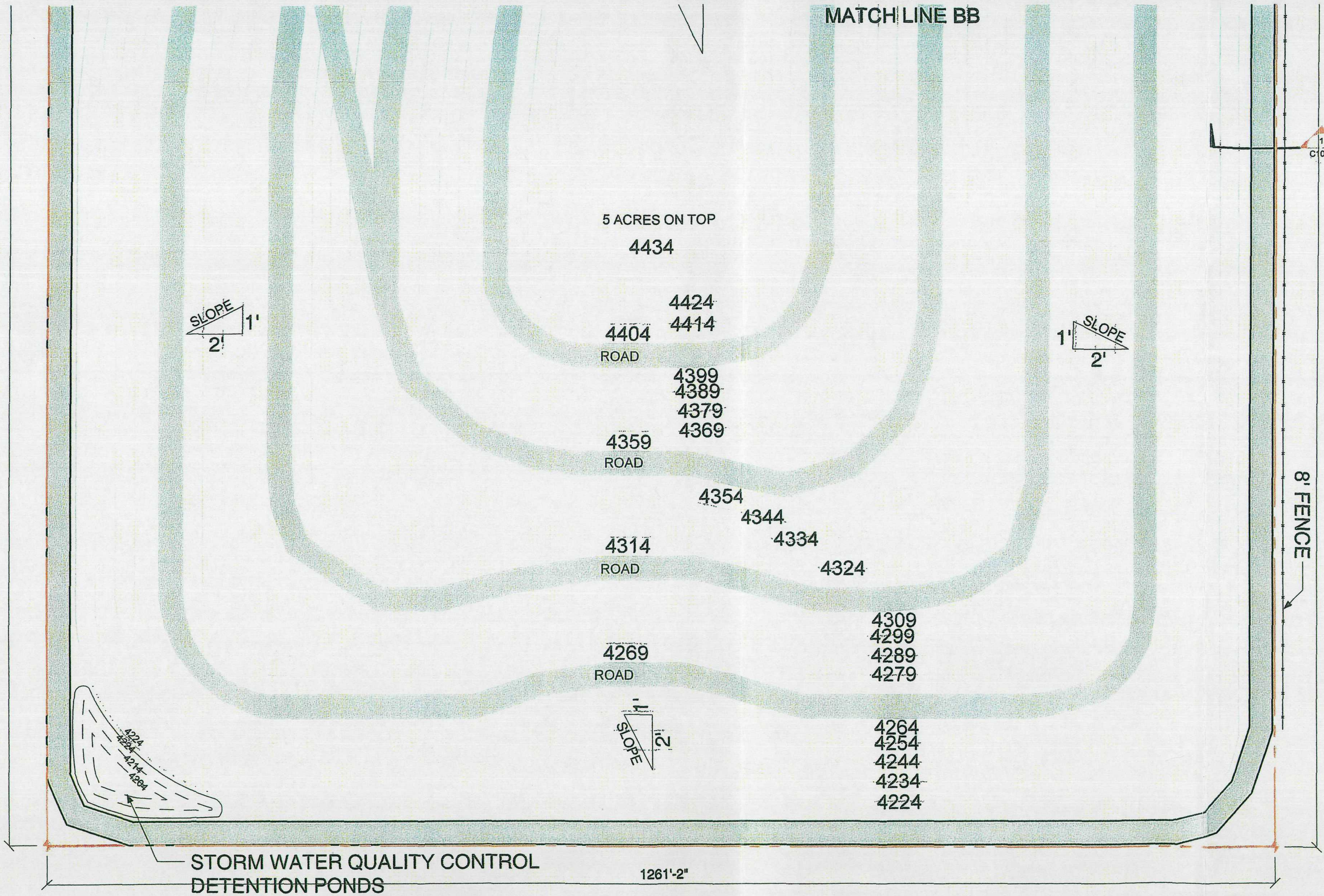
PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
Central Valley Landfill

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

SHEET DESCRIPTION: FINAL GRADING PLAN (2)

PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008
SHEET NUMBER C1002

NOT FOR CONSTRUCTION



GRADING PARTIAL PLAN SOUTH @ CLOSURE

SCALE 1" = 50'

0 25 50 100 200

LEGEND

PROTECTED WETLANDS AREA

EROSION CONTROL & MAINTANENCE ROAD (TYP)

THIS DRAWING REDUCED TO 1/2 SIZE

REGISTERED PROFESSIONAL ENGINEER 157996-2202 JOHN THOMAS BOUEY STATE OF UTAH

NOT FOR CONSTRUCTION

CHECKED BY: ______ DATE: ______

DATE	DESCRIPTION	NUMBER

PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL

7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

Central Valley Landfill

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

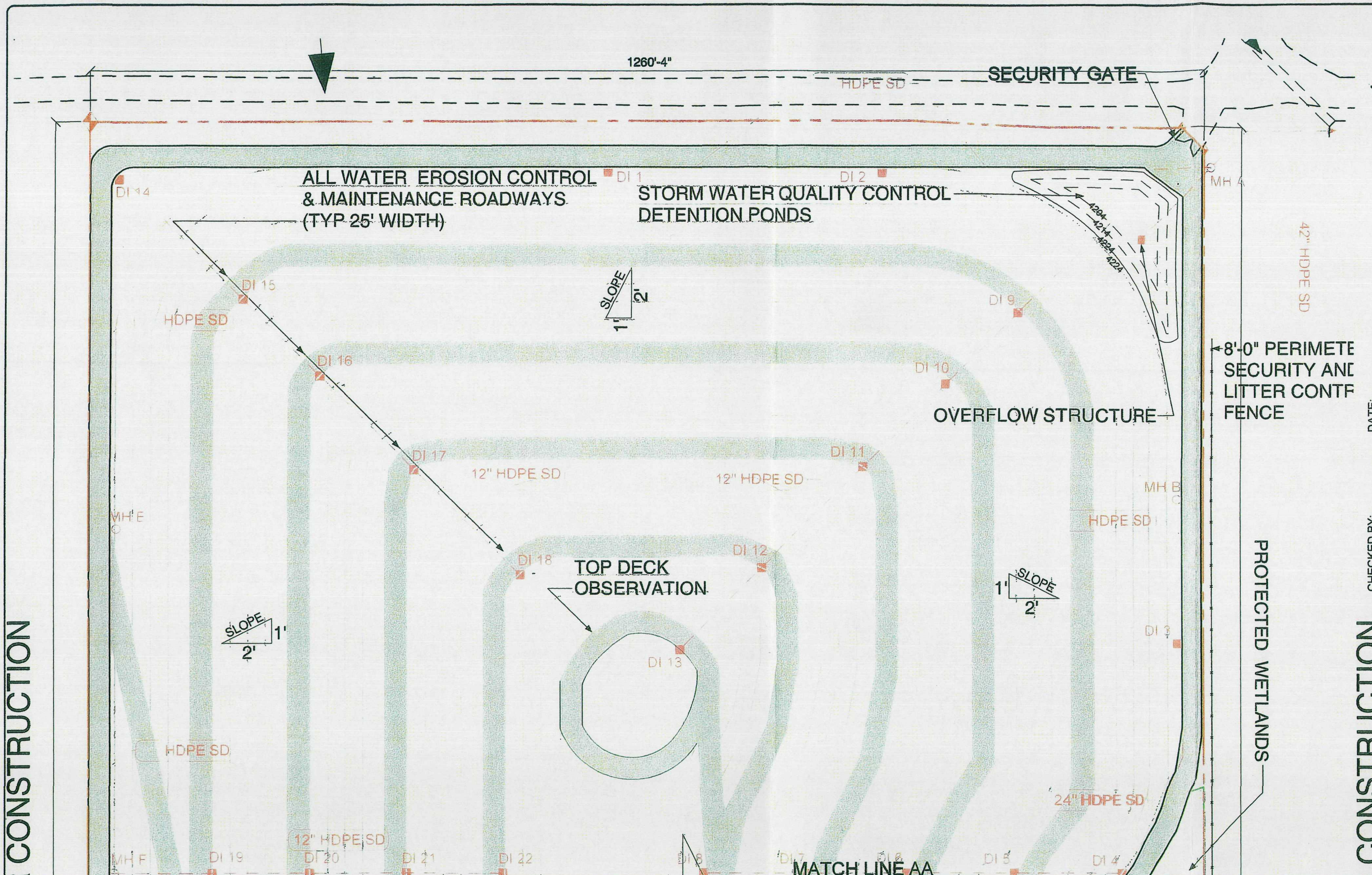
SHEET DESCRIPTION: FINAL GRADING PLAN (3)

PROJECT NUMBER: BASP 1006

PROJECT DATE 09/2008

SHEET NUMBER: C1003

NOT FOR CONSTRUCTION



DRAINAGE PARTIAL PLAN
NORTH @ CLOSURE

SCALE 1" = 50'

0 25 50 100 200

LEGEND

- PROTECTED WETLANDS AREA (SUBJECT TO VERIFACTION AND CERTIFICATION)
- MITIGATED WETLANDS
- DROP INLET
- HDPE SYSTEM

THIS DRAWING REDUCED TO 1/2 SIZE

REGISTERED PROFESSIONAL ENGINEER 157996-2202 JOHN THOMAS BOUEY STATE OF UTAH

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
Central Valley Landfill

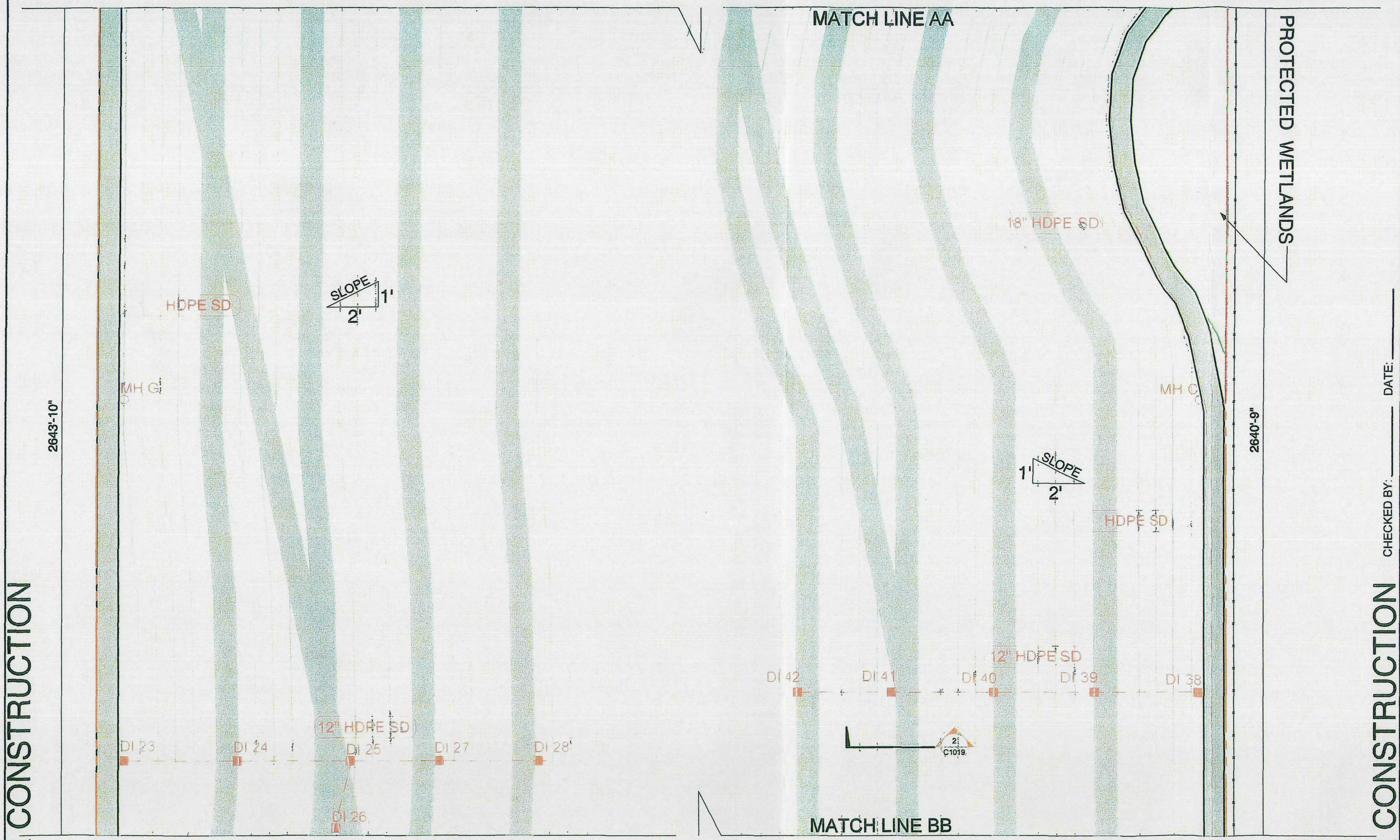
CHECKED BY: ______ DATE: ______

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION
FINAL DRAINAGE
PLAN (1)

PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008
SHEET NUMBER
C1004

NOT FOR CONSTRUCTION



DRAINAGE PARTIAL PLAN CENTRAL @ CLOSURE

SCALE 1" = 50'

0 25 50 100 200

LEGEND

- PROTECTED WETLANDS AREA (SUBJECT TO VERIFACTION AND CERTIFICATION)
- MITIGATED WETLANDS
- DROP INLET
- HDPE SYSTEM

THIS DRAWING REDUCED TO 1/2 SIZE

REGISTERED PROFESSIONAL ENGINEER 157996-2202 JOHN THOMAS BOUEY STATE OF UTAH

NOT FOR CONSTRUCTION

CHECKED BY: DATE:

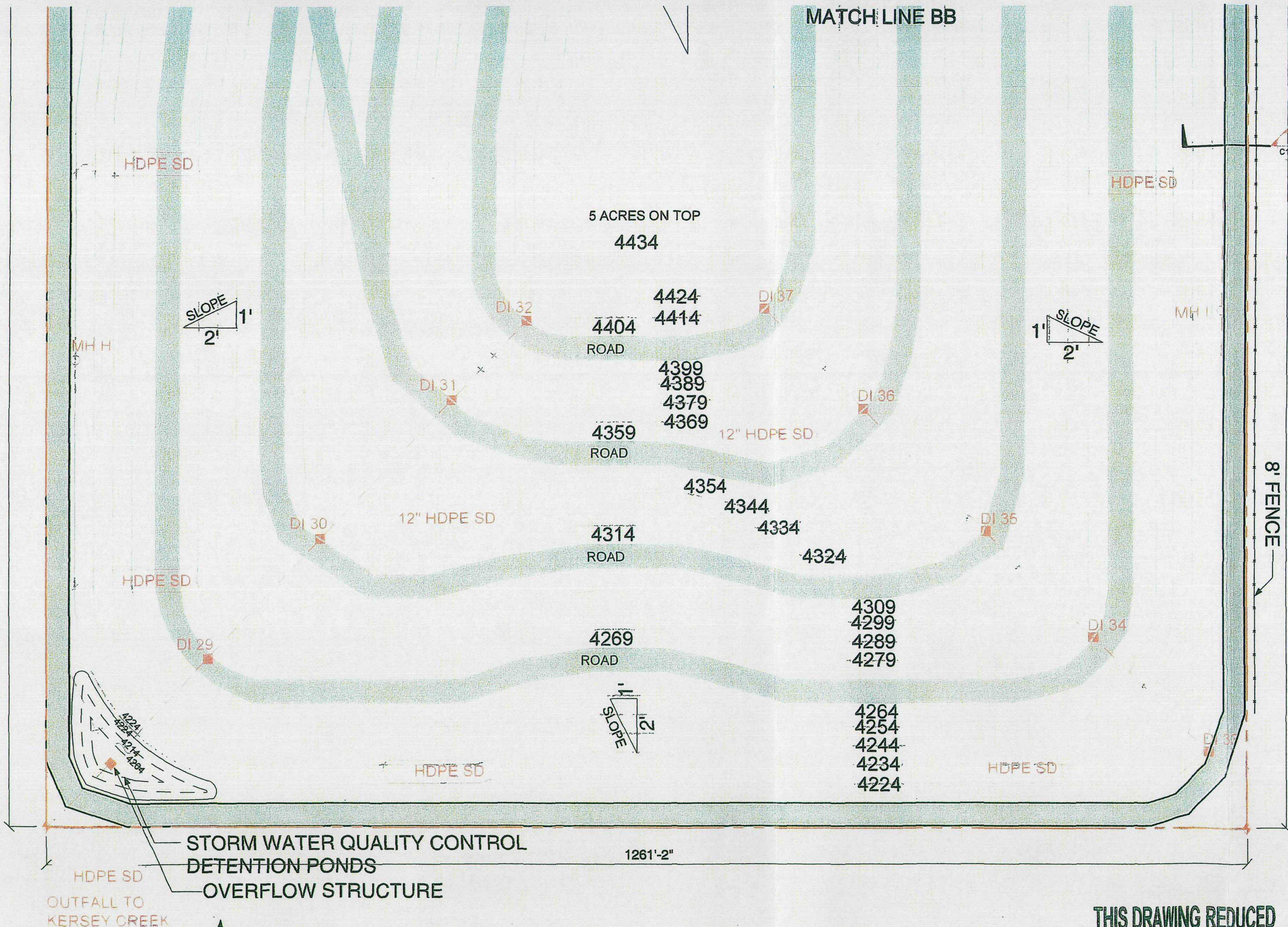
DATE	DESCRIPTION	NUMBER

PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
Central Valley Landfill

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

SHEET DESCRIPTION: FINAL DRAINAGE PLAN (2)

PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008
SHEET NUMBER C1005



NOT FOR CONSTRUCTION

DRAINAGE PARTIAL PLAN SOUTH @ CLOSURE

SCALE 1" = 50'

0 25 50 100 200

LEGEND

- PROTECTED WETLANDS AREA (SUBJECT TO VERIFACTION AND CERTIFICATION)
- MITIGATED WETLANDS
- DROP INLET
- HDPE SYSTEM

THIS DRAWING REDUCED TO 1/2 SIZE

REGISTERED PROFESSIONAL ENGINEER 157996-2202 JOHN THOMAS BOUEY STATE OF UTAH

NOT FOR CONSTRUCTION

CHECKED BY: ____ DATE: ____

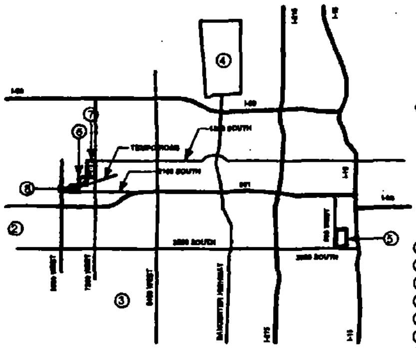
DATE	DESCRIPTION	NUMBER

PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
Central Valley Landfill

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

SHEET DESCRIPTION: FINAL DRAINAGE PLAN (3)

PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008
SHEET NUMBER
C1006



① SALT LAKE CITY
② MAGNA
③ WEST VALLEY
④ S.L.C. INTERNATIONAL AIRPORT
⑤ CVWRF
⑥ CVWRF COMPOSTING FACILITY
⑦ PROPOSED CONSTRUCTION DEBRIS LANDFILL
⑧ MAGNA TREATMENT PLANT

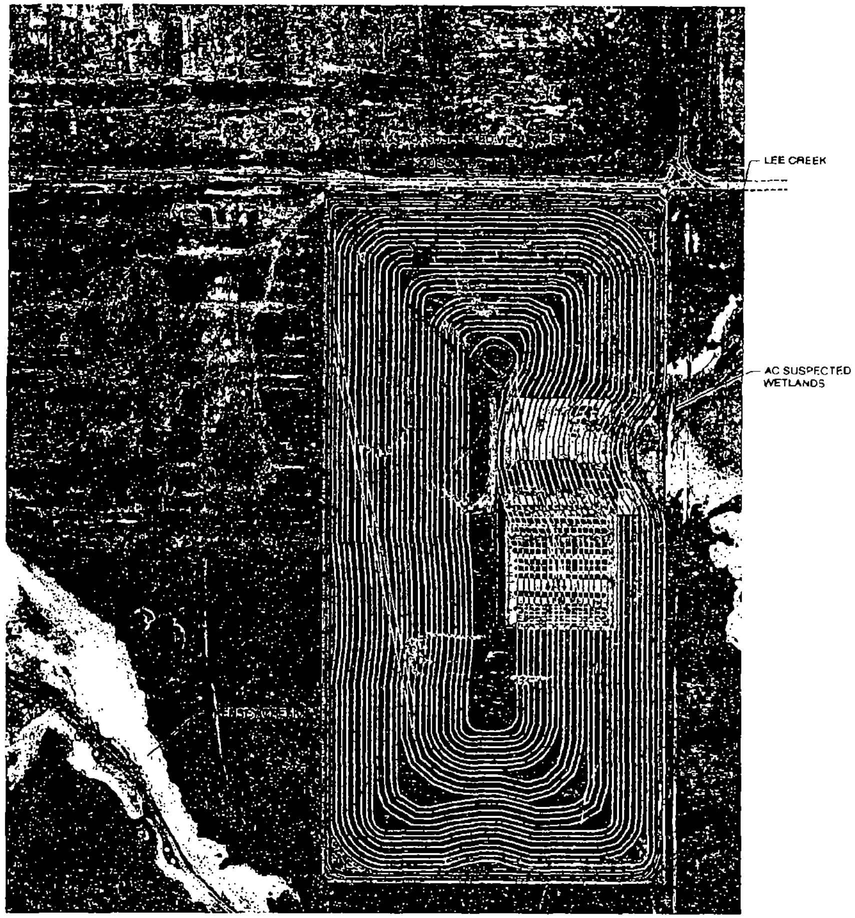
VICINITY MAP

SCALE: NTS

SHEET INDEX

PAGE NUMBER	SHEET NUMBER	SHEET DESCRIPTION
1.	G1001	SHEET INDEX, LOCATION, AND VICINITY MAPS
2.	G1002	SITE PLAN PRIOR TO FINAL CLOSURE
3.	G1003	EXISITNG CONTOURS AND PROPERY LINES
4.	G1004	RECOMMENDED GROUND WATER MONITORING LOCATIONS
5.	G1005	GROUND WATER MONITORING WELL INSTALLATION
6.	G1006	ZONING MAP
7.	C1001	GRADING PLAN (1)
8.	C1002	GRADING PLAN (2)
9.	C1003	GRADING PLAN (3)
10	C1004	DRAINAGE PLAN (1)
11	C1005	DRAINAGE PLAN (2)
12.	C1006	DRAINAGE PLAN (3)
13.	C1007	INTERIM GRADING PLAN (1)
14.	C1008	INTERIM GRADING PLAN (2)
15.	C1009	INTERIM GRADING PLAN (3)
16.	C1010	INTERIM GRADING PLAN (4)
17.	C1011	INTERIM GRADING PLAN (5)
18.	C1012	INTERIM DRAINAGE PLAN (1)
19.	C1013	INTERIM DRAINAGE PLAN (2)
20.	C1014	INTERIM DRAINAGE PLAN (3)
21.	C1015	INTERIM DRAINAGE PLAN (4)
22.	C1016	INTERIM DRAINAGE PLAN (5)
23.	C1017	CORPORATION / AGGRAGATE RECYCLING YARD
24.	C1019	GRADING SECTIONS & DETAILS
25.	C1020	DRAINAGE SECTIONS & DETAILS
26.	C1021	CLOSURE PHASING PLAN
27.	C1022	FINAL CLOSURE PLAN
28.	A1001	3D CONCEPTUAL MODEL
29.	A1002	SECTIONS
30.	1 OF 1	SURVEY
31.	1R1001	IRRIGATION PLAN
32.	L1001	LANDSCAPE PLAN

NOT FOR CONSTRUCTION



SITE LOCATION MAP

7301 WEST 1300 SOUTH

SCALE 1" = 200'

0 100 200 400 600

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

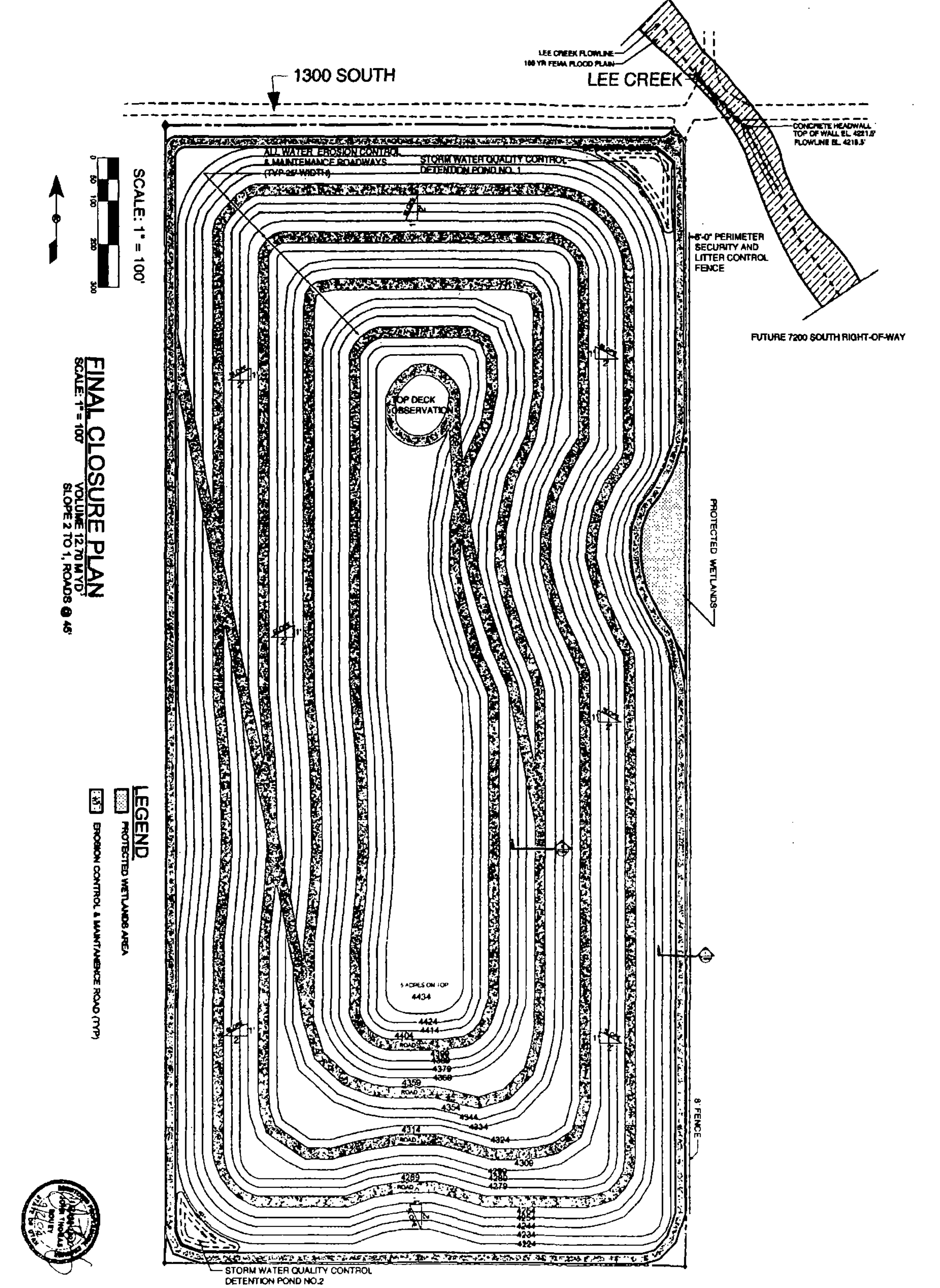
PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER | DATE | DESCRIPTION

SHEET DESCRIPTION
SHEET INDEX
LOCATION &
VICINITY MAP

PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008
SHEET NUMBER
G1001

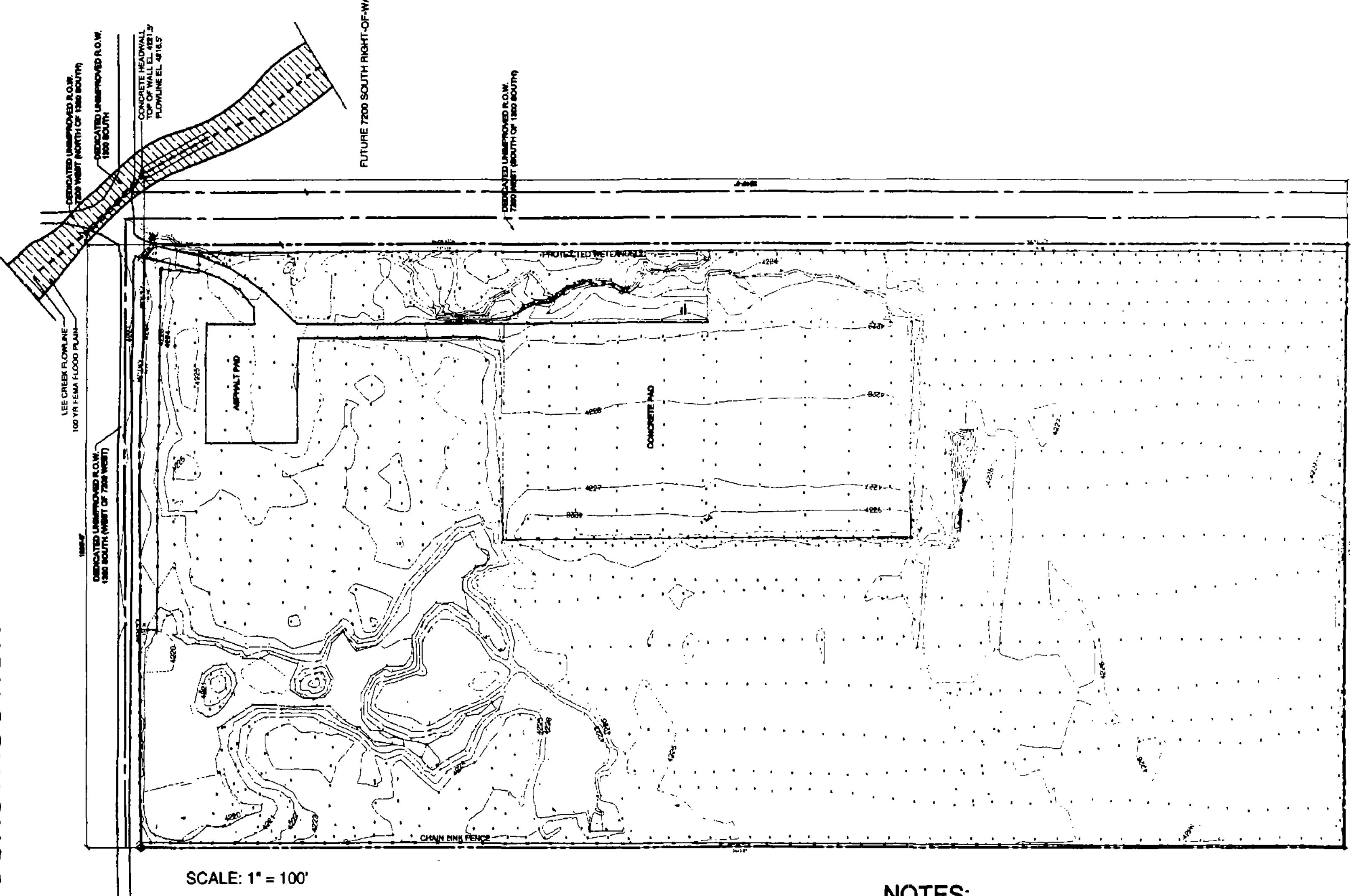
NOT FOR CONSTRUCTION



NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1006 PROJECT DATE 09/2008 SHEET NUMBER G1002	SHEET DESCRIPTION SITE PLAN @ FINAL CLOSURE	DATE	DESCRIPTION	NUMBER	PROJECT CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO, CA

NOT FOR CONSTRUCTION



SCALE: 1" = 100'

EXISTING CONTOURS & PROPERTY LINES

SCALE 1" = 100'

0 50 100 200 300

NOTES:

A. POND ELEVATION WATER SURFACE 4220' MSL
B. AVERAGE SITE ELEVATION 4226'
1. DIFFERENCE IN BOUNDARY'S CVWRF V. BASELINE SURVEYING INC.
2. NEED 7200 WEST R.O.W. WIDTH
3. NEED 1300 SOUTH R.O.W. WIDTH
4. NEED ADDITIONAL SURVEY AT LEE CREEK HEADWALL
5. 100 YR. FEMA FLOOD PLAIN ELEVATION 4223.5 M.S.L.

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

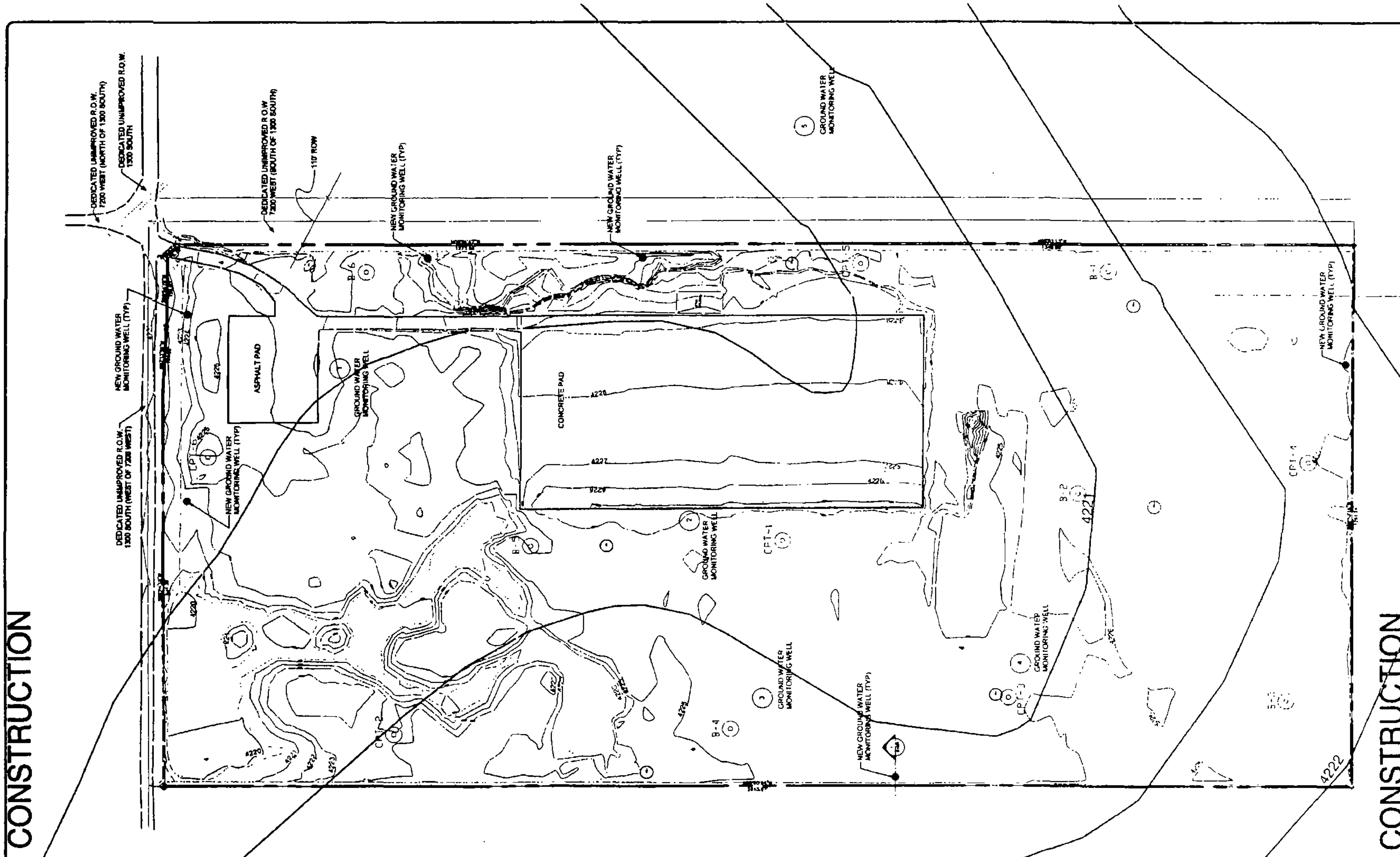
PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION
EXISITNG
CONTOURS
& PROPERTY
LINES

PROJECT NUMBER: BASP 1006
PROJECT DATE: 09/2008
SHEET NUMBER
G1003

NOT FOR CONSTRUCTION



RECOMMENDED GROUND WATER MONITORING WELL LOCATIONS

SCALE 1" = 100'

0 50 100 200 300

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

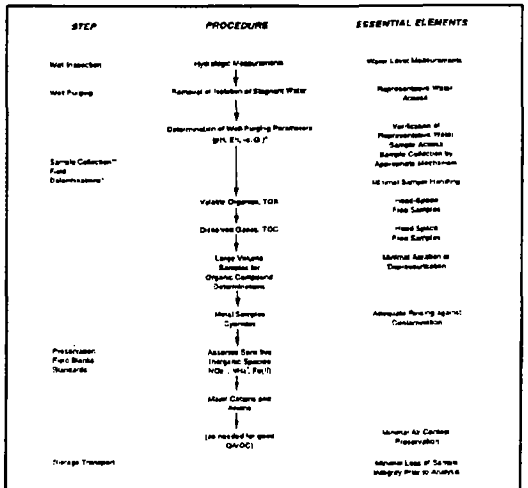
PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

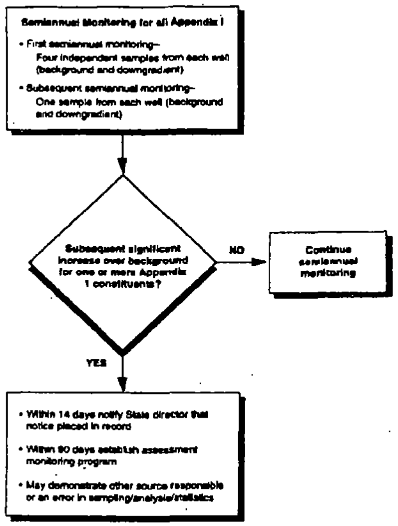
SHEET DESCRIPTION: RECOMMENDED GROUND WATER MONITORING LOCATIONS

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2002
SHEET NUMBER: G1004

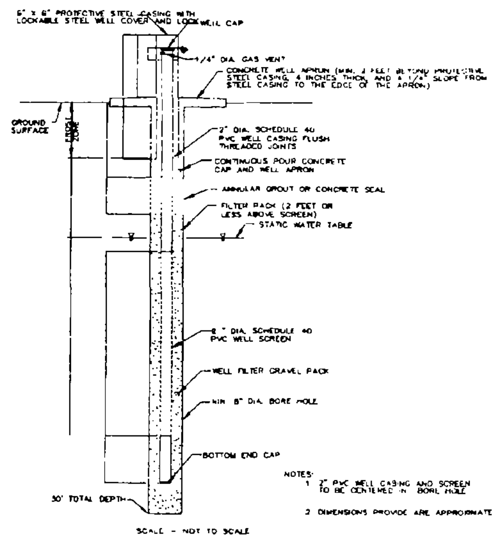
NOT FOR CONSTRUCTION



SCHEMATIC FLOW DIAGRAM OF GROUND WATER SAMPLING STEPS



DETECTION MONITORING PROGRAM



1 G1005 SECTION MONITORING WELL SINGLE CASED WALL

Ground Water Monitoring Well Design Requirements

1. All existing ground water monitoring wells shall be grout filled, capped, and abandoned.
2. The screen in the ground water monitoring well must extend a minimum of fifteen feet into the ground water unless hydrogeology conditions warrant otherwise. The screen must extend a minimum of one (1) foot above the seasonal high water table.
3. A five (5) foot solid section of pipe should extend below the perforations.
4. The well must be capped at both ends.
5. The top of the well must be protected from damage and vandalism. Where subject to traffic there must be an appropriate box. If subject to flooding, the top of the well should extend a minimum of twelve (12) inches above the ground surface with an appropriate cover. In all locations a locking device must be provided.
6. There shall be a seal surrounding the well casing to prevent the flow of surface water in and along the edge of the bore hole. A bentonite plug of no greater than two foot thickness shall be placed directly above the gravel pack. The annulus must be sealed from the bentonite plug to the surface with cement and bentonite mixture.
7. An upgradient groundwater monitoring well shall be located at the most distant upgradient point of the facility property, but not more than 250 feet from the outer edge of the land disposal system.
8. A downgradient groundwater monitoring well shall be located at least 10 feet and not more than 50 feet from the outer edge of the land disposal system and in the direction of the underground flow of the pollutant plume.
9. Casing must have a minimum inside diameter of two inches.
10. All monitoring wells must be drilled by a water well driller licensed in the State of Utah.
11. Monitoring wells constructed pursuant to Salt Lake City/County Health Department Environmental Health Division permit require design approval prior to well construction.
12. All monitoring well construction require a waiver from Salt Lake City/County Health Department Environmental Health Division

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

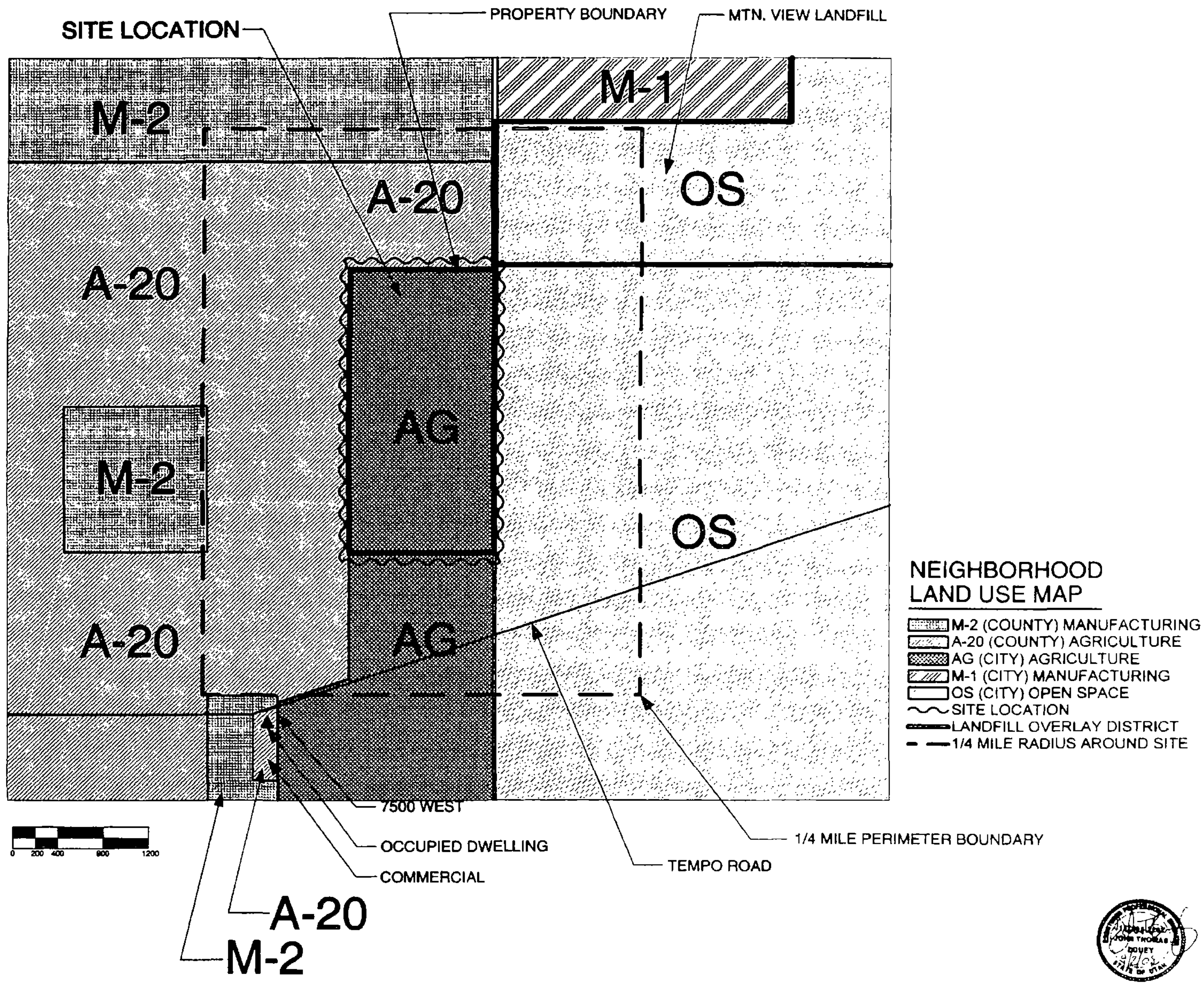
PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION:
GROUND
WATER
MONITORING
WELL
INSTALLATION

PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008
SHEET NUMBER
G1005

NOT FOR CONSTRUCTION



NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

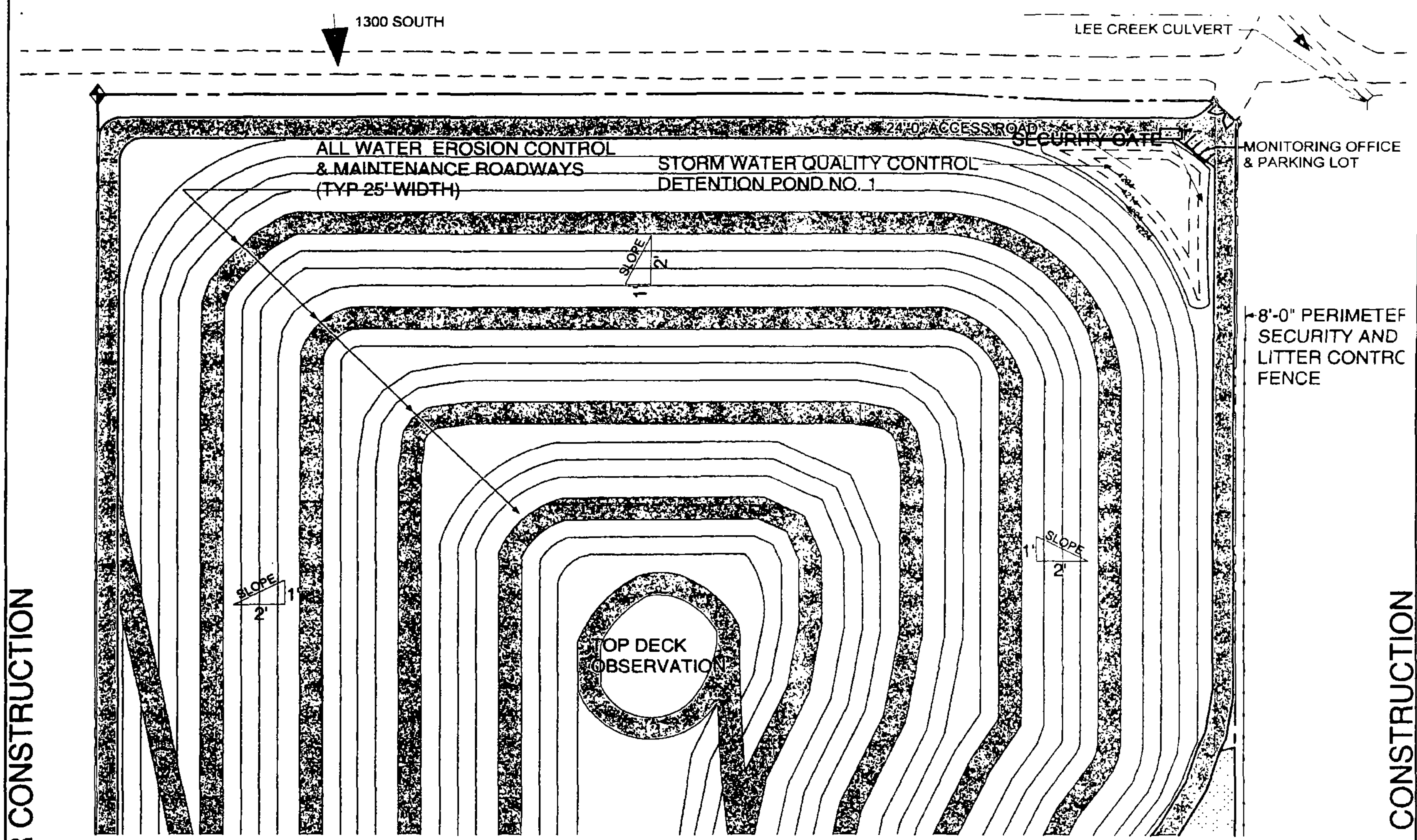
PROJECT.
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH 84104
CENTRAL VALLEY WATER

NUMBER	DESCRIPTION	DATE

SHEET DESCRIPTION
NON
COMPATABLE
USES MAP

PROJECT NUMBER BASP 1006
PROJECT DATE 02/2006
SHEET NUMBER
G1006

NOT FOR CONSTRUCTION



GRADING PARTIAL PLAN NORTH @ CLOSURE

SCALE 1" = 50'

0 25 50 100 150

LEGEND

- PROTECTED WETLANDS AREA
- EROSION CONTROL & MAINTANENCE ROAD (TYP)

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS SAN LUIS OBISPO CA

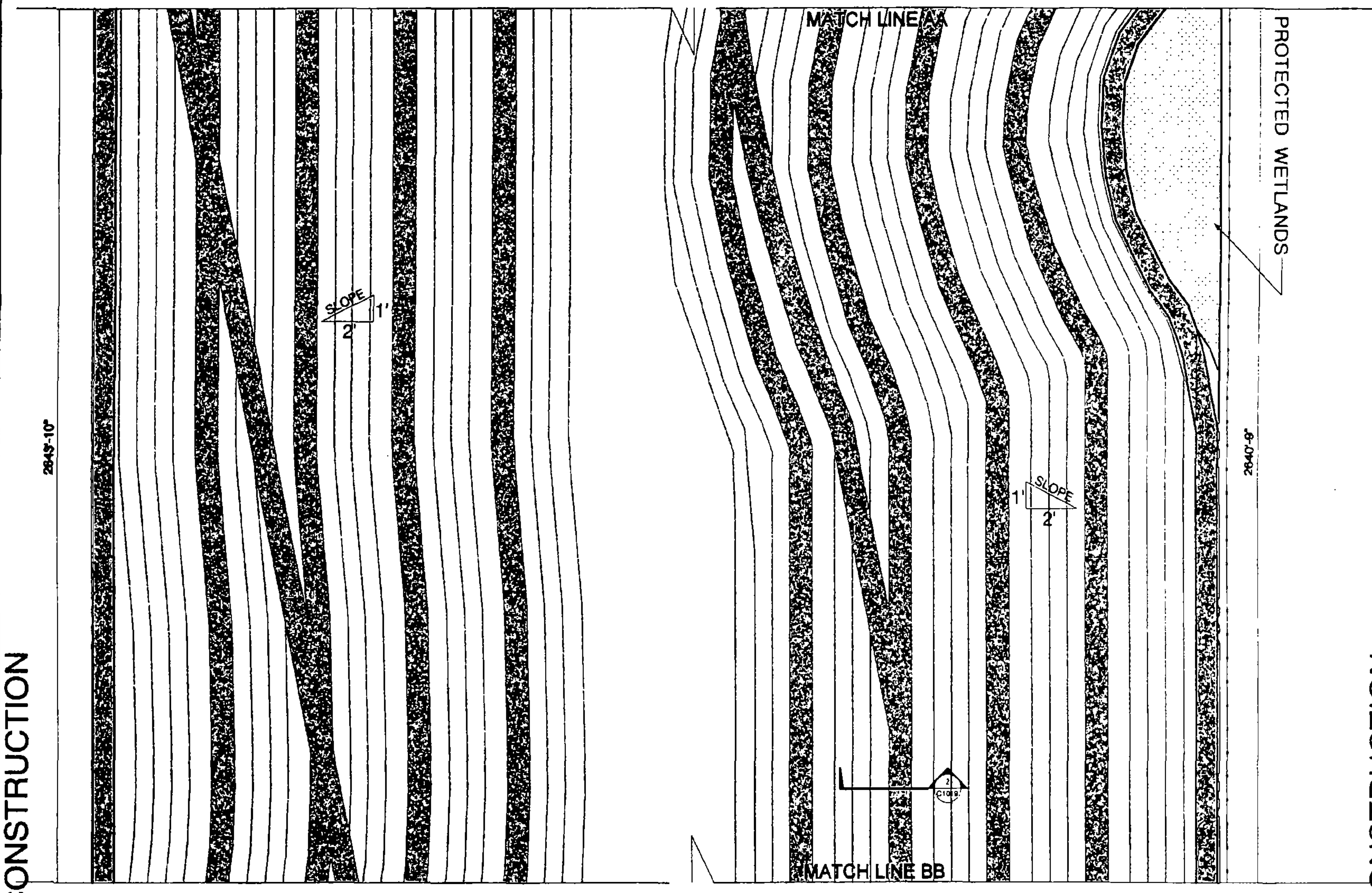
PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION: FINAL GRADING PLAN (1)

PROJECT NUMBER: BASP 1006
PROJECT DATE: 09/2008
SHEET NUMBER: C1001

NOT FOR CONSTRUCTION



GRADING PARTIAL PLAN CENTRAL @ CLOSURE

SCALE 1" = 50'

0 25 50 100 150

LEGEND

PROTECTED WETLANDS AREA

EROSION CONTROL & MAINTANENCE ROAD (TYP)

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

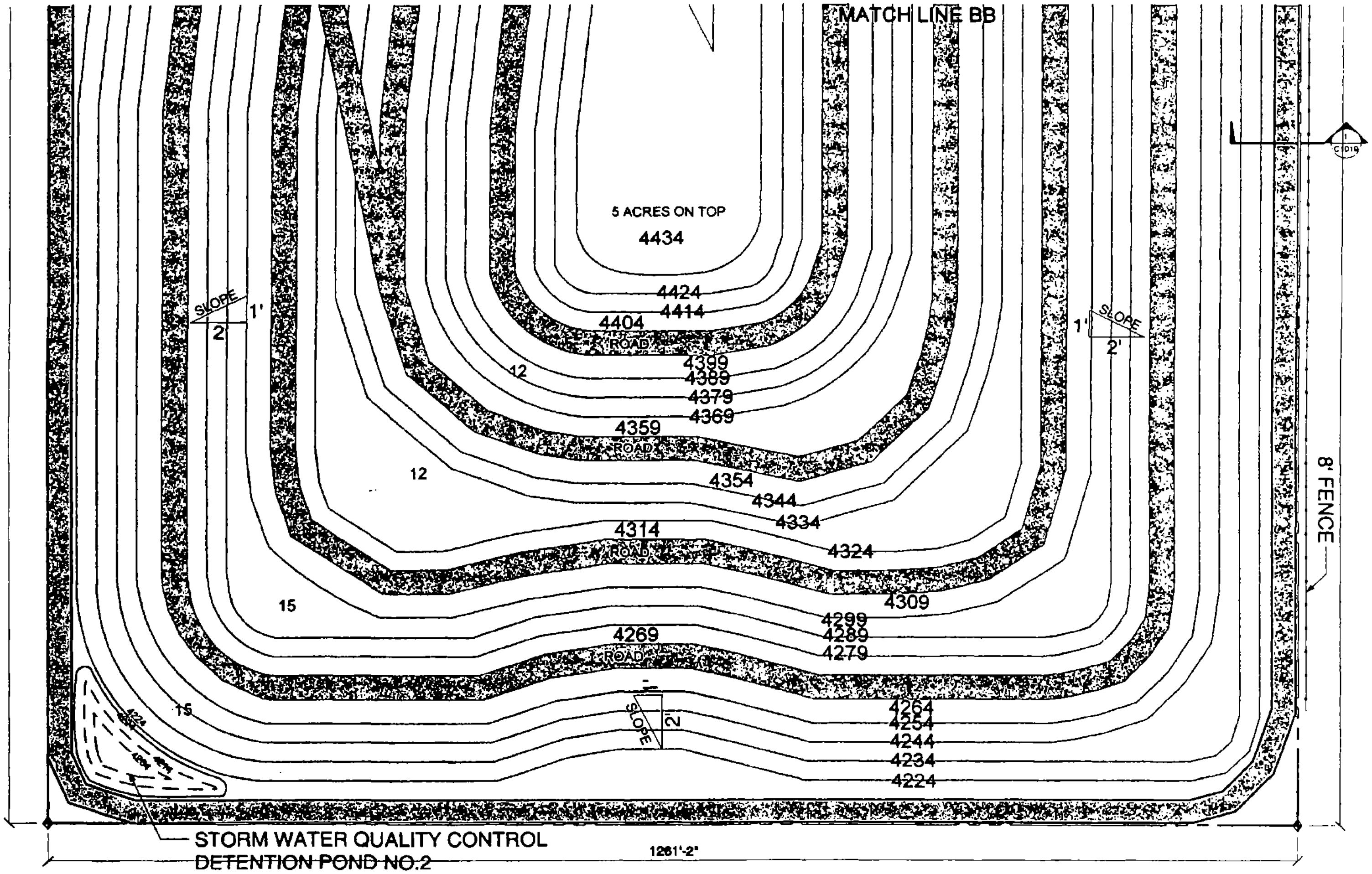
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION
FINAL GRADING PLAN (2)

PROJECT NUMBER: BASP 1006
PROJECT DATE: 09/2008
SHEET NUMBER
C1002

NOT FOR CONSTRUCTION



GRADING PARTIAL PLAN
SOUTH @ CLOSURE

SCALE 1" = 50'

0 25 50 100 150

LEGEND

- PROTECTED WETLANDS AREA
- EROSION CONTROL & MAINTANENCE ROAD (TYP)

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

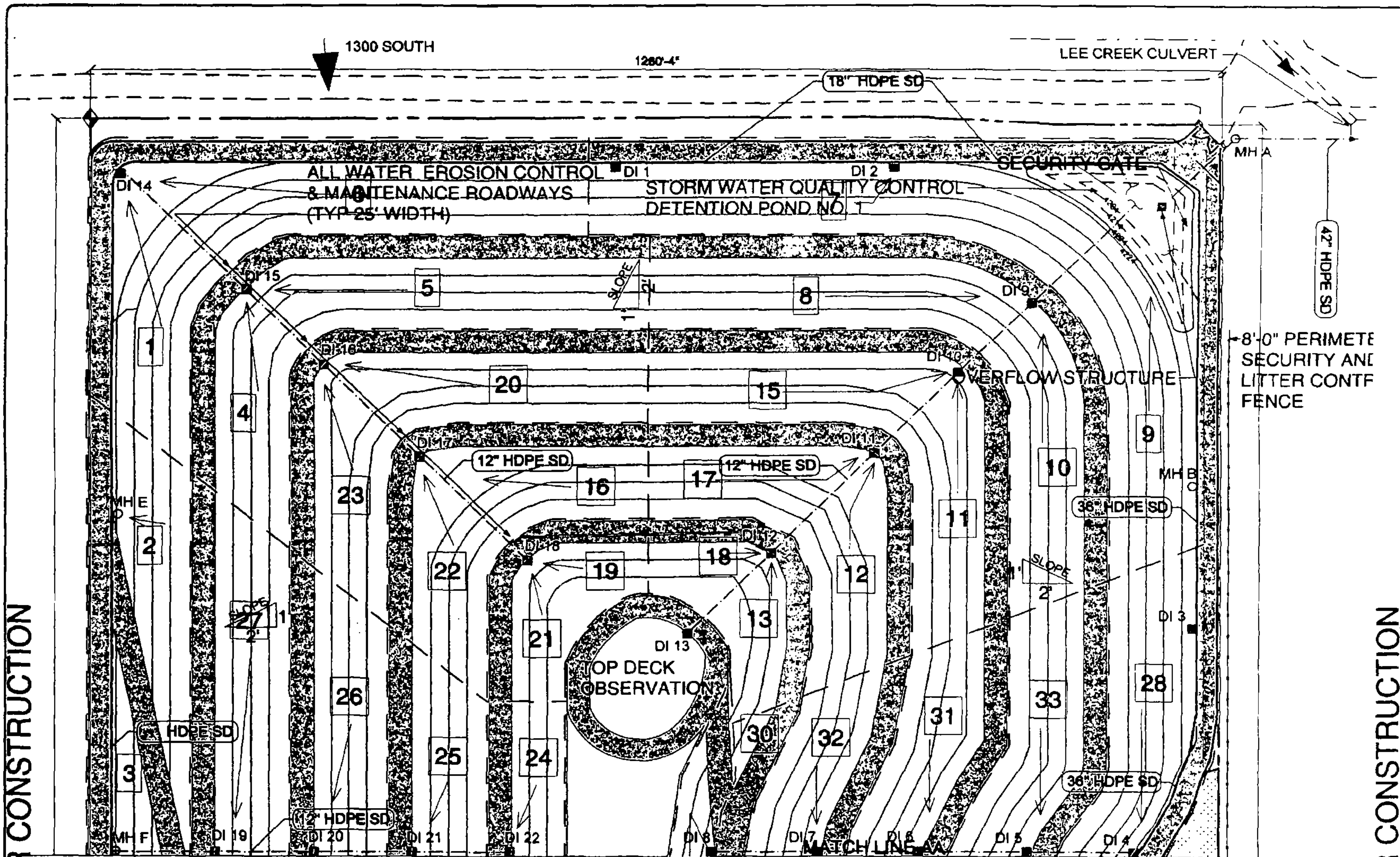
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION
FINAL GRADING
PLAN (3)

PROJECT NUMBER: BASP 100e
PROJECT DATE 09/2008
SHEET NUMBER
C1003

NOT FOR CONSTRUCTION



DRAINAGE PARTIAL PLAN NORTH @ CLOSURE

SCALE 1" = 50'

0 25 50 100 150

LEGEND

- PROTECTED WETLANDS AREA (SUBJECT TO VERIFACTION AND CERTIFICATION)
- DROP INLET
- HDPE SYSTEM

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

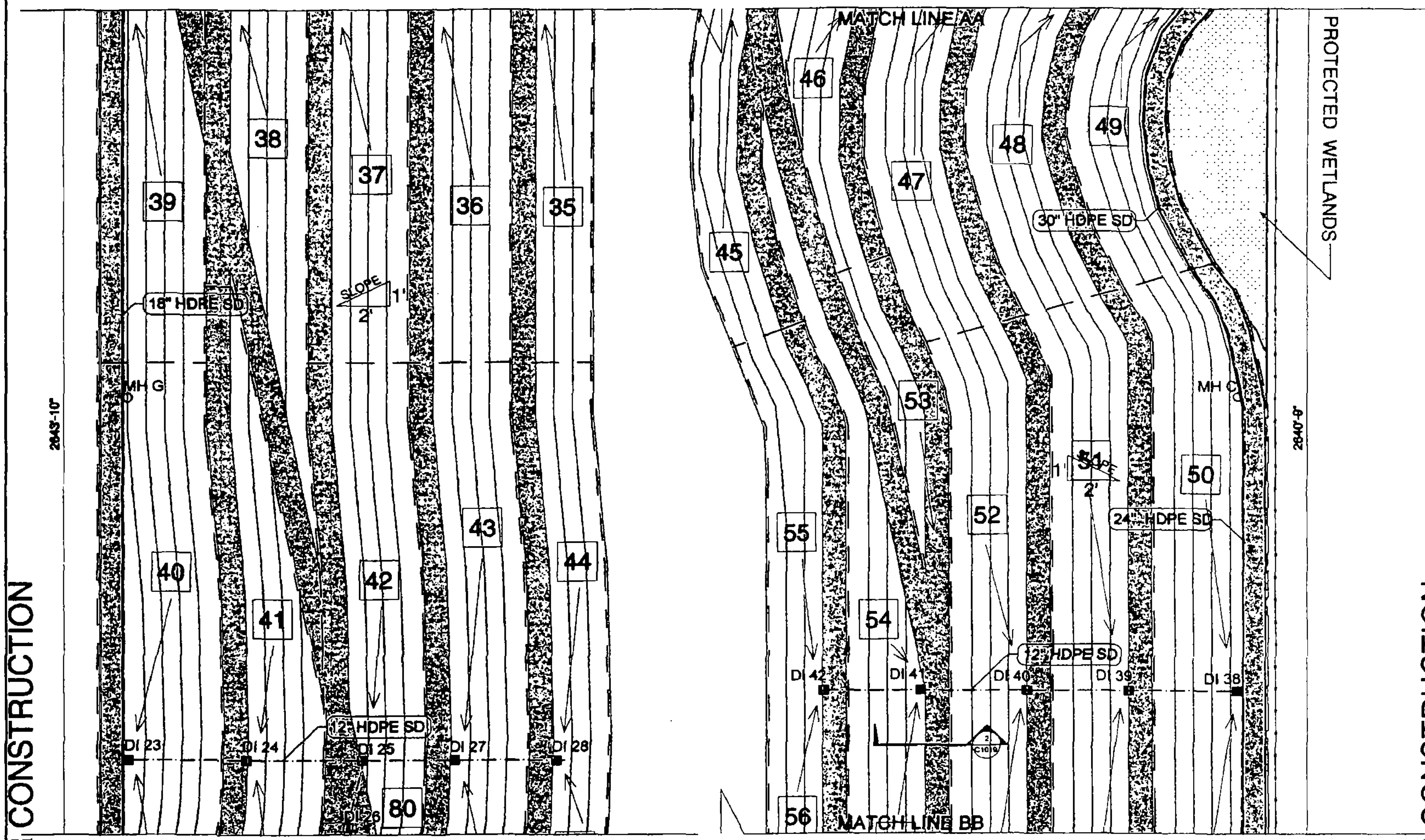
SHEET DESCRIPTION: FINAL DRAINAGE PLAN (1)

PROJECT NUMBER: BASP 1006

PROJECT DATE: 09/2008

SHEET NUMBER: C1004

NOT FOR CONSTRUCTION



DRAINAGE PARTIAL PLAN CENTRAL @ CLOSURE

SCALE 1" = 50'

0 25 50 100 150

LEGEND

PROTECTED WETLANDS AREA (SUBJECT TO VERIFACTION AND CERTIFICATION)

DROP INLET

HDPE SYSTEM

NOT FOR CONSTRUCTION

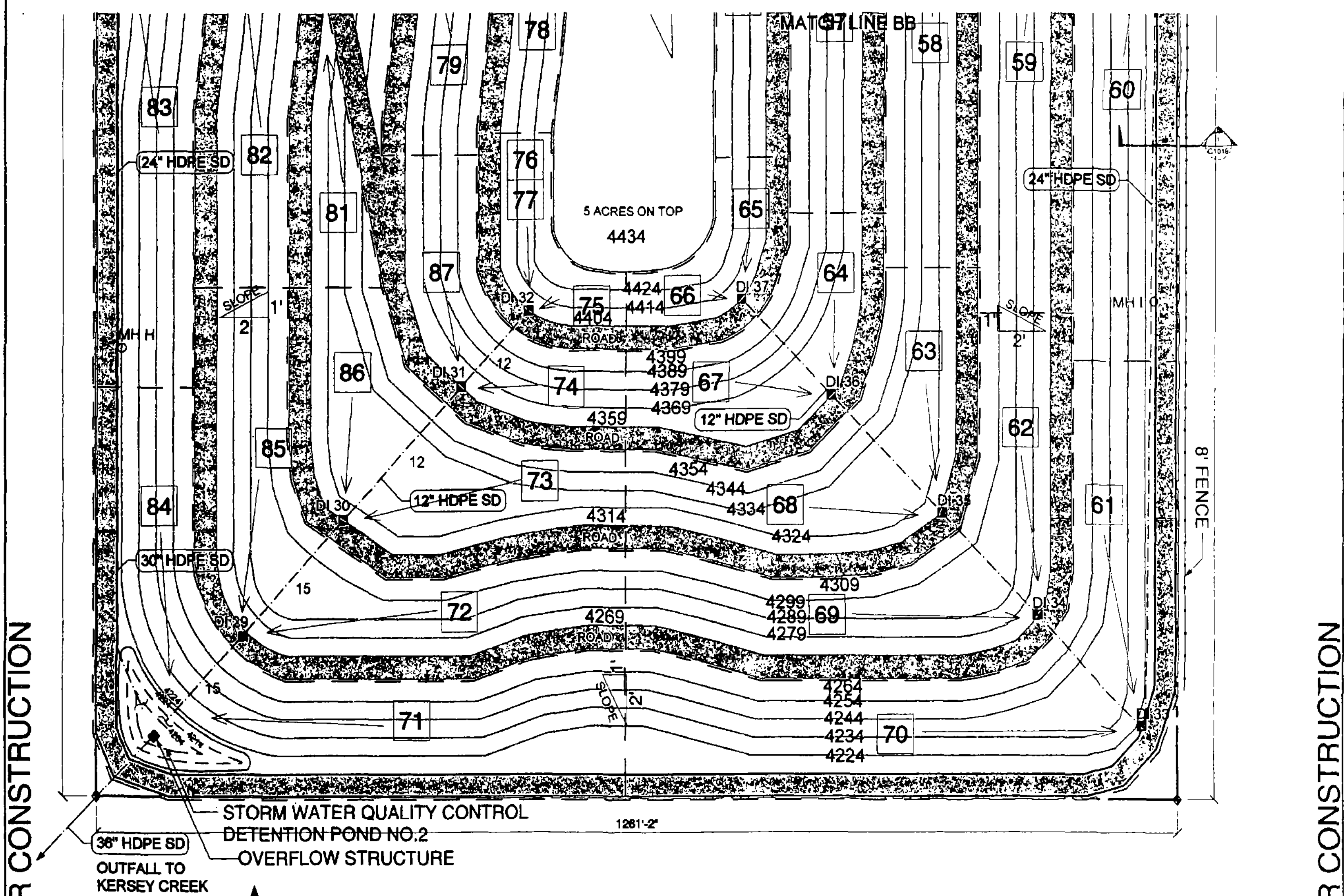
BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

PROJECT
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER | DATE | DESCRIPTION

SHEET DESCRIPTION
FINAL DRAINAGE
PLAN (2)

PROJECT NUMBER BASP 1006
PROJECT DATE 09/2008
SHEET NUMBER
C1005



NOT FOR CONSTRUCTION

DRAINAGE PARTIAL PLAN SOUTH @ CLOSURE

SCALE 1" = 50'

0 25 50 100 150

LEGEND

PROTECTED WETLANDS AREA (SUBJECT TO VERIFACTION AND CERTIFICATION)

DROP INLET

HDPE SYSTEM

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH 84104
CENTRAL VALLEY WATER

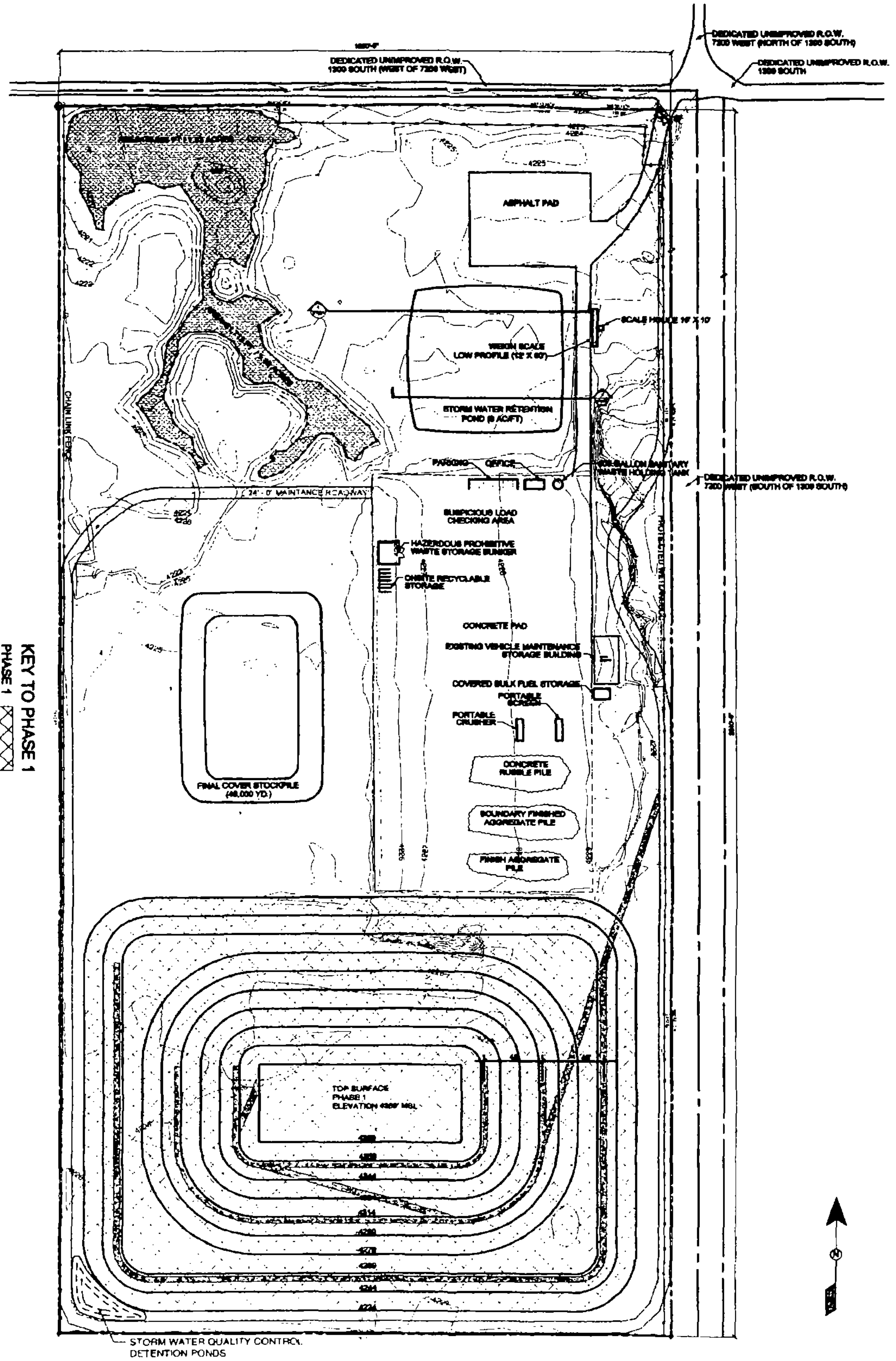
NUMBER | DATE | DESCRIPTION

SHEET DESCRIPTION: FINAL DRAINAGE PLAN (3)

PROJECT NUMBER: BASP 1006

SHEET NUMBER: C1006

NOT FOR CONSTRUCTION



INTERIM GRADING PLAN PHASE 1

SCALE: 1" = 100'

SLOPE 1V:2H

0 50 100 200 300

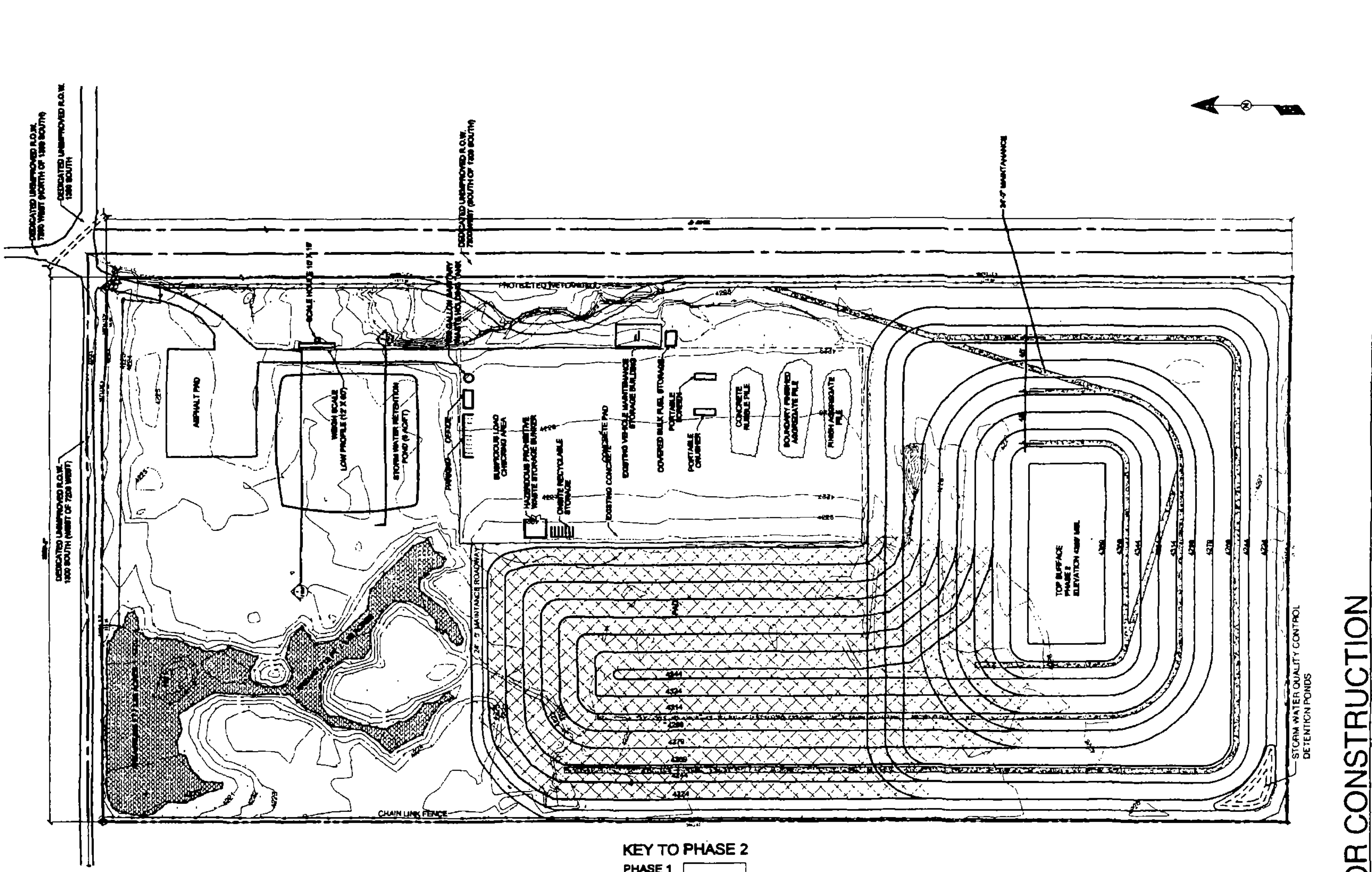
KEY TO PHASE 1

PHASE 1

NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1006 PROJECT DATE: 01/2008 SHEET NUMBER C1007	SHEET DESCRIPTION INTERIM GRADING PLAN PHASE 1	DATE	DESCRIPTION	NUMBER	PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO CA

NOT FOR CONSTRUCTION



INTERIM GRADING PLAN PHASE 2

SCALE: 1" = 100' SLOPE 1V:2H

0 50 100 200 300

KEY TO PHASE 2

PHASE 1

PHASE 2

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

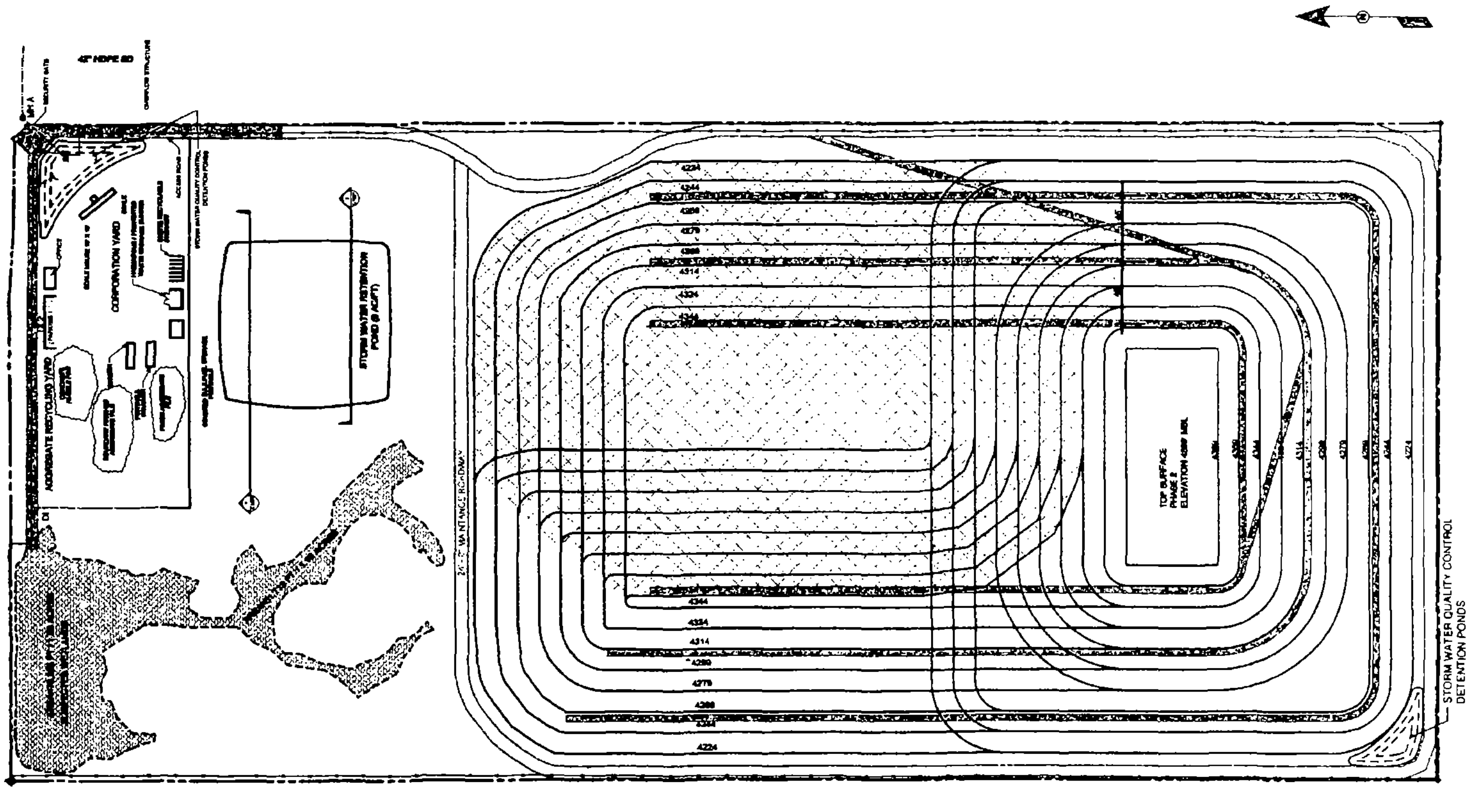
PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION
INTERIM
GRADING PLAN
PHASE 2

PROJECT NUMBER: BASP 1006
PROJECT DATE 01/2008
SHEET NUMBER
C1008

NOT FOR CONSTRUCTION



INTERIM GRADING PLAN PHASE 3

SCALE: 1" = 100'　　SLOPE 1V:2H

0　50　100　200　300

KEY TO PHASE 3

PHASE 1

PHASE 2

PHASE 3

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
2301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

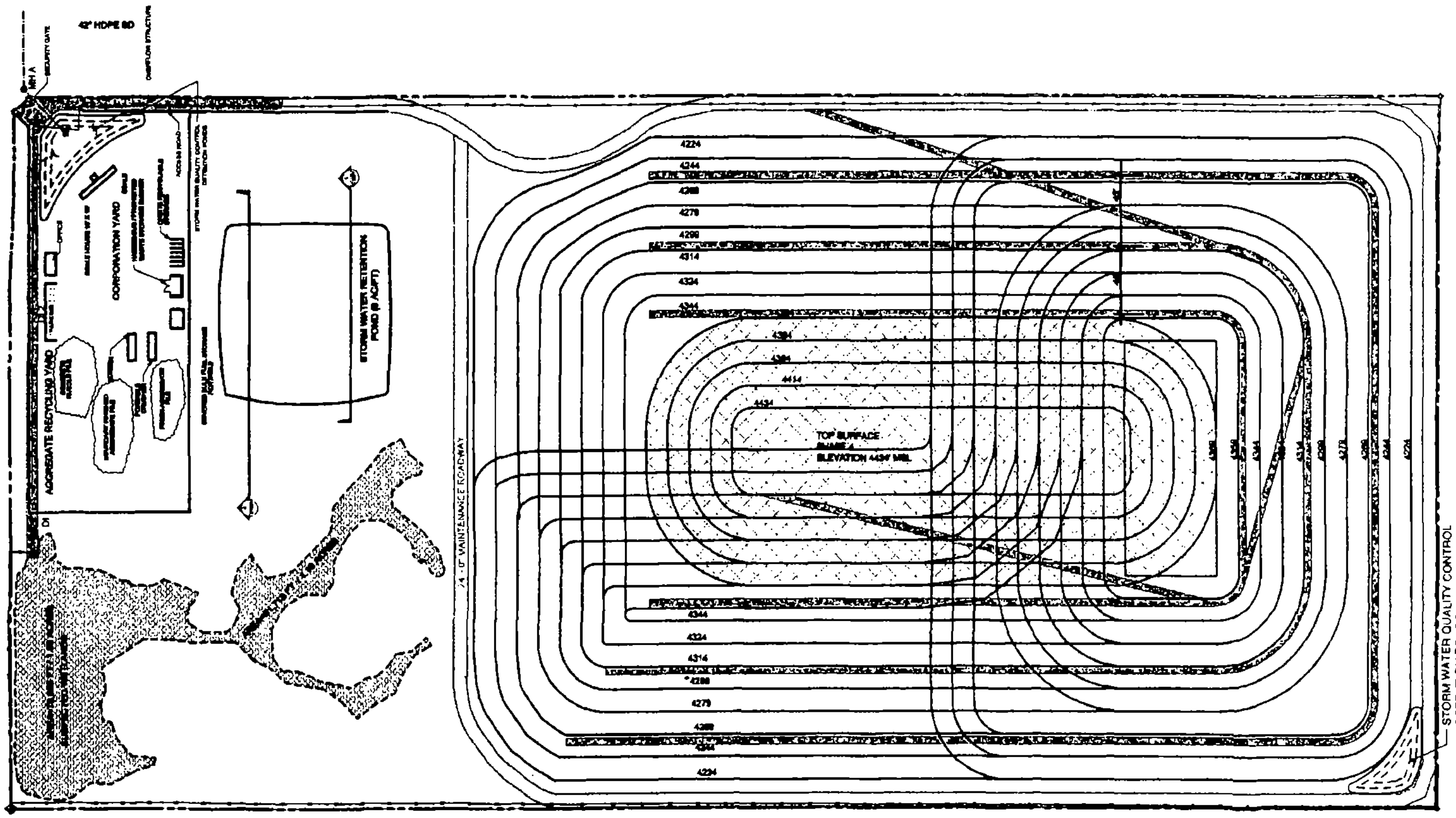
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION
INTERIM
GRADING PLAN
PHASE 3

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2008
SHEET NUMBER
C1009

NOT FOR CONSTRUCTION



INTERIM GRADING PLAN PHASE 4

SCALE: 1" = 100'   SLOPE 1V:2H

0 50 100 200 300

KEY TO PHASE 4

PHASE 1

PHASE 2

PHASE 3

PHASE 4

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

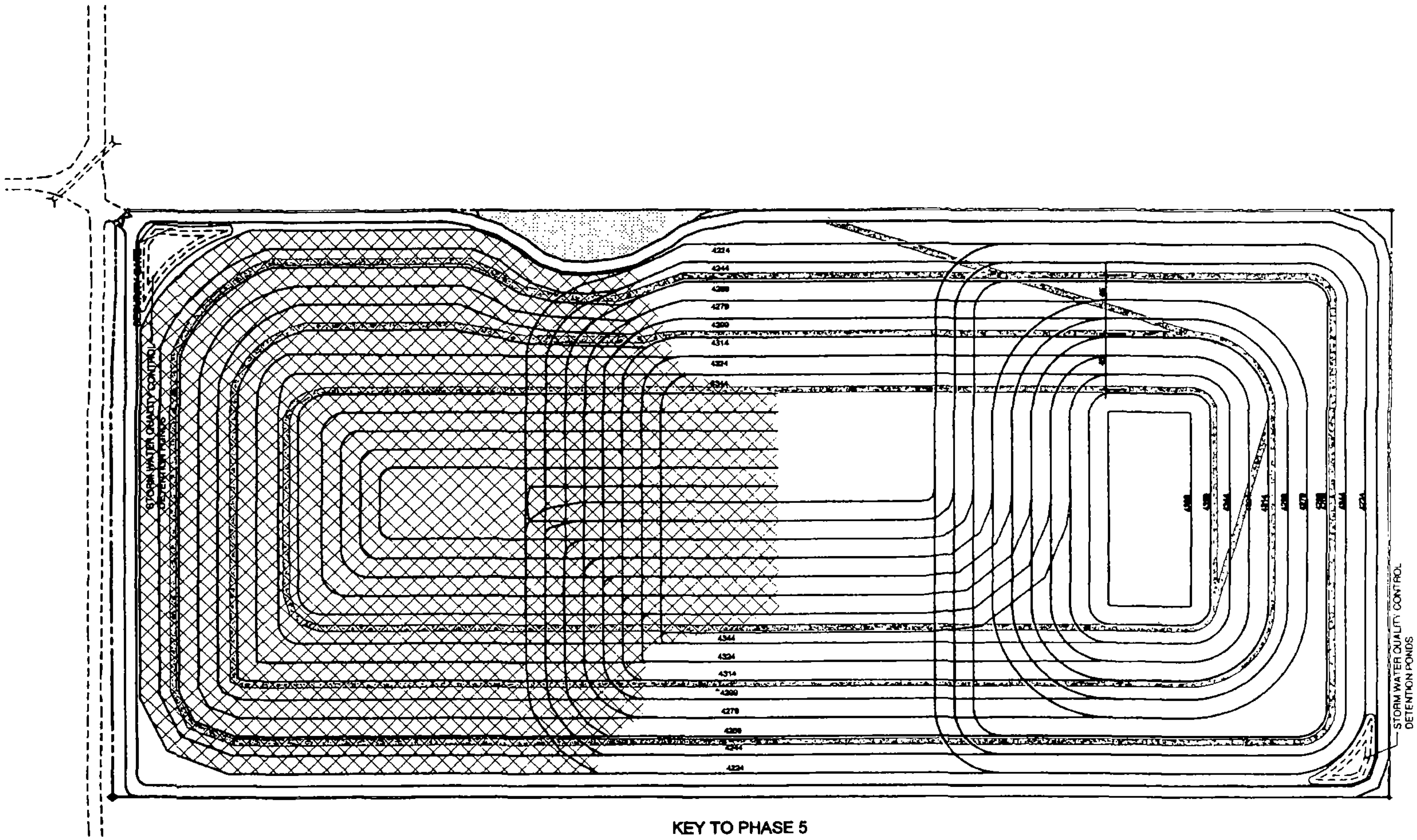
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION
INTERIM
GRADING PLAN
PHASE 4

PROJECT NUMBER: BASP 1006
PROJECT DATE 01/2008
SHEET NUMBER
C1010

NOT FOR CONSTRUCTION



INTERIM GRADING PLAN PHASE 5

SCALE: 1" = 100'   SLOPE 1V:2H

0 50 100 200 300

KEY TO PHASE 5

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

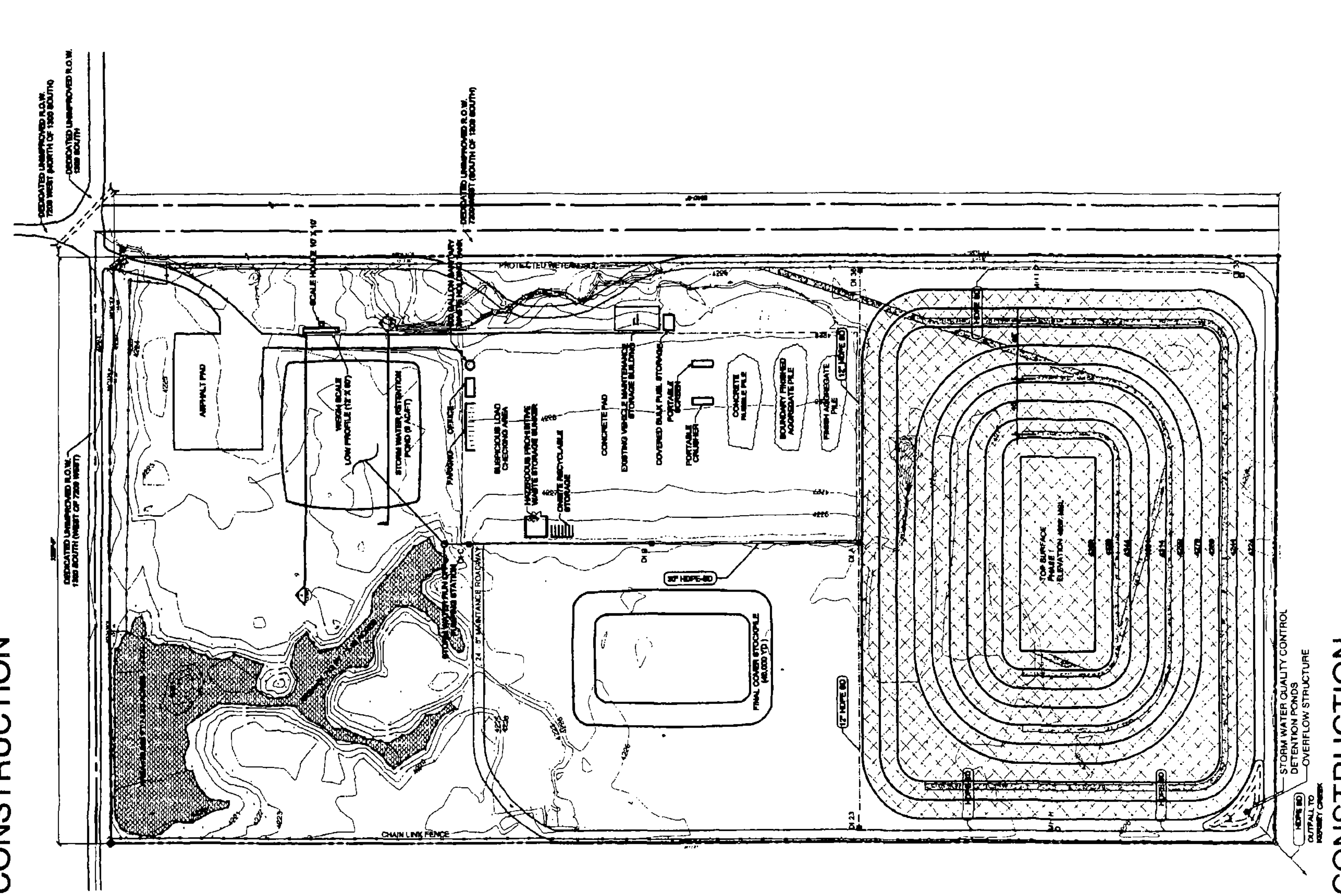
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION: INTERIM GRADING PLAN PHASE 5

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2006
SHEET NUMBER: C1011

NOT FOR CONSTRUCTION



INTERIM DRAINAGE PLAN PHASE 1

SCALE: 1" = 100'

0 50 100 200 300

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

PROJECT

CONSTRUCTION DEMOLITION
WASTE LANDFILL

7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH 84104

CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION

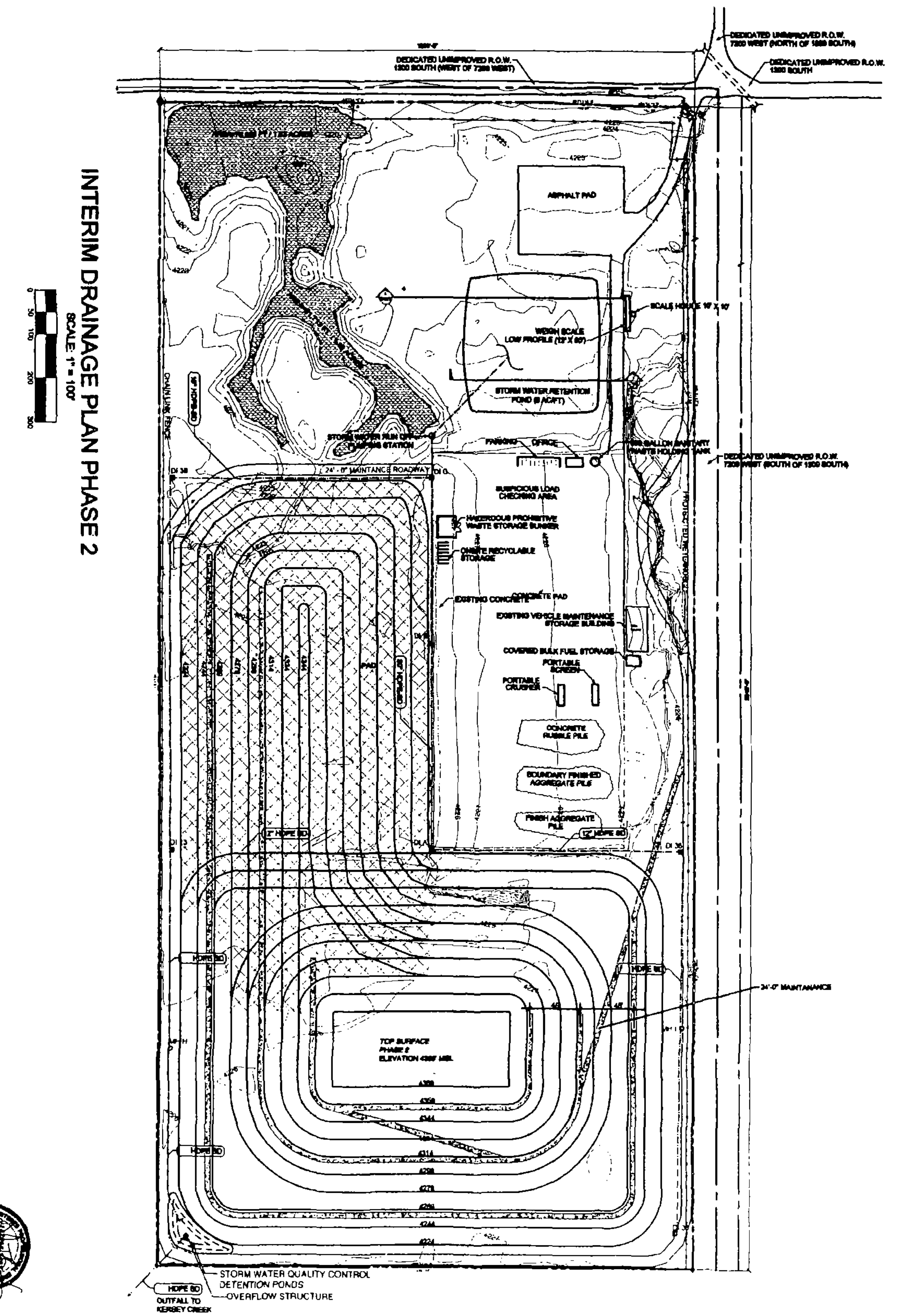
INTERIM
DRAINAGE PLAN
PHASE 1

PROJECT NUMBER BASP 1006
PROJECT DATE 01/2002
SHEET NUMBER

C1012

JOHN THOMAS BOVEY
STATE OF UTAH

NOT FOR CONSTRUCTION



INTERIM DRAINAGE PLAN PHASE 2

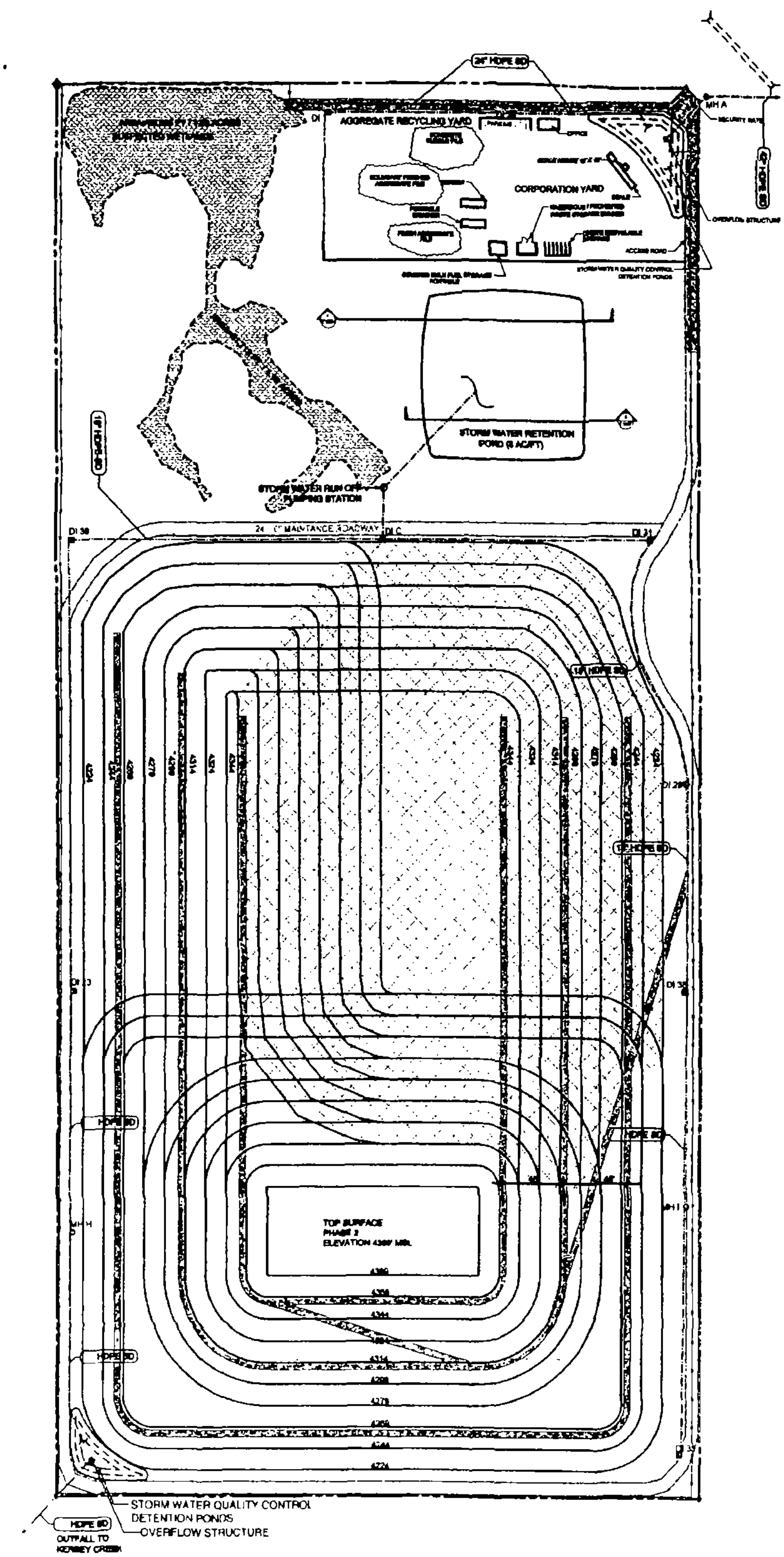
SCALE: 1" = 100'

0 50 100 200 300

NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1006 PROJECT DATE 01/2008 SHEET NUMBER C1013	SHEET DESCRIPTION INTERIM DRAINAGE PLAN PHASE 2	DATE	DESCRIPTION	NUMBER	PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO, CA

NOT FOR CONSTRUCTION

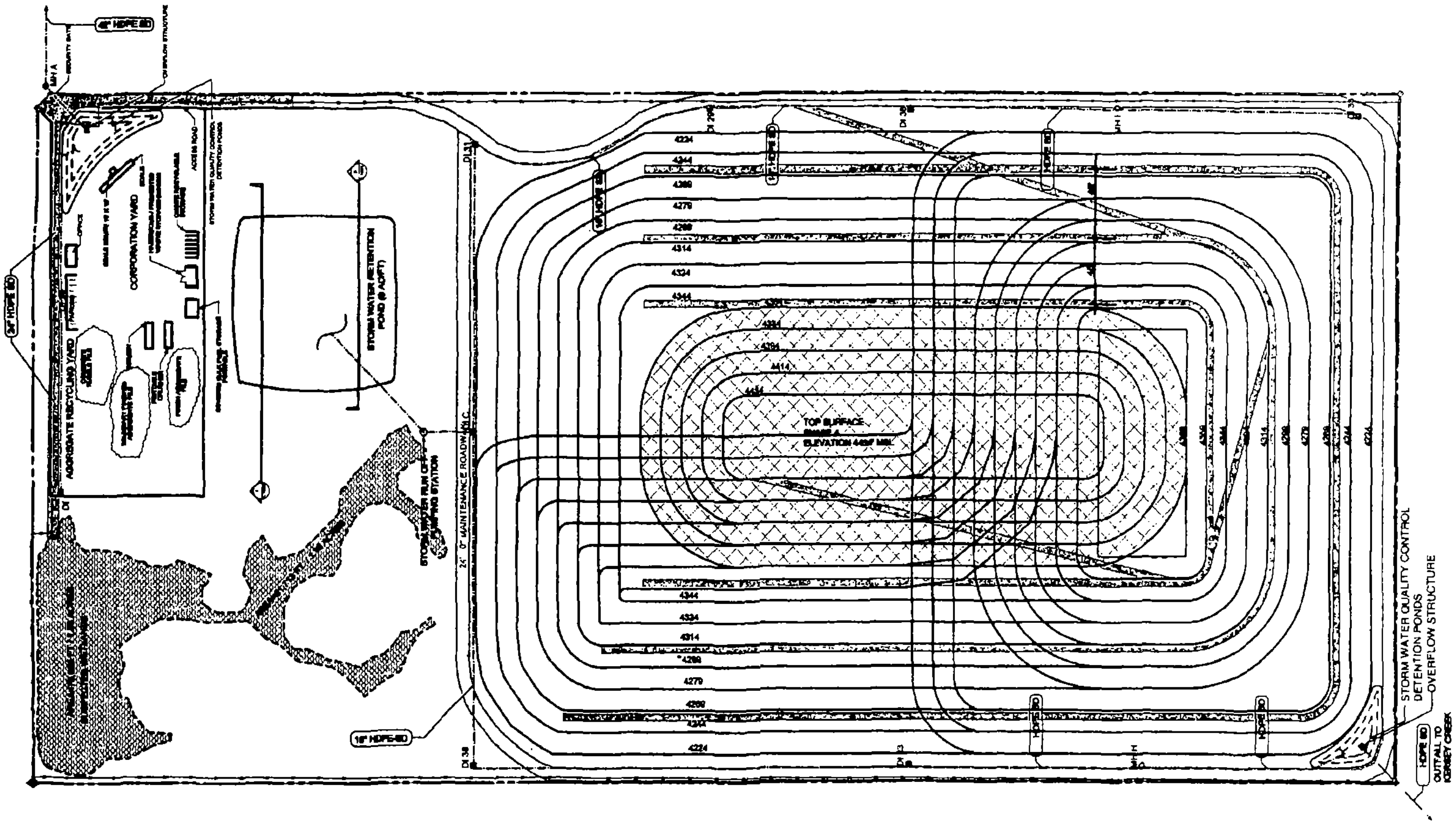


NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 100A PROJECT DATE 01/2006 SHEET NUMBER C1014	SHEET DESCRIPTION INTERIM DRAINAGE PLAN PHASE 3	DATE	DESCRIPTION	NUMBER	PROJECT CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

NOT FOR CONSTRUCTION



INTERIM DRAINAGE PLAN PHASE 4

SCALE: 1" = 100'

0 50 100 200 300

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

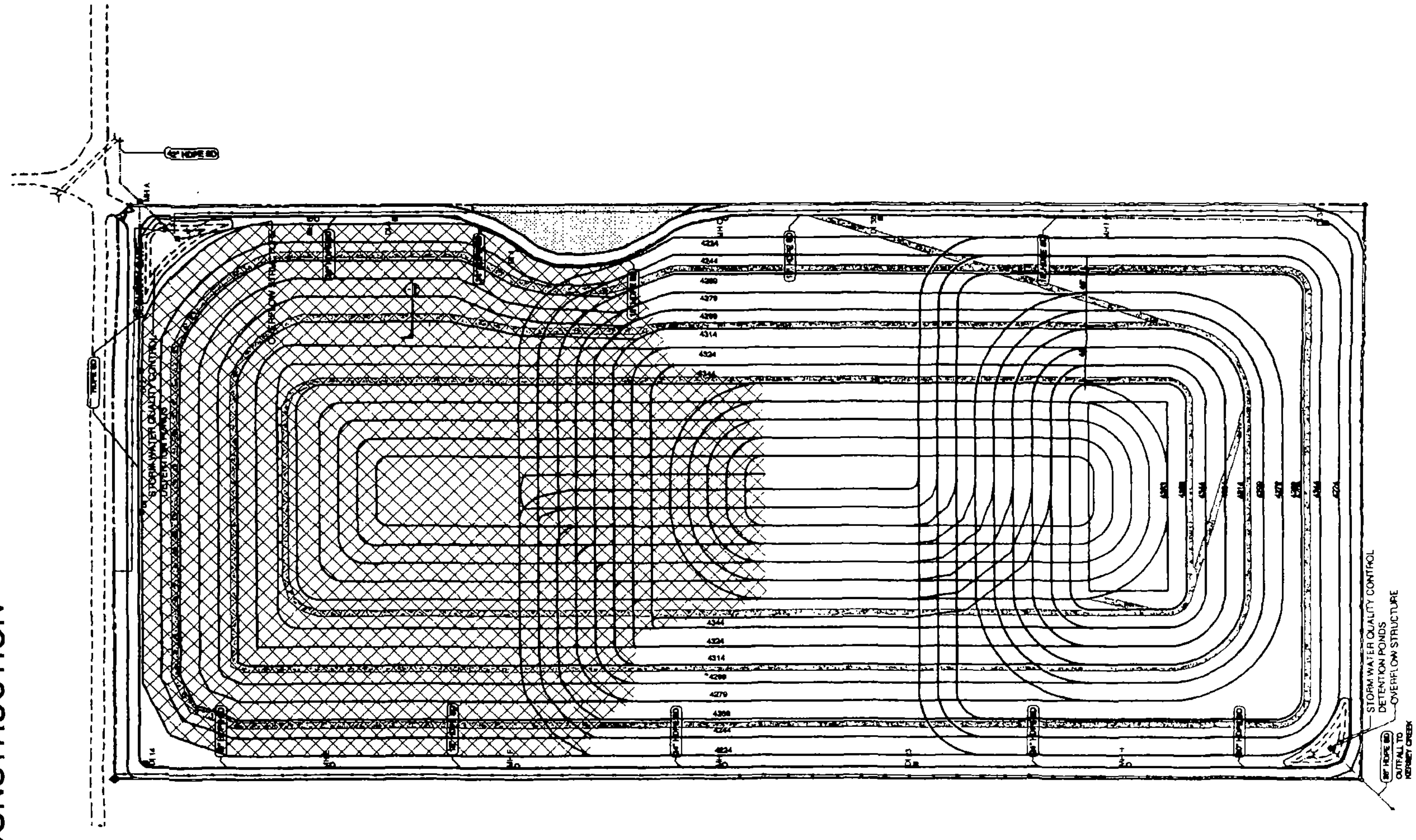
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION
INTERIM
DRAINAGE PLAN
PHASE 4

PROJECT NUMBER: BASP 1006
PROJECT DATE 01/2008
SHEET NUMBER
C1015

NOT FOR CONSTRUCTION



INTERIM DRAINAGE PLAN PHASE 5

SCALE: 1" = 100'

0 50 100 200 300

NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1056

PROJECT DATE: 01/2006

SHEET NUMBER

C1016

SHEET DESCRIPTION

INTERIM DRAINAGE PLAN PHASE 5

DATE	DESCRIPTION	NUMBER

PROJECT:

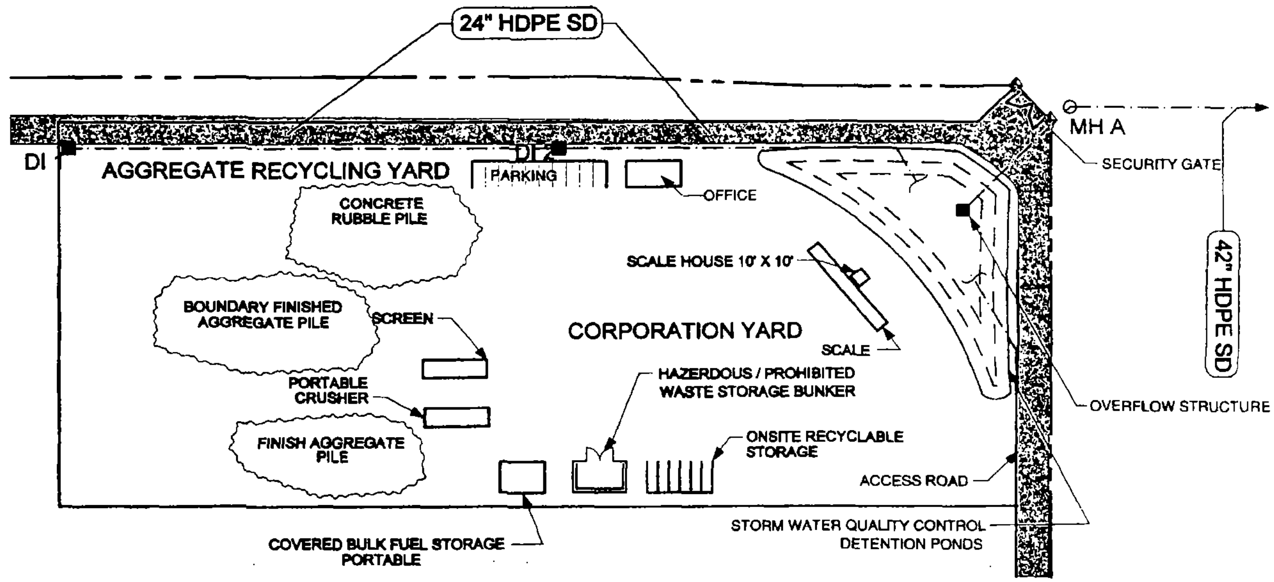
CONSTRUCTION DEMOLITION WASTE LANDFILL

7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

CENTRAL VALLEY WATER

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

NOT FOR CONSTRUCTION



CORPORATION / AGGREGATE RECYCLING YARD

SCALE 1" = 40'

0 20 40 80 120

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

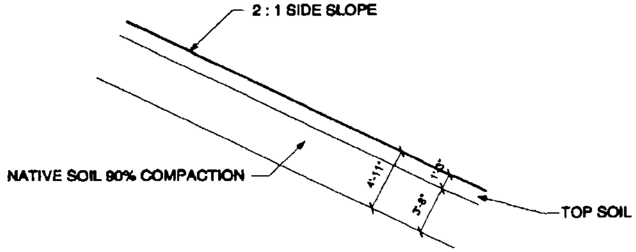
PROJECT:
CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

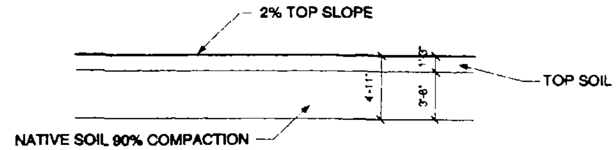
SHEET DESCRIPTION
CORPORATION / AGGREGATE RECYCLING YARD

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2008
SHEET NUMBER
C1017

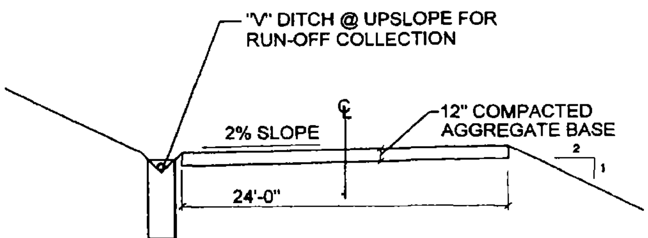
NOT FOR CONSTRUCTION



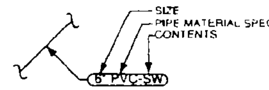
SIDE SLOPE
FINAL COVER LAYER
TYPICAL CROSS SECTION



TOP SLOPE
FINAL COVER LAYER
TYPICAL CROSS SECTION



2 / G1002 FILL/SLOPE ACCESS ROAD CROSS SECTION (TYP)
SCALE 1/4" = 1'-0"



PIPING LEGEND

SW	STORMWATER
L	LEACHATE
AA	AERATION AIR
W	WATER
CIP	CAST IRON PIPE
PVC	POLYVINYL CHLORIDE PIPE (C900)
HDPE	HIGH-DENSITY POLYETHYLENE

ABBREVIATIONS

BASP	BAY AREA SOIL PRODUCTS
ID	INSIDE DIMENSION
OD	OUTSIDE DIMENSION
OC	ON CENTER
CO	CLEAN OUT
MH	MAN HOLE
DI	DROP INLET

NOTES:

1. OWNER / OPERATOR SHALL CONTAIN ALL GENERATED STORM WATER ON IT'S OWN PROPERTY. UNCONTAMINATED SURFACE WATER RUN-OFF SHALL BE ROUTED TO AN APPROVED SALT LAKE COUNTY STORM DRAINAGE SYSTEM.

2. OWNER / OPERATOR SHALL GRADE SITE IN ACCORDANCE WITH APPROVED SITE GRADING AND DRAINAGE PLANS TO PREVENT DISCHARGE OF ANY RUN-OFF ON TO ADJACENT PROPERTIES.

3. SALT LAKE CITY WILL NOT ASSUME ANY RESPONSIBILITY / LIABILITY FOR MAINTANENCE OF THE POND OR ON-SITE STORM DRAINAGE SYSTEM.

JOHN THOMAS BODEY
STATE OF UTAH

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DESCRIPTION	DATE

SHEET DESCRIPTION
GRADING
SECTIONS &
DETAILS

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2008
SHEET NUMBER
C1019

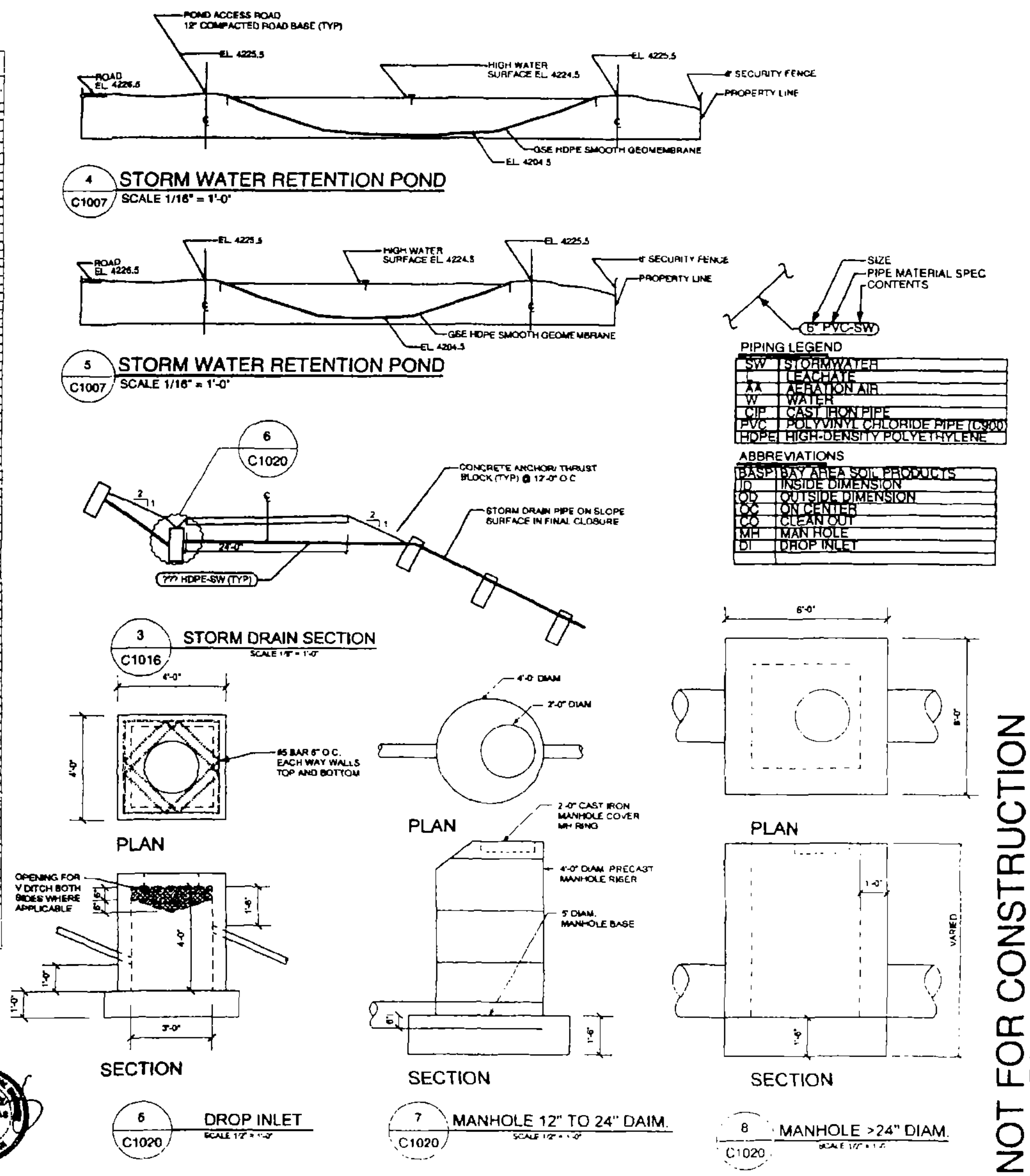
RUN-OFF COLLECTION SYSTEM FLOWS PIPE SIZES AND CAPACITIES (SDSHW)

STORM WATER FACILITY		DROP INLET NUMBER							PIPE LINE DESIGN		
									CAPACITY, CFS	PIPE SIZE, IN	MAXIMUM VELOCITY, FT/SEC
LINE 1											
		[illegible]	[illegible]	[illegible]	19	DI-F					
	AREA, AC	1.47	[illegible]	1.72	1.10	1.16					
	SUM AREA, AC	1.47	[illegible]	[illegible]	[illegible]	7.87					
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
	[illegible]			[illegible]	7.[illegible]	[illegible]			7.[illegible]	[illegible]	[illegible]
	[illegible]					[illegible]			[illegible]	[illegible]	[illegible]
LINE 2 – LINE 8, LINE A, LINE A1, LINE B, STORM WATER RETENTION POND 1, SUM ALL FLOW INPUTS, CFS, STORM WATER RETENTION POND 2, SUM ALL FLOW INPUTS, CFS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTES:

1. OWNER / OPERATOR SHALL CONTAIN ALL GENERATED STORM WATER ON IT'S OWN PROPERTY. UNCONTAMINATED SURFACE WATER RUN-OFF SHALL BE ROUTED TO AN APPROVED SALT LAKE COUNTY STORM DRAINAGE SYSTEM.
2. OWNER / OPERATOR SHALL GRADE SITE IN ACCORDANCE WITH APPROVED SITE GRADING AND DRAINAGE PLANS TO PREVENT DISCHARGE OF ANY RUN-OFF ON TO ADJACENT PROPERTIES.
3. SALT LAKE CITY WILL NOT ASSUME ANY RESPONSIBILITY / LIABILITY FOR MAINTANENCE OF THE POND OR ON-SITE STORM DRAINAGE SYSTEM.

NOT FOR CONSTRUCTION



NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

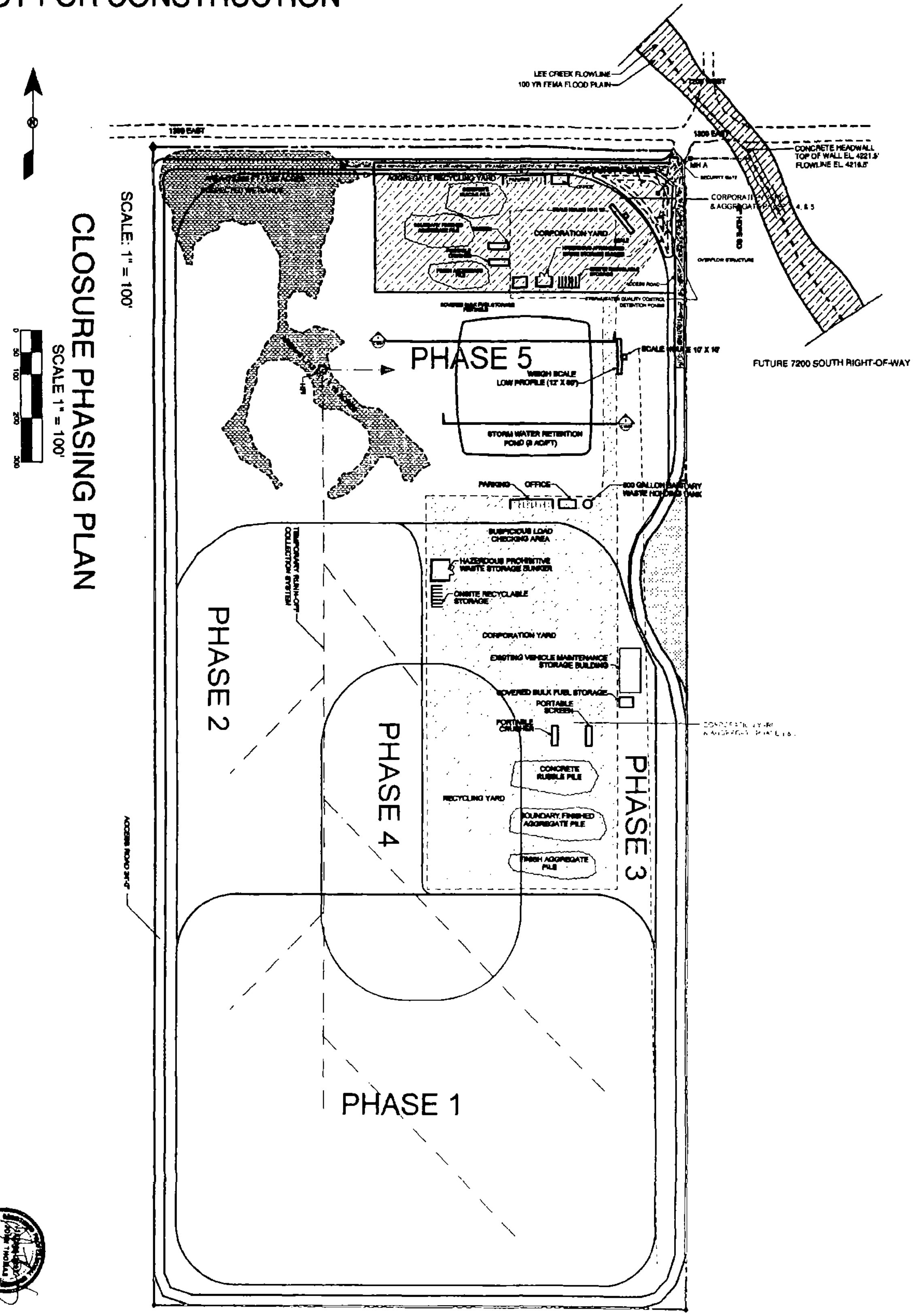
PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION: DRAINAGE SECTIONS & DETAILS

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2006
SHEET NUMBER: C1020

NOT FOR CONSTRUCTION



CLOSURE PHASING PLAN

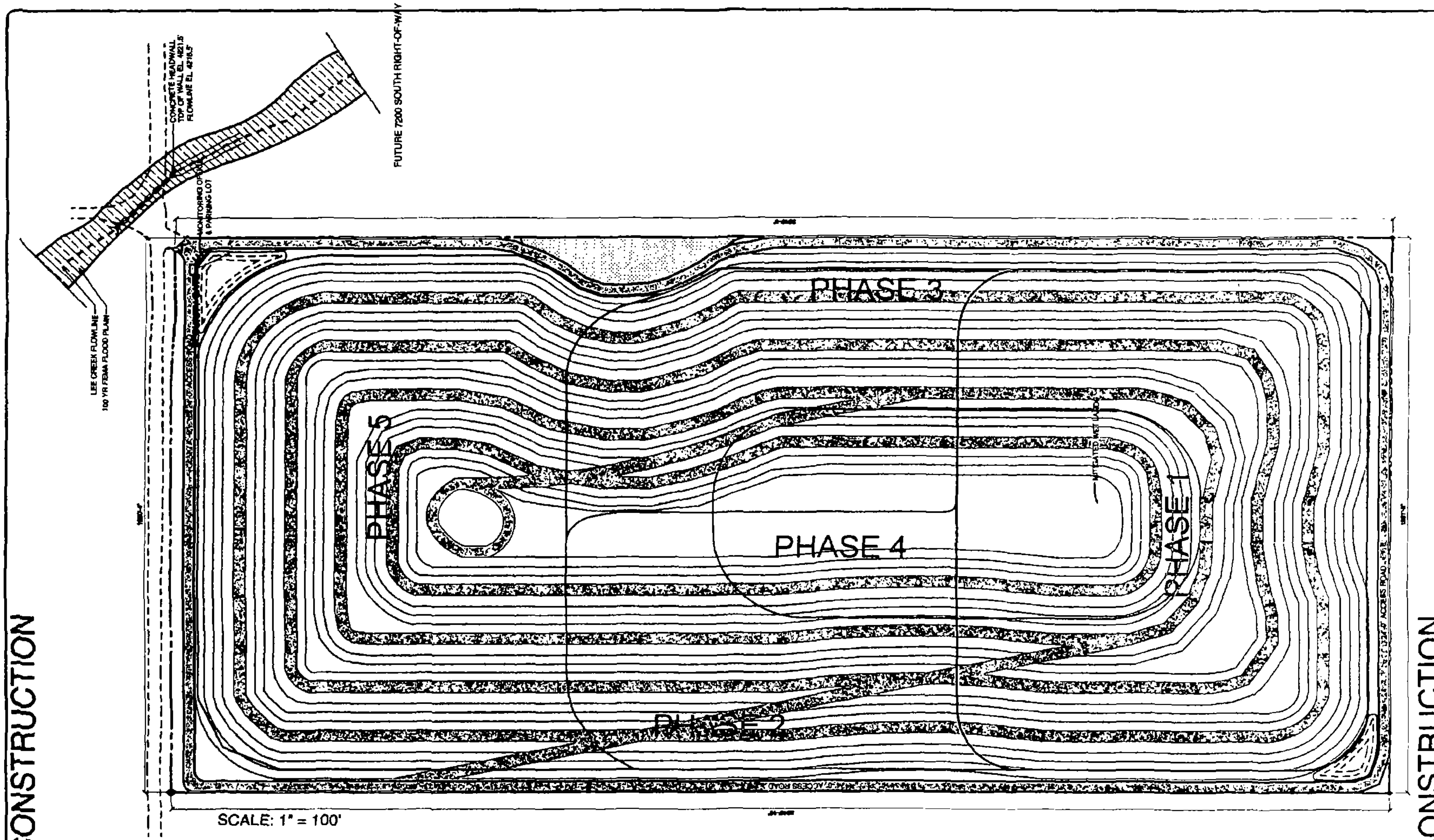
SCALE 1" = 100'

0 50 100 200 300

NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1006 PROJECT DATE: 01/2008 SHEET NUMBER C1021	SHEET DESCRIPTION CLOSURE PHASING PLAN	DATE	DESCRIPTION	NUMBER	PROJECT CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO, CA

NOT FOR CONSTRUCTION



FINAL CLOSURE PLAN

SCALE: 1" = 100'

0 50 100 200 300

NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2006
SHEET NUMBER

C1022

SHEET DESCRIPTION

FINAL CLOSURE PLAN

DATE	DESCRIPTION	NUMBER

PROJECT

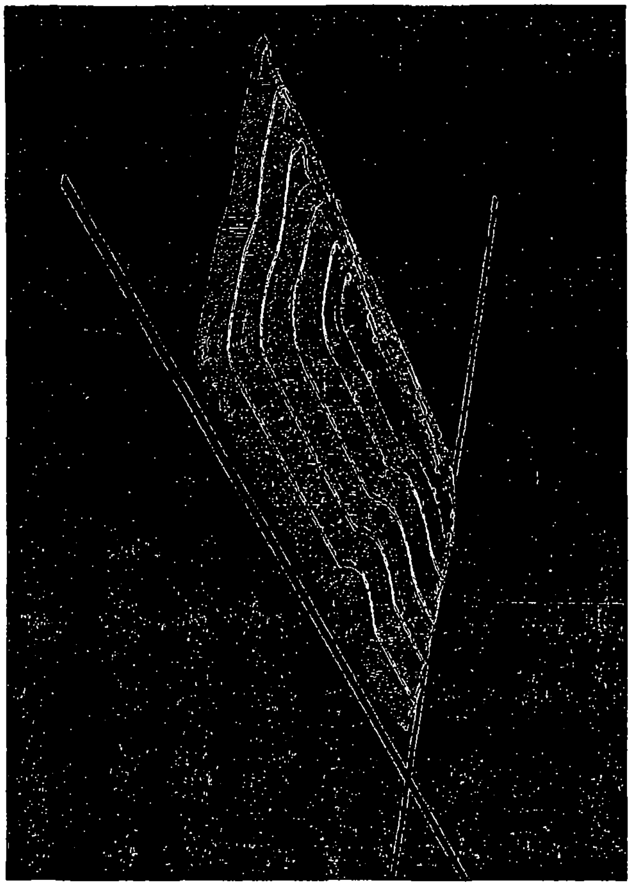
CONSTRUCTION DEMOLITION WASTE LANDFILL

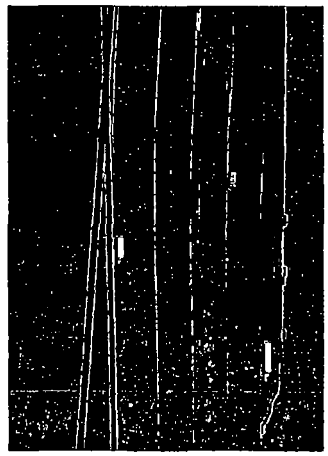
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

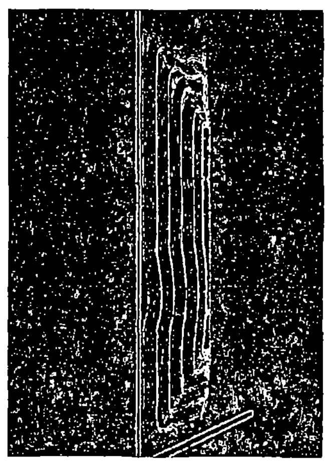
CENTRAL VALLEY WATER

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

NOT FOR CONSTRUCTION







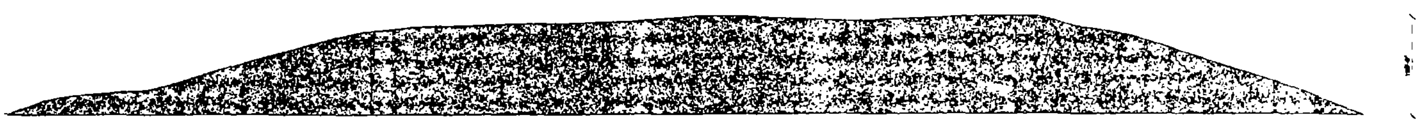
NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1006	SHEET DESCRIPTION	DATE	DESCRIPTION	NUMBER	PROJECT:
PROJECT DATE 01/2008	3D MODEL				CONSTRUCTION DEMOLITION WASTE LANDFILL
SHEET NUMBER					7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104
A1001					CENTRAL VALLEY WATER

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

NOT FOR CONSTRUCTION

SECTION B
SCALE 1" = 100'



SECTION A
SCALE 1" = 100'

NOT FOR CONSTRUCTION

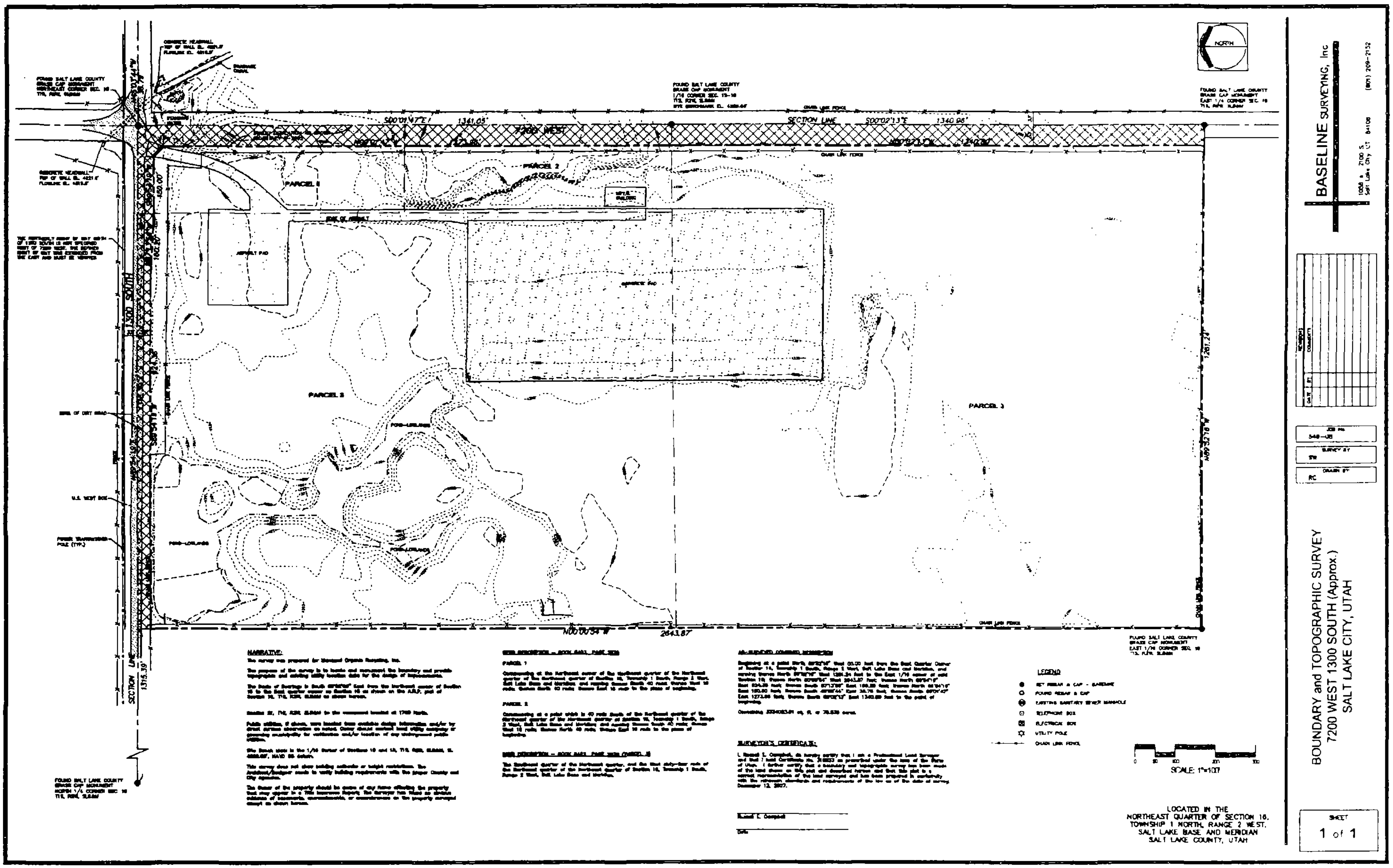
BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

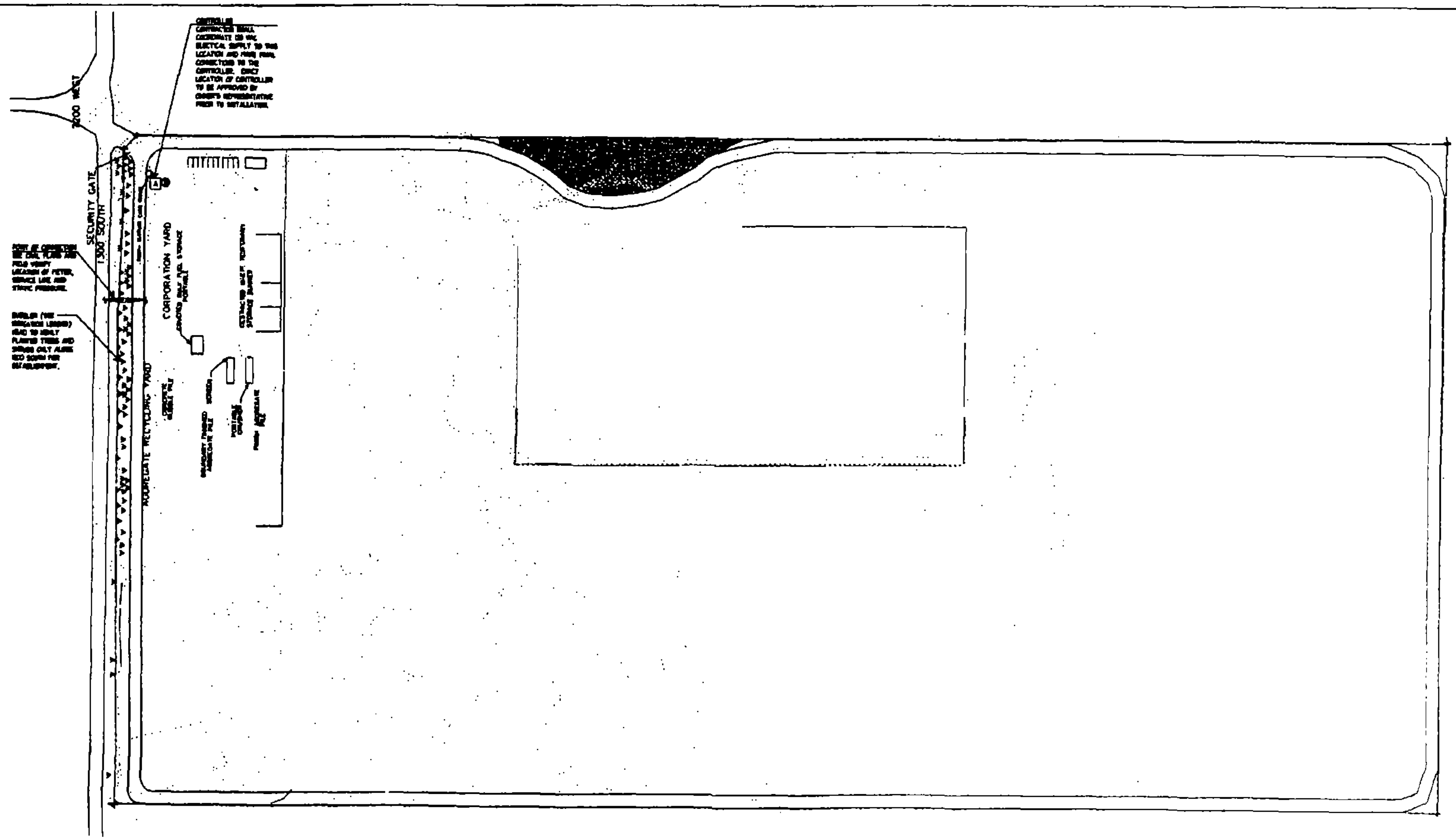
PROJECT:
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION
SECTIONS

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2009
SHEET NUMBER
A1002


NORTH
7200 WEST
SECTION LINE
1341.05'
S00°02'13"E
1340.96'
1300 SOUTH
SECTION LINE
1315.39'
PARCEL 1
PARCEL 2
PARCEL 3
N00°00'54"W
2643.87'
NARRATIVE:
SURVEYOR'S CERTIFICATE:
LEGEND
SCALE: 1"=100'
LOCATED IN THE
NORTHEAST QUARTER OF SECTION 16,
TOWNSHIP 1 NORTH, RANGE 2 WEST,
SALT LAKE BASE AND MERIDIAN
SALT LAKE COUNTY, UTAH
BASELINE SURVEYING, Inc
(801) 209-2152
BOUNDARY and TOPOGRAPHIC SURVEY
7200 WEST 1300 SOUTH (Approx.)
SALT LAKE CITY, UTAH
SHEET
1 of 1



IRRIGATION SCHEDULE					
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	ARC	PSI	GPH	RADIUS
	[illegible] Flood Bubbler	360	30	0.5	1'
	[illegible] Remote Control Valve, plastic, with 1" globe valve.				
	[illegible]				
	[illegible]				
	[illegible]				
	[illegible]				
	[illegible] Controller, [illegible]				
	[illegible]				
	[illegible]				
	Irrigation Lateral Line: PVC Schedule 40				
	Irrigation Mainline: PVC Schedule 40				
	Pipe Sleeve: PVC Class 200 [illegible]				

IRRIGATION NOTES

1. IT IS THE INTENT OF THESE IRRIGATION PLANS TO PROVIDE THE CONTRACTOR WITH CONSTRUCTION INFORMATION THAT WILL ENABLE HIM TO PROVIDE AND INSTALL A COMPLETE AND OPERATIONAL IRRIGATION SYSTEM.
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]
11. [illegible]
12. [illegible]
13. [illegible]

LANDSCAPE WATER ALLOWANCE

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible] GALLONS

LEGEND

PROPERTY BOUNDARY LINE

EXISTING CONTOUR

SCALE

NOT FOR CONSTRUCTION

ArcSitio Design, Inc
Landscape Architecture & Architectural Site Design

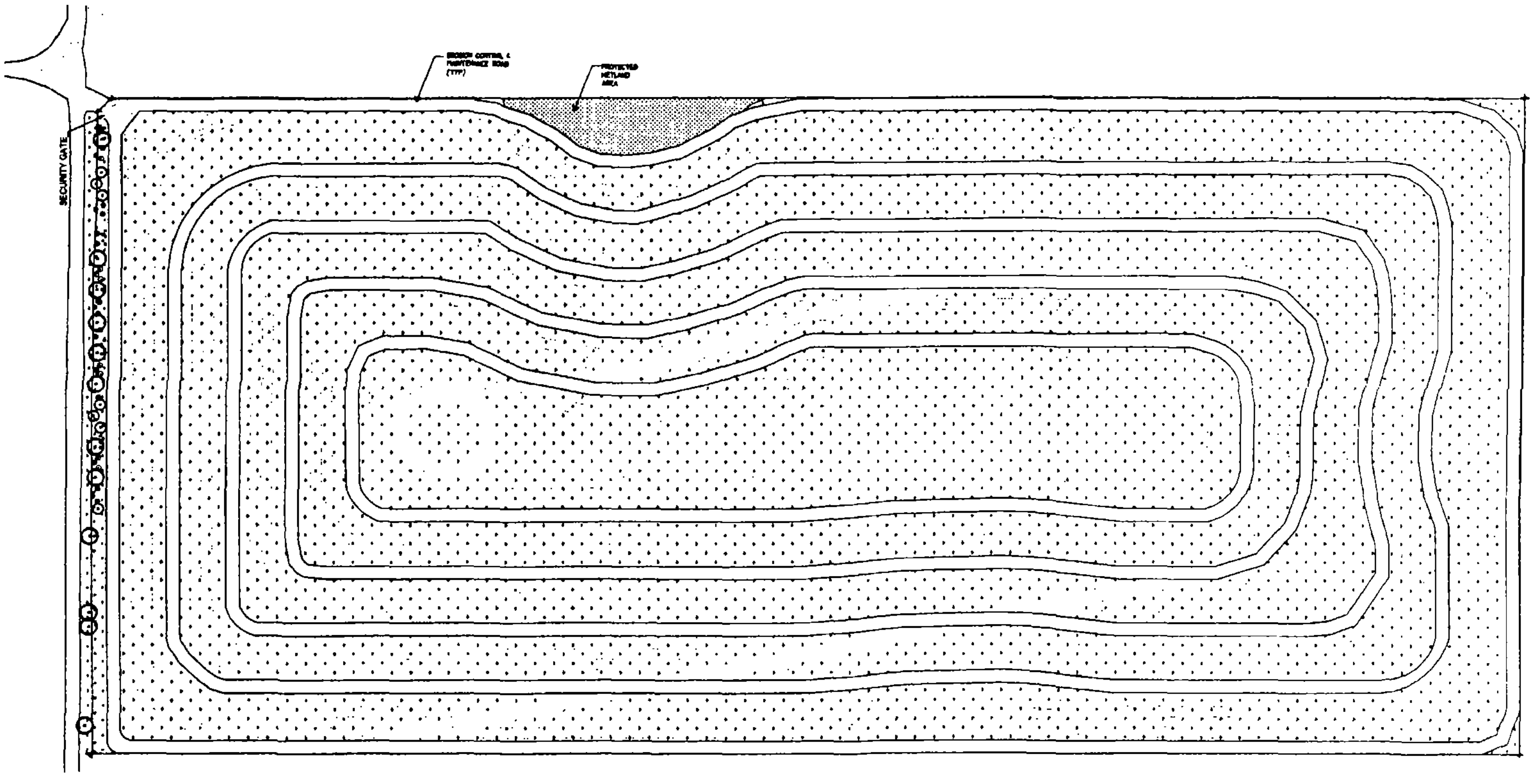
PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER | DATE | DESCRIPTION

SHEET DESCRIPTION: IRRIGATION PLAN

PROJECT NUMBER: [illegible]
PROJECT DATE: 2/2009
SHEET NUMBER: IR1001

NOT FOR CONSTRUCTION



SHRUBS	BOTANICAL	COMMON	CONT	QTY
	Amelanchier utahensis	Utah Serviceberry	5 gal	12
	Cercocarpus ledifolius	Curleaf Mountain Mahogany	5 gal	14
	Purshia tridentata	Bitterbrush	5 gal	27

SOD/SEED	BOTANICAL	COMMON	CONT	QTY
	Seed Mix Type 1	Dryland Seed Mix	seed	2357,718 sf

SEED MIX TYPE 1 — B

SYMBOL	VARIETY	SPECIES	PLS LBS/ACRE (DRILLED RATE)
	[illegible]	[illegible]	5.0
	[illegible]	[illegible]	1.5
	[illegible]	[illegible]	1.0
	[illegible] (annual cover crop)	[illegible]	6.0
		TOTAL	13.5

([illegible])

PLANTING NOTES — C

1. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIMSELF FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ANY COSTS INCURRED DUE TO DAMAGE OF SAID UTILITIES.
2. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH THE LANDSCAPE CONSTRUCTION FOR THIS PROJECT.
4. SEE SPECIFICATIONS FOR PLANTING REQUIREMENTS, MATERIALS, EXECUTION AND MAINTENANCE.
5. ALL PLANT MATERIAL SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE UPON DELIVERY TO THE SITE, AND PRIOR TO INSTALLATION.
6. IF DISCREPANCIES ARISE BETWEEN ACTUAL PLANTING AREA SIZES IN THE FIELD AND THOSE SHOWN ON THE PLANS, CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE FOR RESOLUTION. FAILURE TO MAKE SUCH CONFLICTS KNOWN WILL RESULT IN CONTRACTOR'S LIABILITY FOR MATERIALS RELOCATION.
7. FINAL LOCATIONS OF ALL PLANT MATERIALS SHALL BE SUBJECT TO APPROVAL OF THE OWNER'S REPRESENTATIVE.
8. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES AND LANDSCAPING THAT IS DESIGNATED TO REMAIN. THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING OR OTHER APPROVED BARRIER OUTSIDE DRIP LINE (OUTER PERIMETER OF BRANCHES) OF TREES TO PROTECT FROM DAMAGE. DO NOT STORE CONSTRUCTION MATERIALS, PERMIT VEHICULAR TRAFFIC OR PEDESTRIAN ACCESS WITHIN DRIP LINE TO AVOID SOIL COMPACTION.
9. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON THE DRAWINGS.
10. PRUNE TREES IN ACCORDANCE WITH SPECIFICATIONS.
11. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE ONLY AS APPROVED BY THE OWNER'S REPRESENTATIVE.

LEGEND — D

PROPERTY BOUNDARY LINE
PROPOSED CONTOUR

SCALE — E

NOT FOR CONSTRUCTION

ArcSitio Design, Inc
Landscape Architecture & Architectural Site Design

PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104

CENTRAL VALLEY WATER

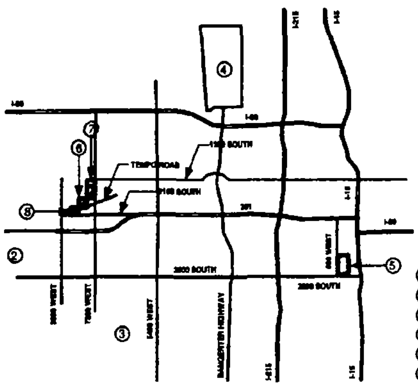
NUMBER	DATE	DESCRIPTION

SHEET DESCRIPTION: PLANTING PLAN

PROJECT NUMBER: BASP 1006
PROJECT DATE: 2/2008
SHEET NUMBER: L1001

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION



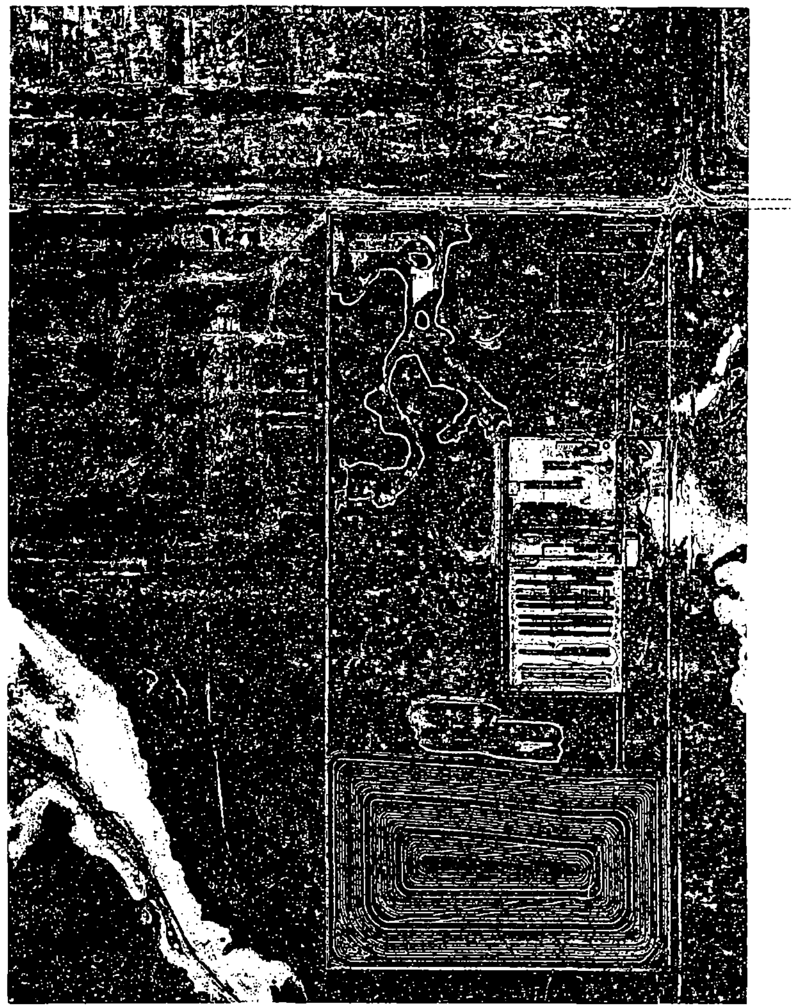
① SALT LAKE CITY
② MAGNA
③ WEST VALLEY
④ S.L.C. INTERNATIONAL AIRPORT
⑤ CVWRF
⑥ CVWRF COMPOSTING FACILITY
⑦ PROPOSED CONSTRUCTION DEBRIS LANDFILL
⑧ MAGNA TREATMENT PLANT

VICINITY MAP

SCALE: NTS

SHEET INDEX

PAGE NUMBER	SHEET NUMBER	*SHEET DESCRIPTION*
1.	G1001A	SHEET INDEX, LOCATION, AND VICINITY MAPS
2.	G1002A	SITE PLAN PRIOR TO FINAL CLOSURE
3.	G1003A	EXISITNG CONTOURS AND PROPERY LINES
4.	G1004A	RECOMMENDED GROUND WATER MONITORING LOCATIONS
5.	C1003A	GRADING PLAN (3)
6.	C1006A	DRAINAGE PLAN (3)
7.	C1007A	INTERIM GRADING PLAN (1)
8.	C1012A	INTERIM DRAINAGE PLAN (1)
9.	C1019A	GRADING SECTIONS & DETAILS
10.	C1021A	CLOSURE PHASING PLAN
11.	C1022A	FINAL CLOSURE PLAN



SITE LOCATION MAP
7301 WEST 1300 SOUTH

SCALE 1" = 200'

0 100 200 400 600

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

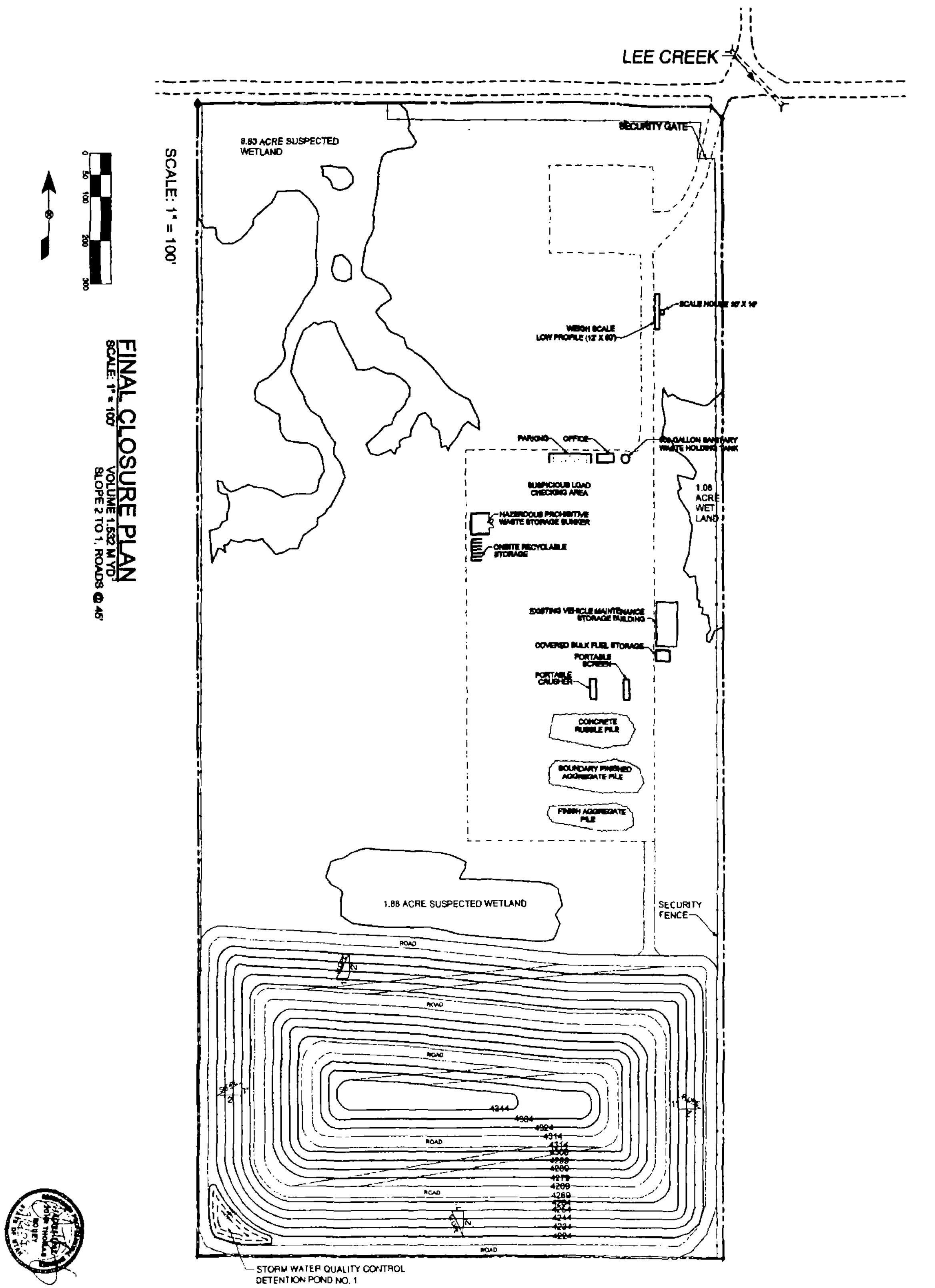
PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATEP

NUMBER	DATE	DESCRIPTION
	10/23/80	WITH EXISTING WETLAND

SHEET DESCRIPTION
SHEET INDEX LOCATION & VICINITY MAP
WITH EXISTING WETLANDS

PROJECT NUMBER: BASP 1006
PROJECT DATE: 09/2008
SHEET NUMBER
G1001A

NOT FOR CONSTRUCTION



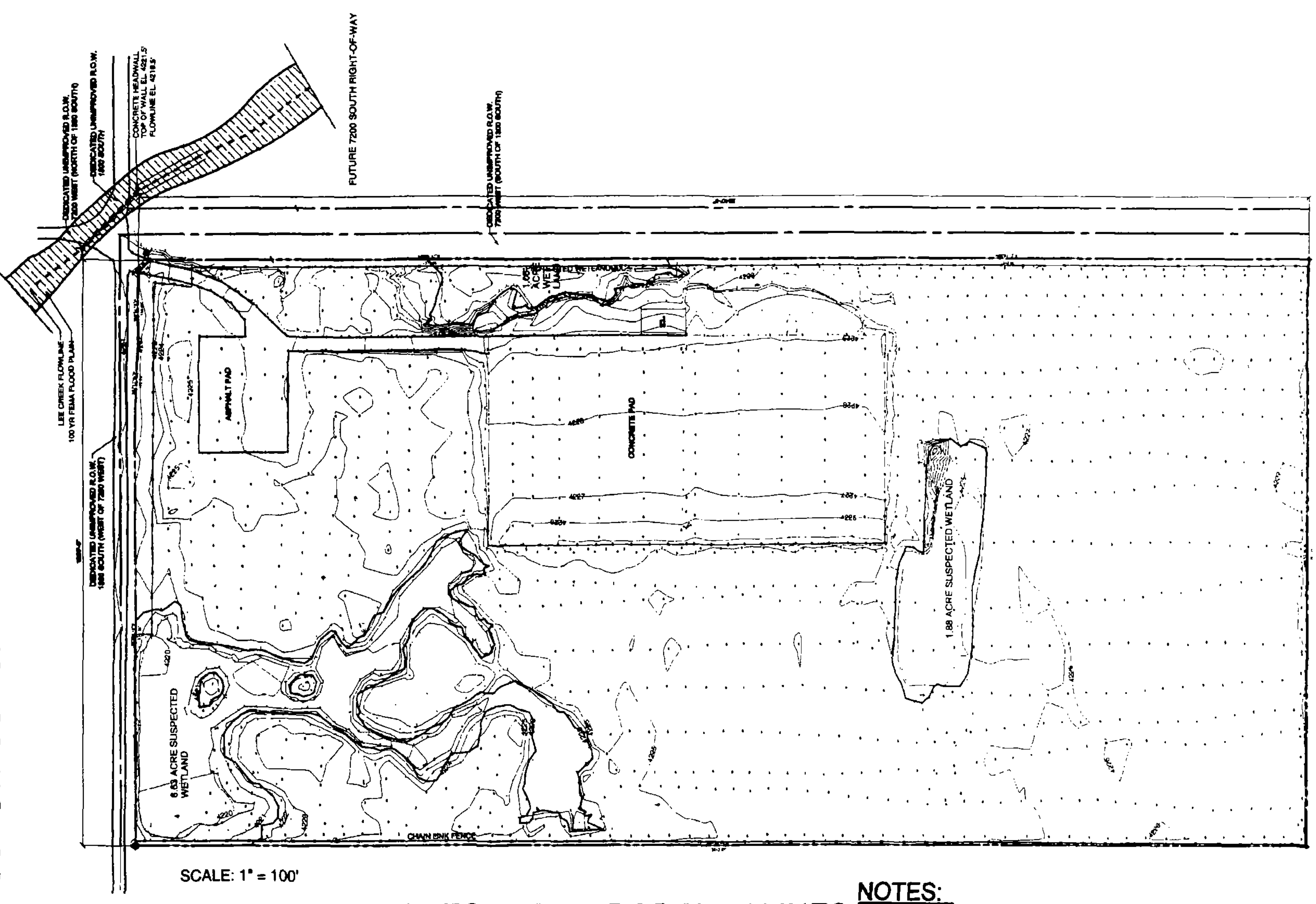
FINAL CLOSURE PLAN

SCALE: 1" = 100'
VOLUME 1.532 M YD³
SLOPE 2 TO 1, ROADS @ 45'

NOT FOR CONSTRUCTION

PROJECT NUMBER: BASF 1006 PROJECT DATE: 09/2008 SHEET NUMBER G1002A	SHEET DESCRIPTION SITE PLAN @ FINAL CLOSURE WITH EXISTING WETLANDS	DATE	DESCRIPTION	NUMBER	PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO CA
		10/23/80	WITH EXISTING WETLAND			

NOT FOR CONSTRUCTION



SCALE: 1" = 100'

EXISTING CONTOURS & PROPERTY LINES

SCALE 1" = 100'

0 50 100 200 300

NOTES:

A. POND ELEVATION WATER SURFACE 4220' MSL
B. AVERAGE SITE ELEVATION 4226'
1. DIFFERENCE IN BOUNDARY'S CVWRF V. BASELINE SURVEYING INC.
2. NEED 7200 WEST R.O.W. WIDTH
3. NEED 1300 SOUTH R.O.W. WIDTH
4. NEED ADDITIONAL SURVEY AT LEE CREEK HEADWALL
5. 100 YR. FEMA FLOOD PLAIN ELEVATION 4223.5 M.S.L.

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

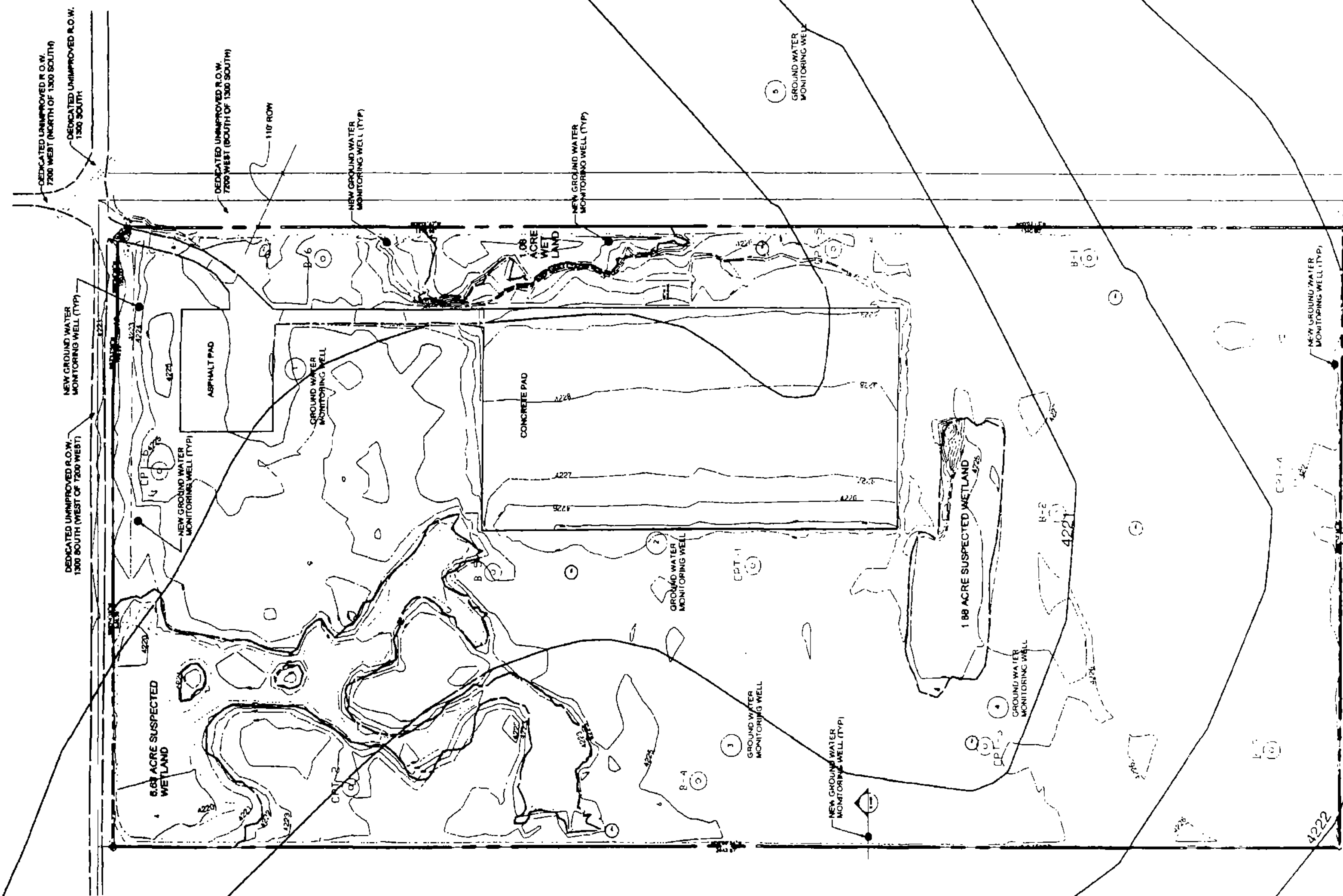
PROJECT:
CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION
	10/23/80	WITH EXISTING WETLAND

SHEET DESCRIPTION
EXISITNG CONTOURS & PROPERTY LINES
WITH EXISTING WETLANDS

PROJECT NUMBER: BASP 1006
PROJECT DATE 09/2008
SHEET NUMBER
G1003A

NOT FOR CONSTRUCTION



RECOMMENDED GROUND WATER MONITORING WELL LOCATIONS

SCALE 1" = 100'

0 50 100 200 300

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION
	10/23/80	WITH EXISTING WETLAND

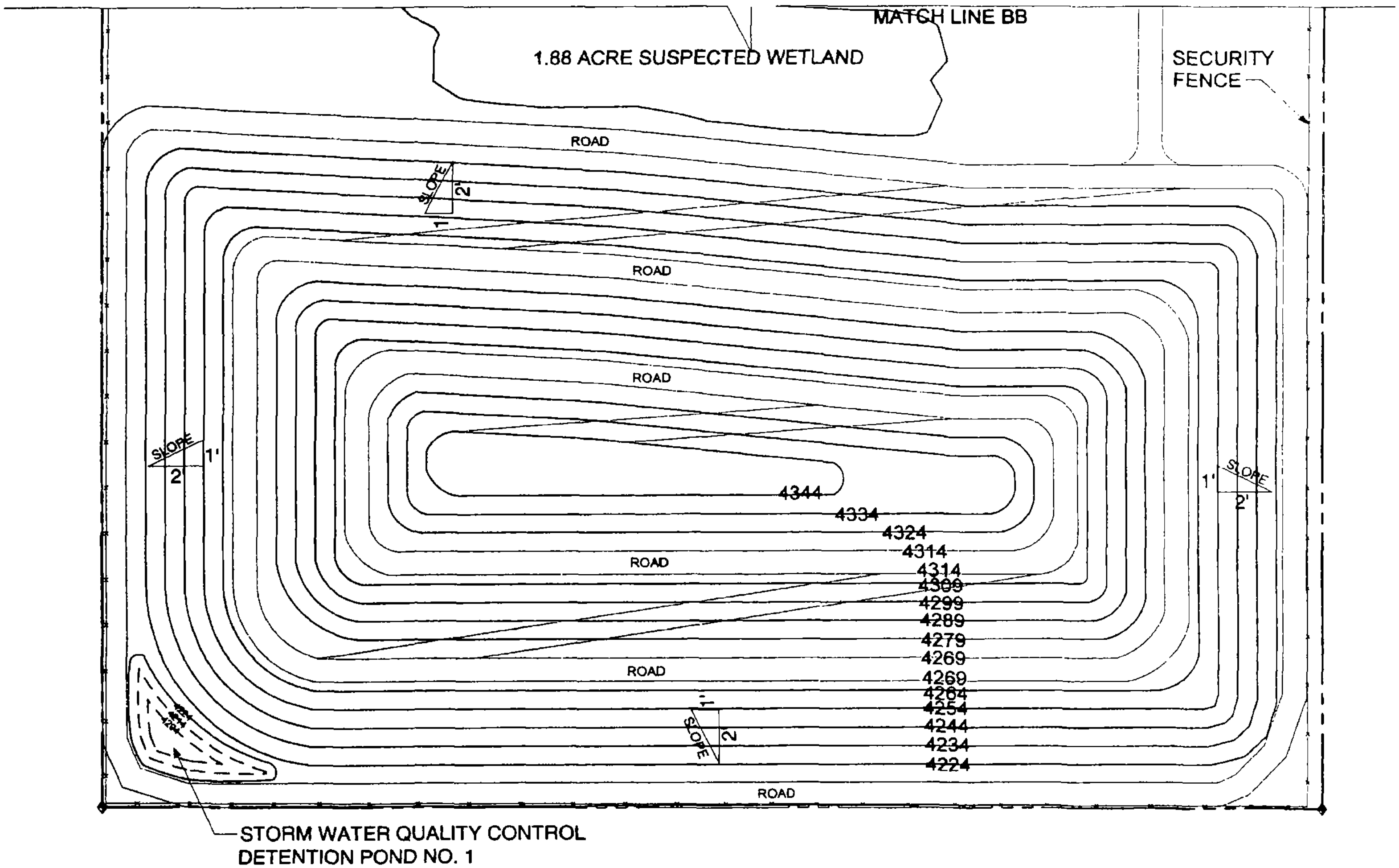
SHEET DESCRIPTION
RECOMMENDED
GROUND WATER
MONITORING
LOCATIONS
WITH EXISTING WETLANDS

PROJECT NUMBER: BASP 1006

SHEET NUMBER

G1004 A

NOT FOR CONSTRUCTION



GRADING PARTIAL PLAN SOUTH @ CLOSURE

SCALE 1" = 50'

0 25 50 100 150

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH 84104
CENTRAL VALLEY WATER

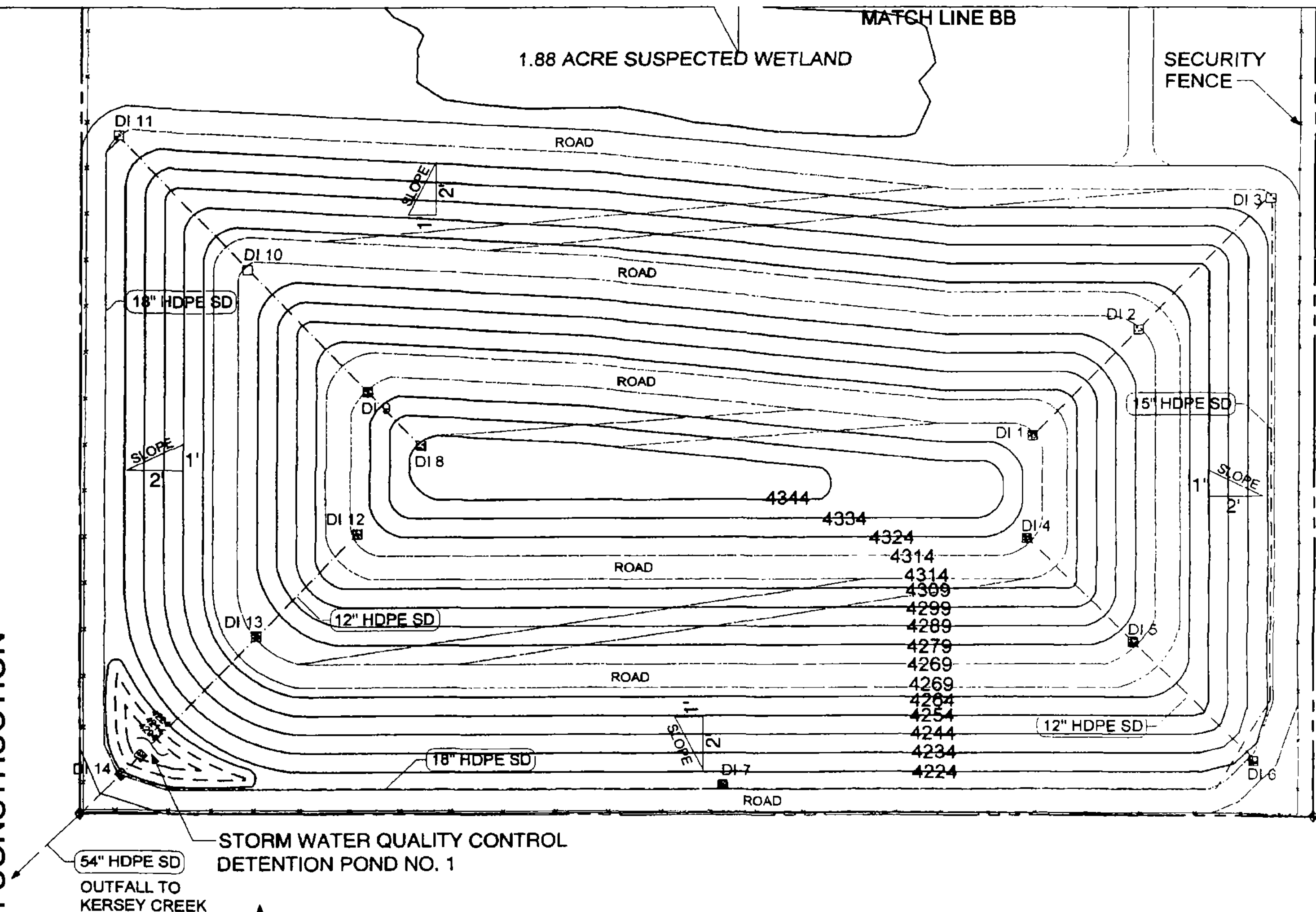
NUMBER	DATE	DESCRIPTION
	10/23/08	WITH EXISTING WETLAND

SHEET DESCRIPTION
FINAL GRADING
PLAN (3)
WITH EXISTING WETLANDS

PROJECT NUMBER: BASP 1006
PROJECT DATE: 09/2008
SHEET NUMBER
C1003A

JOHN THOMAS BONEY
STATE OF UTAH

NOT FOR CONSTRUCTION



DRAINAGE PARTIAL PLAN SOUTH @ CLOSURE

SCALE 1" = 50'

0 25 50 100 150

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

PROJECT

CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

NUMBER	DATE	DESCRIPTION
	10/23/08	WITH EXISTING WETLAND

SHEET DESCRIPTION

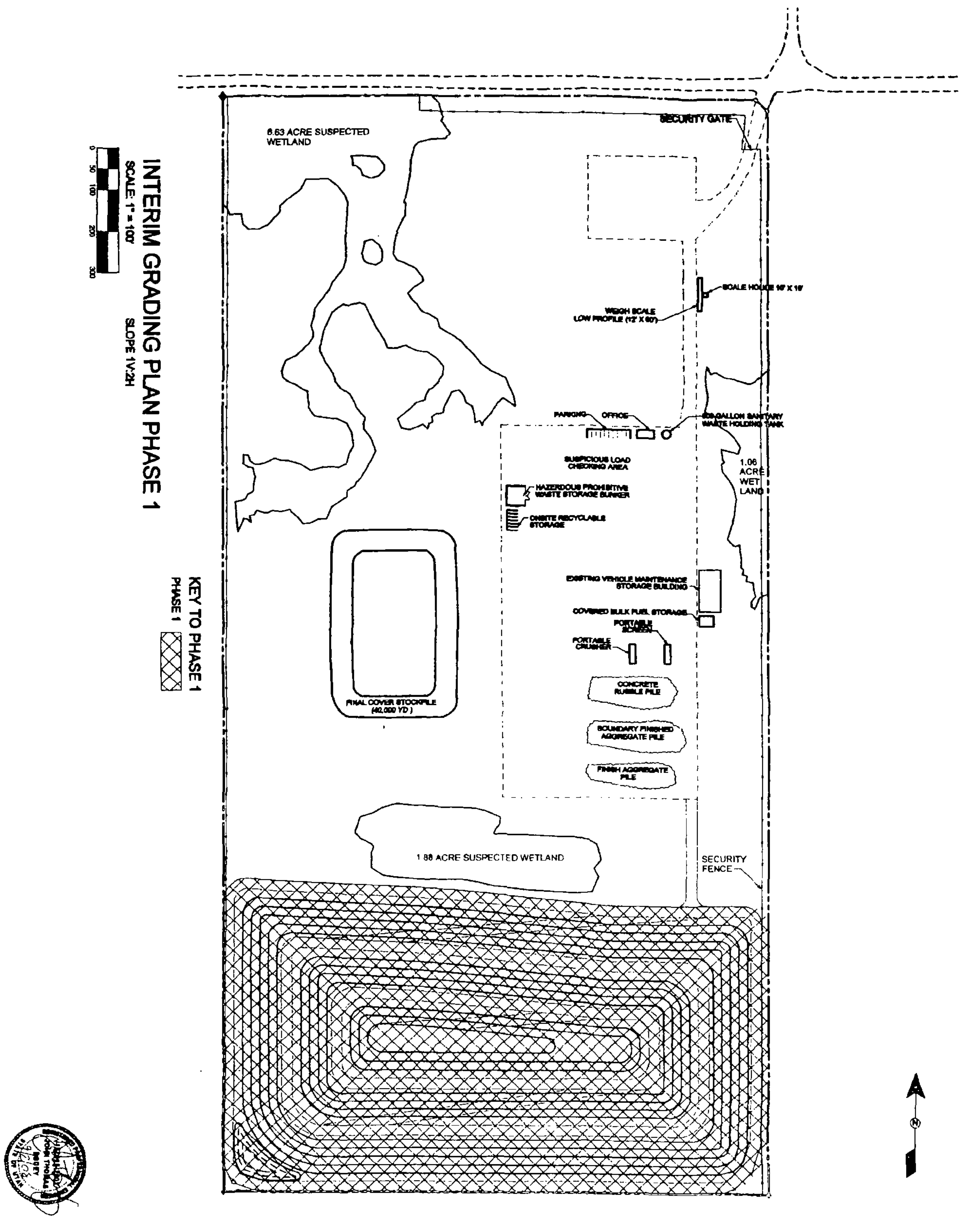
FINAL DRAINAGE PLAN (3)

WITH EXISTING WETLANDS

PROJECT NUMBER BASP 1006
PROJECT DATE 05/2008
SHEET NUMBER

C1006A

NOT FOR CONSTRUCTION



NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2008
SHEET NUMBER
C1007 A

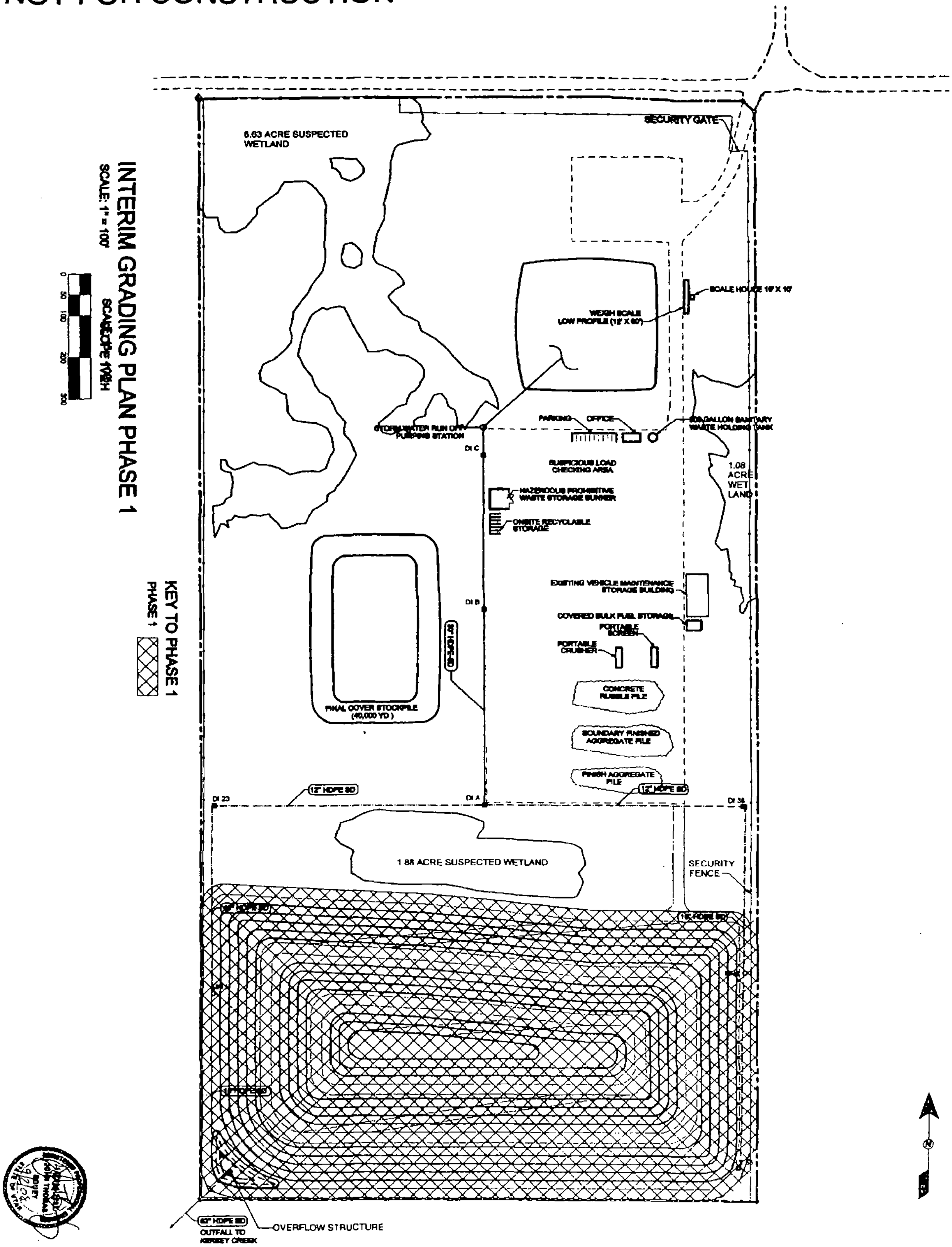
SHEET DESCRIPTION
INTERIM GRADING PLAN PHASE 1
WITH EXISTING WETLANDS

DATE	DESCRIPTION	NUMBER
0/23/80	WITH EXISTING WETLAND	

PROJECT:
CONSTRUCTION DEMOLITION WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH, 84104
CENTRAL VALLEY WATER

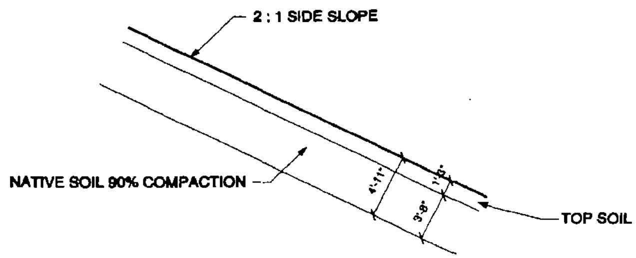
BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO, CA

NOT FOR CONSTRUCTION

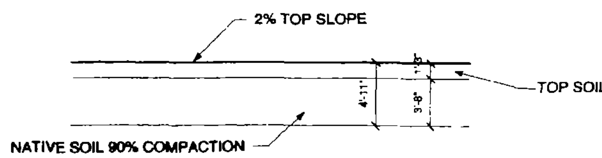


NOT FOR CONSTRUCTION

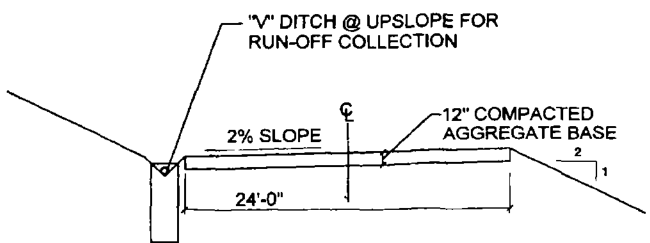
PROJECT NUMBER: BASP 1006 PROJECT DATE 01/2008 SHEET NUMBER C1012A	SHEET DESCRIPTION INTERIM DRAINAGE PLAN PHASE 1 WITH EXISTING WETLANDS	DATE	DESCRIPTION	NUMBER	PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH. 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO, CA
		10/23/80	WITH EXISTING WETLAND			



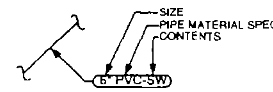
SIDE SLOPE
FINAL COVER LAYER
TYPICAL CROSS SECTION



TOP SLOPE
FINAL COVER LAYER
TYPICAL CROSS SECTION



2 G1002 FILL/SLOPE ACCESS ROAD CROSS SECTION (TYP)
SCALE 1/4" = 1'-0"



PIPING LEGEND

SW	STORMWATER
L	LEACHATE
AA	AERATION AIR
W	WATER
CIP	CAST IRON PIPE
PVC	POLYVINYL CHLORIDE PIPE (C900)
HDPE	HIGH-DENSITY POLYETHYLENE

ABBREVIATIONS

BASP	BAY AREA SOIL PRODUCTS
ID	INSIDE DIMENSION
OD	OUTSIDE DIMENSION
OC	ON CENTER
CO	CLEAN OUT
MH	MAN HOLE
DI	DROP INLET

NOTES:

1. OWNER / OPERATOR SHALL CONTAIN ALL GENERATED STORM WATER ON IT'S OWN PROPERTY. UNCONTAMINATED SURFACE WATER RUN-OFF SHALL BE ROUTED TO AN APPROVED SALT LAKE COUNTY STORM DRAINAGE SYSTEM.
2. OWNER / OPERATOR SHALL GRADE SITE IN ACCORDANCE WITH APPROVED SITE GRADING AND DRAINAGE PLANS TO PREVENT DISCHARGE OF ANY RUN-OFF ON TO ADJACENT PROPERTIES.
3. SALT LAKE CITY WILL NOT ASSUME ANY RESPONSIBILITY / LIABILITY FOR MAINTANENCE OF THE POND OR ON-SITE STORM DRAINAGE SYSTEM.

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

BAY AREA SOIL PRODUCTS
SAN LUIS OBISPO CA

PROJECT
CONSTRUCTION DEMOLITION
WASTE LANDFILL
7301 WEST 1300 SOUTH
SALT LAKE CITY UTAH. 84104
CENTRAL VALLEY WATER

DATE	DESCRIPTION	NUMBER
10/23/80	WITH EXISTING WETLAND	

SHEET DESCRIPTION
GRADING
SECTIONS &
DETAILS

PROJECT NUMBER: BASP 1006
PROJECT DATE: 01/2006
SHEET NUMBER
C1019A

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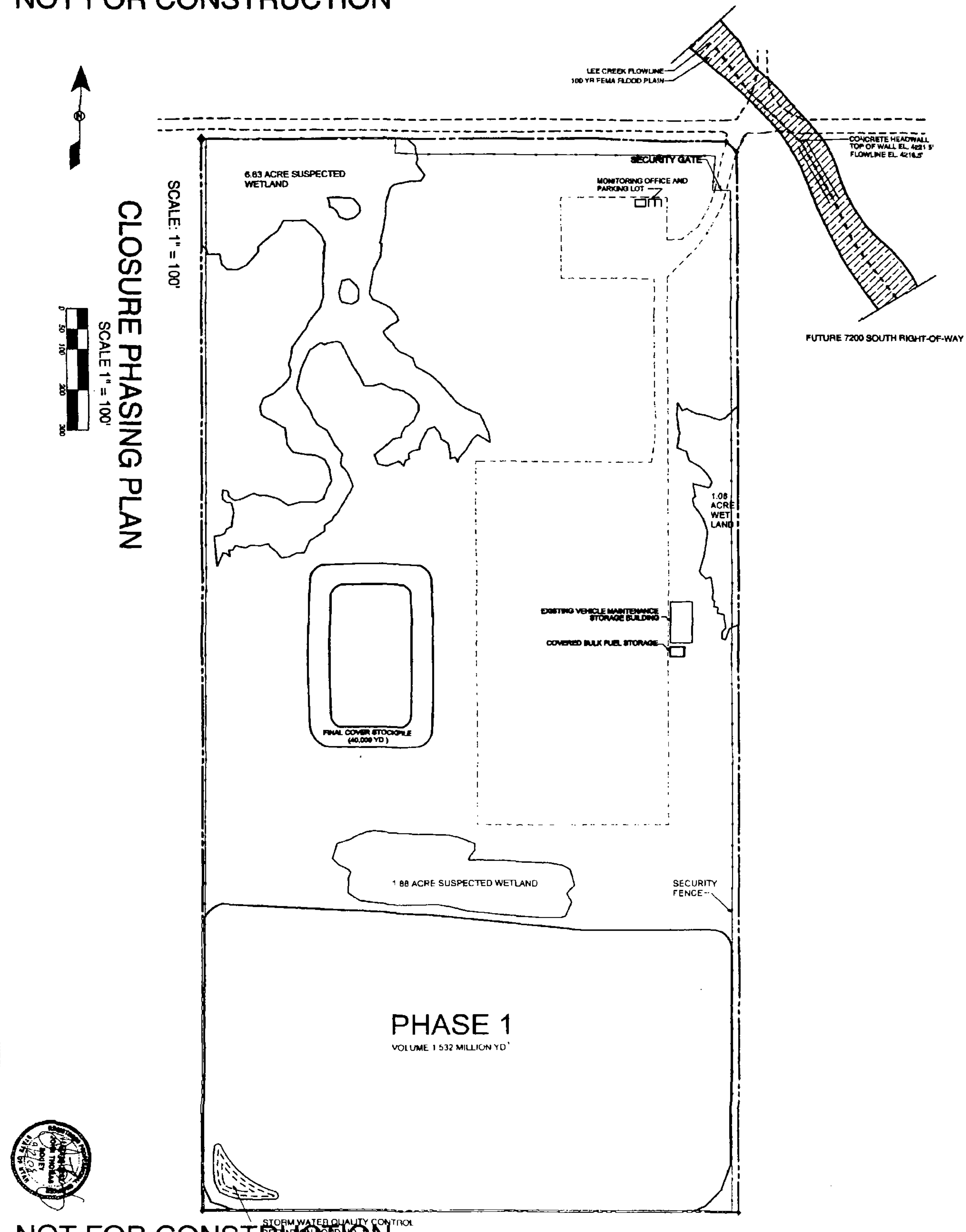


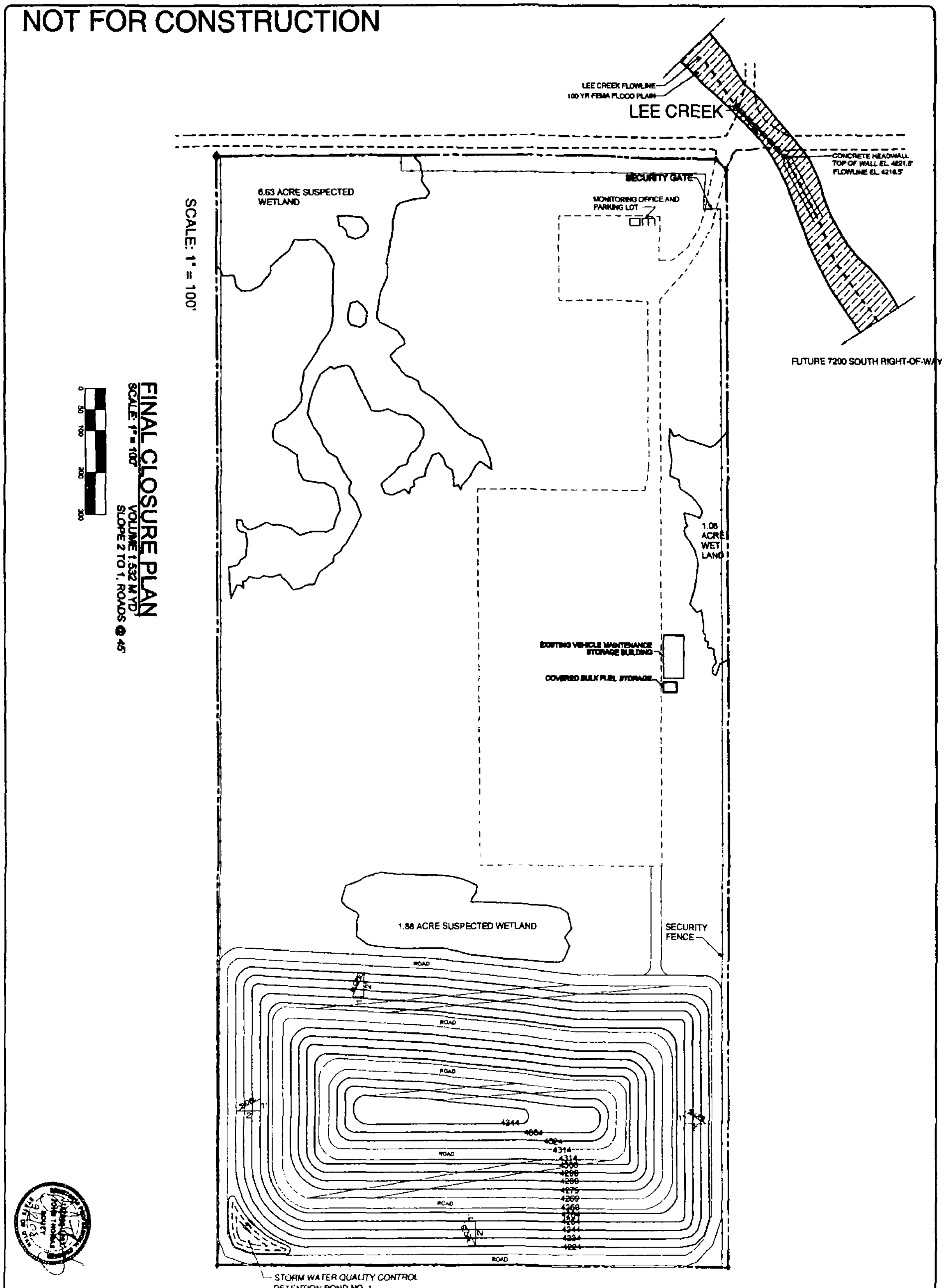
CLOSURE PHASING PLAN

SCALE 1" = 100'

NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1006 PROJECT DATE 01/2008 SHEET NUMBER C1021A	SHEET DESCRIPTION CLOSURE PHASING PLAN WITH EXISTING WETLANDS	DATE: 10/23/80	DESCRIPTION: WITH EXISTING WETLAND	NUMBER:
PROJECT: CONSTRUCTION DEMOLITION WASTE LANDFILL 7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104 CENTRAL VALLEY WATER	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO, CA			

NOT FOR CONSTRUCTION



FINAL CLOSURE PLAN

SCALE: 1" = 100'
VOLUME 1.532 M YD³
SLOPE 2 TO 1, ROADS @ 45'

0 50 100 200 300

NOT FOR CONSTRUCTION

PROJECT NUMBER: BASP 1006	SHEET DESCRIPTION	DATE	DESCRIPTION	NUMBER	PROJECT:	
PROJECT DATE: 01/2008	FINAL CLOSURE PLAN	10/23/80	WITH EXISTING WETLAND		CONSTRUCTION DEMOLITION WASTE LANDFILL	BAY AREA SOIL PRODUCTS SAN LUIS OBISPO CA
SHEET NUMBER					7301 WEST 1300 SOUTH SALT LAKE CITY UTAH, 84104	
C1022A	WITH EXISTING WETLANDS				CENTRAL VALLEY WATER	