NM1 - 51

GENERAL CORRESPONDENCE

YEAR(S):

2009

Jones, Brad A., EMNRD

From: Scott McKitrick [scott.mckitrick@soudermiller.com]
Sent: Wednesday, September 02, 2009 9:39 AM
To: Jones, Brad A., EMNRD
Cc: 'Joe P. Moore'; 'Peter Fant'; 'Jerry May'; 'Lawrence N. Kemp'
Subject: Concho Landfill drilling

Good morning Brad. We're currently waiting for the driller to resume drilling at the Concho Landfill. He believes that he'll be back out there in two weeks or so, but we don't have a firm date currently. When we do, I'll let you know. Please let me know if you have any questions on this. Thanks.

Scott A. McKitrick, P.G.
Senior Geoscientist / Environmental Services Manager
Souder, Miller & Associates
3451 Candelaria Rd. NE, Suite D
Albuquerque, NM 87107
voice 505.299.0942
fax 505.293.3430
cell 505.220.6542
scott.mckitrick@soudermiller.com

Jones, Brad A., EMNRD

From: Scott McKitrick [scott.mckitrick@soudermiller.com]
Sent: Wednesday, August 05, 2009 2:10 PM
To: Jones, Brad A., EMNRD
Cc: 'David Ennis'; 'Lawrence N. Kemp'; 'Joe P. Moore'; lenrstokes@gmail.com; 'Peter Fant'; 'Jerry May'
Subject: Concho Landfill Drilling

Hi Brad. The driller is scheduled to be on-site at the Concho Landfill on Tuesday, August 18. I will be on vacation between tomorrow and the 17th. In my absence, coordination will be handled by either Dave Ennis in our Las Cruces Office (david.ennis@soudermiller.com 575.647.0799), or the field geologist, Larry Kemp, also in our Las Cruces Office (larry.kemp@soudermiller.com 575.647.0799). I don't have a mileage marker number for the Dog Lake turnoff to the site, but Len may be able to supply that. Someone (Dave or Larry) will call you toward the end of next week to confirm the start date. Please let me know if you have any questions. Thanks.

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Jones, Brad A., EMNRD

From: Jones, Brad A., EMNRD
Sent: Tuesday, August 04, 2009 5:33 PM
To: 'Scott McKitrick'
Cc: 'Joe P. Moore'; lenrstokes@gmail.com; 'Peter Fant'; 'Jerry May'
Subject: RE: Revised Boring Plan

Scott,

Sorry about that..... The plan is approved. Keep me updated on the scheduling of the drill rig (time and date). Is there a mile marker near Dog Lake Road? I may be coming in from Hobbs.

Brad A. Jones
Environmental Engineer
Environmental Bureau
NM Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505
E-mail: brad.a.jones@state.nm.us
Office: (505) 476-3487
Fax: (505) 476-3462

From: Scott McKitrick [mailto:scott.mckitrick@soudermiller.com]
Sent: Tuesday, August 04, 2009 5:12 PM
To: Jones, Brad A., EMNRD
Cc: 'Joe P. Moore'; lenrstokes@gmail.com; 'Peter Fant'; 'Jerry May'
Subject: RE: Revised Boring Plan

Brad – can I assume the boring plan is approved?

To get to the site, head east from Artesia on Hwy 82. Take Hwy 529 to the southeast 11.65 miles to Dog Lake Road. Head north approximately 0.5 miles, then turn west on a relatively good caliche road approximately one mile, landfill and boring locations will be on the south. The attached kmz file will show you the location of our boring at the site in Google Earth. The landfill proper is just west of the boring.

Thanks.

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From: Jones, Brad A., EMNRD [mailto:brad.a.jones@state.nm.us]
Sent: Tuesday, August 04, 2009 4:21 PM
To: Scott McKitrick; Hansen, Edward J., EMNRD
Cc: Joe P. Moore; lenrstokes@gmail.com; Peter Fant; Jerry May
Subject: RE: Revised Boring Plan

Scott,

Thank you for making the suggested revisions. Please provide me adequate notice in order to make arrangements to observe the drilling. I have set aside the week of August 17th -21st, as proposed in the boring plan. Also, please provide me a map and directions to the proposed site. Thanks.

Brad

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From: Scott McKitrick [mailto:scott.mckitrick@soudermiller.com]
Sent: Tuesday, August 04, 2009 3:56 PM
To: Jones, Brad A., EMNRD; Hansen, Edward J., EMNRD
Cc: 'Joe P. Moore'; lenrstokes@gmail.com; 'Peter Fant'; 'Jerry May'
Subject: Revised Boring Plan

Brad – thanks for catching that mistake. We'll log core and air rotary cuttings, and this plan says that. Let me know if you have any questions. Thanks.

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Subject: RE: Revised Boring Plan
Attachments: Concho Landfill.kmz

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Thanks.

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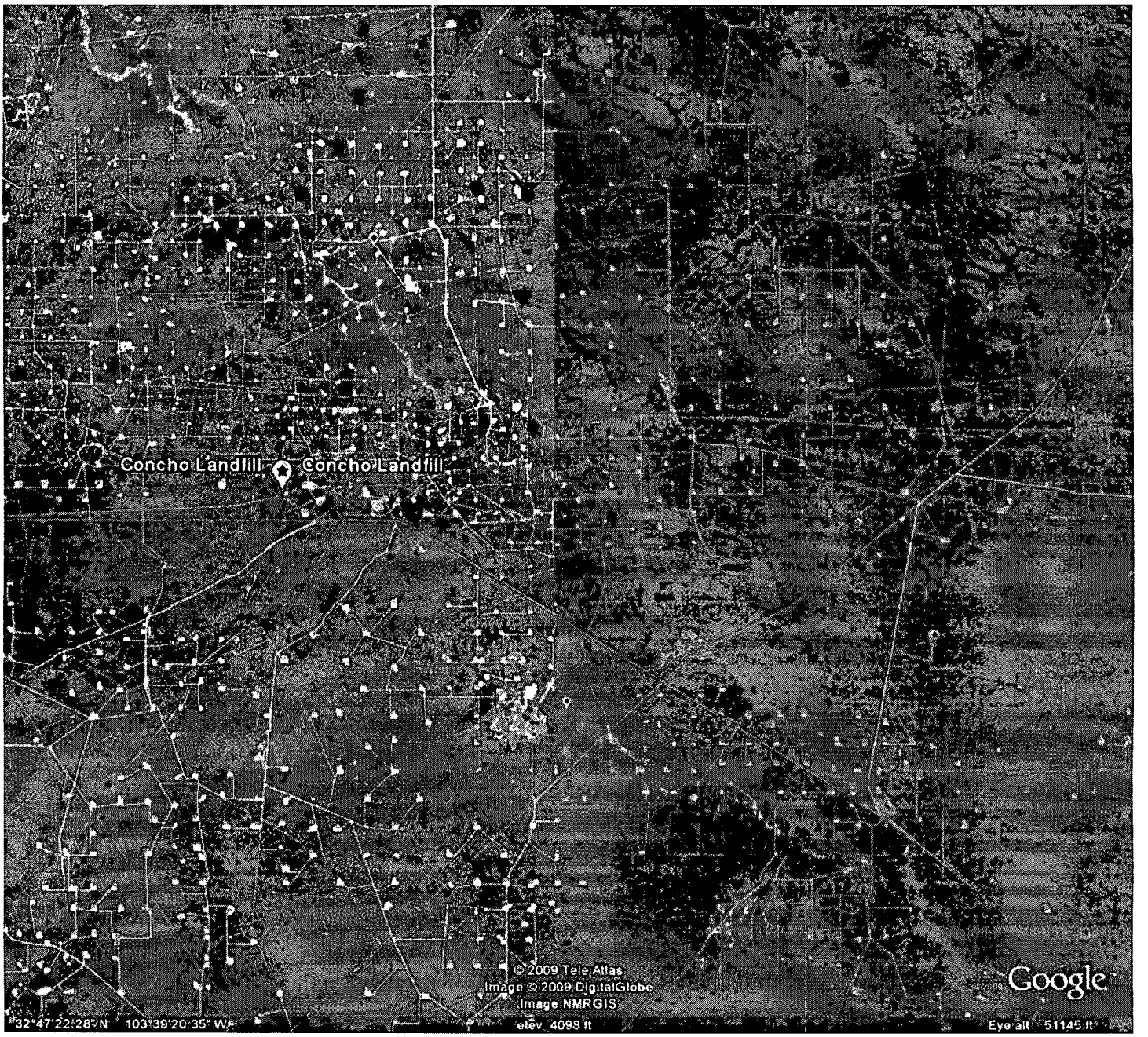
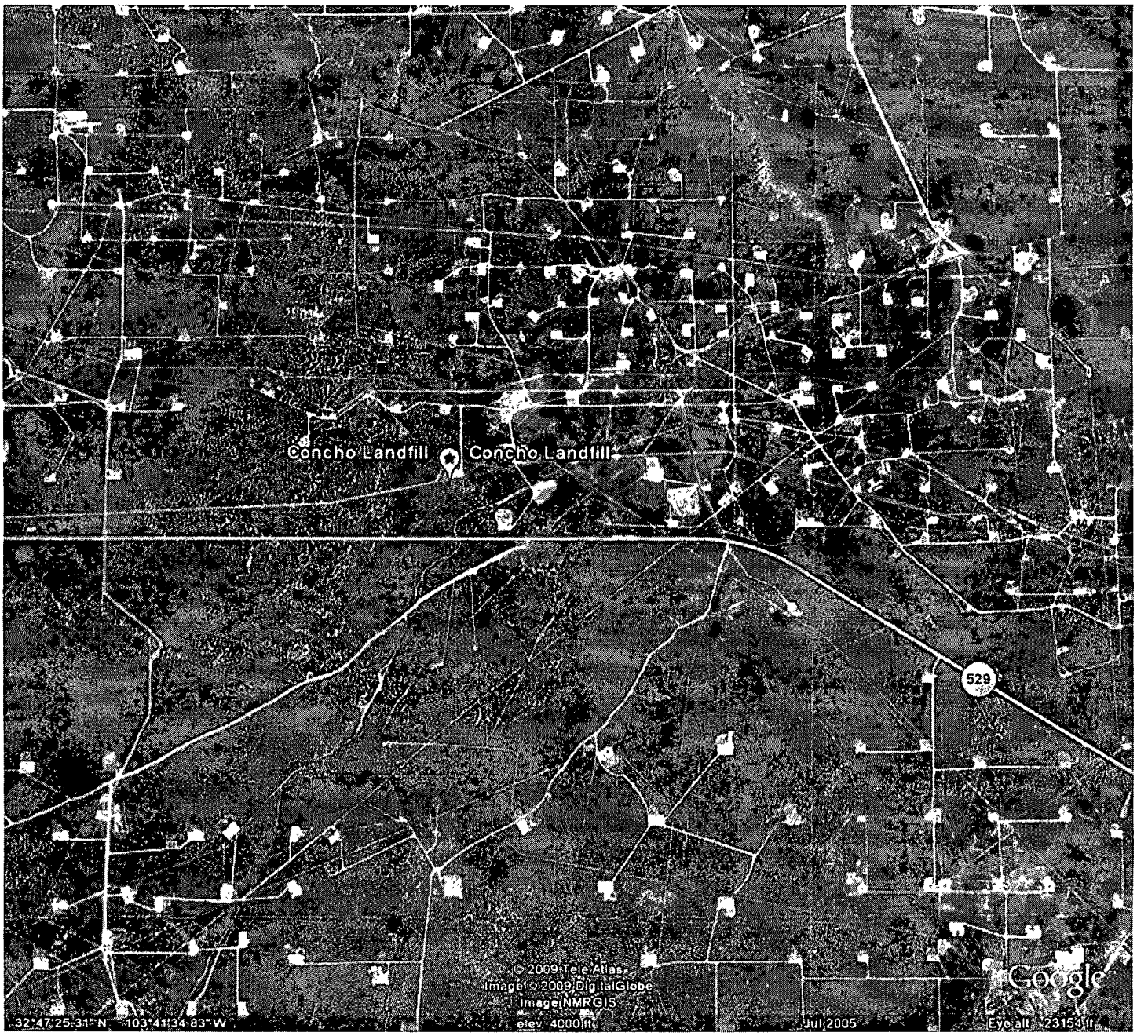

Concho Landfill
Concho Landfill
© 2009 Tele Atlas
Image © 2009 DigitalGlobe
Image NMRGIS
Google
32°47'22.28" N 103°39'20.35" W elev 4098 ft Eye alt 51145 ft


Concho Landfill
Concho Landfill
529
© 2009 Tele Atlas
Image © 2009 DigitalGlobe
Image NMRGIS
Google
32°47'25.31" N 103°41'34.83" W
elev 4000 ft
Jul 2005
Eye alt 23154 ft

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Subject: Revised Boring Plan
Attachments: 2009-08-04 Concho Landfill Boring Plan.pdf

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August 4, 2009 #5419335

Mr. Brad A. Jones, Environmental Engineer
Environmental Bureau
Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505
brad.a.jones@state.nm.us

Re: *Revised* Boring Plan for Proposed Concho Landfill LLC, Lea County, New Mexico

Dear Mr. Jones:

Souder, Miller and Associates (SMA) is pleased to submit this boring plan on behalf of Concho Landfill LLC for its proposed landfill in Lea County, New Mexico. It was prepared in a manner consistent with that discussed at the meeting between representatives of the Oil Conservation Division and representatives of Concho Landfill LLC on July 30, 2009 at your office, and subsequent to our phone discussion on August 3, 2009.

A total of eight borings are proposed to be advanced at the site, as shown on the attached Figures 1 and 2. Borings are proposed to investigate the potential for the existence of water at the interface between alluvial material and the underlying red beds at approximately 65 feet below ground surface (bgs), as well as the presence of water to a depth of 300 feet in the Permian-Triassic red beds. Additionally, the purpose of the boring program is to demonstrate geologic continuity across the site, and the nature of geologic formations beneath the site.

All boring activities will be conducted in a manner generally consistent with the New Mexico Environment Department (NMED) *Monitoring Well Construction and Abandonment Guidelines* (July, 2008, copy attached). All borings will be advanced using traditional air coring methodology. Hollow-stem auger drilling will not be employed. Borings through alluvial material will be advanced approximately five feet into red bed lithology. Borings to be advanced to 300 feet will be cored to a depth of 150 feet, then completed to 300 feet using the air rotary drilling method.

Continuous core and air rotary cuttings collected from each soil boring will be logged for lithologic description (ASTM D 2488-93, *Standard Practice for Description and Identification of Soils)*, and moisture content, in accordance with SMA's Standard Operating Procedure (SOP, copy available upon request). Borings will be allowed to sit open over night (12 hours minimum) to determine if water is present. Presence of water will be determined using an electronic sounder and/or a new, disposable plastic bailer.

In the event that water is encountered, temporary monitoring wells may be constructed in order to accurately determine depth to water and to allow collection of water samples.

Temporary monitoring wells will be completed with two-inch PVC casing, using fifteen (15) feet of 0.010-inch slotted screen. Monitoring wells will be completed to the extent possible with approximately 5 feet of screen above the water table and approximately 10 feet of screen below the water table.

For each temporary monitoring well, silica sand (10-20 grade) will be placed from total depth to approximately two feet above the top of the well screen. An approximately two foot bentonite pellet seal will be placed and hydrated above the sand pack. If the temporary well is to be converted to a permanent monitoring well, the annular space above the bentonite seal will be sealed with bentonite/cement grout. Casing will be extended approximately two feet above grade, and enclosed within a locking surface casing emplaced within a four-foot diameter, four-inch thick concrete pad sloped to drain away from the well boring. The top of the PVC casing will be notched and marked with a permanent black marker on either the highest point of the casing or the northern side of the casing. Top of casing elevations and subsequent depth to water measurement will be referenced to this permanent mark.

Borings and temporary monitoring wells will be plugged and abandoned in accordance with the requirements of the New Mexico Office of the State Engineer (OSE). Any temporary casing installed will be pulled, and borings will be filled with a 6-8% bentonite cement grout from total depth to approximately 3 feet below ground surface (bgs). Clean backfill will then be used from approximately 3 feet bgs up to the surface and made flush with the existing ground surface.

In accordance with the OSE Rules Governing Well Driller Licensing, Construction, Repair and Plugging of Wells (19.27.4 NMAC), SMA will obtain the required exploratory well permit for each monitoring well that is to be installed. A well record for each installed monitoring well will also be supplied to the NMOSE at the completion of all drilling activities. SMA will also submit the appropriate forms to the NMOSE for monitoring well abandonment.

Drilling is currently scheduled to begin the week of August 17, 2009. As that date approaches, SMA will be in touch with Mr. Brad Jones to refine and confirm the drilling schedule. All data collected as part of this boring program will be submitted to the OCD in support of the permit application.

SMA appreciates your prompt review of the plan. If you have any questions, please feel free to call me at 505.299.0942, on my cell at 505.220.6542, or to email me at scott.mckitrick@soudermiller.com . In my absence, please contact Mr. Peter Fant at 505.473.9211 or at peter.fant@soudermiller.com .

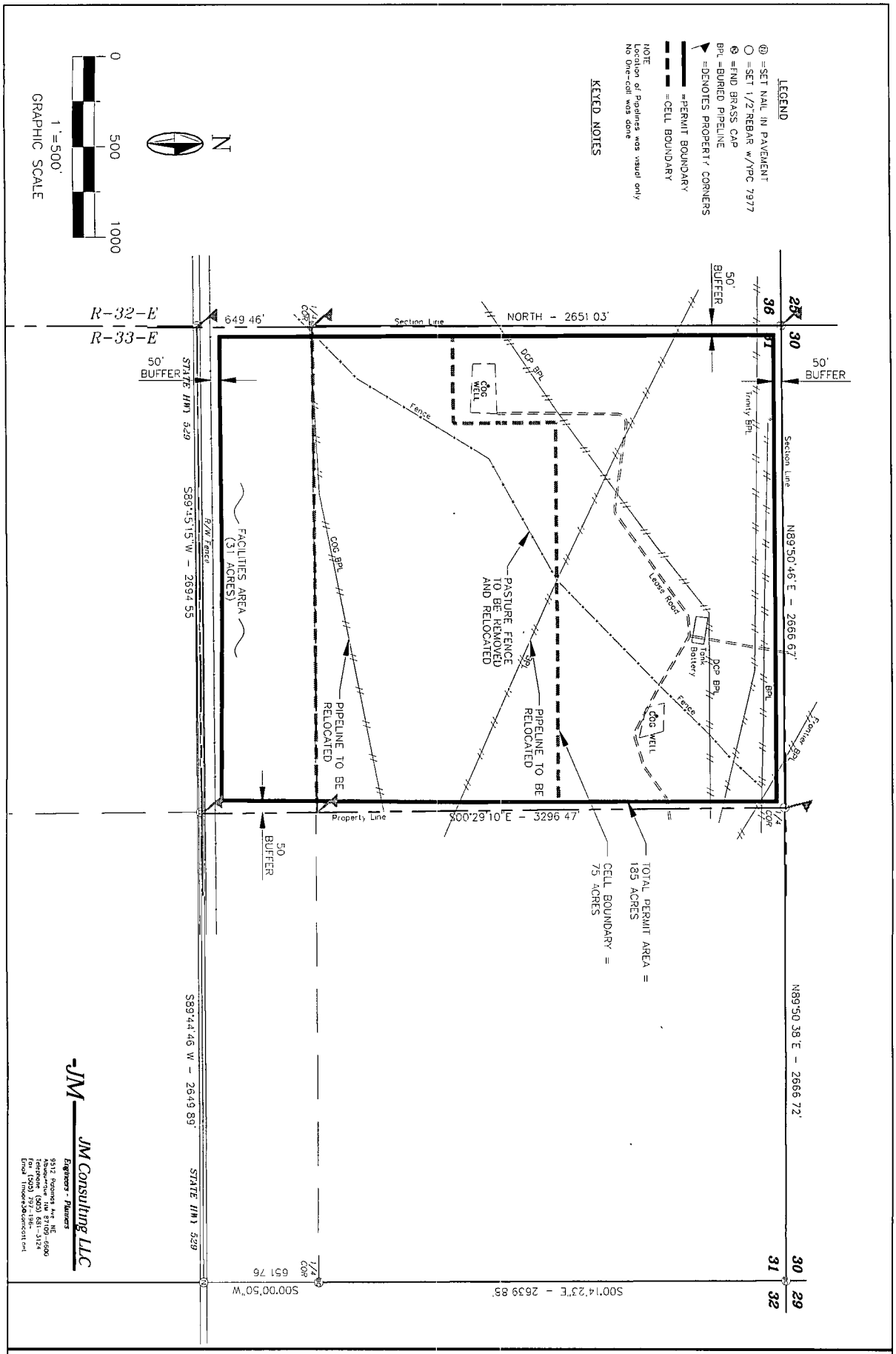
Sincerely,
SOUDER, MILLER & ASSOCIATES

Scott A. McKitrick, P.G.
Senior Geoscientist / Environmental Services Manager

Attachments: Figures 1 and 2
NMED Monitoring Well Construction and Abandonment Guidelines

cc: Mr. Len R. Stokes, P.O. Box 1067, Capitan, NM 88316

Mr. Joe P. Moore, PE, JM Consulting LLC, 9512 Palomas Ave. NE, Albuquerque, NM 87109



Oil Conservation Division Landfill, Sec 31 T17S R33E NMPM - Lea County, New Mexico

Preliminary Landfill Layout
Figure 1

REVISED 07/31/09
07/28/09

Oil Conservation Division Landfill, Sec 31 T17S R33E NMPM - Lea County, New Mexico

Preliminary Bore Hole Layout
Figure 2

REVISED 07/31/09
07/28/09

NEW MEXICO ENVIRONMENT DEPARTMENT
GROUND WATER DISCHARGE PERMIT
MONITORING WELL CONSTRUCTION AND ABANDONMENT GUIDELINES

Purpose: These guidelines identify minimum construction and abandonment details for installation of water table monitoring wells under ground water Discharge Permits issued by the NMED's Ground Water Quality Bureau (GWQB). Proposed locations of monitoring wells required under Discharge Permits and requests to use alternate installation and/or construction methods for water table monitoring wells or other types of monitoring wells (e.g., deep monitoring wells for delineation of vertical extent of contaminants) must be submitted to the GWQB for approval prior to drilling and construction.

General Drilling Specifications:

1. All well drilling activities must be performed by an individual with a current and valid well driller license issued by the State of New Mexico in accordance with 19.27.4 NMAC. Use of drillers with environmental well drilling experience and expertise is highly recommended.
2. Drilling methods that allow for accurate determinations of water table locations must be employed. All drill bits, drill rods, and down-hole tools must be thoroughly cleaned immediately prior to the start of drilling. The bore hole diameter must be drilled a minimum of 4 inches larger than the casing diameter to allow for the emplacement of sand and sealant.
3. After completion, the well should be allowed to stabilize for a minimum of 12 hours before development is initiated.
4. The well must be developed so that formation water flows freely through the screen and is not turbid, and all sediment and drilling disturbances are removed from the well.

Well Specifications (see attached monitoring well schematic):

5. Schedule 40 (or heavier) PVC pipe, stainless steel pipe, carbon steel pipe, or pipe of an alternate appropriate material that has been approved for use by NMED must be used as casing. The casing must have an inside diameter not less than 2 inches. The casing material selected for use must be compatible with the anticipated chemistry of the ground water and appropriate for the contaminants of interest at the facility. The casing material and thickness selected for use must have sufficient collapse strength to withstand the pressure exerted by grouts used as annular seals and thermal properties sufficient to withstand the heat generated by the hydration of cement-based grouts. Casing sections may be joined using welded or threaded joints; the method selected must provide sufficient joint strength for the specific well installation. The casing must extend from the top of the screen to at least one foot above ground surface. The top of the casing must be fitted with a removable cap, and the exposed casing must be protected by a locking steel well shroud. The shroud must be large enough in diameter to allow easy access for removal of the cap. Alternatively, monitoring wells may be completed below grade. In this case, the casing must extend from the top of the screen to 6 to 12 inches below the ground surface; the monitoring wells must be sealed with locking, expandable well plugs; a flush-mount, watertight well vault that is rated to withstand traffic loads must be emplaced around the wellhead; and the cover must be secured with at least one bolt. The vault cover must indicate that the wellhead of a monitoring well is contained within the vault.
6. A 20-foot section (maximum) of continuous-slot, machine slotted, or other manufactured PVC or stainless steel well screen or well screen of an alternate appropriate material that has been approved for use by NMED must be installed across the water table. Screens created by cutting slots into solid casing with saws or other tools must not be used. The screen material selected for use must be compatible with the anticipated chemistry of the ground water and appropriate for the contaminants of interest at the facility. Screen sections may be joined using welded or threaded joints; the method selected must provide sufficient joint strength for the specific well installation and must not introduce constituents that may reasonably be considered contaminants of interest at the facility. A cap must be

attached to the bottom of the well screen; sumps (i.e., casing attached to the bottom of a well screen) should not be installed. The bottom of the screen must be installed no more than 15 feet below the water table; the top of the well screen must be positioned not less than 5 feet above the water table. The well screen slots must be appropriately sized for the formation materials. A slot size of 0.010 inches is generally adequate for most installations.

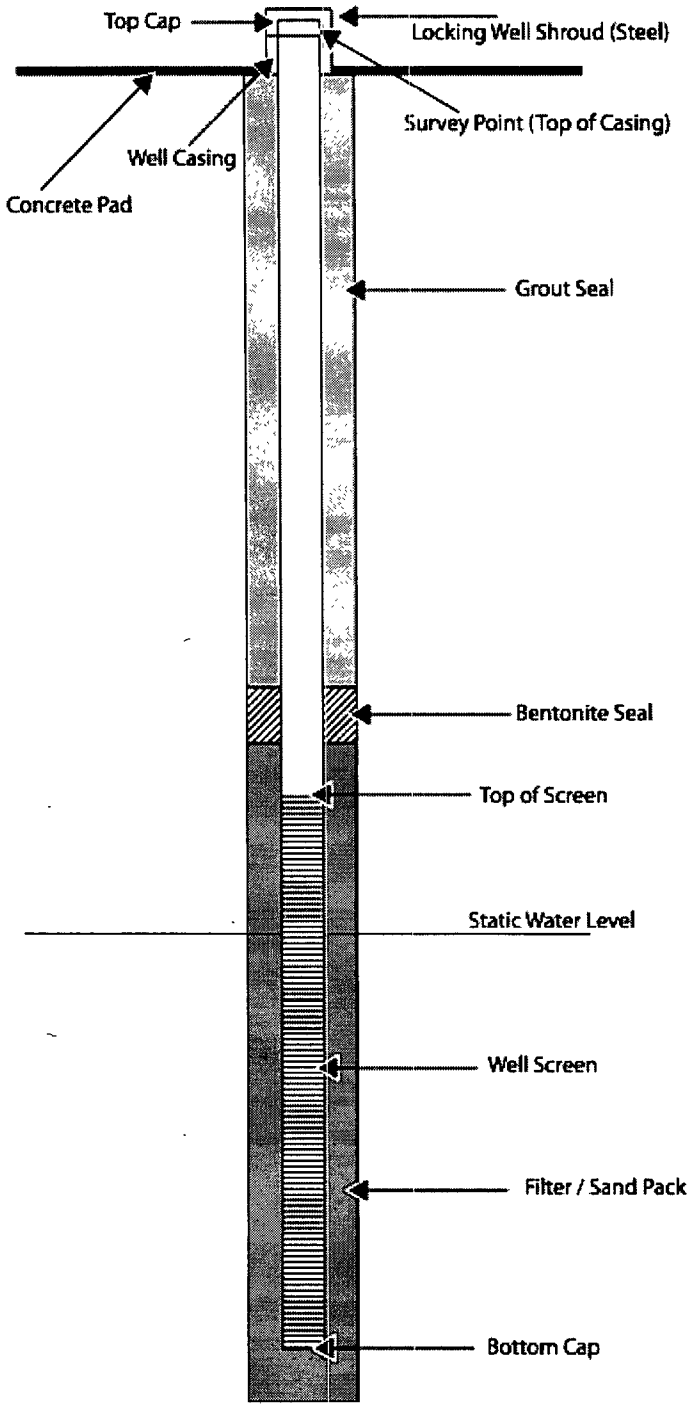
7. Casing and well screen must be centered in the borehole. Placement of centralizers near the top and bottom of the well screen is recommended.
8. A filter pack must be installed around the screen by filling the annular space from 1 foot below the bottom of the screen to 2 feet above the top of the screen with clean silica sand. The filter pack must be properly sized to prevent fine particles in the formation from entering the well; clean medium to coarse silica sand is generally adequate as filter pack material for 0.010-inch slotted well screen. For wells deeper than 30 feet, the sand must be emplaced by a tremmie pipe. The well should be surged or bailed to settle the filter pack and additional sand added, if necessary, before the bentonite seal is emplaced.
9. A bentonite seal must be constructed immediately above the filter pack by emplacing bentonite chips or pellets (3/8-inch in size or smaller) in a manner that prevents bridging of the chips/pellets in the annular space. The bentonite seal must be 3 feet in thickness and hydrated with clean water. Adequate time should be allowed for expansion of the bentonite seal before installation of the annular space seal.
10. The annular space above the bentonite seal must be sealed with a bentonite-cement grout (5 lbs. of powdered bentonite, 94 lbs. of Portland cement, and 6½ to 8½ gallons of clean water), neat cement grout (94 lbs. of Portland cement and 5 to 6 gallons of clean water), or bentonite grout (20 percent solids, created by mixing 50 lbs. of bentonite grout with 24 gallons of clean water). Emplacement of the annular space seal using a tremmie pipe (flow by gravity or pumping through the pipe) is preferred. Annular space seals must extend from the top of the bentonite seal to the ground surface (for wells completed above grade) or to a level 3 to 6 inches below the top of casing (for wells completed below grade).
11. For monitoring wells finished above grade, a concrete pad (2-foot minimum radius, 4-inch minimum thickness) must be poured around the shroud and wellhead. The concrete and surrounding soil must be sloped to direct rainfall and runoff away from the wellhead. The installation of steel posts around the well shroud and wellhead is recommended for monitoring wells finished above grade to protect the wellhead from damage by vehicles or equipment. For monitoring wells finished below grade, a concrete pad (2-foot minimum radius, 4-inch minimum thickness) must be poured around the well vault and wellhead. The concrete and surrounding soil must be sloped to direct rainfall and runoff away from the well vault.

Abandonment:

12. Approval for abandonment of monitoring wells used for ground water monitoring in accordance with Discharge Permit requirements must be obtained from NMED prior to abandonment.
13. Monitoring wells no longer in use must be plugged in a manner to prevent migration of surface runoff or ground water along the length of the well casing. Where possible, this must be accomplished by removing the well casing and pumping bentonite-cement grout, neat cement grout, or bentonite grout (prepared as specified above for annular space seals) from the bottom of the borehole to the ground surface using a tremmie pipe. If the casing cannot be removed, bentonite-cement grout, neat cement grout, or bentonite grout must be emplaced in the well using a tremmie pipe from the bottom of the well to the ground surface.
14. After abandonment, written notification shall be submitted to the NMED with the date and method of abandonment.

Deviation from Guidelines: Requests to construct water table monitoring wells or other types of monitoring wells for ground water monitoring under ground water Discharge Permits in a manner that deviates from the details of these guidelines must be submitted in writing to the GWQB. Each request

must state the rationale for the proposed deviation from these guidelines and provide detailed evidence supporting the request. The GWQB will approve or deny requests to deviate from these guidelines in writing.



CORPORATIONS DIVISION

NEW MEXICO PRC PUBLIC REGULATION COMMISSION

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Back to Search

Entity Detail

CONCHO LANDFILL, LLC
New Mexico Domestic Limited Liability Company

Filing Information		Address Information
CorpNmprc#	4177564	**Mailing Address** 633 S. PAIRIEVIEW LOVINGTON,NM,US,88260
Purpose	N/R	**Corporation Address**
Corporation Status	EX-Exempt	633 S. PAIRIEVIEW LOVINGTON,NM,US,88260
Date Of Incorporation	06/08/2009	**OutOfState Address**
State Of Incorporation	NM	,,
FiscalYearDate		**Foreign Address**
		,,

Agent Information	Director(s) Information
JOHN D. NORRIS 633 S. PAIRIEVIEW LOVINGTON,NM,88260	

Officer(s) Information	Cooperative License Information
Orgnzr1 : JOHN D. NORRIS Orgnzr2 : Orgnzr3 : Orgnzr4 :	Licence# : Expiration Year : Type :

Instrument Information		Supplemental Post Mark Dates
InstrumentNumber	**4177564**	
Filing Date	06/08/2009	Supplemental :
Instrument Type	**Certificate Of Organization**	Purpose Change :
Instrument Text	CONCHO LANDFILL, LLC 4PGS 06/08/2059	Agent Resigned : Name Change :

Note: This is not official record. Please contact NMPRC if question or conflict.

Souder, Miller & Associates ♦ 3451 Candelaria Road NE, Suite D
Albuquerque, NM 87107-1948 ♦ (505) 299-0942 ♦ (877) 299-0942 ♦ fax (505) 293-3430

July 28, 2009 #5419335

Mr. Joe P. Moore, PE
JM Consulting LLC
9512 Palomas Ave. NE
Albuquerque, NM 87109

Re: Fatal Flaw Analysis for Proposed Concho Landfill LLC, Lea County, New Mexico

Dear Mr. Moore:

Souder, Miller and Associates (SMA) are pleased to present this letter report regarding a fatal flaw analysis for the proposed Concho Landfill located in Lea County, New Mexico at T33E, R17S, Section 31. This report was prepared pursuant to the contract between JM Consulting LLC and SMA, dated June 29, 2009. The purpose of this letter report is to summarize regional and site geology and hydrology of the area, summarize data gaps and determine if the site meets the siting requirement of 19.15.36.NMAC for an oil field waste landfill.

Regional and Site Geology

The proposed Concho Landfill (Figure 1) is located in the Delaware Basin in southeastern New Mexico. The Delaware Basin contains up to 24,000 vertical feet of sedimentary rocks deposited over the last 500 million years. The Permian age rocks in the Delaware Basin are common targets for natural gas, oil and water, and the Salado Formation of the Permian has been utilized for the Waste Isolation Pilot Plant (WIPP) Repository (Johnson, et. al., 2003). Sedimentary beds are relatively flat lying, and exhibit limited vertical topography.

In Lea County surficial geology consists generally of Quaternary age sediments and the Tertiary age Ogallala Formation. East of the proposed landfill site is the Mescalero Ridge, which is an escarpment that runs northwest to southeast, and divides the Llano Estacado (to the east of the ridge) and the Querecho Plains (to the west of the ridge) (Nicholson and Clebsch, 1961).

The proposed site is located in the Querecho Plains, approximately 2.5 miles west of Mescalero Ridge. On July 9, 2009 SMA logged a soil boring drilled by Cox Drilling (Figure 3a-3c). The first 65 feet encountered was alluvium material thought to be of Quaternary age. Lithology encountered between 65 feet below ground surface (bgs) and 150 feet bgs was unconsolidated red, red-brown and purple clays. These beds are thought to be Triassic (Dockum Group, which includes the Chinle and Santa Rosa Formations) or late Permian age. The Triassic and later Permian age red beds are reported to be separated by an erosional unconformity. Based on the borehole lithology and a review of published data, the specific age of the red beds can not be assigned to a specific age, and will be herein described as Permian-Triassic.

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Groundwater Hydrology

The proposed landfill is located in the eastern portion of the Roswell-Artesia Underground Water Basin (UWB). The principle water bearing rocks in the Roswell-Artesia UWB is limestone (Johnson, et. al., 2003), principally within the White Horse Group. At the proposed landfill, the depth to limestone (White Horse Group) is between 2,515 and 2,770 feet based on a review of nearby oil and gas wells. A lesser used aquifer is the Rustler Formation of the

Ochoa Group, which is located at a depth of approximately 1,200 feet beneath the site. The Chinle and Santa Rosa Formations are known to yield water, generally of low production and poor quality. In the southwestern portion of Lea County, the Santa Rosa Formation is the principle aquifer. To the east of Mescalero Ridge (eastern portion of Lea County), the principal aquifer is the Ogallala Formation (High Plains Aquifer). This aquifer is stratigraphically higher than the alluvium and red beds underlying the Concho Landfill site.

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Table 1 - Wells Within a 2-Mile Radius of the Conchas Landfill

Figure ID	Well Name or Owner	Depth to Water	Well Location	Source	Date DTW Was Measured	Well Completion Date	Type of Well
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12	CP-546	70	18 33 9 42241	OSE		6/3/1975	
13	25-24944	83	17.32.36	EMNRD		2/16/1975	Oil/Gas
14	30-025-38277	48	17.32.36	EMNRD		Not Available	Oil/Gas
15	30-025-36747	190	17.33.31	EMNRD		10/24/2004	Oil/Gas
16	30-025-36633	150	17.33.31	EMNRD		6/20/2004	Oil/Gas
17	30.025-36388	61/190**	17.33.31.13	EMNRD		12/12/2003	Oil/Gas
18	30-025-36494	61/190**	17.33.31.242	EMNRD		3/30/2004	Oil/Gas
19	Unknown	198	17.33.28.110	USGS GW Rep 6	5/11/1954		
20	Walter Williams	70	17.33.30.124	USGS GW Rep 6	7/29/1954		
21	Unknown	147 39	17 33 20.221443	BLM OFR 95	3/14/1961		Boring
22	Unknown	163.45	17.33.20.24143	BLM OFR 95	2/15/1971		Windmill
23	Unknown	198	17.33.28.110	BLM OFR 95	5/11/1954		None
24	Unknown	201.35	17.33.29.222221	BLM OFR 95	3/14/1961		Industrial
25	Unknown	61.43	17.33.29.34411	BLM OFR 95	2/16/1971		Oil/Gas
26	Unknown	69.14	17.33.30.12432	BLM OFR 95	2/16/1971		Domestic

* indicates the log is an excerpt from Oil Conservation Commission files in Hobbs, N.M, and the logs did not indicate if water was encountered during drilling
** well record indicates two depths to first water
- Blank fields indicate information not available
- Well completion date represents the date the OSE recived and typed the data from Oil Conservation Commission

Most of the well records obtained by SMA were for wells drilled prior to 1980, and the majority were for oil wells as opposed to water wells. Based on a conversation with Jerry W. Sherrell

with Mack Energy Corporation, the depth to waters on the OCD permits are usually not the actual depth to water encountered during drilling, but the depth to water they obtain from OCD or OSE Waters database, thus, the reliability of this data is questionable at best. This includes the wells closest to the proposed site (13 through 18, Table 1). Well 20 (use unknown) and 26 (domestic) are located approximately one mile north of the site and indicated depths to water of 69 to 70 feet, based on data from 1954 and1971, respectively. Well 25 (oil/gas), located approximately one mile east-southeast of the site, indicated a depth to water of 61 feet in 1971.

A water table contour map of Lea County was compiled by Geohydrology Associates Inc. on behalf of the BLM in 1978 in support of a BLM Environmental Impact Statement (Geohydrology Associates Inc., 1978). The report projected a shallow (<100 feet) depth to water in the area of the Concho Landfill. A review of this map indicates that water table contours were based on limited data in the Concho Landfill area.

On July 9, 2009, SMA installed a soil boring (Figure 3) to a depth of 150 feet bgs and did not encounter moist soils or water. The boring was advanced by air-rotary drilling. The boring was advanced through alluvium to 65 feet and red sediments from 65 feet to total depth of the boring. The boring was allowed to sit open overnight, and did not contain water on sounding the following day, indicating depth to water in excess of 150 feet. The boring was then plugged in accordance with the requirements of the OSE.

The discrepancy between reported historical depth to groundwater in the red beds proximal to the Concho Landfill and the boring advanced by SMA is likely due to drawdown of the water table over the last 30 years. Given the low productivity of the red bed aquifer, minimal pumping would cause rapid drawdown. As the red bed aquifer has low productivity and poor water quality, SMA estimates the depth to a productive aquifer at the site to be at least 1,200 feet, the depth of the Rustler Formation.

Surface Water Hydrology

Surface water in the Lea County is limited to ephemeral streams, playa lakes and small lakes that are a result of summer precipitation (Lea County Regional Water Plan, 2000). The Mescalero Ridge acts as a surface water flow divide; surface water to the west of the ridge is part of the Pecos River Valley. However due to the lack of an integrated stream network, water does not flow to the Pecos River (Nicholson and Clebsch, 1961). There are no surface water bodies (watercourse, lakebed, sinkhole or playa lake) within the siting criteria distance of 200 feet of the proposed site.

Mines

SMA reviewed Bureau of Land Management (BLM), NMBGMR and EMNRD, Mining and Minerals Division (MMD) databases for mines within 2 miles of the proposed landfill. These searches indicated no mines (surface or underground), mills or quarries exist within a 2 mile radius. Additionally, SMA reviewed the USGS Dog Lake quadrangle topographic map, which includes the Concho Landfill site, for any mines, mills or quarries. The topographic map indicates that there are 4 gravel pits within a 2 mile radius (two are approximately 1.3 and 1.7 miles northwest of the site, the third gravel pit is approximately 0.95 miles east of the site and the fourth gravel pit is approximately one-half mile northeast of the site), however it is unknown

if these pits are still active, and SMA does not believe their proximity will impact the permitting of the proposed landfill.

Wetlands
SMA reviewed National Wetlands Inventory Map published in 1984 by United States Fish and Wildlife Service to determine if there were any wetlands within 500 feet of the proposed landfill. This review indicated the closest wetland is approximately 1.2 miles northeast of the site, thus no wetlands occur within 500 feet of the proposed landfill.

Wellhead Protection/Floodplain
Wellhead protection areas are related to public water supply wells. As no public water supply wells exist within the area, the site is not within a wellhead protection area. At this time, the Federal Emergency Management Agency (FEMA) has not undertaken a study to determine if this area is within a 100 year flood zone, given its rural nature. Preliminary evaluation of the site indicates that it is not prone to flooding.

Occupied Structures
There are no occupied structures within a minimum distance of one mile of the site. The nearest permanent residence, school, hospital, institution or church is likely in Maljamar, New Mexico, approximately six miles to the northeast. Thus the site meets the siting criteria of no occupied structures within 500 feet.

OCD Siting Requirements Compliance
Based on the information summarized above, the proposed Concho Landfill site is in compliance with the siting requirements of 19.15.36 NMAC.

SMA appreciates the opportunity to provide environmental services to JM Consulting LLC. If you have any questions, please feel free to call me at 505.299.0942, on my cell at 505.220.6542, or to email me at scott.mckitrick@soudermiller.com.

Sincerely,
SOUDER, MILLER & ASSOCIATES

Scott A. McKitrick, P.G.
Senior Geoscientist / Environmental Services Manager

Attachments: Figures 1-3

References

Bureau of Land Management, website accessed July, 2009.

Federal Emergency Management Agency, website accessed July, 2009.

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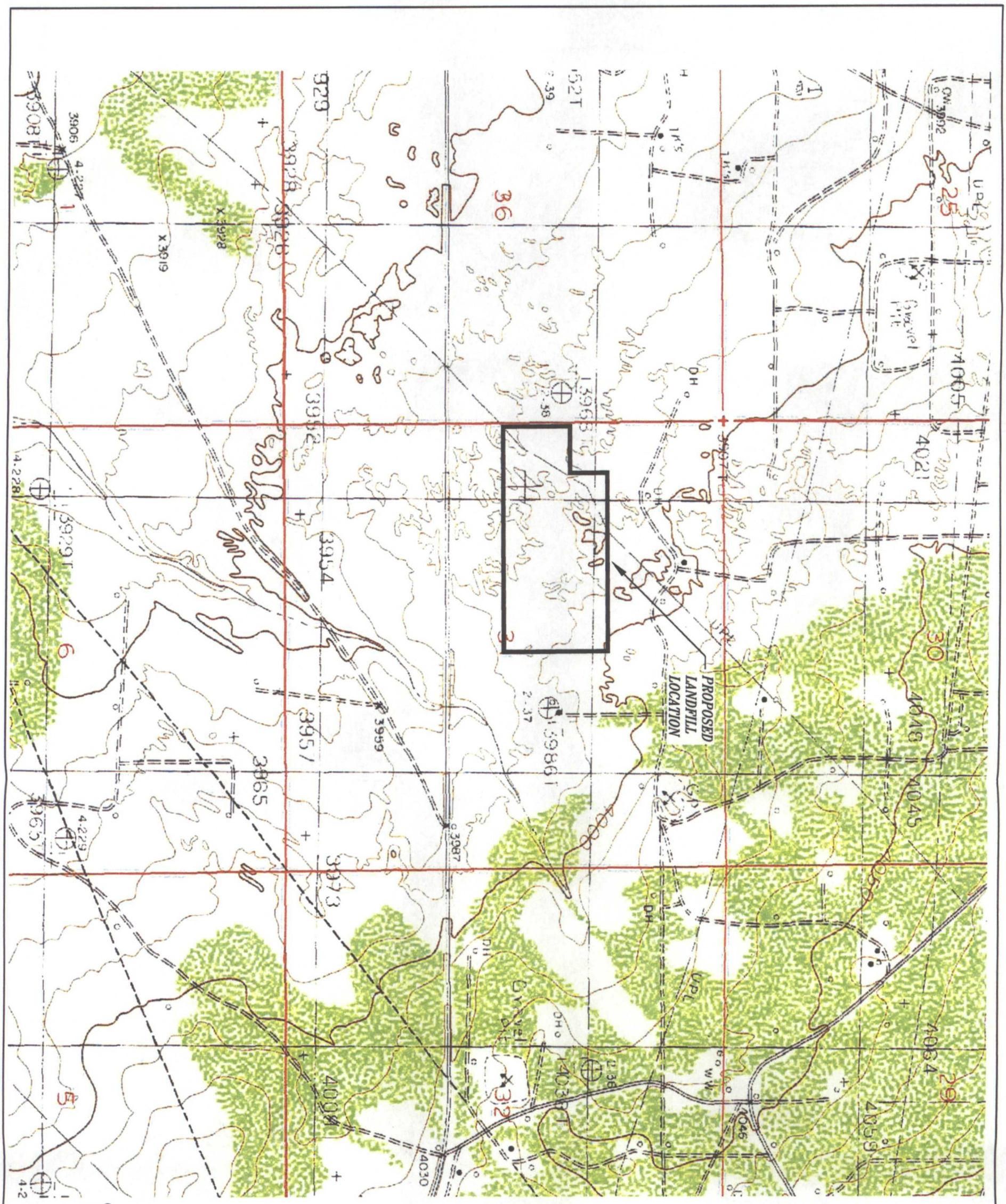
United States Fish and Wildlife Services, Hobbs, New Mexico-Texas 1:100,000-Scale Map of National Wetlands Inventory, 1984, United States Fish and Wildlife Service.

United States Geological Survey, Dog Lake Quadrangle 1:24,000, 7.5 Minute Series, 1979, United States Geological Survey, Reston Va.



CONCHO LANDFILL LLC
SITE MAP
LEA COUNTY, NEW MEXICO

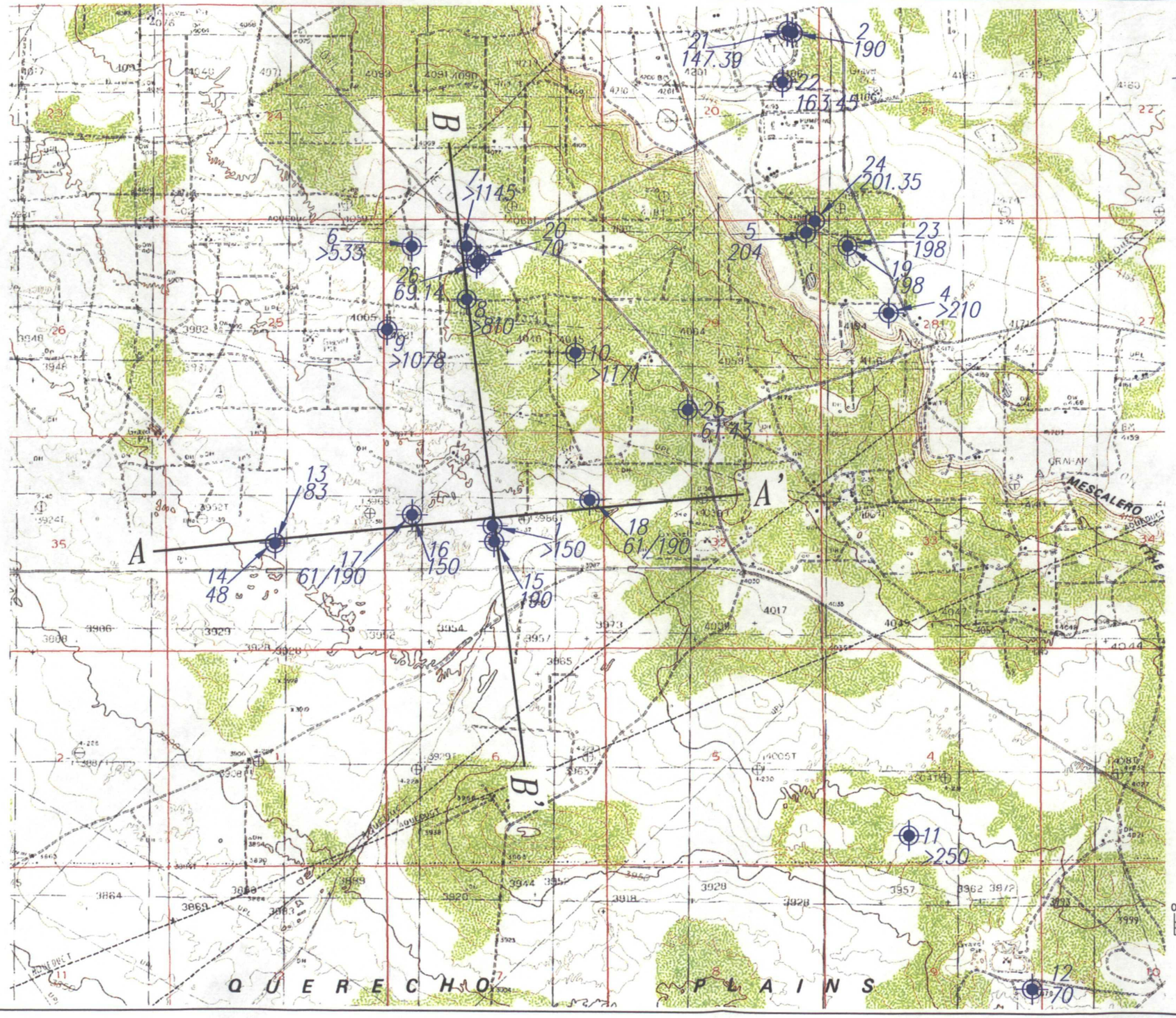
FIGURE 1

REVISIONS
BY _____ DATE _____ DESCR. _____
BY _____ DATE _____ DESCR. _____

4418610
7/24/2009

DRAWN MLS
CHECKED SMC
APPROVED SAM

SMA
3451 CANDELARIA ROAD NE, SUITE D
ALBUQUERQUE, NEW MEXICO 87112-2461
(505) 299-0942 / 293-3430(FAX)
SERVING THE SOUTHWEST AND ROCKY MOUNTAINS



LEGEND

1 WELL (REFERENCE TABLE 1)

>150 DEPTH TO WATER

FIGURE 2

CONCHO LANDFILL LLC
WELL LOCATIONS
LEA COUNTY, NEW MEXICO

SMA
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(505) 299-0942 / 293-3430(FAX)
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DRAWN MLS
CHECKED SMC
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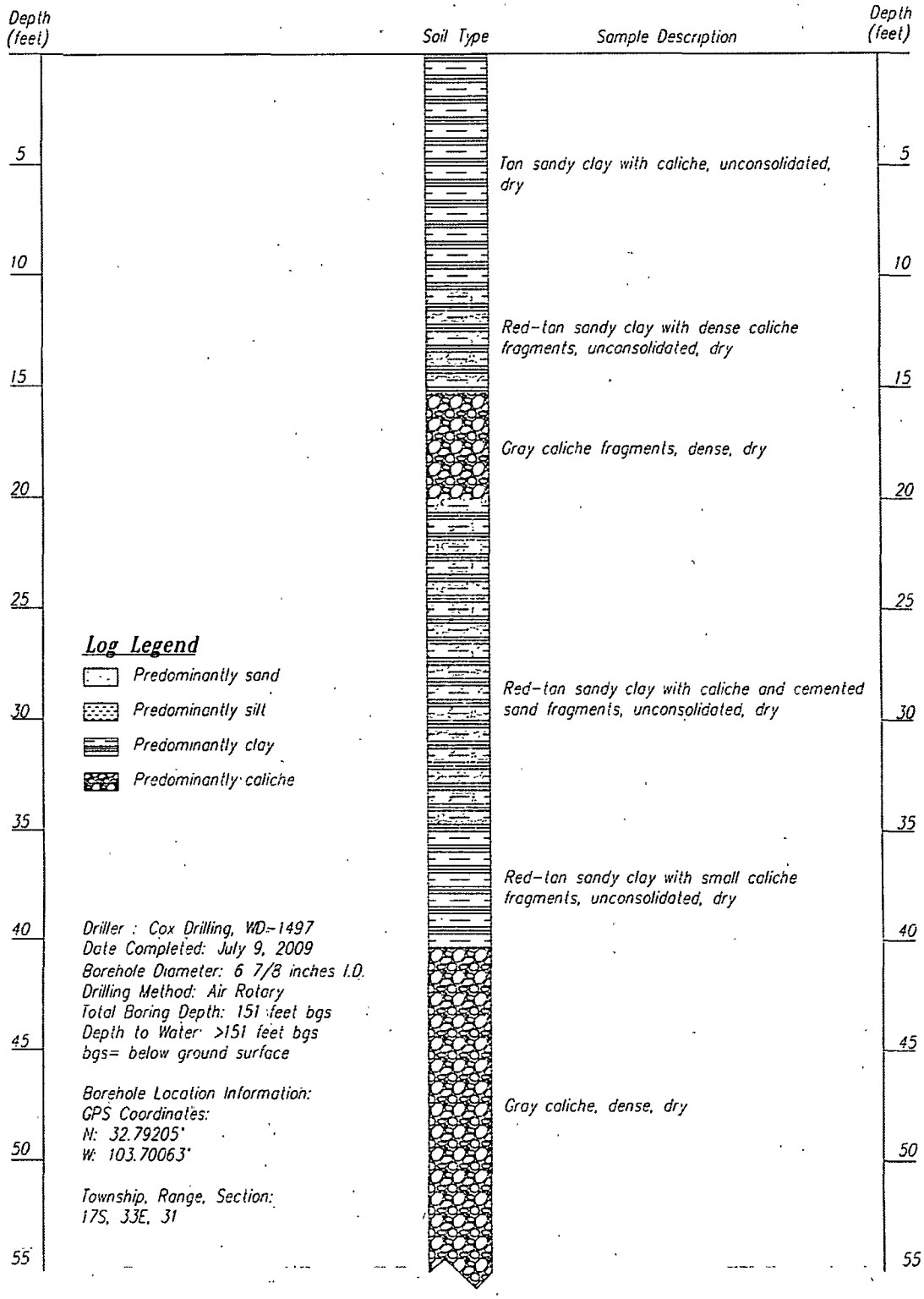
REVISIONS
DESCR. DESCR.
DATE DATE
BY BY

4418610
7/27/2009

Soil Boring Log



Log Legend

- Predominantly sand
- Predominantly silt
- Predominantly clay
- Predominantly caliche

Driller : Cox Drilling, WD-1497
Date Completed: July 9, 2009
Borehole Diameter: 6 7/8 inches I.D.
Drilling Method: Air Rotary
Total Boring Depth: 151 feet bgs
Depth to Water: >151 feet bgs
bgs= below ground surface

Borehole Location Information:
GPS Coordinates:
N: 32.79205°
W: 103.70063°

Township, Range, Section:
17S, 33E, 31

Soil Boring Log Diagram
Concho Landfill LLC
Lea County, New Mexico

Figure 3
Page 1 of 3

3451 Candelaria NE, Suite D
Albuquerque, New Mexico 87107-1956
(505) 299-0942 / (505) 293-3430 (Fax)
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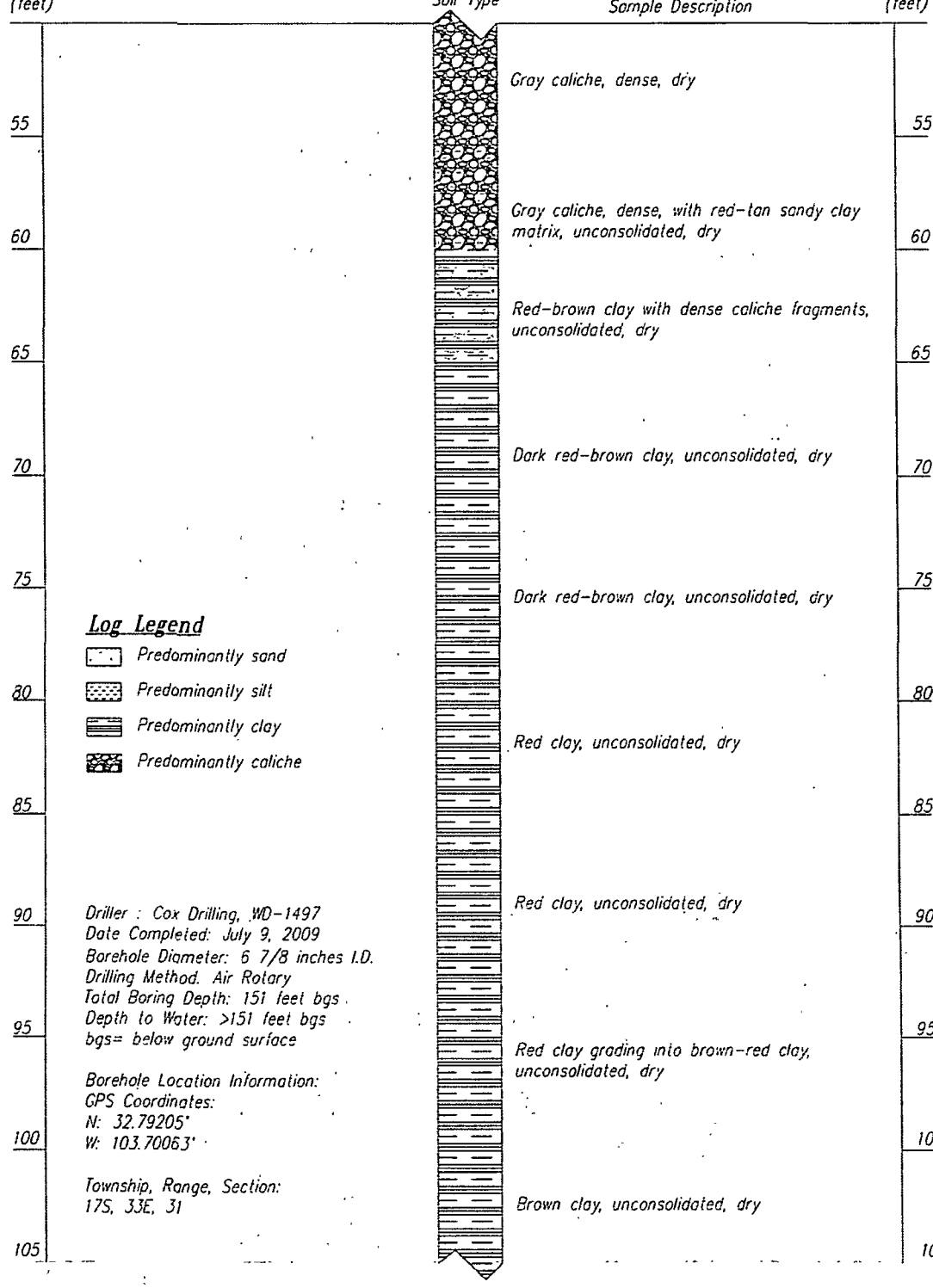
SMA
CIVIL/ENVIRONMENTAL CONSULTANTS & ENGINEERS

Drawn LNK
Checked ???
Approved SAM

Revisions
By ____ Date: ____ Descr.: ____
By ____ Date: ____ Descr.: ____

07-15-09
#54193.35

Soil Boring Log



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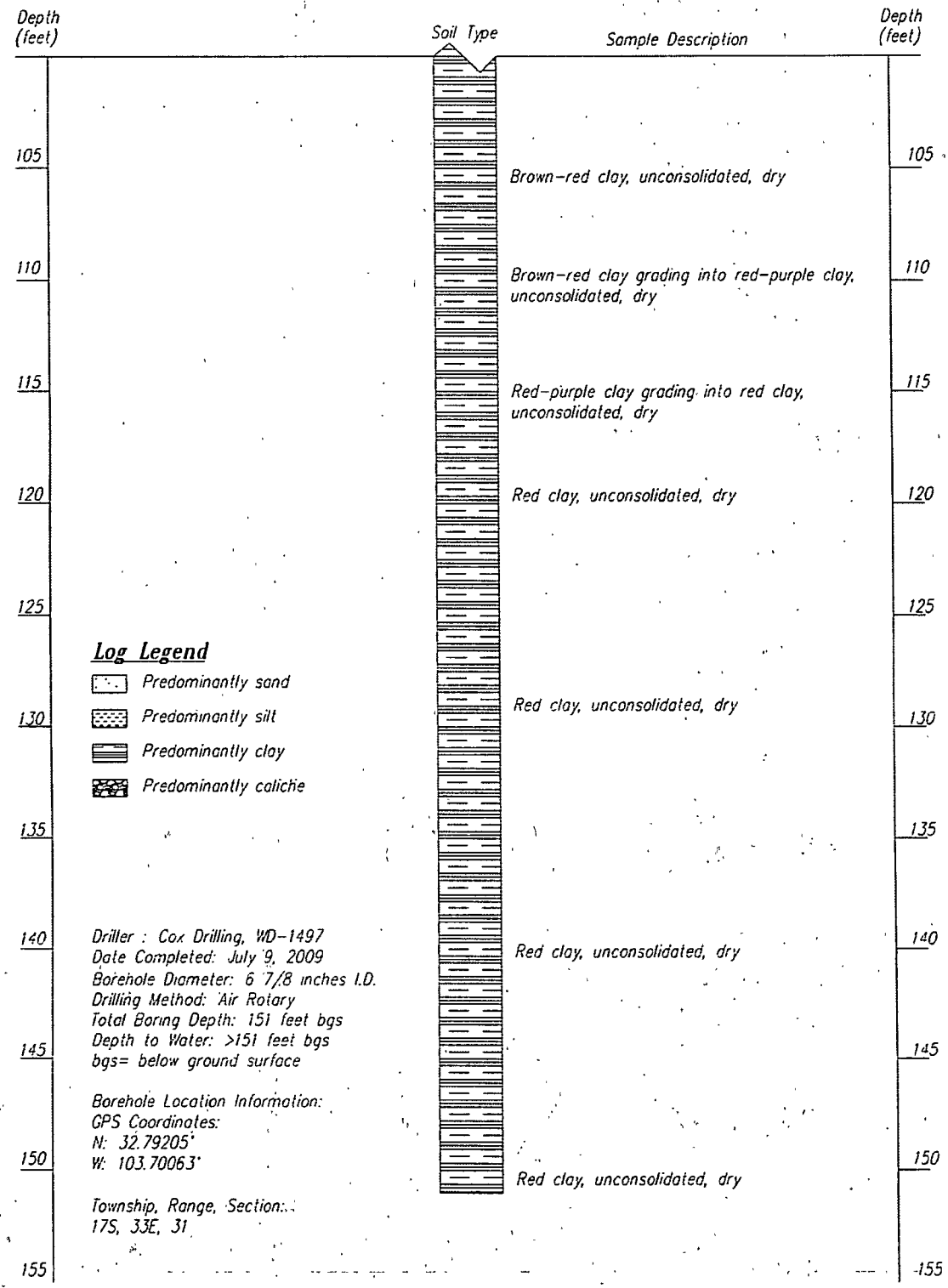

Figure 3
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Approved SAH

Revisions
By: Date: Descr.:
By: Date: Descr.:

07-15-09
#5419335

Souder, Miller & Associates ♦ 3451 Candelaria Road NE, Suite D
Albuquerque, NM 87107-1948 ♦ (505) 299-0942 ♦ (877) 299-0942 ♦ fax (505) 293-3430

July 28, 2009 #5419335

Mr. Joe P. Moore, PE
JM Consulting LLC
9512 Palomas Ave. NE
Albuquerque, NM 87109

Re: Fatal Flaw Analysis for Proposed Concho Landfill LLC, Lea County, New Mexico

Dear Mr. Moore:

Souder, Miller and Associates (SMA) are pleased to present this letter report regarding a fatal flaw analysis for the proposed Concho Landfill located in Lea County, New Mexico at T33E, R17S, Section 31. This report was prepared pursuant to the contract between JM Consulting LLC and SMA, dated June 29, 2009. The purpose of this letter report is to summarize regional and site geology and hydrology of the area, summarize data gaps and determine if the site meets the siting requirement of 19.15.36.NMAC for an oil field waste landfill.

Regional and Site Geology

The proposed Concho Landfill (Figure 1) is located in the Delaware Basin in southeastern New Mexico. The Delaware Basin contains up to 24,000 vertical feet of sedimentary rocks deposited over the last 500 million years. The Permian age rocks in the Delaware Basin are common targets for natural gas, oil and water, and the Salado Formation of the Permian has been utilized for the Waste Isolation Pilot Plant (WIPP) Repository (Johnson, et. al., 2003). Sedimentary beds are relatively flat lying, and exhibit limited vertical topography.

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10	Cities Service Co.	>1,171*	17.33.30.42	OSE		5/11/1978	Oil/Gas
11	CP-758 Explor.	>250	18.33.4.34233	OSE		5/10/1991	
12	CP-546	70	18.33.9.42241	OSE		6/3/1975	
13	25-24944	83	17.32.36	EMNRD		2/16/1975	Oil/Gas
14	30-025-38277	48	17.32.36	EMNRD		Not Available	Oil/Gas
15	30-025-36747	190	17.33.31	EMNRD		10/24/2004	Oil/Gas
16	30-025-36633	150	17.33.31	EMNRD		6/20/2004	Oil/Gas
17	30.025-36388	61/190**	17.33.31.13	EMNRD		12/12/2003	Oil/Gas
18	30-025-36494	61/190**	17.33.31.242	EMNRD		3/30/2004	Oil/Gas
19	Unknown	198	17.33.28 110	USGS GW Rep 6	5/11/1954		
20	Walter Williams	70	17 33.30.124	USGS GW Rep 6	7/29/1954		
21	Unknown	147.39	17.33 20 221443	BLM OFR 95	3/14/1961		Boring
22	Unknown	163.45	17.33.20.24143	BLM OFR 95	2/15/1971		Windmill
23	Unknown	198	17.33 28.110	BLM OFR 95	5/11/1954		None
24	Unknown	201.35	17.33.29.222221	BLM OFR 95	3/14/1961		Industrial
25	Unknown	61.43	17.33.29.34411	BLM OFR 95	2/16/1971		Oil/Gas
26	Unknown	69.14	17.33.30.12432	BLM OFR 95	2/16/1971		Domestic

* indicates the log is an excerpt from Oil Conservation Commission files in Hobbs, N.M, and the logs did not indicate if water was encountered during drilling
** well record indicates two depths to first water
- Blank fields indicate information not available
- Well completion date represents the date the OSE recived and typed the data from Oil Conservation Commission

Most of the well records obtained by SMA were for wells drilled prior to 1980, and the majority were for oil wells as opposed to water wells. Based on a conversation with Jerry W. Sherrell

with Mack Energy Corporation, the depth to waters on the OCD permits are usually not the actual depth to water encountered during drilling, but the depth to water they obtain from OCD or OSE Waters database, thus, the reliability of this data is questionable at best. This includes the wells closest to the proposed site (13 through 18, Table 1). Well 20 (use unknown) and 26 (domestic) are located approximately one mile north of the site and indicated depths to water of 69 to 70 feet, based on data from 1954 and1971, respectively. Well 25 (oil/gas), located approximately one mile east-southeast of the site, indicated a depth to water of 61 feet in 1971.

A water table contour map of Lea County was compiled by Geohydrology Associates Inc. on behalf of the BLM in 1978 in support of a BLM Environmental Impact Statement (Geohydrology Associates Inc., 1978). The report projected a shallow (<100 feet) depth to water in the area of the Concho Landfill. A review of this map indicates that water table contours were based on limited data in the Concho Landfill area.

On July 9, 2009, SMA installed a soil boring (Figure 3) to a depth of 150 feet bgs and did not encounter moist soils or water. The boring was advanced by air-rotary drilling. The boring was advanced through alluvium to 65 feet and red sediments from 65 feet to total depth of the boring. The boring was allowed to sit open overnight, and did not contain water on sounding the following day, indicating depth to water in excess of 150 feet. The boring was then plugged in accordance with the requirements of the OSE.

The discrepancy between reported historical depth to groundwater in the red beds proximal to the Concho Landfill and the boring advanced by SMA is likely due to drawdown of the water table over the last 30 years. Given the low productivity of the red bed aquifer, minimal pumping would cause rapid drawdown. As the red bed aquifer has low productivity and poor water quality, SMA estimates the depth to a productive aquifer at the site to be at least 1,200 feet, the depth of the Rustler Formation.

Surface Water Hydrology

Surface water in the Lea County is limited to ephemeral streams, playa lakes and small lakes that are a result of summer precipitation (Lea County Regional Water Plan, 2000). The Mescalero Ridge acts as a surface water flow divide; surface water to the west of the ridge is part of the Pecos River Valley. However due to the lack of an integrated stream network, water does not flow to the Pecos River (Nicholson and Clebsch, 1961). There are no surface water bodies (watercourse, lakebed, sinkhole or playa lake) within the siting criteria distance of 200 feet of the proposed site.

Mines

SMA reviewed Bureau of Land Management (BLM), NMBGMR and EMNRD, Mining and Minerals Division (MMD) databases for mines within 2 miles of the proposed landfill. These searches indicated no mines (surface or underground), mills or quarries exist within a 2 mile radius. Additionally, SMA reviewed the USGS Dog Lake quadrangle topographic map, which includes the Concho Landfill site, for any mines, mills or quarries. The topographic map indicates that there are 4 gravel pits within a 2 mile radius (two are approximately 1.3 and 1.7 miles northwest of the site, the third gravel pit is approximately 0.95 miles east of the site and the fourth gravel pit is approximately one-half mile northeast of the site), however it is unknown

if these pits are still active, and SMA does not believe their proximity will impact the permitting of the proposed landfill.

Wetlands
SMA reviewed National Wetlands Inventory Map published in 1984 by United States Fish and Wildlife Service to determine if there were any wetlands within 500 feet of the proposed landfill. This review indicated the closest wetland is approximately 1.2 miles northeast of the site, thus no wetlands occur within 500 feet of the proposed landfill.

Wellhead Protection/Floodplain
Wellhead protection areas are related to public water supply wells. As no public water supply wells exist within the area, the site is not within a wellhead protection area. At this time, the Federal Emergency Management Agency (FEMA) has not undertaken a study to determine if this area is within a 100 year flood zone, given its rural nature. Preliminary evaluation of the site indicates that it is not prone to flooding.

Occupied Structures
There are no occupied structures within a minimum distance of one mile of the site. The nearest permanent residence, school, hospital, institution or church is likely in Maljamar, New Mexico, approximately six miles to the northeast. Thus the site meets the siting criteria of no occupied structures within 500 feet.

OCD Siting Requirements Compliance
Based on the information summarized above, the proposed Concho Landfill site is in compliance with the siting requirements of 19.15.36 NMAC.

SMA appreciates the opportunity to provide environmental services to JM Consulting LLC. If you have any questions, please feel free to call me at 505.299.0942, on my cell at 505.220.6542, or to email me at scott.mckitrick@soudermiller.com .

Sincerely,
SOUDER, MILLER & ASSOCIATES

Scott A. McKitrick, P.G.
Senior Geoscientist / Environmental Services Manager

Attachments: Figures 1-3

References

Bureau of Land Management, website accessed July, 2009.

Federal Emergency Management Agency, website accessed July, 2009.

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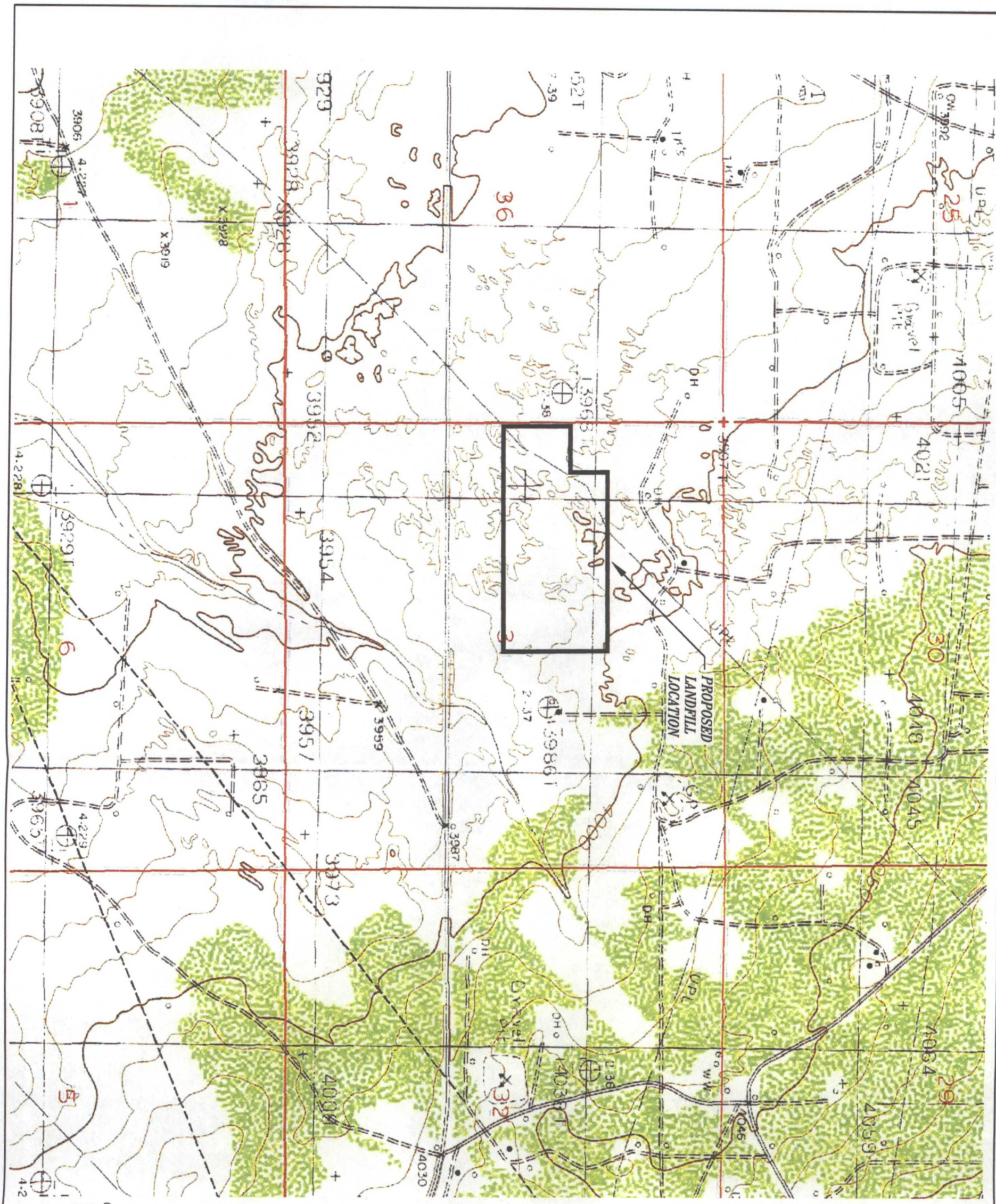
United States Geological Survey, Dog Lake Quadrangle 1:24,000, 7.5 Minute Series, 1979, United States Geological Survey, Reston Va.

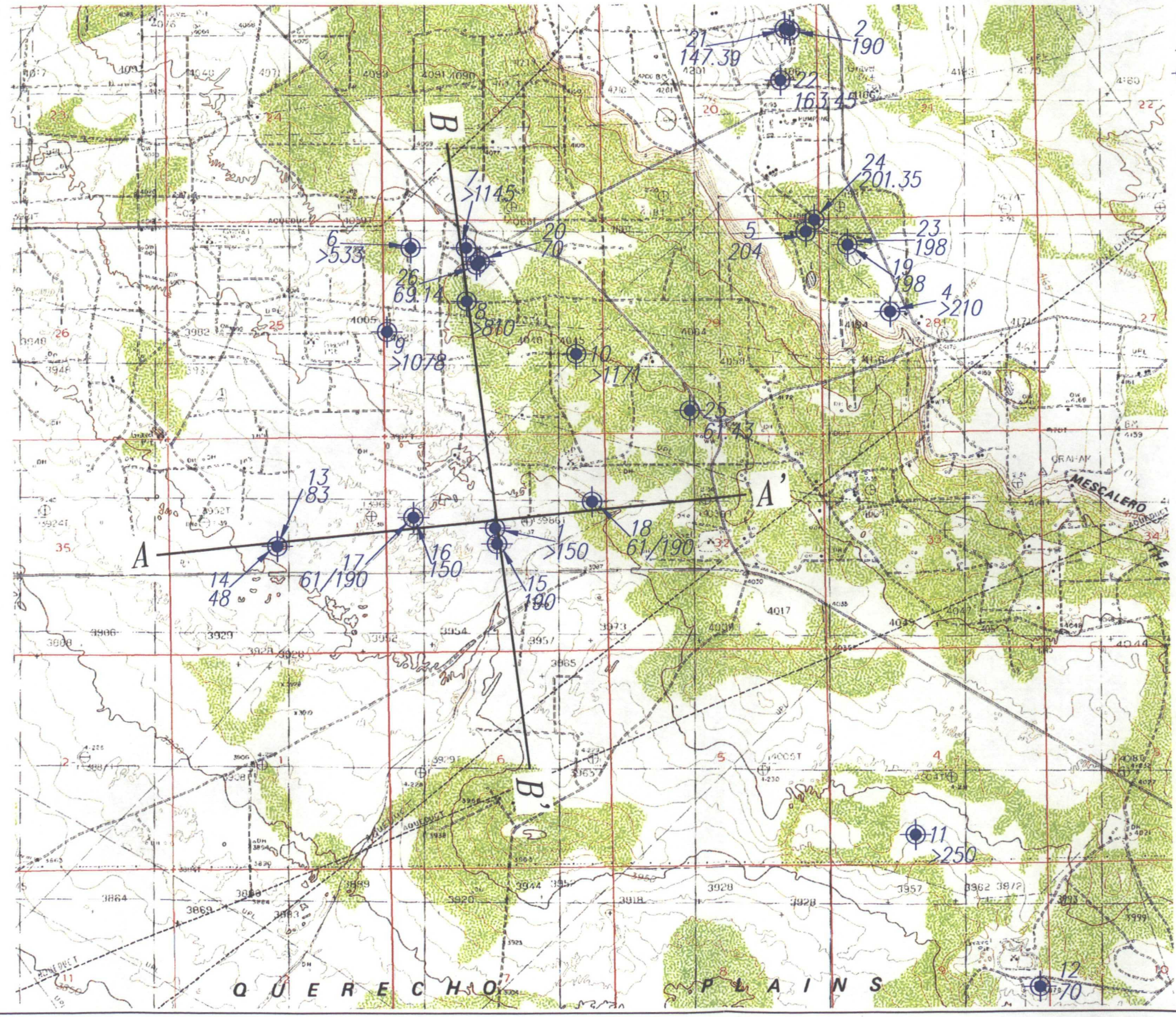


CONCHO LANDFILL LLC
SITE MAP
LEA COUNTY, NEW MEXICO

FIGURE 1

DRAWN MLS
CHECKED SMC
APPROVED SAM

SMA
3451 CANDELARIA ROAD NE. SUITE D
ALBUQUERQUE, NEW MEXICO 87112-2461
(505) 299-0942 / 293-3430(FAX)
SERVING THE SOUTHWEST AND ROCKY MOUNTAINS



LEGEND

1	WELL (REFERENCE TABLE 1)
>150	DEPTH TO WATER

N

0 1250 2500 5000

SCALE: 1"=2500 FT.

CONCHO LANDFILL LLC
WELL LOCATIONS
LEA COUNTY, NEW MEXICO

FIGURE 2

3451 CANDELARIA ROAD NE, SUITE D
ALBUQUERQUE, NEW MEXICO 87112-2461
(505) 299-0942 / 293-3430(FAX)
SERVING THE SOUTHWEST AND ROCKY MOUNTAINS

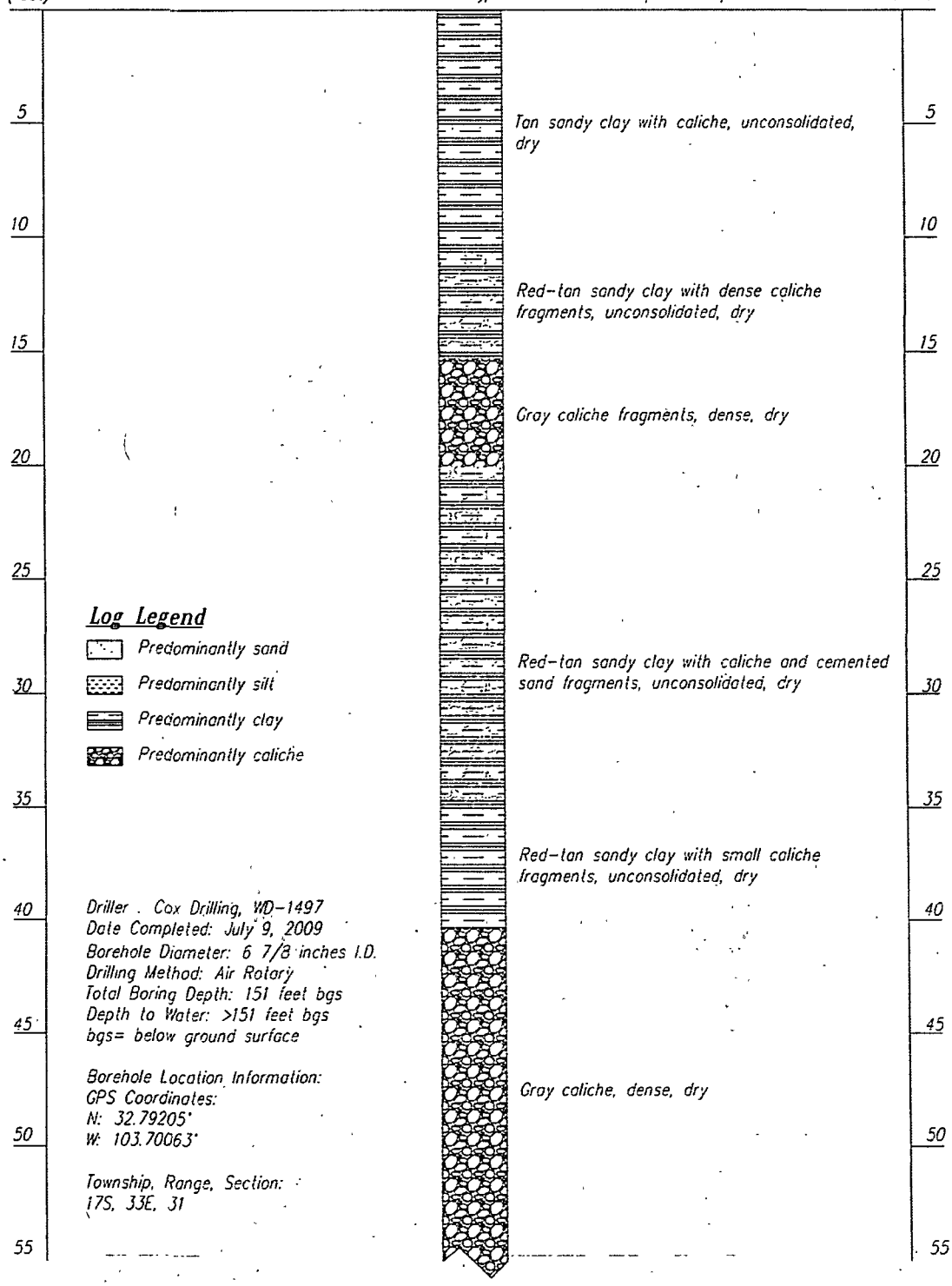
SMA

DRAWN MLS
CHECKED SMC
APPROVED SAM

REVISIONS
DESCR. DESCR.
DATE DATE
BY BY

441861O
7/27/2009

Soil Boring Log



Log Legend

- Predominantly sand
- Predominantly silt
- Predominantly clay
- Predominantly caliche

Driller . Cox Drilling, WD-1497
Date Completed: July 9, 2009
Borehole Diameter: 6 7/8 inches I.D.
Drilling Method: Air Rotary
Total Boring Depth: 151 feet bgs
Depth to Water: >151 feet bgs
bgs= below ground surface

Borehole Location Information:
GPS Coordinates:
N: 32.79205°
W: 103.70063°

Township, Range, Section:
17S, 33E, 31

Figure 3
Page 1 of 3

Soil Boring Log Diagram
Concho Landfill LLC
Lea County, New Mexico

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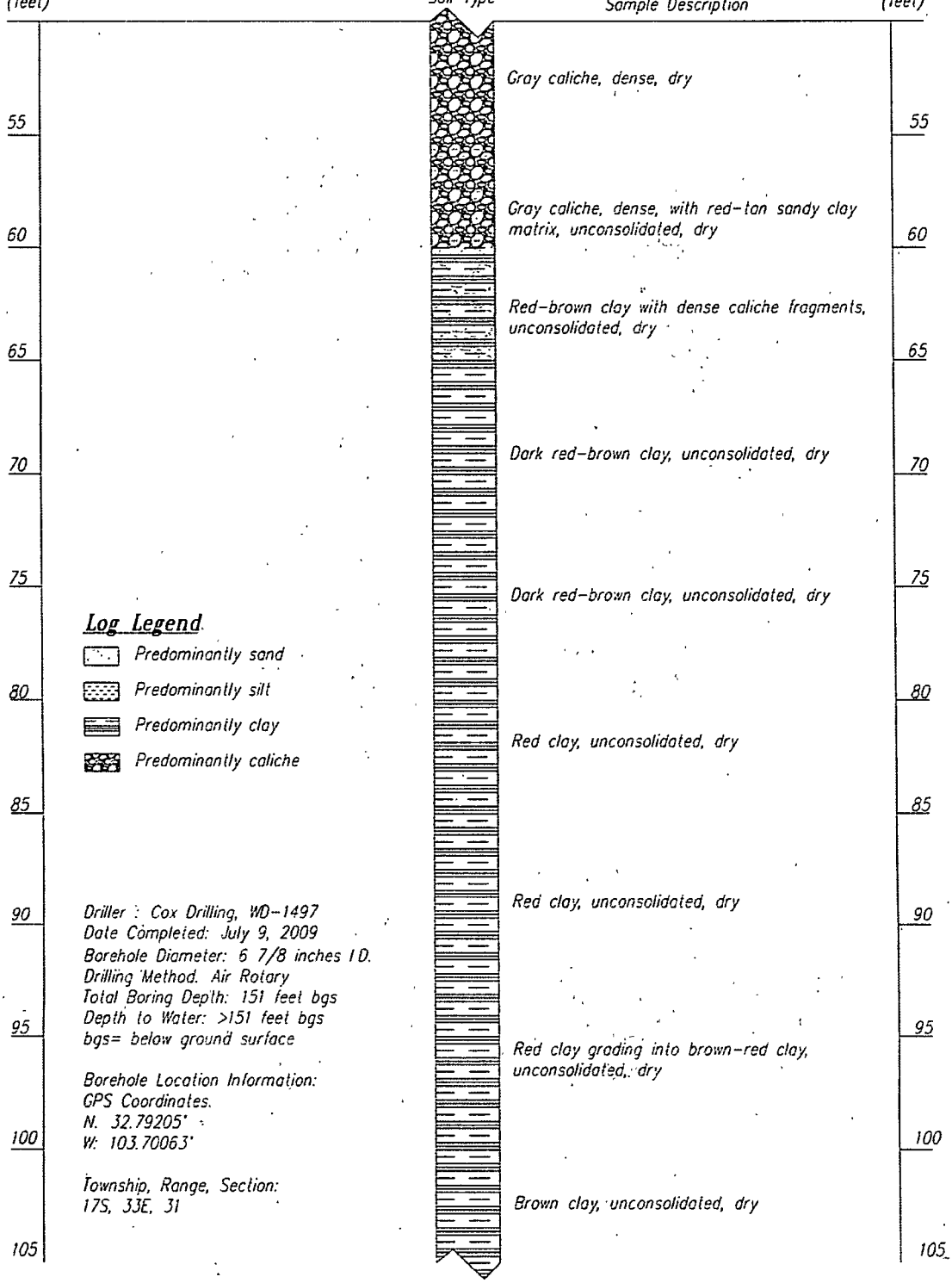
SMA
CIVIL / ENVIRONMENTAL SCIENTISTS & ENGINEERS

Drawn LNK
Checked ???
Approved SAM

Revisions
By: Date: Descr.:
By: Date: Descr.:

07-15-09
#5419335

Soil Boring Log



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W. 103.70063°

Township, Range, Section:
17S, 33E, 31

Figure 3
Page 2 of 3

Soil Boring Log Diagram
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Drawn LNK
Checked ???
Approved SAM

Revisions
Descr.: _____ Date: _____
Descr.: _____ Date: _____
By _____
By _____

07-15-09
#54193.35

Soil Boring Log

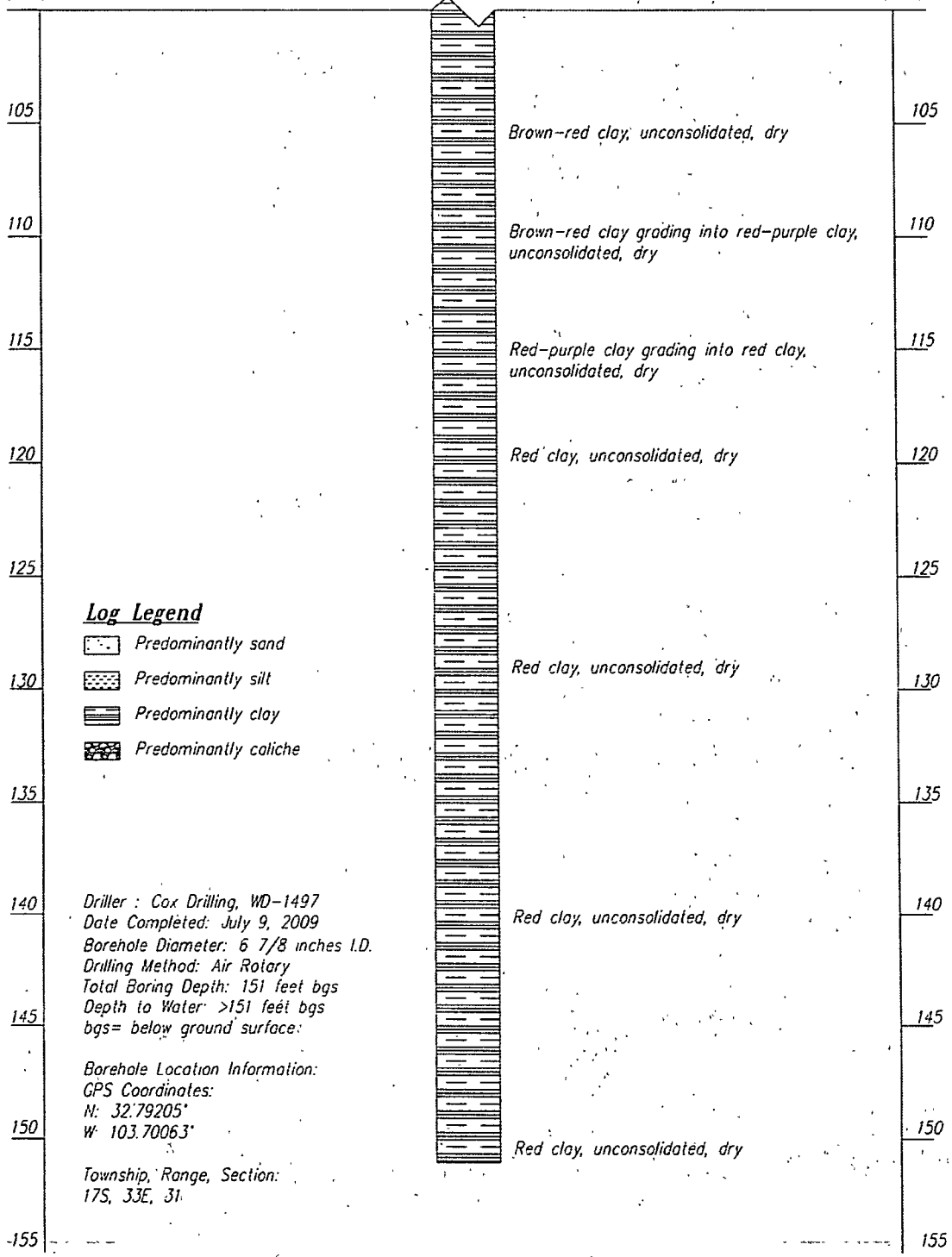

Figure 3
Page 3 of 3

Soil Boring Log Diagram
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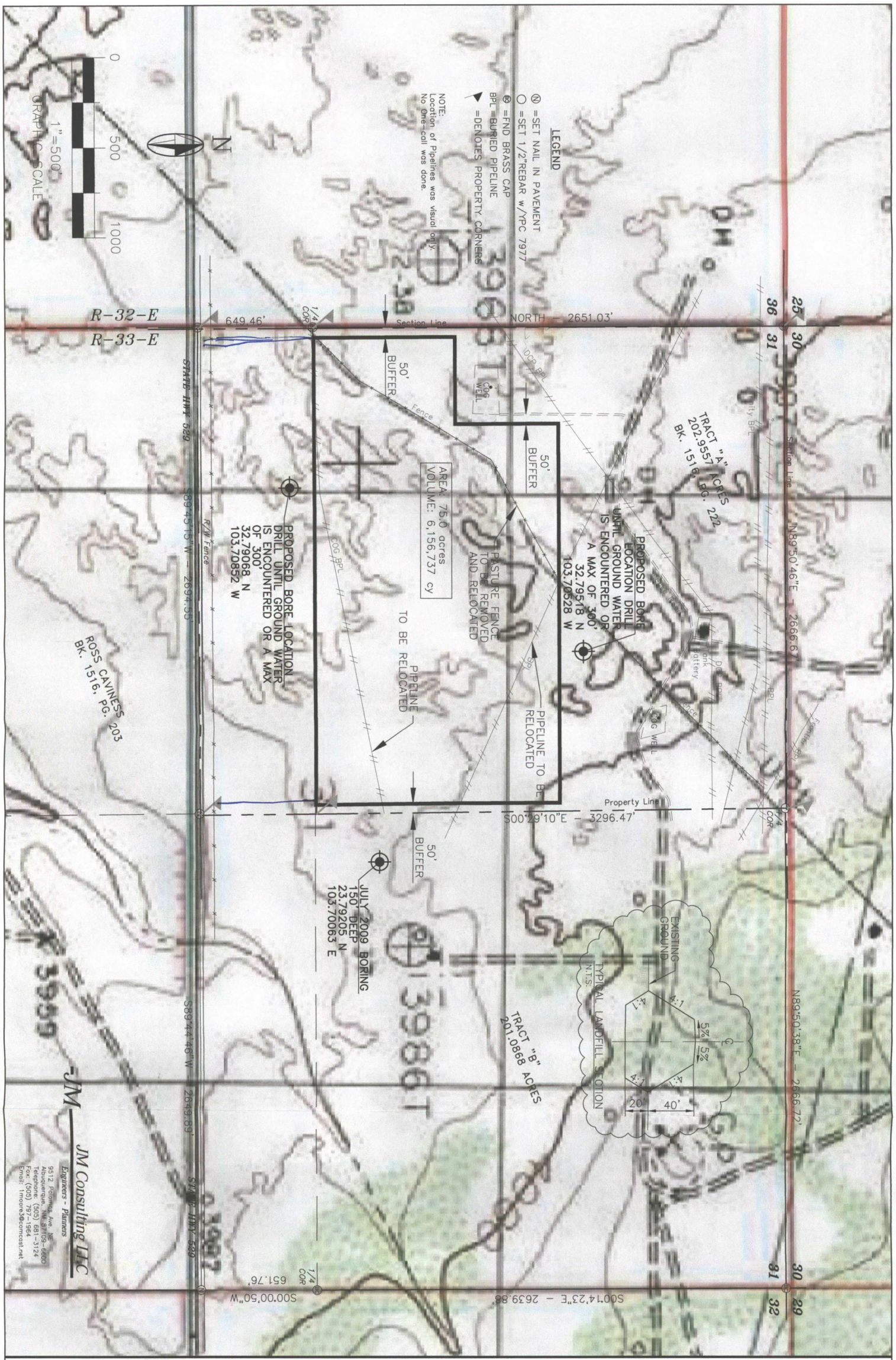
Drawn LNK
Checked PPP
Approved SAM

Revisions
By: Date: Descr.:
By: Date: Descr.:

07-15-09
#5419335



Oil Conservation Division Landfill, Sec 31 T17S R33E NMPM - Lea County, New Mexico

Preliminary Bore Hole Layout
Figure 2

07/28/09

07/28/09

Oil Conservation Division Landfill, Sec 31 T17S R33E NMPM - Lea County, New Mexico

Preliminary Landfill Layout
Figure 1

25 30 / 36 31

Section Line N89°50'46"E – 2666.67'

1/4 COR

N89°50'38"E – 2666.72'

30 29 / 31 32

Frontier BPL

BPL

Trinity BPL

TRACT "A"
202.9557 ACRES
BK. 1516, PG. 222

DCP BPL

Tank Battery

Fence

Lease Road

COG WELL

Property Line

NORTH – 2651.03'

S00°29'10"E – 3296.47'

S00°14'23"E – 2639.88'

DCP BPL

50' BUFFER

PIPELINE TO BE RELOCATED

BPL

COG WELL

PASTURE FENCE TO BE REMOVED AND RELOCATED

AREA: 75.0 acres
VOLUME: 6,156,737 cy

Section Line

50' BUFFER

Fence

50' BUFFER

PIPELINE TO BE RELOCATED

COG BPL

1/4 COR

649.46'

Reduced Treating + Mixing Pits

R/W Fence

STATE HWY 529

S89°45'15"W – 2694.55'

S89°44'46"W – 2649.89'

STATE HWY 529

1/4 COR

651.76'

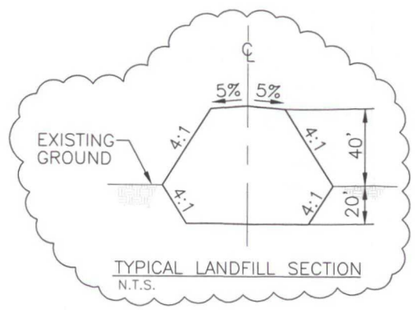
S00°00'50"W

R-32-E

R-33-E

ROSS CAVINESS
BK. 1516, PG. 203

TRACT "B"
201.0868 ACRES



TYPICAL LANDFILL SECTION
N.T.S.

LEGEND

- Ⓝ =SET NAIL IN PAVEMENT
- ○ =SET 1/2"REBAR w/YPC 7977
- ⊗ =FND BRASS CAP
- BPL =BURIED PIPELINE
- ▶ =DENOTES PROPERTY CORNERS

NOTE:
Location of Pipelines was visual only.
No One-call was done.

N

0 500 1000

1"=500'
GRAPHIC SCALE

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Engineers - Planners
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Fax: (505) 797-1964
Email: 1moore3@comcast.net