City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 19, 1998

Jack Scherer
Solid Waste Management Dept.
4600 Edith N.W.
Albuquerque, New Mexico 87103

P-01/D001

RE: Drainage Plan for the Intermediate Processing Facility Expansion (~~M11/D10~~)
Received March 9, 1998

Dear Mr. Scherer:

The drainage plan is approved. I will compare this plan with Project 5659.90 when it is submitted to DRC for approval. Please be advise that the drainage plan's Engineers Seal will have to be signed and dated. If you have any questions please call me at 768-2654.

Sincerely,

Carlos A. Montoya, P.E.

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 28, 1990

RECEIVED
OCT 3 1990
HYDROLOGY DIVISION

PROJECT ACCEPTANCE LETTER

George Wylie
The Wylie Corporation
P.O. Box 3921
Albuquerque, NM 87190

RE: CERRO COLORADO MUNICIPAL LANDFILL MASTERPLAN ACCESS ROAD, PROJECT NO. 3927

Dear Mr. Wylie:

The above referenced project has been completed according to the plans and specifications. The project consisted of the construction of seven (7) miles of new asphaltic concrete road from near the intersection of I-40 and West Central to the site of the Cerro Colorado Landfill. The project included grading, drainage, pipe installation, subgrade preparation, and placement of asphaltic concrete.

The City of Albuquerque accepts the referenced project as a whole and the contractual correction period began May 29, 1990. The correction period on this project is for one (1) year.

Sincerely,

Brian L. Speicher, P.E.
Chief Construction Engineer
Design/Construction Division
Engineering Group
Public Works Department

BLS:tp

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

RECEIVED
OCT 10 1990
HYDROLOGY DIVISION

October 8, 1990

PROJECT ACCEPTANCE LETTER

Layne Western Company, Inc.
12030 E. Riggs RD.
Chandler, AZ 85249

RE: CERRO COLORADO MUNICIPAL SANITARY LANDFILL WATERWELL, PROJECT NO. 3978

Dear Sir:

The above referenced project has been completed according to the plans and specifications. The project consisted of the construction of the water supply well for the Cerro Colorado Landfill. This project included a pilot hole, reaming, casing, screens, geophysical logging, gravel packing, development, test pumping, disinfection, and video surveying

The City of Albuquerque accepts the referenced project as a whole and the contractual correction period began May 22, 1990. The correction period on this project is for one (1) year.

Sincerely,

Brian L. Speicher, P.E.
Chief Construction Engineer
Design/Construction Division
Engineering Group
Public Works Department

BLS:tp

P-d/D001

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

FEB 27 1992

February 25, 1992

Mr. Robert Fogelsong
County Hyrdologist
County of Bernalillo
2400 Broadway, S.E.
Albuquerque, NM 87102

SUBJECT: City of Albuquerque, Solid Waste Management Department Intermediate Processing Facility, Cerro Colorado Landfill Drainage Study and Revised Grading Plan - Case #CSU-91-30

Dear Fogelsong:

Per your request, attached are three (3) copies of the drainage study and revised grading plan for the proposed Intermediate Processing Facility (IPF). The proposed IPF is to be located at the Cerro Colorado Landfill.

Informational copies of the drainage study will be forwarded to Mr. Cliff Anderson, Drainage Engineer, AMAFCA and Mr. Gilbert Aldaz, City/County Flood Plain Administrator.

We appreciate your cooperation in this matter. If you have any questions, please contact us.

Sincerely yours,

Gene Romo

Gene Romo, Ph.D.
Director
Solid Waste Management Department

035GR92:pp
Attachments

Copy to: Susan Connors, Senior Planner, Planning Department

FEB 2 7 1992

PLAT OF

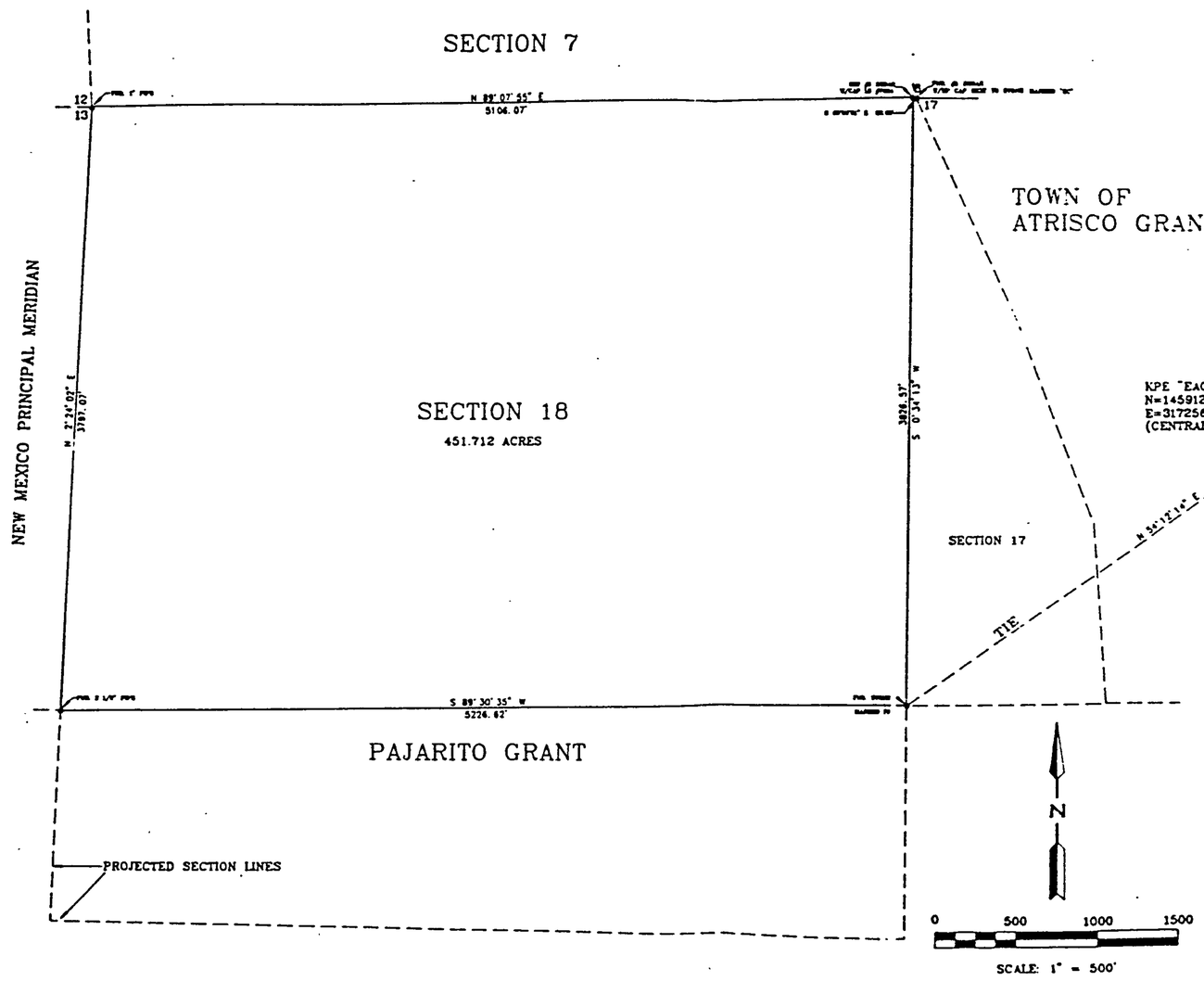
SECTION 18

(PORTION NORTH OF PAJARITO GRANT LINE)
WITHIN

T9N, R1E, N.M.P.M.

BERNALILLO COUNTY, NEW MEXICO

JULY, 1989



CERTIFICATION

I, SANTIAGO ROMERO, JR., NEW MEXICO REGISTERED LAND SURVEYOR NO. 7924, DO HEREBY CERTIFY THAT THE MAP AND SURVEY SHOWN HEREON WAS PREPARED BY ME OR UNDER MY SUPERVISION AND DIRECTION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

THE WORD "CERTIFY" AS USED HEREIN IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE SURVEYOR, BASED ON MY BEST KNOWLEDGE AND BELIEF. AS SUCH, NEITHER CONSTITUTES A GUARANTEE NOR WARRANTY, EXPRESSED OR IMPLIED.

7/18/89

SANTIAGO ROMERO JR. N.M.P.L.S. NO. 7924

SANTIAGO ROMERO, JR. NEW MEXICO 7924 REGISTERED PROFESSIONAL LAND SURVEYOR

LEGAL DESCRIPTION

A CERTAIN PARCEL OF TRACT OF LAND LYING AND BEING SITUATE IN THE COUNTY OF BERNALILLO, STATE OF NEW MEXICO BEING AND COMPRISING LOTS 1,2,3,4,5 AND 6 AND NE1/4, E1/2 NW1/4 OF SECTION 18, T9N, R1E, NEW MEXICO PRINCIPAL MERIDIAN. FOR FURTHER IDENTIFICATION AND CERTAINTY, THIS BEING ALL OF SECTION 18, T9N, R1E, N.M.P.M. LYING NORTH OF THE NORTH BOUNDARY OF THE PAJARITO GRANT BEING MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS, TO WIT:

BEGINNING AT THE SOUTHEAST CLOSING CORNER OF SECTION 18, T9N, R1E, N.M.P.M., POINT OF BEGINNING IS ON THE NORTH BOUNDARY OF THE PAJARITO GRANT, SAID POINT BEARS A GRID BEARING OF S 54°12'14" W, A DISTANCE OF 2,892.29 FEET FROM A BRASS MONUMENT, IDENTIFIED AS "EAGLE-1974", HAVING NEW MEXICO STATE PLANE COORDINATE VALUES OF X = 317,256.21, Y = 1,459,124.74 (CENTRAL ZONE).

THENCE S 89°30'35" W ALONG THE NORTH BOUNDARY OF THE PAJARITO GRANT, A DISTANCE OF 5,226.62 FEET TO A POINT BEING THE SOUTHWEST CLOSING CORNER OF SECTION 18, T9N, R1E, N.M.P.M. ON THE NORTH BOUNDARY OF THE PAJARITO GRANT;

THENCE N 2°24'07" E ALONG THE WEST SECTION LINE OF SECTION 18, T9N,R1E, N.M.P.M. AND THE PRINCIPAL MERIDIAN, A DISTANCE OF 3,797.07 FEET TO A POINT BEING THE NORTHWEST CORNER OF SECTION 18, T9N, R1E, N.M.P.M.;

THENCE N 89°07'55" E ALONG THE NORTH SECTION LINE BETWEEN SECTIONS 18 AND 7, T9N, R1E, N.M.P.M., A DISTANCE OF 5,106.07 FEET TO THE NORTHEAST CORNER OF SECTION 18, T9N, R1E, N.M.P.M.;

THENCE S 0°34'13" W ALONG THE EAST SECTION LINE BETWEEN SECTIONS 18 AND 17, T9N, R1E, N.M.P.M., A DISTANCE OF 3,826.37 FEET TO THE POINT OF BEGINNING.

PARCEL HEREIN DESCRIBED CONTAINS 451.712 ACRES MORE OR LESS.

NOTES

1. ALL DISTANCES ARE GROUND DISTANCES
2. ALL BEARINGS ARE GRID BEARINGS (NEW MEXICO CENTRAL ZONE)

SANTIAGO ROMERO JR. & ASSOCIATES, INC.
6139 EDITH BLVD. NE, ALBUQUERQUE, NM 87107

EXHIBIT A

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This letter report presents the methods of analysis, final results, and conclusions of the drainage analysis performed on the site of the proposed Intermediate Processing Facility (IPF) at the Cerro Colorado Municipal Sanitary Landfill (See Figure 1 - Location Map).

This facility is comprised of a 23,000 square foot enclosure with supporting entry and exit roads. Commingled recyclable materials will be trucked to the enclosure, dumped, sorted into like materials and baled. These bales will then be loaded onto semi-trailer trucks and transported from the facility to vendors for sale and distribution.

A drainage analysis was conducted on the entire Cerro Colorado Landfill site at the time of the landfill design (Cerro Colorado Municipal Sanitary Landfill Masterplan Facilities--Drainage Study, dated September 1989). The objectives of the present study are to: (1) Identify the portion of the existing Cerro Colorado Landfill site that may be impacted by the proposed Intermediate Processing Facility; (2) define peak runoff flows, both existing and developed, for those drainage basins impacted; and (3) show through drainage analysis how the IPF will handle both the offsite and the onsite flows, and demonstrate that the IPF will not impact the immediate basins within the Cerro Colorado Landfill site or the larger drainage basin downstream.

2.0 METHODOLOGY

Computations of peak flows throughout this analysis utilized "Part A-Procedure for 40 Acre and Smaller Basins" from Section 22.2, Hydrology of the Development Process Manual, Volume 2, Design Criteria for the City of Albuquerque, New Mexico, dated August 1991, Hereinafter referred to as the "Hydrology Manual".

Selection of precipitation, land treatment, slopes, and general basin characteristics were made based on the inspection of topographic maps and on site investigations. A copy of maps utilized and example photos are included.

Based upon Table 1, page 2 of the Hydrology Manual, precipitation Zone 1 was used throughout. Land conditions vary from Treatment A to C to D (as found in Table 4, page 5 of the Hydrology Manual). Part "A.6 Peak Discharge Rate for Small Watersheds" (page 10-13) was used for calculations of 100-year peak discharge for all basins in this analysis.

3.0 EXISTING SITE CONDITIONS

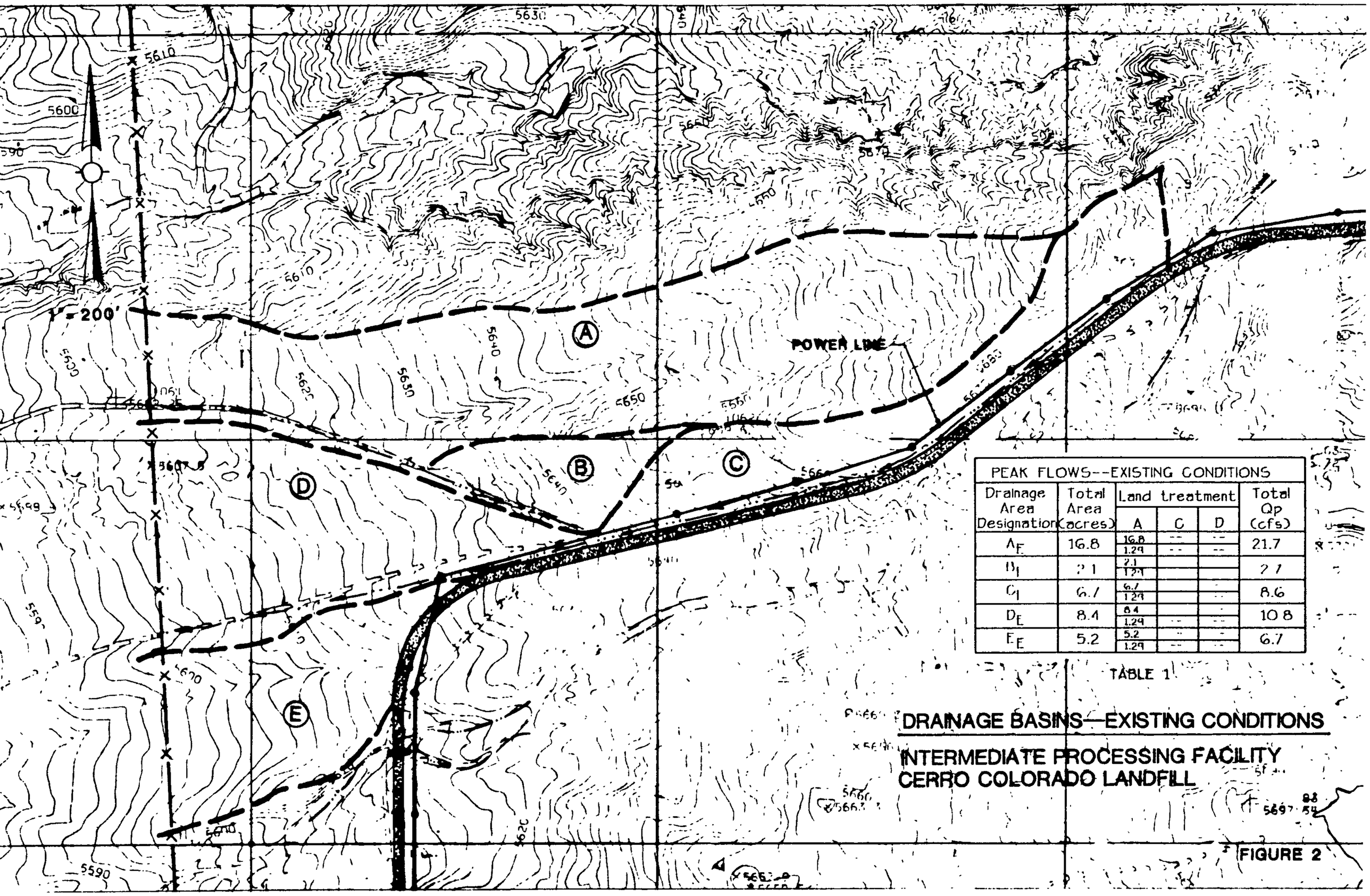
The site selected for the Intermediate Processing Facility lies in the northwest corner of the Cerro Colorado Landfill Complex. The general slope of the land in the area is northeast to southwest at approximately 3.5 to 4.5 percent grade. The area is uniformly undisturbed, with native grasses, weeds and shrubs.

It is bounded immediately to the north by a substantial arroyo (at one time an off-road trail, 12 foot wide and up to 3 feet deep) which effectively intercepts the sheet flow from the area to the north and northeast of the site. To the east of the site, approximately 350 feet, is the existing roadway that is utilized to access the landfill cells. This roadway diverts the flow from the east of the site to existing culvert crossings, the closest crossing being located approximately 400 feet south of the proposed facility.

Approximately 400 feet to the south of the site an existing ridge delineates a drainage basin; and to the west approximately 300 feet is an existing fence which indicates the west property line.

A total of 5 basins, designated Ae through Ee, were identified which may be impacted by the proposed facility (See Figure 2 for existing condition drainage basins).

Table 1 summarizes the basins and their respective peak discharges. All five basins fall under the category of land treatment A, with a corresponding peak flow factor of 1.29 cfs/acre.



PEAK FLOWS--EXISTING CONDITIONS					
Drainage Area Designation	Total Area (acres)	Land treatment			Total Qp (cfs)
		A	C	D	
A_E	16.8	16.8 / 1.29	-- / --	-- / --	21.7
B_I	2.1	2.1 / 1.29			2.7
C_I	6.7	6.7 / 1.29		-- / --	8.6
D_E	8.4	8.4 / 1.29	-- / --	-- / --	10.8
E_E	5.2	5.2 / 1.29	-- / --	-- / --	6.7

TABLE 1

DRAINAGE BASINS—EXISTING CONDITIONS

INTERMEDIATE PROCESSING FACILITY
CERRO COLORADO LANDFILL

FIGURE 2

TABLE 1

PEAK FLOWS -- EXISTING CONDITIONS

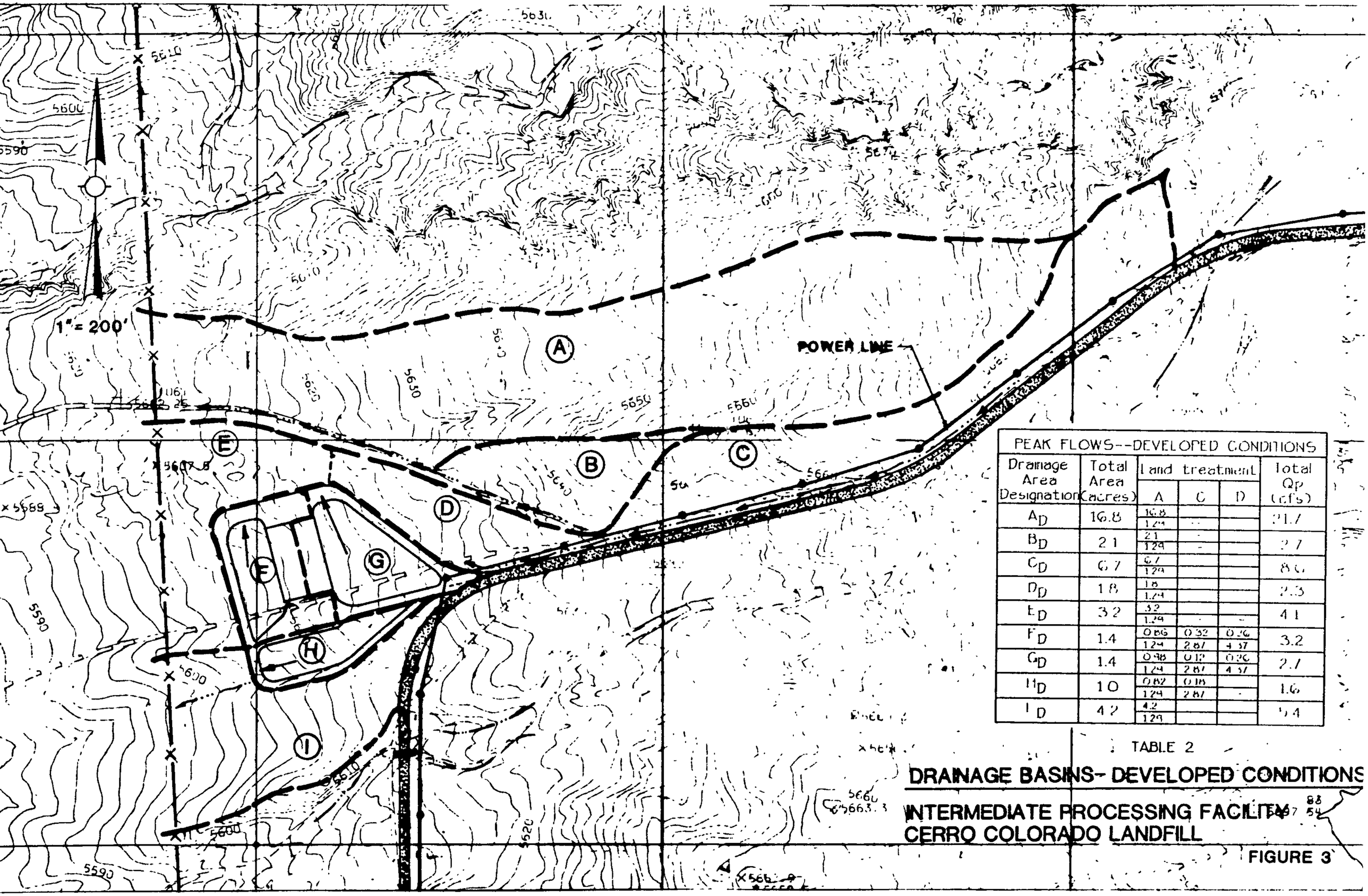
Drainage Area Designation	Total Area (acres)	Land Treatment			Total Qp (cfs)
		A	C	D	
A_E	16.8	16.8	--	--	21.7
		1.29	--	--	
B_E	2.1	2.1	--	--	2.7
		1.29	--	--	
C_E	6.7	6.7	--	--	8.6
		1.29	--	--	
D_E	8.4	8.4	--	--	10.8
		1.29	--	--	
E_E	5.2	5.2	--	--	6.7
		1.29	--	--	

4.0 DEVELOPED SITE CONDITIONS

The developed site was divided into 9 basins, designated A_D through I_D for analysis (A_D through C_D being identical to A_E through C_E - See Figures 2 and 3).

Basins A_D and B_D do not impact the proposed facility since these flows are intercepted by the arroyo to the north. Capacity of this arroyo, which measures 12 feet wide and 2 to 3 feet deep, was calculated to be over 350 cfs at a longitudinal slope of 4 percent. The impact of the combined peak discharge of basins A_D and B_D on this arroyo is a depth of only 0.42 feet at a discharge of 25 cfs.

Runoff from basin C_D (8.6 cfs) collects in a swale along the toe-of-slope of the existing road and flows southwesterly toward the proposed facility. A trapezoidal channel along the north and northeast side of the facility will transport the flow from basin C_D as well as the flow intercepted from basin D_D (2.3 cfs) around the north side to the west side of the facility. Culverts will drain onsite basins F_D (3.2 cfs) and G_D (2.7 cfs) into this trapezoidal channel. A similar culvert will drain onsite basin H_D (1.6 cfs) into basin I_D (5.4 cfs). Table 2 summarizes the basins and their respective peak discharges.



PEAK FLOWS--DEVELOPED CONDITIONS

Drainage Area Designation	Total Area (acres)	Land treatment A	Land treatment C	Land treatment D	Total Qp (cfs)
A_D	16.8	16.8			21.7
		1.24	--		
B_D	2.1	2.1			2.7
		1.24	-		
C_D	6.7	6.7			8.6
		1.24			
D_D	1.8	1.8			2.3
		1.24			
E_D	3.2	3.2			4.1
		1.24	-	-	
F_D	1.4	0.86	0.32	0.26	3.2
		1.24	2.87	4.37	
G_D	1.4	0.98	0.12	0.26	2.7
		1.24	2.87	4.37	
H_D	1.0	0.82	0.18		1.6
		1.24	2.87	-	
I_D	4.2	4.2			5.4
		1.24			

TABLE 2

DRAINAGE BASINS- DEVELOPED CONDITIONS

INTERMEDIATE PROCESSING FACILITY
CERRO COLORADO LANDFILL

FIGURE 3

TABLE 2

PEAK FLOWS -- DEVELOPED CONDITIONS

Drainage Area Designation	Total Area (acres)	Land Treatment			Total Qp (cfs)
		A	C	D	
A_D	16.8	16.8	--	--	21.7
		1.29	--	--	
B_D	2.1	2.1	--	--	2.7
		1.29	--	--	
C_D	6.7	6.7	--	--	8.6
		1.29	--	--	
D_D	1.8	1.8	--	--	2.3
		1.29	--	--	
E_D	3.2	3.2	--	--	4.1
		1.29	--	--	
F_D	1.4	0.86	0.32	0.26	3.2
		1.29	2.87	4.37	
G_D	1.4	0.98	0.12	0.26	2.7
		1.29	2.87	4.37	
H_D	1.0	0.82	0.18	--	1.6
		1.29	2.87	--	
I_D	4.2	4.2	--	--	5.4
		1.29	--	--	

5.0 RESULTS - EXISTING VERSUS DEVELOPED CONDITIONS

The peak flow calculations indicate that there is an overall flow increase of 1.8 cfs (for the 100-year event) from the existing conditions to the developed conditions. Table 3 breaks down the flow increase by basins and summarizes the results.

TABLE 3

EXISTING VS. DEVELOPED CONDITIONS

Drainage Area Designation	Exist. Q_p100	Devel. Q_p100	Difference Q_p (cfs)
D_E	19.4	--	+1.5
E_D	--	20.9	
E_E	6.7	--	+0.3
I_D	--	7.0	
Total			+1.8

5.1 DOWNSTREAM/OFF-SITE BASIN ANALYSIS

Both on-site drainage basins E_D and I_D, which receive all the runoff from the proposed facility, eventually combine into a much larger basin as shown in Figure 4. This basin is marked by an extensive braided surface drainage network which spreads out over a wide area as it approaches the Rio Puerco into which it drains.

To demonstrate that the additional flow of 1.8 cfs total can be released from the site without adversely impacting the downstream area, an analysis was performed on the entire basin.

Using the Rational Method as outlined in Part A.7 ("Use of Rational Method for Watersheds Larger than 40 Acres") of Section 22.2, Hydrology, a peak flow discharge was computed. The results are summarized in Table 4:

TABLE 4

OFF-SITE DRAINAGE BASIN PEAK FLOW

Area (ac)	L (ft)	S (%)	1 K	2 K_n	3 T_c	4 I	5 C	Q_p (cfs)
415	11,000	4.0	0.7	0.033	39	2.5	0.27	280

1 K from Table 12
2 K_n from Table 13
3 T_c using Equation 14
4 I using Equation 17
5 C from Table 11

A computer program based on Manning's equation that computes water surface elevation given a peak flow discharge, slope, Manning's n coefficient, and channel cross-section was used to determine the change in water surface elevation from existing to developed conditions (computer printouts follow). The results show that no change occurs when 1.8 cfs is added to the existing flow; nor is the flow velocity altered.

JOB # 668-137-su-celb

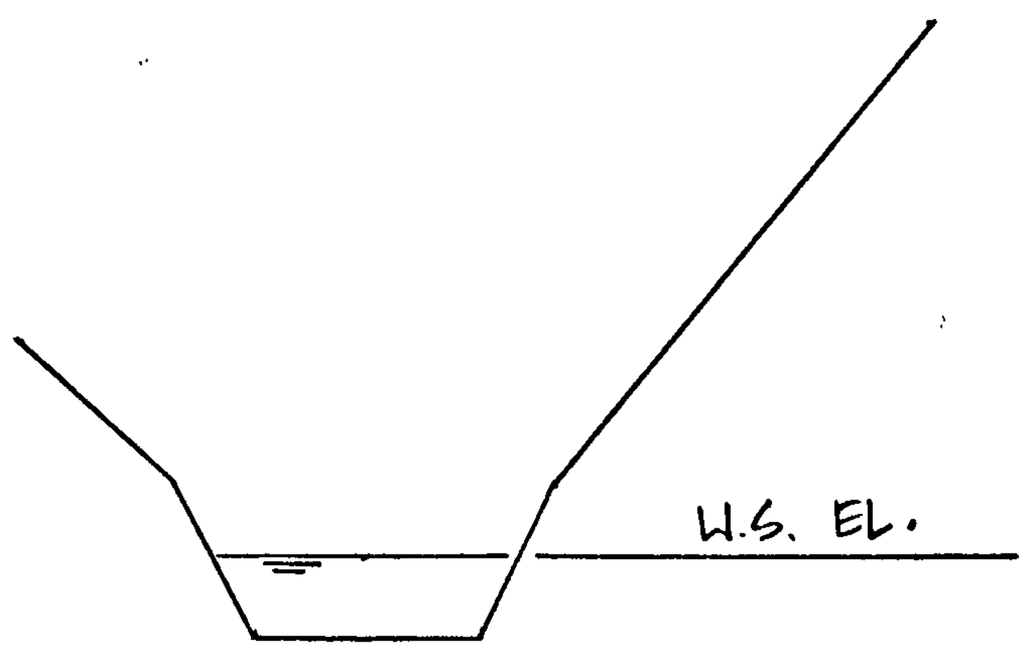
BY: M. Kuehn
10-24-91

CROSS SECTION Typical

STATION	0.00	ELEVATION	4.00
STATION	20.00	ELEVATION	2.00
STATION	30.00	ELEVATION	0.00
STATION	60.00	ELEVATION	0.00
STATION	70.00	ELEVATION	2.00
STATION	120.00	ELEVATION	8.00

RESULTS

W.S. Elevation 1.02
Area 35.80 SF
Perimeter 40.40 Ft.
Near Bank 24.9
Far Bank 65.1
Discharge 280.41 cfs EXISTING DISCHARGE
Velocity 7.83 fps EXISTING VELOCITY
MANNING'S n: .035
CHANNEL SLOPE= .04 ft./ft.



TYPICAL X-SECTION

H: 1" = 40'
V: 1" = 4'

JOB # 668-137-su-celb

BY: M. Kuehn
10-24-91

CROSS SECTION Typical

STATION	0.00	ELEVATION	4.00
STATION	20.00	ELEVATION	2.00
STATION	30.00	ELEVATION	0.00
STATION	60.00	ELEVATION	0.00
STATION	70.00	ELEVATION	2.00
STATION	120.00	ELEVATION	8.00

RESULTS

W.S. Elevation 1.02 NO CHANGE IN W.S. ELEVATION
Area 35.96 SF
Perimeter 40.44 Ft.
Near Bank 24.9
Far Bank 65.1
Discharge 282.41 cfs DEVELOPED DISCHARGE (+2 CFS)
Velocity 7.85 fps
MANNING'S n: .035
CHANNEL SLOPE= .04 ft./ft.

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 19, 1992

Elvidio Diniz, P.E.
Resource Technology, Inc.
2120 Osuna Rd. N.E. Suite 200
Albuquerque N.M. 87113

RE: DRAINAGE PLAN FOR CERRO COLORADO INTERMEDIATE PROCESSING FACILITY

Dear Mr. Diniz:

Based on the information provided on your submittal of July 15, 1992, the above referenced plan is approved. If I can be of any further assistance, please feel free to call me at 768-2654.

Cordially,

Carlos A. Montoya, P.E.

PUBLIC WORKS DEPARTMENT

Walter H. Nickerson, Jr., P.E.
Assistant Director Public Works

ENGINEERING GROUP

Telephone (505) 768-2500

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 13, 1992

Elvidio Diniz, P.E.
Resource Technology, Inc.
2129 Osuna Rd. N.E. Suite 200
Albuquerque N.M. 87113

RE: DRAINAGE PLAN FOR CERRO COLORADO INTERMEDIATE PROCESSING FACILITY

Dear Mr. Diniz:

Based on the information provided on your revised submittal of August 21, 1992, the above referenced plan is approved. If I can be of any further assistance, please feel free to call me at 768-2654.

Cordially,

Carlos A. Montoya, P.E.

PUBLIC WORKS DEPARTMENT

Walter H. Nickerson, Jr., P.E.
Assistant Director Public Works

ENGINEERING GROUP

Telephone (505) 768-2500

Federal Emergency Management Agency

Washington, D.C. 20472

MAY 3 1991

MAY 7 1991

Mr. Alex Abeyta, Jr.
County Manager for Bernalillo County
1 Civic Plaza, N.W.
10th Floor
Albuquerque, New Mexico 87102

Case No.: 91-06-26R
Community: Bernalillo County, Unincorporated Areas, New Mexico
Community No.: 350001

Dear Mr. Abeyta:

This is in reference to a December 31, 1990 letter and technical data submitted by Mr. Gilbert Aldaz, P.E., P.S., Floodplain Administrator for the City of Albuquerque and Bernalillo County, regarding the Flood Insurance Study (FIS) for the unincorporated areas of Bernalillo County, New Mexico. In his letter, which was forwarded to us by our Region VI office, Mr. Aldaz requested that the Federal Emergency Management Agency (FEMA) issue a conditional Letter of Map Revision (LOMR) for the proposed Cerro Colorado Landfill project.

The landfill project will consist of nine 20-acre cells surrounded by a berm on the north, east, and south sides, and will be constructed in phases based on the rate of waste generated by the City of Albuquerque. The completed landfill project (when all nine cells are full) will be concealed by earthen fill. Fifteen-feet wide interior and fifty-feet wide exterior drainage channels will also be constructed in phases with each cell. The berm surrounding the project on the three sides and the exterior drainage channel will protect the completed project from the 100-year flood. The interior channel, located between the landfill and the surrounding berm, will divert flow running off the completed landfill area. The site is located on the Bernalillo County Flood Insurance Rate Map (FIRM) number 350001, panel 0300 C, dated September 15, 1983, in an area of shallow 100-year (Zone AO) flooding.

The submitted technical data, prepared by Camp, Dresser & McKee, Inc., consisted of a December 14, 1990 report entitled Cerro Colorado Landfill, Masterplan Facilities, Letter of Map Revision Request for the Relocation of the 100-year Floodplain which contained the following: hydrologic (rational method) and hydraulic (normal-depth) computations for the 100-year flood representing proposed conditions; sediment transport computations; topographic maps showing the site location, proposed landfill, and watershed delineations; plans and profiles of the proposed drainage channels surrounding the proposed landfill; and annotated copies of FIRM number 350001, panel 0300 C, for the unincorporated areas of Bernalillo County, showing the proposed landfill and delineating the proposed 100-year floodplain boundaries.

With the submitted data, we received the initial fee of $945.00 for processing a conditional LOMR request of this type. This fee was sufficient to cover the review and processing costs associated with this submittal.

Based on our review of the submitted data, we have determined that the Cerro Colorado Landfill project meets the minimum floodplain management criteria of the National Flood Insurance Program (NFIP). This project, if completed as proposed, would warrant a revision to the FIS and FIRM for the unincorporated areas of Bernalillo County. This revision would show a removal of the 100-year (Zone AO) floodplain from the location of the proposed landfill project, with the 100-year flood discharges contained in the interior and exterior drainage channels surrounding the landfill, as demonstrated in the referenced technical report. Future revisions to the FIS and FIRM, or restudies of flood hazards in the area, could modify this determination.

This determination is based on the 100-year flood discharges computed in the submitted technical report, and does not consider subsequent changes in watershed characteristics that would tend to increase flood discharges. The development of other projects upstream could result in increased flood discharges, which, in turn, could result in increased 100-year flood elevations. Future restudies of your county's flood hazards would take into account the cumulative effects of development on flood discharges and could therefore establish higher 100-year flood elevations in this area.

This conditional LOMR is based on minimum floodplain management criteria established under the NFIP. Your county is responsible for approving all proposed floodplain development, including the project upon which this request is based, and for ensuring that permits required by Federal or State law have been received. State and county officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If the State of New Mexico or Bernalillo County has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

NFIP regulations Subparagraph 60.3(b)(7) requires communities participating in the program to "assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained." Without proper maintenance, such as the regular clearing of a channelized stream, channel modification projects will, in time, fail to function as designed, thereby recreating the flood hazard that they were intended to mitigate. Therefore, upon completion of the project, your county must uphold its responsibility for assuring that the drainage channels are maintained in order to preserve their design function. Please be aware that FEMA may request that your county submit a description and schedule of channel maintenance activities.

Upon completion of the proposed Cerro Colorado Landfill project, Bernalillo County may request a revision to the effective FIS and FIRM. The revision request must include the data listed below:

1. "As-built" plans of the Cerro Colorado Landfill project, certified by a registered professional engineer.

2. Hydrologic computations for the 100-year flood reflecting the completed project.

3. Hydraulic computations for the 100-year flood after construction of the project.

4. Topographic mapping of the area representing "as-built" conditions and delineating the 100-year floodplain boundaries.

If any changes to items 2, 3, or 4 take place during construction, these items must be revised to reflect "as-built" conditions.

We have enclosed a copy of Part 65 of the NFIP regulations, which further describes the nature and extent of the material needed to support a request to revise an effective FIS and FIRM. Compliance with the criteria outlined in this document will expedite FEMA's review process, thus allowing the effective FIS and FIRM for your county to be revised as appropriate, in a timely manner.

Should you have any questions regarding this matter, please do not hesitate to contact the Chief, Natural and Technological Hazards Division of the Federal Emergency Management Agency in Denton, Texas, at (817) 898-5127 or Matthew B. Miller of our Headquarters staff in Washington, D.C., at (202) 646-3461.

Sincerely,

William R. Locke
Chief, Risk Studies Division
Federal Insurance Administration

Enclosure

cc: The Honorable Louis Saavedra, Mayor of the City of Albuquerque
Mr. Gilbert Aldaz, P.E., P.S.
Mr. Jack P. Chappelle, P.E., Camp, Dresser & McKee, Inc.

~~A4-1/010~~
P-01/D001

EXAMPLE

RECEIVED
MAR 12 1990
HYDROLOGY DIVISION

March 5, 1990

Mr. Gilbert Aldaz, P.E. & L.S.
City/County Floodplain Administrator
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: Cerro Colorado Landfill Drainage Channel Maintenance and Sedimentation Control

Dear Mr. Aldaz:

In order to obtain a FEMA Map Revision, it is my understanding you need a document stating who the responsible party is for maintaining the drainage channels and controlling sedimentation at the Cerro Colorado Landfill site. As Director of the Solid Waste Division for the City of Albuquerque, I hereby state that the City of Albuquerque is responsible for the daily operation of the landfill including maintenance of drainage channels and sedimentation control.

If I can be further assistance, please notify me.

Sincerely,

Gene Romo

668.137.DN.UTIL#24

NAGE INFORMATION SHEET

PROJECT TITLE: Cerro Colorado Landfill ZONE ATLAS/DRNG. FILE #: P-01/D001

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: _____

CITY ADDRESS: _____

ENGINEERING FIRM: Camp Dresser & McKee CONTACT: Jack Chappelle

ADDRESS: _____ PHONE: 881-3077

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

____ DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAINAGE PLAN

____ GRADING PLAN

____ EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

____ OTHER

PRE-DESIGN MEETING:

____ YES

____ NO

____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL

____ PRELIMINARY PLAT APPROVAL

____ S. DEV. PLAN FOR SUB'D. APPROVAL

____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

____ SECTOR PLAN APPROVAL

____ FINAL PLAT APPROVAL

____ FOUNDATION PERMIT APPROVAL

____ BUILDING PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

____ GRADING PERMIT APPROVAL

____ PAVING PERMIT APPROVAL

____ S.A.D. DRAINAGE REPORT

____ DRAINAGE REQUIREMENTS

X OTHER FLOODPLAIN REVISION (SPECIFY)

RECEIVED
AUG 2 1990
HYDROLOGY DIVISION

DATE SUBMITTED: 8/1/90

BY: Anne Couture

CDM

environmental engineers, scientists, planners, & management consultants

CAMP DRESSER & McKEE INC.

2400 Louisiana Boulevard, N.E., Suite 740
American Financial Center, Building Five
Albuquerque, New Mexico 87110
505 881-3077

RECEIVED
AUG 2 1990
HYDROLOGY DIVISION

August 2, 1990

Mr. Gilbert Aldaz, P.E. & L.S.
City/County Floodplain Administrator
Public Works Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: FEMA Map Revision Request; Aldaz letter dated July 16, 1990

Dear Mr. Aldaz:

Per the referenced letter, CDM addresses the questions you raise regarding the permanent drainage channel along the east and south sides of the Cerro Colorado Landfill with the following comments:

Item 1.

The permanent channel will be 50 feet wide. A reduced copy of the revised grading plan is attached with the correct channel widths.

Item 2.

The 45 steppes have been added to the revised grading plan. The average slope between these steppes is 0.5%. Also attached is a detail of an infrastructure which is designed to stabilize the proposed steppes.

Please contact CDM should you have any further questions.

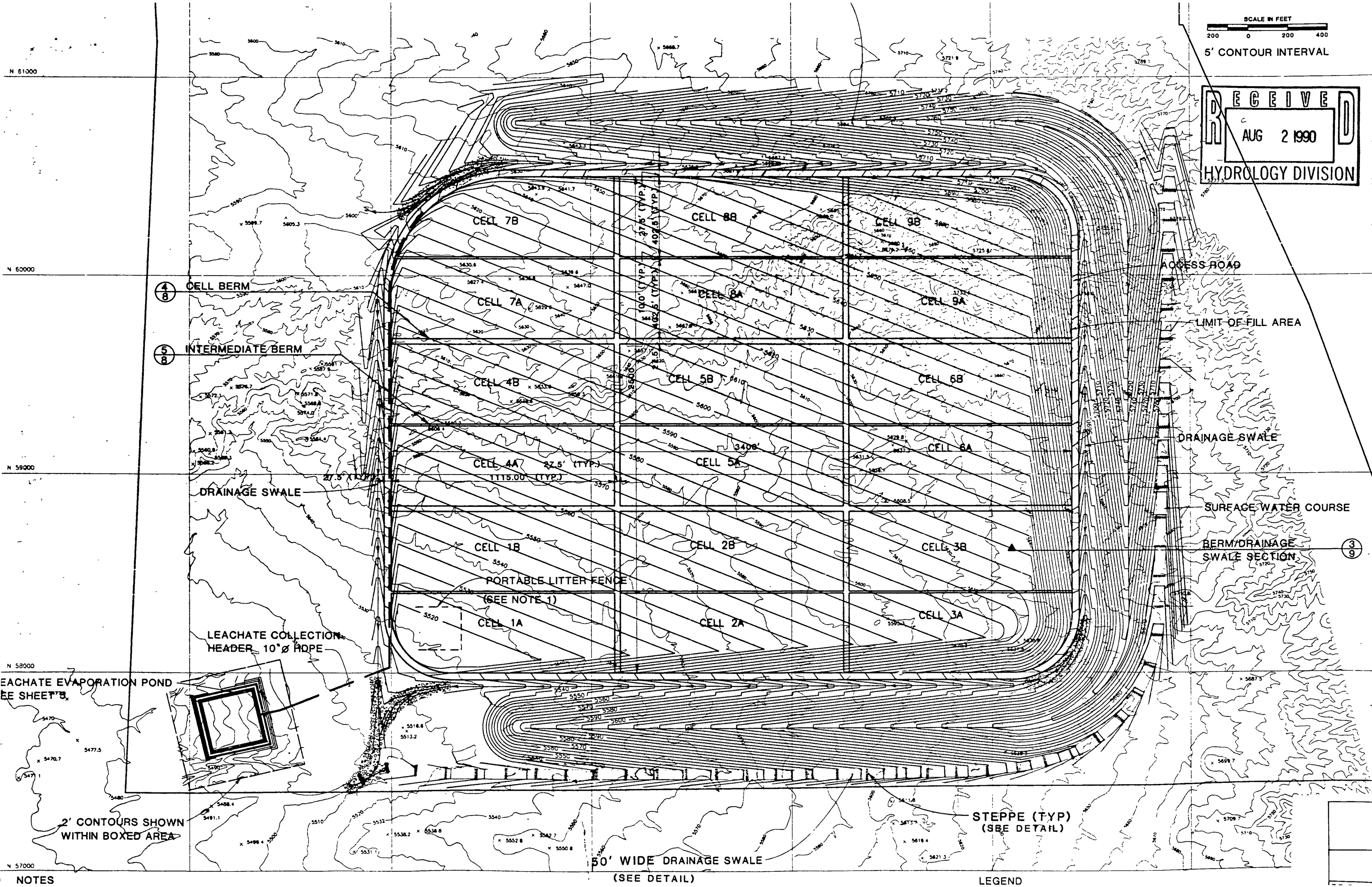
Sincerely,

CAMP DRESSER & McKEE INC.

Jack Chappelle, P.E.
Project Manager

JPC\sg

668.137/7#33

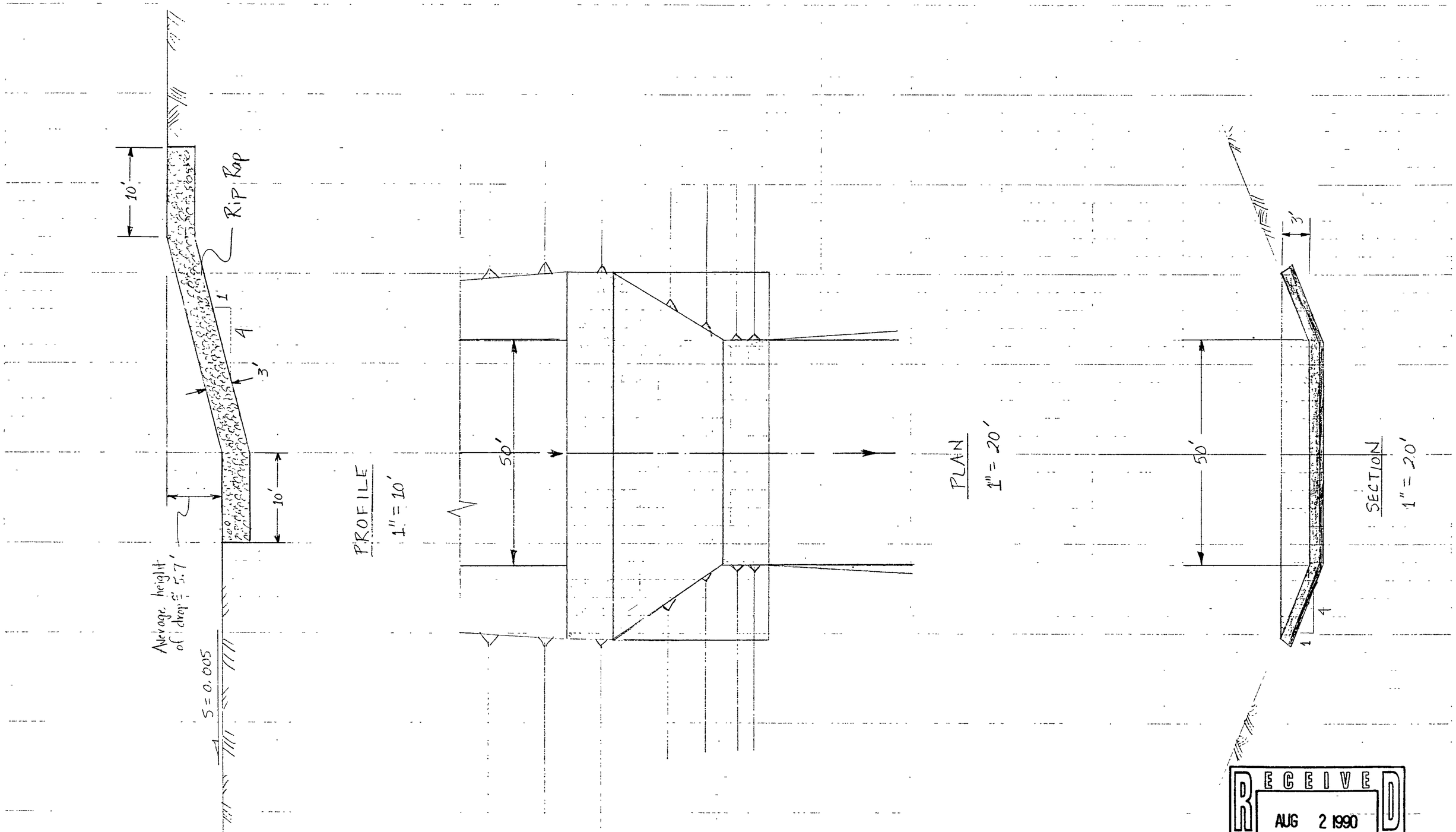


NOTES

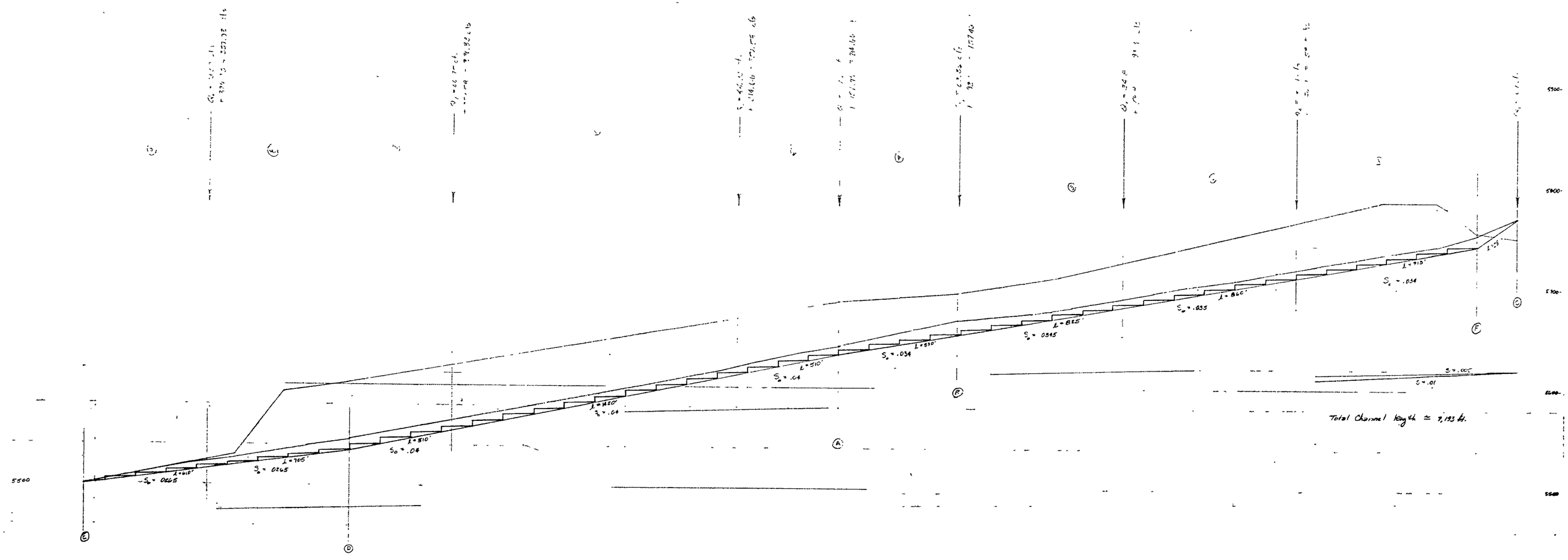
LEGEND

CAMP DRESSER & McKEE
Environmental Engineers
Denver, Colorado

CLIENT ____ JOB NO. ____ PAGE ____ OF ____
PROJECT ____ DATE CHECKED ____ DATE ____
DETAIL ____ CHECKED BY ____ COMPUTED BY ____



RECEIVED
AUG 2 1990
HYDROLOGY DIVISION



PERMANENT DRAINAGE CHANNEL PROFILE

MAP 3

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 31, 1990

Diane Leatherwood
Emergency Management Specialist
Region VI, Federal Center
800 North Loop 288
Denton, Texas 76201-3698

RE: REQUEST FOR CONDITIONAL LETTER OF MAP REVISION FOR CERRO COLORADO LANDFILL, ~~(M-1/D10)~~ P-01/D001

Dear Ms. Leatherwood:

The purpose of this letter is to request a Conditional L.O.M.R. for the referenced landfill site. The request is being made by the City of Albuquerque, Solid Waste Management Department.

The reason we are making this Conditional L.O.M.R. request is to remove an existing 100-year floodplain (AO Zone) at the southern edge of the landfill site. A combination 50' high berm/50 foot wide drainage channel will divert all offsite storm waters from entering the disposal area, and onsite grading within the landfill will eliminate the existing 100-year floodplain.

The proposed construction of the landfill will contain nine (9) - 20 acre cells, which is expected to serve the City's solid waste disposal needs for approximately 26 years. The first cell was put into operation in May 1990. Development of each of the following cells is dictated by the solid waste disposal rate, which will vary over time based on the growth rate of the City and by the waste reduction efforts of the City. Given the present generation rate, it is anticipated that a new 20 acre cell would have to be built every 2 to 3 years.

If you should have any questions concerning this submittal, please do not hesitate to call me at (505) 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
City/County Floodplain Administrator

xc: Gene Romo, Director of Solid Waste Management Dept.
Jack Chappelle, Camp Dresser & McKee
Clifford E. Anderson, AMAFCA

wp+1596

attachment: Drainage Report for Cerro Colorado Landfill

TABLE OF CONTENTS

Section	Description	Page
1.0	OUTLINE	1
	1.1 Introduction	1
	1.2 Site Description	1
	1.3 Site Development	2
	1.4 Maintenance	3
	1.5 100 Year Flood Plain	3
2.0	HYDROLOGY	5
	2.1 Introduction	5
	2.2 Hydrology - Rational Method	5
	2.3 Existing Site Conditions	7
	2.4 Developed Site Conditions	8
	2.5 Existing Versus Developed Conditions	10
	2.6 Drainage Facilities	10
3.0	RELOCATION OF THE 100 YEAR FLOOD PLAIN	12

RECEIVED
DEC 18 1990
HYDROLOGY DIVISION

JACK PATRICK CHAPPELLE
NEW MEXICO
8065
REGISTERED PROFESSIONAL ENGINEER

LIST OF TABLES

Table	Description	Page
1	Summary of Basin Characteristics and Peak Flows (Existing)	8
2	Summary of Basin Characteristics and Peak Flows (Developed)	9

APPENDIX

Appendix	A	Plate from Drainage Flood Control and Erosion Control Manual Chapter 22, Section 2, Hydrology
	B	Notice of Emergency Rule Rational Method C = 0.40 Undeveloped Condition
	C	Drainage Channel Hydraulic Flow and Sedimentation Transport Calculations.

LIST OF ATTACHMENTS

No.	Description
1	USGS Map
2	Base Grading Plan
3	Final Grading Plan
4	Maintenance Letter
5	Existing Basin Map
6	Developed Basin Map
7:7A	Plan and Profile - Drainage Channel
8	Existing Firm
9	New Firm

1.0 OUTLINE

1.1 INTRODUCTION

This report addresses the removal and relocation of the 100 year flood plain from the Federal Insurance Rate Maps (FIRM) at the City of Albuquerque's Cerro Colorado Landfill site. The report will describe: the sequence of development for each phase of the site; the hydrology of existing and post developed flows; drainage structures at the site; drainage structure maintenance; and the removal and relocation of the 100 year flood plain.

1.2 SITE DESCRIPTION

The Cerro Colorado landfill site is located in a remote area approximately 20 miles west of the intersection of Interstates 25 and 40 in Albuquerque, New Mexico (See attachment No. 1 for a USGS map of the area). The area receives approximately 10 inches of rain per year, with the wettest time of the year being in the summer months. During this time, the area receives short, but sometimes very intense rain storms. The arroyos at the site carry stormwater only a few times a year, generally after these short intense storms. Vegetation at the site is minimal and consists of small trees, cactus, and scrub brush. The soil is a silty sand and is very prone to erosion by both wind and rain. The terrain at the site varies from gradual grades (west property line) to steep grades (east property line). In areas of steep grades, deep gullying is evident.

1.3 SITE DEVELOPMENT

The landfill will contain nine (9) - 20 acre cells, which is expected to serve the City's solid waste disposal needs for approximately 26 years. The first cell was put in operation in May 1990. Development of each of the following cells is dictated by the solid waste disposal rate, which will vary over time based on the growth rate of the city and by the waste reduction efforts of the City. Given the present generation rate, it is anticipated that a new 20 acre cell would have to be built every 2 to 3 years.

The new cell will be "tied in" with the previously built cell. For instance, cell 2 will be joined with cell 1, and cell 3 will be joined with cell 2, etc (See attachment No. 2 for overall base grading plan and proposed development plan). Construction of each cell will follow the cell numbering system.

The site will be surrounded by a 50' high berm constructed of on site soils. The berm will act as a visual buffer and prevent upstream or upgradient surface water flow from entering the disposal area. This berm will be built in phases, similar to the cell construction. Along with the berm construction, permanent and temporary drainage channels will be built to divert stormwater from entering the disposal area. For example, during cell 1 construction, permanent drainage channels along the southern property line and the western side of the cell will be built. Temporary channels will be built on the north and east sides. These temporary channels will be removed when excavation for cells 2 and 4 commence, and at the same time permanent channels would be constructed.

The operation of the landfill will be a very dynamic process. At any one time during the operation of the site, many activities will be occurring at the site. For instance, solid waste may be placed in cell 3, as final cover is being placed in cell 1, and excavation of cell 4 is starting. All of these activities are planned out well in advance. Once the landfill reaches final grades, the final cover will be placed. These grades are shown on attachment No. 3.

All stormwater which falls over the capped landfill area will be collected in the drainage swale located between the disposal area and the 50′ high earthen berm. As noted above, all stormwater falling upstream or upgradient of the site will be diverted around the landfill area via the channels located outside the 50′ high berm. All stormwater will be diverted offsite via existing natural conveyance channels.

1.4 MAINTENANCE

During the operation of all 9 cells, periodic maintenance will be necessary on the stormwater control structures, which includes unlined channels, rip rap structures, soil cement and gunite-lined channels, etc. The City of Albuquerque has both the equipment and manpower on-site to perform all required maintenance activities at the site (See attachment No. 4). Attachment No. 4 also contains exerpts from the operation and maintenance manual stating frequency and methods for drainage channel and culvert maintenance.

1.5 100 YEAR FLOOD PLAIN

In accordance with the New Mexico Environmental Improvement Division's Solid Waste Management Regulations (Section

201.A.3.A), a landfill may not be permitted in wetlands, watercourses or floodplains. As part of the permit application, the 100-year Flood Plain in the southern portion of Section 18, which extends partially into Cell 2, is scheduled to be relocated prior to landfilling in the Cell 2 area. This report addresses this item of the permit application, and Section 3.0 of this report will describe in detail the relocation of the 100 year floodplain.

2.0 HYDROLOGY

2.1 INTRODUCTION

This section presents the methods of analysis, final results, and conclusions of the drainage analysis conducted on the Cerro Colorado Landfill site. The objective of the study was to define peak runoff flows entering and exiting the landfill area for both existing and post development site conditions and to verify that post development runoff peaks do not exceed those peaks identified for existing conditions. The study will also review the existing 100-year flood plain and the impact the new berms and drainage channels around the landfill have on the existing 100-year flood plain.

References to Plate numbers refer to information taken from the AMAFCA and City of Albuquerque Drainage Flood Control and Erosion Control Manual - Chapter 22, Section 2, Hydrology. Except where specifically referenced otherwise, all reference information was taken from this source. Copies of all referenced material are included in the appendix.

2.2 HYDROLOGY - RATIONAL METHOD

Peak flows generated on the site were estimated using the Rational Method and the Soil Conservation Service - Unit Hydrograph Method. The Rational Method requires knowledge of the basin area and time of concentration and is defined as:

$Qp = CIA$ where:

- Qp is the peak flow (CFS)
- C is an empirical factor ranging from 0 to 1
- I is the intensity (inches per hour) at Tc
- A is the area (Acres)

To estimate the area and intensity, the landfill was divided into homogeneous basins and the areas determined using a digital planimeter. Using a map wheel and topographic information, the longest reach length and slope in each basin was determined. The time of concentration was calculated using the Kirpich equation defined as:

$$Tc = 0.0078(L)^{0.77} / (S)^{0.385}$$

where:

- Tc is the time of concentration (minutes)
- L is the length of the longest reach (feet)
- S is the slope of the longest reach

For the developed conditions on the landfill cell area, time of concentration was estimated using the SCS - Upland Method which is more characteristic of overland and sheet flow conditions. Whereas the Kirpich equation is intended for New Mexico basins with typical gullying, the assumption on the landfill was that the surface of the cells would be well maintained and uniformly sloped.

Intensity was determined using the 6 hour, 100 year storm precipitation defined in plate 22.2D-2 as:

$$I = (\text{6hr precip.})^{6.84} (Tc)^{-0.51}$$

where: I is the intensity (inches/hour)
Tc is the time of concentration (minutes)
6 hour precipitation (inches)

The 6 hour, 100 year storm precipitation of 2.2" was taken from Plate 22.2D-1.

Per the City of Albuquerque's emergency rule, the empirical "C" factor for both existing and developed conditions is 0.4.

The final cell cover for developed site conditions will consist of 18 inches of native soil overlying 6 to 12 inches of sand with an impervious liner below the sand layer. The existing site has extremely sparse vegetation whereas the final site is to have more controlled and better established vegetation. Based on discussions with City of Albuquerque staff, it is assumed that for developed conditions the "C" factor will be no different than for existing conditions.

2.3 EXISTING SITE CONDITIONS

The site area was initially delineated into (15) subbasins consisting of homogeneous areas which drain onto and through the landfill site. (See attachment No. 5). Smaller subbasins were combined with larger subbasins which drain to common points to produce a total of 8 subbasins with times of concentration in excess of 10 minutes. Table 1 summarizes the basin characteristics and peak flows estimated using the Rational Method and the 6 hour, 100 year storm precipitation of 2.2".

TABLE 1 SUMMARY OF BASIN CHARACTERISTICS AND PEAK FLOW (Existing)				
BASIN	AREA (ac)	Tc (min)	I (in/hour)	FLOW (CFS)
1	86.3	14.3	3.87	133.8
7	109.7	20.1	3.26	142.9
4	17.4	10.0	4.65	32.4
5	43.6	10.6	4.51	78.7
8	112.6	12.7	4.12	185.7
14	33.4	14.5	3.85	51.4
15	68.3	16.7	3.58	97.8
12	89.2	14.0	3.92	139.8

2.4 DEVELOPED SITE CONDITIONS

For developed site conditions, the landfill area was delineated into 10 basins of which 5 basins are outside the landfill and 5 basins (designated "L1 through L4") are within the proposed landfill cell area (see Attachment No. 6). The design of the landfill provides for berms on the north, east, and south sides of the cell area which prevent off site, up gradient drainage from entering the cell zone (unlike existing conditions). Trapezoidal channels (swales) will run parallel to the berms inside and outside of the cell area. Drainage originating outside of the cell area will be directed around the landfill back to natural drainage courses located at the northwest and southwest corners of the cell area. Runoff originating on the landfill will be collected within drainage swales paralleling the berms. Runoff entering the swale inside the north berm will be directed to the natural conveyance draining northwest from the landfill, while all other runoff

originating on the landfill will collect within the east, west, and south swales which will drain to the natural conveyance draining southwest from the landfill.

Table 2 summarizes the basin characteristics and peak flows estimated for developed conditions using the Rational Method and the 6 hour, 100 year storm precipitation of 2.2 inches.

TABLE 2
SUMMARY OF BASIN CHARACTERISTICS AND PEAK FLOWS
(Developed)

BASIN	AREA (ac)	Tc (min)	I (in/hour)	FLOW (CFS)
1	17.3	10.0 (1)	4.65	32.2
7	44.8	10.0 (1)	4.65	83.3
8	81.6	10.9 (1)	4.45	145.3
12	95.8	12.7 (1)	4.12	157.7
15	61.6	11.1 (1)	4.41	108.6
L1	47.5	10.0 (2)	4.65	88.4
L2	23.5	10.0 (2)	4.65	43.7
L3-1	18.4	15.2 (2)	3.76	27.6
L3-2	56.7	20.8 (2)	3.20	72.6
L4	106.0	22.2 (2)	3.10	131.3

(1) Kirpich method used to calculate time of concentration
(2) Upland method used to calculate time of concentration

2.5 EXISTING VERSUS DEVELOPED CONDITIONS

Comparison of existing versus developed conditions is best accomplished by evaluating concentrated peaks at various points on the landfill and within the natural conveyance routes outside of the landfill.

Under existing conditions, peak flows from basins 1, 5, 7, 8, and 12 combine near the southwest corner of the landfill and produce approximately 680.9 CFS. Basin 4, 14, 15 produces 181.6 CFS, which flows to the west/northwest. The combined flow from these two outlets under existing conditions is approximately 862.5 CFS.

Under developed conditions, all of the flow that previously originated above the landfill and flowed through it is now rerouted by the berms and directed around the disposal area by swales. Total flow leaving the landfill is now 890.7 CFS of which 212.1 CFS will flow into the natural northwest conveyance and 678.6 CFS will flow to the southwest natural conveyance.

2.6 DRAINAGE FACILITIES

Drainage facilities at the site have been designed to carry the 100 year storm events. The south and east channel on the outside of the 50 foot high earthen berm will have a bottom width of 50 foot and have sideslopes of 3 horizontal to 1 vertical. The 50 foot high berm will divert all stormwater runoff originating above the landfill area from entering the disposal area.

Due to the steep slopes within the channel length, and the highly erodible nature of the soil at the site, the channel is designed with a bottom width of 50 feet. See Appendix C

for drainage channel calculations. There are 45 steppes in this drainage channel with the distance between steppes of approximately 150 feet. The slope between the steppes is 0.5 %. Approximately 6000 of the 6750 feet of channel has been designed, and construction is underway. Attachments No. 7 and 7a are the drainage channel's plan and profile.

3.0 RELOCATION OF THE 100 YEAR FLOOD PLAIN

The 100-year flood plain on the southern edge of the landfill site is designated as zone A, or areas of 100 year flood. The base flood elevations and flood hazard factors were not determined for this area. Attachment No. 8 is a copy of the existing Flood Insurance Rate Map (FIRM) of Bernalillo County, New Mexico, panel 300 of 825.

The combination 50′ high berm/50 foot wide drainage channel will divert all stormwater from entering the disposal area, and will also eliminate the northern portion of the 100 year flood plain in that area. The 100 year floodplain located directly south of the site will be redirected via the 50′ wide drainage channel. Attachment No. 9 shows the revised Flood Insurance Rate Map.

The current 100 year Flood plain as identified in the FIRM maps is located within the landfilling area. The floodplain extends partially into the area which will eventually be Cell 2. The current solid waste regulations in New Mexico state that no landfill shall be located within a 100 year flood plain.

The 50 foot high earthen berm, along with the 50 foot wide stepped drainage channel will divert the flow away from the landfilling area.

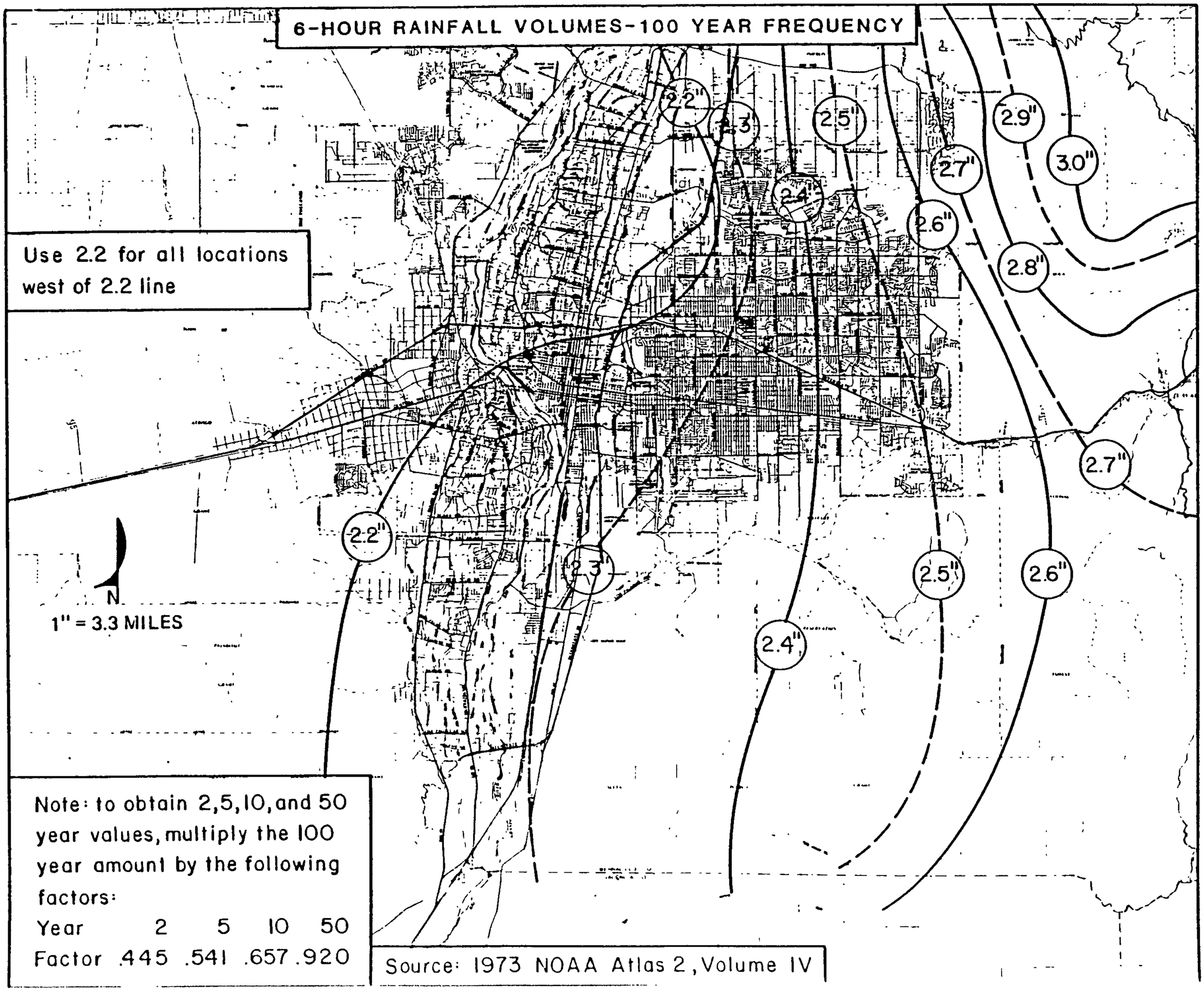
The current 100 year flood plain is located in a natural channel or arroyo. The arroyo is dry a majority of the time, and may convey stormwater 5 to 10 times a year, depending on storm intensities. Once the landfill is closed, and all channels are constructed, the 100 year flows will be conveyed in the 50 foot wide graded drainage channel. To control velocities and erosion in the 50 foot

wide drainage channel, drop structures will be built at 150 foot intervals. Under developed conditions, sediment buildup or deposition downstream will be the same or less when compared with pre-developed conditions. The drop structures will be lined with rip rap, and the slopes between drops will be 0.005 ft/ft or 0.5%. The original arroyo is approximately 15 to 20 feet wide in places and very steep. The post developed channel will be 50 feet wide, which will allow the flow to be distributed over a larger area, thereby decreasing the normal depth of the channel.

The calculated flows as the existing arroyo exits the site at the southwestern corner are approximately the same for existing and developed conditions (680.9 CFS vs. 678.6 CFS). There will be no change in flow between existing and developed conditions for downstream property owners.

APPENDIX A

PLATES FROM DRAINAGE FLOOD CONTROL AND EROSION CONTROL MANUAL CHAPTER 22, SECTION 2, HYDROLOGY


6-HOUR RAINFALL VOLUMES-100 YEAR FREQUENCY
Use 2.2 for all locations west of 2.2 line
2.2"
3"
2.5"
2.9"
2.7"
3.0"
2.4"
2.6"
2.8"
2.7"
2.2"
2.3"
2.5"
2.6"
2.4"
N
1" = 3.3 MILES
Note: to obtain 2,5,10,and 50 year values, multiply the 100 year amount by the following factors:
Year 2 5 10 50
Factor .445 .541 .657 .920
Source: 1973 NOAA Atlas 2, Volume IV

APPENDIX B

NOTICE OF EMERGENCY RULE
RATIONAL METHOD C = 0.40
UNDEVELOPED CONDITIONS

NOTICE OF EMERGENCY RULE

Pursuant to Article XI, Chapter 7 of the Revised Ordinances of Albuquerque, 1974:

I Ken Schultz, Mayor of the City of Albuquerque have determined that there are urgent and compelling reasons to modify certain rules contained in the Development Process Manual relating to the Minimum Standards for the Design of Subdivisions.

This modification of rules is necessary to preclude possible inaccuracies and inconsistencies in the application of certain design criteria for the design of drainage management and flood control systems within the platting and planning jurisdiction of the City of Albuquerque.

I therefore declare that the following modifications to the Development Process Manual of the City of Albuquerque shall become effective immediately:

Volume II, of the Development Process Manual shall be modified as follows:

Chapter 22, Page 7 Delete part C.1.

Chapter 22, Page 8 Remove page 8 - Plate 22.2 C-1 and delete all reference to it.

Chapter 22, Page 17 Delete part E.2 and add the following:

"C" values for use in the Rational formula should be taken from textbook and handbook references. City staff will review and evaluate composite "C" values based on the following surface types and associated values:

Surface Type	"C" Value
streets, drives, walks	0.95
roofs	0.90
lawns and landscaping	0.25
undeveloped	0.40

Volume and hydrograph determinations will be done according to part C.2. page 7, and part F page 19, regardless of watershed size, except where an existing approved Master Plan has used the Rational Method for these determinations.

Chapter 22, Page 18 Remove page 18 - Plate 22.2 E-1 and delete all reference to it.

Additional modifications may be incorporated into the next periodic update of the Development Process Manual.

For further information regarding this matter contact the City Engineer at telephone number 768-2500 or by mail at City/County Government Center, One Civic Plaza, Municipal Development Department, Engineering Division, 5th floor, 87103.

Ken Schultz, Mayor /Date 1/14/86

TO BE PUBLISHED IN THE ALBUQUERQUE JOURNAL AND ALBUQUERQUE TRIBUNE ON 2/19/86.
Date

APPENDIX C

DRAINAGE CHANNEL HYDRAULIC FLOW AND SEDIMENTATION TRANSPORT CALCULATIONS

DEVELOPED

In order to simplify these calculations the following assumptions are made:

base channel slope = 0.034
stepped channel slope = 0.005
avg. channel width (ft) = 50
g = 32.2
Open Channel Flow Eqtn.: Q=1.49/n x A x (Rh)^2/3 x (S)^1/2
Froude Eqtn.: Fr=((Q^2 x b) / (g x A^3))^1/2

Calculated Channel Depth
Per Specified Flow Increase

1. Q (cfs) = 26.64

Trial & Error Sol'n Yields:

d	=	0.252	5.058	vs.	5.058
			b	=	51.5138
			Area	=	12.80596
			V = Q/A	=	2.080627
			Froude #	=	0.735397 <1 - subcritical

2. Q (cfs) = 58.73

Trial & Error Sol'n Yields:

d	=	0.405	11.149	vs.	11.149
			b	=	52.42862
			Area	=	20.73001
			V = Q/A	=	2.833079
			Froude #	=	0.793990 <1 - subcritical

3. Q (cfs) = 93.56

Trial & Error Sol'n Yields:

d	=	0.534	17.759	vs.	17.759
			b	=	53.20688
			Area	=	27.58100
			V = Q/A	=	3.392039
			Froude #	=	0.830255 <1 - subcritical

4. Q (cfs) = 157.42

Trial & Error Sol'n Yields:

d	=	0.729	29.883	vs.	29.883
			b	=	54.37274
			Area	=	38.03290
			V = Q/A	=	4.139131
			Froude #	=	0.872151 <1 - subcritical

5. Q (cfs) = 214.62

d = 0.876

Trial & Error Sol'n Yields:

40.740	vs.	40.740	
b	=	55.25762	
Area	=	46.11704	
V = Q/A	=	4.653719	
Froude #	=	0.897713	<1 - subcritical

6. Q (cfs) = 259.54

d = 0.981

Trial & Error Sol'n Yields:

49.267	vs.	49.267	
b	=	55.88549	
Area	=	51.93233	
V = Q/A	=	4.997586	
Froude #	=	0.913614	<1 - subcritical

7. & 8. Q (cfs) = 326.29

d = 1.123

Trial & Error Sol'n Yields:

61.939	vs.	61.939	
b	=	56.74064	
Area	=	59.95840	
V = Q/A	=	5.441937	
Froude #	=	0.932927	<1 - subcritical

9. Q (cfs) = 359.88

d = 1.191

Trial & Error Sol'n Yields:

68.315	vs.	68.315	
b	=	57.14306	
Area	=	63.77744	
V = Q/A	=	5.642780	
Froude #	=	0.941268	<1 - subcritical

SEDIMENT TRANSPORT EQTNS:

Assuming sediment transport occurs only along the straight section of the channel & not at the drop (since presumably that will be constructed of a non-transportable material) the channel length is computed based on approximately 45 steps which are 150 ft. long which yields a total channel length for sediment transport purposes of 6,750 ft.

Reference Pg. 42 - "AMAFCA Drainage & Flood Control Design Guidelines" Reasonable 1st order estimate" q(s) = Sediment Transport Rate (cfs/ft)

q(s) = C(1) x Y^C(2) x V^C(3)

Class:	C(1)	C(2)	C(3)
Very Fine Sand	5.85E-05	1.04	3.2
Fine Sand	2.14E-05	0.837	3.59
Medium Sand	6.47E-06	0.535	4.05

Coarse Sand	2.90E-06	0.239	4.36
Very Coarse Sand	2.37E-06	-0.044	4.44

1. Q = 26.64 cfs Channel length = 6 x 150' = 900 ft
   V = 2.08 fps
   Y = 0.25 ft

Very Fine Sand	q(s) =	0.000145	cfs/ft	x 900' =	0.13	cfs
Fine Sand	q(s) =	0.000093	cfs/ft	x 900' =	0.08	cfs
Medium Sand	q(s) =	0.000060	cfs/ft	x 900' =	0.05	cfs
Coarse Sand	q(s) =	0.000050	cfs/ft	x 900' =	0.05	cfs
Very Coarse Sand	q(s) =	0.000065	cfs/ft	x 900' =	0.06	cfs

2. Q = 58.73 cfs Channel length = (5 x 150') + 100' = 850 ft
   V = 2.83 fps
   Y = 0.40 ft

Very Fine Sand	q(s) =	0.000639	cfs/ft	x 850' =	0.54	cfs
Fine Sand	q(s) =	0.000421	cfs/ft	x 850' =	0.36	cfs
Medium Sand	q(s) =	0.000270	cfs/ft	x 850' =	0.23	cfs
Coarse Sand	q(s) =	0.000218	cfs/ft	x 850' =	0.19	cfs
Very Coarse Sand	q(s) =	0.000251	cfs/ft	x 850' =	0.21	cfs

3. Q = 93.56 cfs Channel length = (5 x 150') + 65' = 815 ft
   V = 3.39 fps
   Y = 0.53 ft

Very Fine Sand	q(s) =	0.001519	cfs/ft	x 815' =	1.24	cfs
Fine Sand	q(s) =	0.001016	cfs/ft	x 815' =	0.83	cfs
Medium Sand	q(s) =	0.000651	cfs/ft	x 815' =	0.53	cfs
Coarse Sand	q(s) =	0.000513	cfs/ft	x 815' =	0.42	cfs
Very Coarse Sand	q(s) =	0.000552	cfs/ft	x 815' =	0.45	cfs

4. Q = 157.42 cfs Channel length = (3 x 150') + 135' = 585 ft
   V = 4.14 fps
   Y = 0.73 ft

Very Fine Sand	q(s) =	0.003966	cfs/ft	x 585' =	2.32	cfs
Fine Sand	q(s) =	0.002692	cfs/ft	x 585' =	1.57	cfs
Medium Sand	q(s) =	0.001721	cfs/ft	x 585' =	1.01	cfs
Coarse Sand	q(s) =	0.001316	cfs/ft	x 585' =	0.77	cfs
Very Coarse Sand	q(s) =	0.001317	cfs/ft	x 585' =	0.77	cfs

5. Q = 214.62 cfs Channel length = (3 x 150') + 135' = 585 ft
   V = 4.65 fps
   Y = 0.88 ft

Very Fine Sand	q(s) =	0.006989	cfs/ft	x 585' =	4.09	cfs
Fine Sand	q(s) =	0.004784	cfs/ft	x 585' =	2.80	cfs
Medium Sand	q(s) =	0.003053	cfs/ft	x 585' =	1.79	cfs
Coarse Sand	q(s) =	0.002292	cfs/ft	x 585' =	1.34	cfs
Very Coarse Sand	q(s) =	0.002199	cfs/ft	x 585' =	1.29	cfs

6. Q = 259.54 cfs Channel length = 1,400 ft
   V = 5.00 fps

Y = 0.98 ft

Very Fine Sand	q(s) =	0.009873	cfs/ft	x 1400' =	13.82	cfs
Fine Sand	q(s) =	0.006791	cfs/ft	x 1400' =	9.51	cfs
Medium Sand	q(s) =	0.004329	cfs/ft	x 1400' =	6.06	cfs
Coarse Sand	q(s) =	0.003213	cfs/ft	x 1400' =	4.50	cfs
Very Coarse Sand	q(s) =	0.003003	cfs/ft	x 1400' =	4.20	cfs

7. & 8. Q = 326.29 cfs Channel length = 1,200 ft
V = 5.44 fps
Y = 1.12 ft

Very Fine Sand	q(s) =	0.014932	cfs/ft	x 1200' =	17.92	cfs
Fine Sand	q(s) =	0.010329	cfs/ft	x 1200' =	12.40	cfs
Medium Sand	q(s) =	0.006572	cfs/ft	x 1200' =	7.89	cfs
Coarse Sand	q(s) =	0.004812	cfs/ft	x 1200' =	5.77	cfs
Very Coarse Sand	q(s) =	0.004357	cfs/ft	x 1200' =	5.23	cfs

9. Q = 359.88 cfs Channel length = 500 ft
V = 5.64 fps
Y = 1.19 ft

Very Fine Sand	q(s) =	0.017811	cfs/ft	x 500' =	8.91	cfs
Fine Sand	q(s) =	0.012349	cfs/ft	x 500' =	6.17	cfs
Medium Sand	q(s) =	0.007851	cfs/ft	x 500' =	3.93	cfs
Coarse Sand	q(s) =	0.005714	cfs/ft	x 500' =	2.86	cfs
Very Coarse Sand	q(s) =	0.005105	cfs/ft	x 500' =	2.55	cfs

TOTAL:

Very Fine Sand	q(s) =	48.97	cfs
Fine Sand	q(s) =	33.72	cfs
Medium Sand	q(s) =	21.48	cfs
Coarse Sand	q(s) =	15.89	cfs
Very Coarse Sand	q(s) =	14.77	cfs

Estimate Combined Rate of
Movement of Material = 134.84 cfs

ATTACHMENTS

ATTACHMENT NO. 1

USGS MAP

ATTACHMENT NO. 4

MAINTENANCE LETTER

O & M MANUAL MAINTENANCE PROCEDURES

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

RECEIVED
DEC 18 1990
HYDROLOGY DIVISION

December 14, 1990

Mr. Gilbert Aldaz, P.E., L.S.
City/County Floodplain Administrator
Public Works Department
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

Re: Cerro Colorado Landfill
Drainage Channel Maintenance & Sedimentation Control

Dear Mr. Aldaz:

In order to obtain a FEMA map revision, it is my understanding you need a document stating who the responsible party is for maintaining the drainage channels and controlling sedimentation at the Cerro Colorado Landfill site. As director of the Solid Waste Division for the City of Albuquerque, I hereby state that the City of Albuquerque is responsible for the daily operation of the landfill including maintenance of drainage channels and sedimentation control.

If I can be for further assistance, please notify me.

Sincerely yours,

Gene Romo

Gene Romo, Ph.D.
Director
Solid Waste Management Department

GR:pp
319GR90

cc: Russell Givler, City Engineer, Public Works Department
Everett Naranjo, Superintendent, Landfill Division/SWMD
Stan Morris, Supervisor, Landfill Division, SWMD
J. Chappelle, Camp Dresser & McKee

5.6 SURFACE DRAINAGE

All surface water runoff must be managed in accordance with applicable permits. Storm water facilities must be inspected regularly and continuously maintained as described herein. Storm water must be directed to the drainage channels, which must be dredged at a minimum of once per year. To prevent ponding within the limits of the landfill area, storm water runoff may be discharged from the final cap or 12-inches of properly maintained intermediate cover. Accumulated storm water must be removed (pumped) from the daily cover/borrow areas to drainage Channel "D". All silt which was deposited from major storm events should be removed by hand at all silt fence locations.

Particular attention must be paid to the handling, control and management of surface water runoff during development of interim landfill phases, and after landfill completion, to minimize leachate generation and avoid erosion and sediment deposition in drainageways. Precipitation that infiltrates through the landfill can accumulate contaminants and pollute ground and surface waters if it is not contained and treated. To minimize the potential for pollution, water from tributary drainage areas is diverted around the landfill area. Waterways are provided to convey runoff from areas where the landfill acts as a dam across natural drainage courses and in areas where runoff from the capped landfill surface would flow along the capped landfill toe, causing erosion and leaving the toe open to infestation by vermin.

Run-on is prevented from draining into the excavated (future cells) section of the landfill by dikes constructed of fill material. The waterways are designed to drain the peak discharge from the 100 year - 6 hour storm.

Runoff from the active landfill cells will be physically controlled by the use of intermediate cell berms and passively controlled by limiting the placement of solid waste (set backs) from the inside edge of the landfill berms. Leachate is collected through the landfill's leachate collection system.

Attachment No. 4 - Exerpts from Cerro Colorado Operation and Maintenance Manual, Dec. 1990.

The plan for managing stormwater run-off from areas outside of the active landfill is to discharge it offsite through the arroyo draining to the southwestern corner of the site.

The final cap landfill surface must be adequately sloped to encourage surface runoff and should be properly graded to avoid pockets of standing water.

All storm water drainage facilities should be inspected weekly and after storm events. Fill material, siltation and excess plant growth should be cleared from all drainage waterways to remove any obstruction to flow or when two (2) inches of silt have accumulated. Erosion on the side slopes or bottom of the waterways should be repaired and the waterways reconstructed.

5.7 LEACHATE MANAGEMENT

Leachate is defined as:

"Any liquid or stormwater that: 1) has been in contact with solid waste and/or equipment used in the handling of solid waste; 2) has been generated within the active landfill area(s) during operations; 3) falls on the active landfill area, where the active landfill area is any area that is in operation and permitted for landfilling that has not received final cover or a minimum of 12-inches of intermediate cover."

Discharge of leachate, as defined above, will not be permitted except through the leachate collection system.

The leachate collection and evaporation pond must be inspected and maintained regularly. The leachate collection manholes and the leachate evaporation pond must be inspected for damage on a monthly basis.

Attachment No. 4 - Exerpts from Cerro Colorado Operation and Maintenance Manual, Dec. 1990.

5.8 SOIL EROSION AND SEDIMENT CONTROL

The on site soils are very susceptible to wind and water erosion. Every effort must be made to minimize erosion of landfill side slopes and avoid sedimentation of adjacent areas.

The final cover material should be inspected for erosion frequently, and additional final cover material should be added immediately.

Sideslopes along all berms, including along the access road should be inspected frequently for signs of erosion.

All drainage channels should be inspected for bottom erosion, and should be regraded in accordance with the drawings. The silt fences should be inspected after every major storm event. Sediment should be removed, and the silt fences should be repaired if any damage is found.

All culverts should be inspected for silt buildup, and any silt collected within the structure and at the inlet side shall be removed.

5.9 LITTER, DUST AND VECTOR CONTROL

Adherence to the operating procedures and mitigative measures outlined in this manual should prevent litter, dust and/or vectors from becoming a nuisance at the CCL. Application of daily cover material controls wind blown litter to a great extent, and improves the appearance of the area. Litter is further controlled by placing portable litter fencing downwind of the working area. Litter which is scattered around the site, or which travels offsite or into the buffer zone, is retrieved on a daily basis, and buried at the active face. Vehicles transporting waste to the facility should be covered to avoid littering area roads. Litter within the CCL property line and easements, and offsite on all access roads, and neighboring properties must be collected on a daily basis.

Attachment No. 4 - Exerpts from Cerro Colorado Operation and Maintenance Manual, Dec. 1990.

ATTACHMENT NO. 5

EXISTING BASIN MAP

CITY OF ALBUQUERQUE

April 22, 2009

Karen Menne-Jacobsen. P.E.
ASCG
6501 Americas Parkway NE, Ste 400
Albuquerque, NM 87110

Re: Intermediate Processing Facility,
Permanent Certificate of Occupancy - Approval
Engineer's Stamp dated 9/29/08 (P-01/D001)
Certification dated 4/20/09

Dear Mrs. Jacobesn,

Based upon the information provided in your submittal received 4/20/09, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3982.

Sincerely,

Timothy E. Sims
Plan Checker—Hydrology Section
Development and Building Services

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

C: CO Clerk—Katrina Sigala
File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 12/2005)

P-01/D001

PROJECT TITLE: Site Plan and Permitting for IPF Facility ZONE MAP: ~~P-12~~
DRB#: _____ EPC#: _____ WORK ORDER#: 7396

LEGAL DESCRIPTION: Intermediate Processing Facility (IPF)
CITY ADDRESS: Cerro Colorado Municipal Sanitary Landfill

ENGINEERING FIRM: ASCG
ADDRESS: 6501 Americas Pkwy NE Ste 400
CITY, STATE: _____
CONTACT: Karen Jacobsen
PHONE: 505 247-0294
ZIP CODE: 87110

OWNER: City of Albuquerque, Solid Waste Management Dept.
ADDRESS: 4600 Edith Blvd. NE
CITY, STATE: Albuquerque, NM
CONTACT: David Robinson
PHONE: 505-761-8341
ZIP CODE: 87107

ARCHITECT: Mid-West Steel Building Company
ADDRESS: 7301 Fairview
CITY, STATE: Houston, Texas
CONTACT: Esteban Nait
PHONE: 713 466-7788
ZIP CODE: 77240

SURVEYOR: ASCG
ADDRESS: 6501 Americas Pkwy NE, Ste 400
CITY, STATE: Albuquerque, NM
CONTACT: Andy Potts
PHONE: 505-247-0294
ZIP CODE: 87110

CONTRACTOR: B+A Industries, INC
ADDRESS: 9720 Bell SE
CITY, STATE: Albuquerque NM 87123
CONTACT: Steven Wilson
PHONE: 505-991-5072
ZIP CODE: 87123

TYPE OF SUBMITTAL:
- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT
- ____ ENGINEER'S CERT (TCL)
- ____ ENGINEER'S CERT (DRB SITE PLAN)
- ____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
- ____ SIA/FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- ____ S. DEV. FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- X FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- X CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TEMP)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
- ____ YES
- ____ NO
- ____ COPY PROVIDED

DATE SUBMITTED: April 14, 2009 BY: John Gillette

Requests for approvals of Site Development Plans and/or Subdivision Plans shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

CITY OF ALBUQUERQUE

April 15, 2009

Karen Menne-Jacobsen. P.E.
ASCG
6501 Americas Parkway NE, Ste 400
Albuquerque, NM 87110

Re: Intermediate Processing Facility, Cerro Colorado Municipal Sanitary Landfill, 90 Day Temporary Certificate of Occupancy,

Approved Engineer's Stamp Date 9-29-08

Engineer's Submitted Stamp date 4-13-09 (P-01/D001)

Certification dated:

Dear Mrs. Jacobsen,

Based upon the information provided in the Certification received 4-14-09, the above referenced Certification is approved for a 90-day Temporary Certificate of Occupancy by Hydrology.

When submitting for Permanent CO:

- Certify the approved plan, stamp date 9-29-08.
- Include the address of the site.
- The certification must contain the Engineer's Certification Language. (see enclosed sample letter) The Engineer's Certification can be minimized and printed on the plan.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Timothy E. Sims,
Plan Checker—Hydrology Section
Development and Building Services

C: CO Clerk—Katrina Sigala
File
Enclosure 1

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development & Building Services

September 29, 2008

Karen Jacobsen, P.E.
ASCG (W H Pacific)
6501 Americas Parkway NE, Suite 400
Albuquerque, NM 87110

Re: **Intermediate Process Facility** – (Glass Bldg) **(P01-D 001)**
Drainage Plan for Building Permit Engineer's Stamp dated **9-29-2008**

Dear Ms. Jacobsen:

Based upon the information provided in your submittal received 9/29/08, the above referenced Grading and Drainage Plan is approved for Building Permit.

It is my understanding that even though this site outside the City of Albuquerque limits, by reciprocal agreement with Bernalillo County Building officials, building permits on City of Albuquerque owned properties are issued and administered by the City of Albuquerque. As such, a City Building Permit approved by this Hydrology Division will be required.

Please attach a copy of this approved plan to the Building Permit plan sets prior to requesting sign-off by the Hydrology Section.

Prior to Certificate of Occupancy approval, an Engineer's Certification of compliance with this plan is required to be submitted to Hydrology Division per the DPM.

If I can be of further assistance, please feel free to contact me at 924-3981.

Sincerely,

9/29/08

Gregory R. Olson, P.E.
Hydrology Section

XC: Brad Bingham, COA/Hydrology
Annette Montoya, COA/CIP
Drainage file P01-D 001

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

ASCG
INCORPORATED
ENGINEERS • ARCHITECTS • SURVEYORS • PLANNERS

September 29, 2008

Mr. Gregory R. Olson, P.E.
Hydrology Section
Planning Department, Development & Building Services
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87103

Re: Cerro Colorado Landfill IPF Facility – C.O.A. Project # 7396.01

Dear Mr. Olson:

I am resubmitting the Drainage Plan for the above referenced project after having reviewed your comments included in your letter dated September 12. Your comments and my action in regards to them follow:

1. The plan must be sealed and signed by a NM registered Professional Engineer.

   Response: Included with this letter is a full size copy of the revised drainage plan signed by Karen Jacobsen, P.E.

2. This site appears to actually be located on Map P-01 rather than P-2.

   Response: The zone map no. reference has been changed to P-1.

3. Label the existing sedimentation pond near the west edge of the site and clarify if these flows go to that pond.

   Response: Based on survey data and site visits, it is my judgment that runoff from the IPF building will flow west towards the western property line and not towards the pond, therefore I have not included the pond in the Drainage and Site Plans. Grading will be limited to the immediate vicinity of the IPF Building and runoff will follow the historic path. At a pre-submittal meeting, Brad Bingham indicated that if the developed runoff flow did not differ significantly from the historic flow, as is the case with this project, no redirection would be required.

6501 AMERICAS PARKWAY NE, SUITE 400 • ALBUQUERQUE, NEW MEXICO 87110-5372
(505) 247-0294 • FAX (505) 242-4845

4. Clarify on section #1 the depth of the swale around the building below finish floor.

   Response: The depth of the swale varies from 2" at the northeast corner of the building to 9" at the northwest corner. This note has been added to the section detail.

5. Since the site area exceeds one acre, clarify with Bernalillo County authorities regarding Storm Water Pollution Prevention Plan (SWPPP) requirements.

   Response: The area disturbed by construction activities is less than 0.5 acres located in the immediate vicinity of the proposed IPF Building, and therefore, a SWPPP will not be required. The drainage basin shown is for hydrologic analysis and does not indicated limits of construction. I have added an approximate grading boundary and grading note to clarify the limits of construction. I have also eliminated flow arrows not in the immediate vicinity of the IPF Building to avoid confusion.

6. Since this site is outside the City of Albuquerque limits, coordinate Building Permit approval with Bernalillo County.

   Response: According to Annette Montoya, CIP Program Manager, this will not be required.

If you need additional information, please call me, or Karen Jacobsen, at 247-0294.

Sincerely,

By: John Gilletly, E.I.
Project Engineer

JG/cc
Enclosures

P \City of Albuquerque\267112\Management\Correspondence\Letter\092608 drainage subittal response docx

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 12/2005)

PROJECT TITLE: Intermediate Process Facility ZONE MAP: P-1

DRB#: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Cerro Colorado Intermediate Processing Facility

CITY ADDRESS: _____

ENGINEERING FIRM: ASCG CONTACT: Karen Jacobsen

ADDRESS: 6501 Americas Pkwy PHONE: 247-0294

CITY, STATE: ABQ ZIP CODE: 87110

OWNER: C.O.A Solid Waste Dept. CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL
- X DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT
- ____ ENGINEER'S CERT (TCL)
- ____ ENGINEER'S CERT (DRB SITE PLAN)
- ____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SIA/FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- ____ S. DEV. FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ✓ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TEMP)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

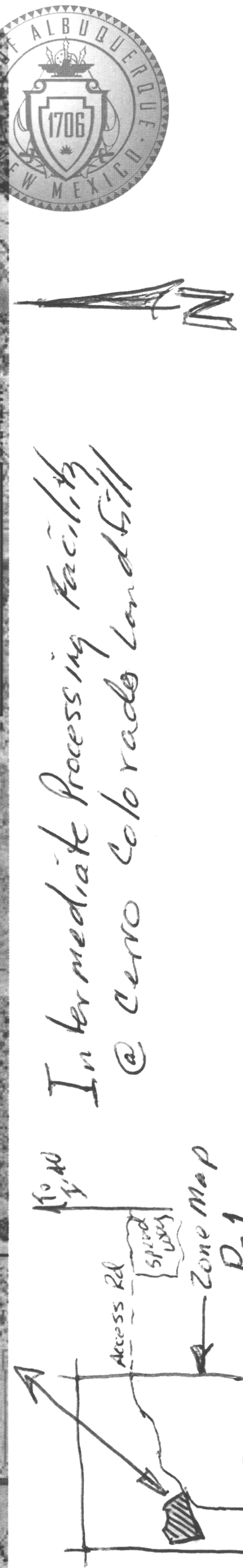
- ____ YES
- ____ NO
- ____ COPY PROVIDED

DATE SUBMITTED: 9/29/08 BY: John Gillette

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

CITY OF ALBUQUERQUE



PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

WHPacific

John Gilletly, EI

6501 Americas Pkwy NE, Ste 400 • Albuquerque, NM 87110
505.247.0294 • 505.348.5279 • 505.242.4845
jgilletly@whpacific.com

CITY OF ALBUQUERQUE

www.cabq.gov

TEGIS WEB

IPF P01-D001

www.cabq.gov
NM 87103
Albuquerque
PO Box 1293

LAYERS

- BASEMAP
  - PARCELS
  - METRO ADDRESS
  - ZONING
  - OWNERSHIP
  - 10FT CONTOURS
  - CONTOURS
  - MAJOR STREETS
  - FREEWAYS
  - STREET NETWORK
  - STREET NAMES
- INFRASTRUCTURE
- BOUNDARIES
- SITES
- DRC
- APS
- STREETS
- TRAFFIC ENG.
- TRANSIT
- AIR PHOTO
  - 2006 AIR PHOTO
  - 2004 AIR PHOTO
  - 2002 AIR PHOTO
  - 1999 AIR PHOTO

Refresh Map

Auto Refresh

Help:

- Closed group, click to open.
- Open group, click to close.
- Map layer.
- Hidden group/layer, click for visible.
- Visible group/layer, click to hide.
- Layer not visible at this scale.
- Partially visible group, click for visible.
- Inactive layer, click for active.
- The active layer.

ZONE GRID

Rec	COASDE.AGIS.PAGEGRID.ZONEMAPNAME
1	P1

Pan SEARCH REFRESH HELP INDEX PAGE CONTACT

CITY OF ALBUQUERQUE

Albuquerque - Making History 1706-2006

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 12/2005)

P-1/D001 40

PROJECT TITLE: Site Plan and Permitting for IPF Facility ZONE MAP: ~~P-22~~

DRB#: _____ EPC#: _____ WORK ORDER#: 7396

LEGAL DESCRIPTION: Intermediate Processing Facility (IPF)

CITY ADDRESS: Cerro Colorado Municipal Sanitary Landfill

ENGINEERING FIRM: ASCG CONTACT: Karen Jacobsen
ADDRESS: 6501 Americas Pkwy NE Ste 400 PHONE: 505 247-0294
CITY, STATE: Albuquerque, NM ZIP CODE: 87110

OWNER: City of Albuquerque, Solid Waste Management Dept. CONTACT: David M. Robinson
ADDRESS: 4600 Edith Blvd. N.E. PHONE: 505-761-8341
CITY, STATE: Albuquerque, NM ZIP CODE: 87107

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: ASCG CONTACT: Andy Potts
ADDRESS: 6501 Americas Pkwy NE, Ste 400 PHONE: 505-247-0294
CITY, STATE: Albuquerque, NM ZIP CODE: 87110

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- X DRAINAGE PLAN 1st SUBMITTAL
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT
- ____ ENGINEER'S CERT (TCL)
- ____ ENGINEER'S CERT (DRB SITE PLAN)
- ____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SIA/FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- ____ S. DEV. FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TEMP)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

RECEIVED
AUG 18 2008
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- X YES
- ____ NO
- ____ COPY PROVIDED

DATE SUBMITTED: _____ BY: John Gilletty (John Gilletty 348-5279)

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

ASCG
INCORPORATED
ENGINEERS • ARCHITECTS • SURVEYORS • PLANNERS

August 18, 2008

Mr. Brad Bingham, P.E
C.O.A. Hydrology
Plaza Del Sol
600 2nd St.
Albuquerque, New Mexico 87103

RE: INTERMEDIATE PROCESSING FACILITY (IPF) – CERRO COLORADO MUNICIPAL SANITARY LANDFILL

Brad:

Enclosed please find a completed Drainage Information Application, and a copy of the Drainage Plan.

Please contact me at 505-348-5279 if you have questions or need additional information.

Sincerely,

ASCG Incorporated *of New Mexico*

By: John Gilletly
Project Engineer

RECEIVED
AUG 18 2008
HYDROLOGY SECTION

6501 AMERICAS PARKWAY NE, SUITE 400 • ALBUQUERQUE, NEW MEXICO 87110-5372
(505) 247-0294 • FAX (505) 242-4845

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development & Building Services

September 12, 2008

Karen Jacobsen, P.E.
ASCG (W H Pacific)
6501 Americas Parkway NE, Suite 400
Albuquerque, NM 87110

Re: **Intermediate Process Facility** – (Glass Bldg) **(P01-D 001)**
Drainage Plan for Building Permit Engineer's Stamp dated **<No Stamp>**

Dear Ms. Jacobsen:

Based upon the information provided in your submittal received 8/18/08, the above referenced Drainage Plan cannot be approved until the following comments are addressed:

1) The plan must be sealed and signed by a NM registered Professional Engineer.
2) This site appears to actually be located on Map P-01 rather than P-2.
3) Label the existing sedimentation pond near the west edge of the site and clarify if these flows go to that pond.
4) Clarify on section #1 the depth of the swale around the building below finish floor.
5) Since the site area exceeds one acre, clarify with Bernalillo County authorities regarding Storm Water Pollution Prevention Plan (SWPPP) requirements.
6) Since this site is outside the City of Albuquerque limits, coordinate Building Permit approval with Bernalillo County.

If you have any questions or would like to schedule a meeting to discuss this, you may contact me at 924-3981.

Sincerely,

9/12/8

Gregory R. Olson, P.E.
Hydrology Section

XC: Brad Bingham, COA/Hydrology
Drainage file P01-D 001

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov