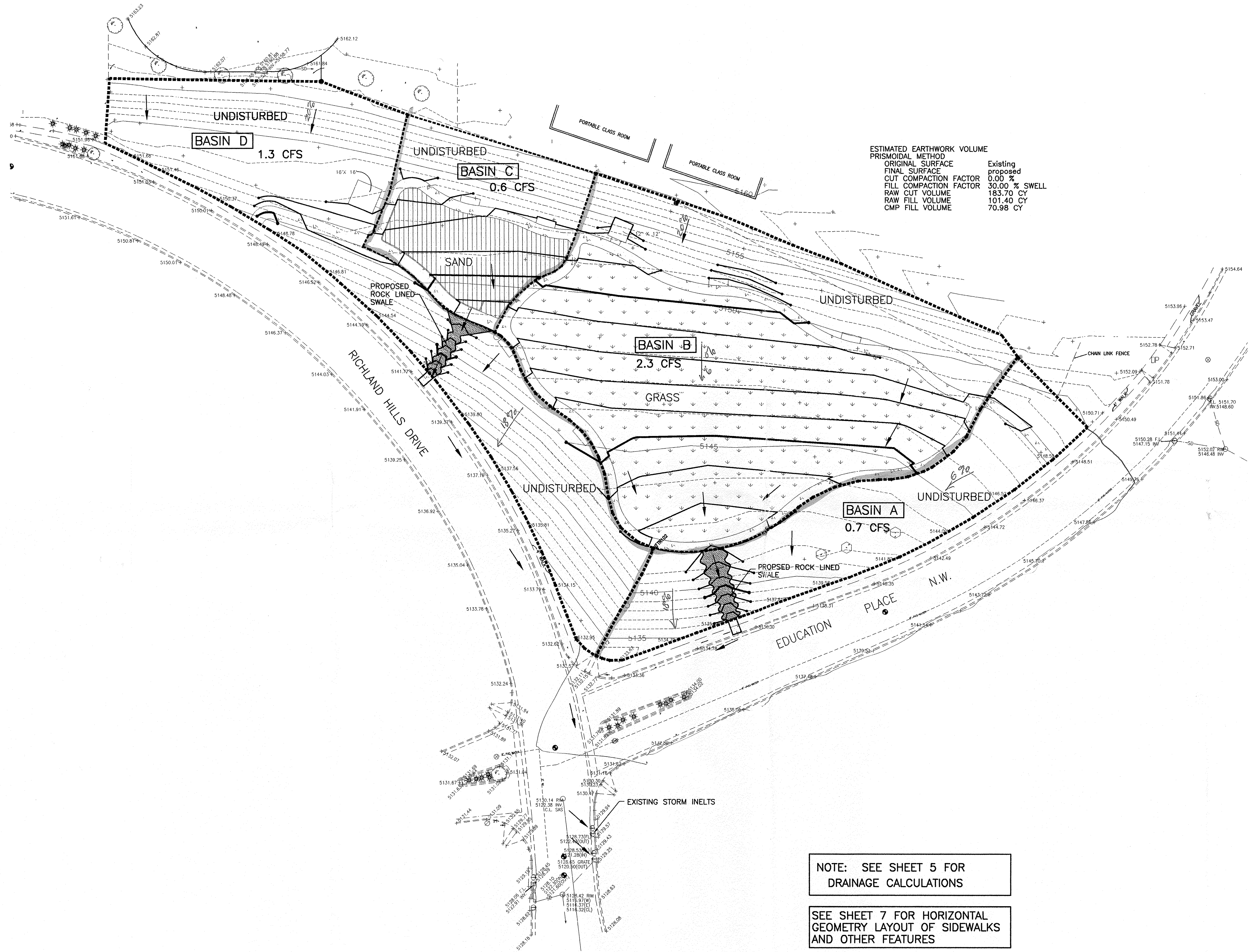
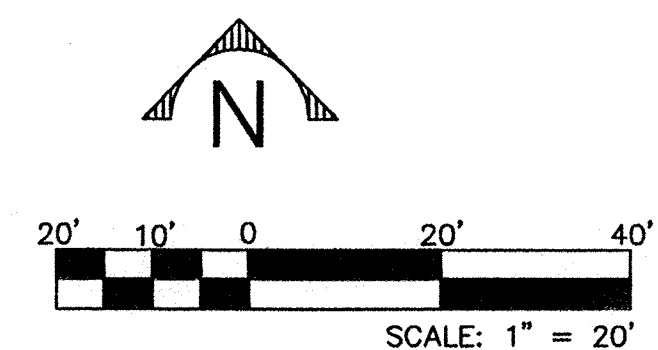
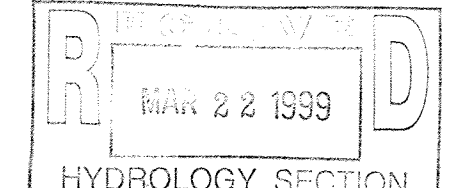




ESTIMATED EARTHWORK VOLUME
PRISMOIDAL METHOD
ORIGINAL SURFACE
FINAL SURFACE
CUT COMPACTION FACTOR
FILL COMPACTION FACTOR
RAW CUT VOLUME
RAW FILL VOLUME
CMP FILL VOLUME

Existing
proposed
0.00 %
30.00 % SWELL
183.70 CY
101.40 CY
70.98 CY



PROJECT NO. 198634
Smith Engineering Company
A Full Service Engineering Company
6600 Uptown Boulevard, N.E. Suite 6000 Albuquerque, New Mexico 87110

CITY OF ALBUQUERQUE CAPITAL IMPLEMENTATION PROGRAM LANDSCAPE ARCHITECTURE AND CONSTRUCTION SERVICES	
TITLE: RICHLAND HILLS PARK IMPROVEMENTS PROJECT	
CONCEPTUAL GRADING AND DRAINAGE PLAN	
Design Review Committee	City Engineer Approval
City Project No. 566371	Zone Map No. C-12-Z
Sheet 4 of 15	

ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
	REVISIONS	NO.	BY	DATE	CONTRACTOR	WORK	DATE
	DESIGN				IS EXPOSED TO TOP OF CONCRETE CURB ON THE S.W. CURB RETURN AT THE INTERSECTION OF PARADISE HILLS BLVD. AND DAVENPORT ST. N.W.	STAKED BY	DATE
						ADJUSTED BY	DATE
						REVISION BY	DATE
DESIGNED BY	DATE						
DRAWN BY	DATE						
CHECKED BY	DATE						

1997/98 32.3.03

20%

20%

Q: sum of the SubBasins

PREVIOUS MASTER DRAINAGE PLAN

PREVIOUS MASTER DRAINAGE PLAN

The master drainage plan for the subdivision is titled "Drainage Report for Richland Hills Unit 1 (Map #C-12). Community Sciences Corporation, October 1993 (Revised March 1994), James D. Hughes PE. The following information is a summary of the drainage information for the park as provided in that report.

Basin 112 is designated park area and these flows were considered in Richland Hills Road NW and Extension of Education Place NW design. Basin 112 is shown to free discharge into Education Place (Plate 2). Flows from Education Place combine with flows from Richland Hills Rd NW at their intersection, and continue southerly on Richland Hills Rd NW. Just south of the intersection of the two streets, a Type Double A single throat and Type Double C are located on both sides of Richland Hills Rd NW.

HYDROLOGIC ANALYSIS

A Existing Conditions - Onsite

There are no existing drainage improvements on the site.

The developed park will have paved impermeable areas, including concrete sidewalks covered shelters, drip irrigated landscaped areas for native shrubs and trees, irrigated grass areas and a sand area for a children's playground.

Basin B is 89.4% irrigated grass and 10.6% concrete sidewalks and shelter pads . Land treatment B was used for the grass and land treatment D for the sidewalks. The proposed sidewalks on the perimeter of this basin shall have a 2% cross slope directed to towards the interior of the park. This will eliminate developed impermeable surface runoff from the basin slopes leading to Richard Hill slope. Education Place. Basin B runoff will all be directed to the south end of the basin. At this location, the side walk slopes shall be transitioned to empty into a rock lined swale that will take the flow down to a new sidewalk culvert across the existing sidewalk on Education Place. An estimated 2.3 cfs will drain from this basin to Education Place.

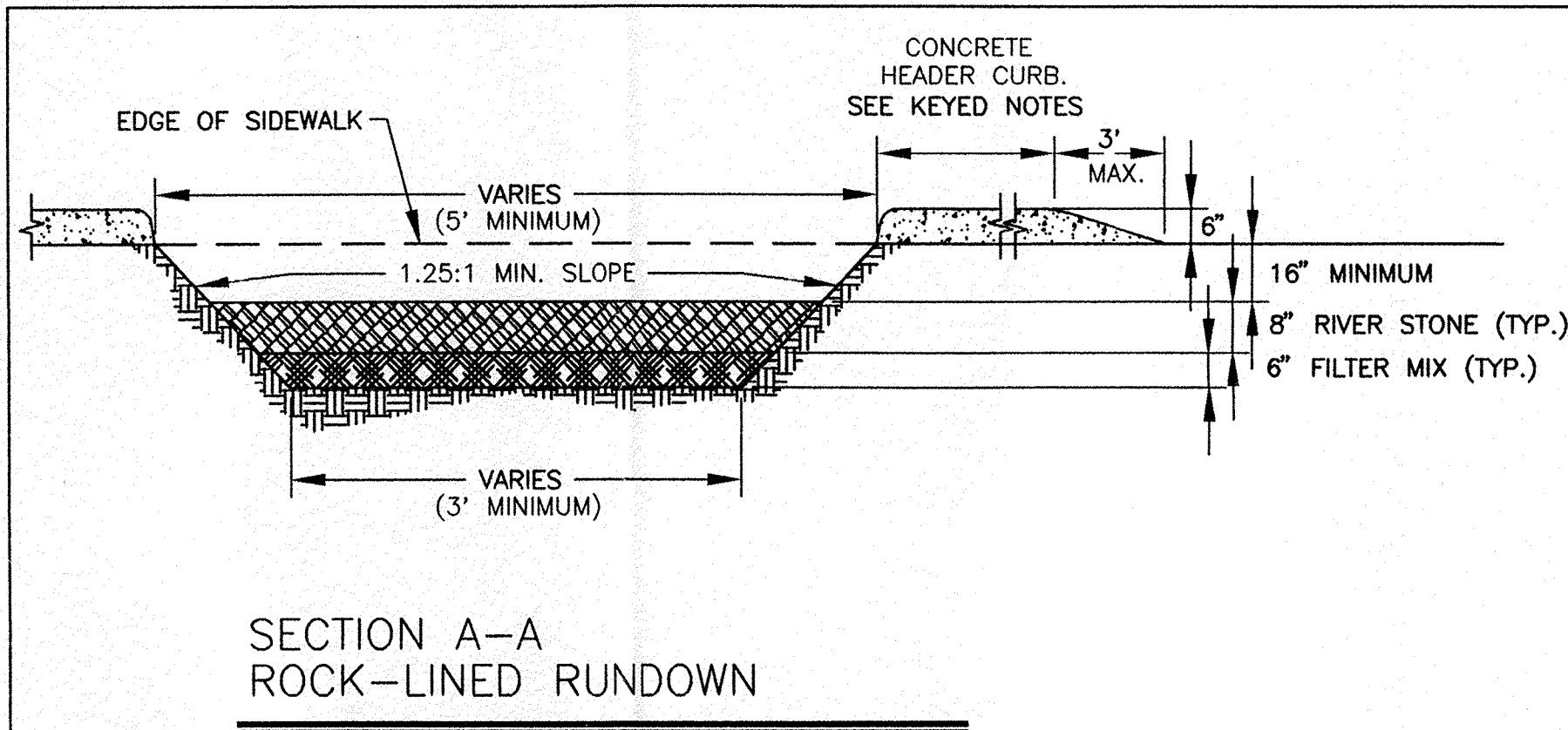
Basin C encompasses the sand play area, concrete sidewalk, and the undisturbed slopes on the north side of the basin. 83.4% of the area is assigned to land treatment B and 16.6% to land treatment D. An estimated 0.9 cfs will drain from Basin C and shall be directed to the south end of the basin where the sidewalk shall transition to a 2% cross slope on a new rock lined swale that will take the flow down to a new sidewalk culvert built across the existing 4' wide sidewalk on Richland Hills Drive.

Basin D remains, for the most part, undeveloped. 96.6% of the area remains in land treatment B with 3.4% in land treatment D. An estimated 0.9 cfs will sheet flow out onto Richland Hills Drive.

Due to the very small Q's involved with this park, the hydrologic calculations on the swale and sidewalk culverts are not shown.

The allowable volume as stated in the master drainage study is 7.1 cfs. The proposed calculated discharge of 4.9 cfs is 2.2 cfs less than the allowable. No detention facilities should be required on this park site.

[illegible]



RUNDOWN CAPACITY CALCULATION

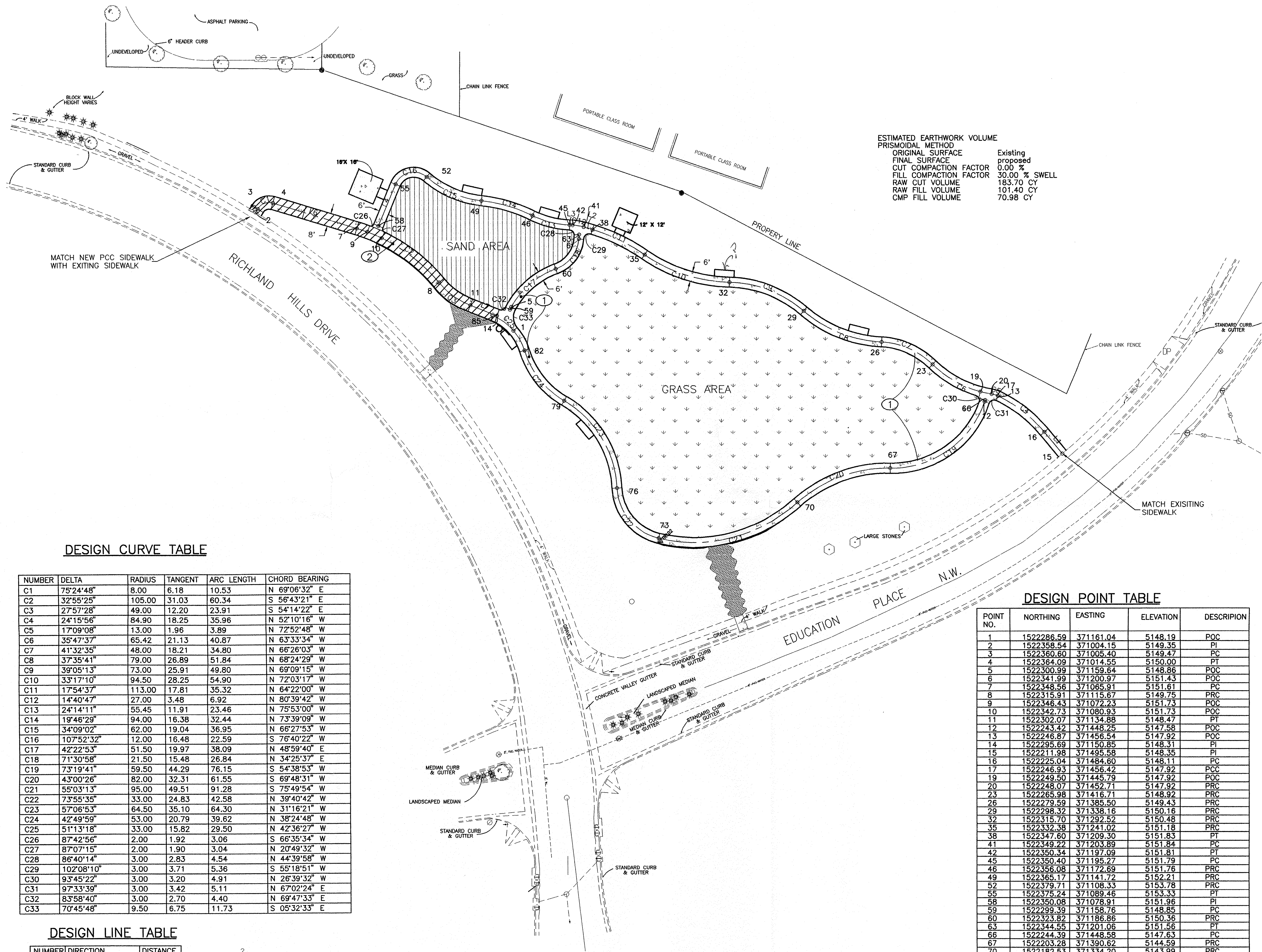
RUNDOWN GEOMETRY (GENERAL)
MANNING'S N = 0.50
DEPTH = 1.33 FT
SIDE SLOPES = 1.25 V:H
BOTTOM WIDTH = 3.32 FT

NORTHWEST RUNDOWN
AVAILABLE CAPACITY = 63.48 CFS
FLOW AREA = 6.6 SQUARE FEET
WETTED PERIMETER = 7.33 FT
TOP WIDTH = 6.05 FT
SLOPE = 0.118 FT/FT
REQUIRED CAPACITY = 0.60 CFS

SOUTHWEST RUNDOWN
AVAILABLE CAPACITY = 66.73 CFS
FLOW AREA = 6.6 SQUARE FEET
WETTED PERIMETER = 7.33 FT
TOP WIDTH = 6.05 FT
SLOPE = 0.130 FT/FT
REQUIRED CAPACITY = 2.3 CFS

SOUTHWEST RUNDOWN
AVAILABLE CAPACITY = 7.17 CFS
FLOW AREA = 0.50 SQUARE FEET
WETTED PERIMETER = 2.00 FT
TOP WIDTH = 1.00 FT
SLOPE = 0.100 FT/FT
REQUIRED CAPACITY = 2.3 CFS

E	
PROGRAM INSTRUCTION SERVICES	
ENTS PROJECT	
NAGE PLAN	
Mo. / Day / Yr.	Mo. / Day / Yr.
Sheet	Of
6	15



ESTIMATED EARTHWORK VOLUME
PRISMOIDAL METHOD
ORIGINAL SURFACE
FINAL SURFACE
CUT COMPACTION FACTOR
FILL COMPACTION FACTOR
RAW CUT VOLUME
RAW FILL VOLUME
CMP FILL VOLUME

Existing
proposed
0.00 %
30.00 % SWELL
183.70 CY
101.40 CY
70.98 CY

DESIGN CURVE TABLE

NUMBER	DELTA	RADIUS	TANGENT	ARC LENGTH	CHORD BEARING
C1	75°24'48"	8.00	6.18	10.53	N 69°06'32" E
C2	32°55'25"	105.00	31.03	60.34	S 56°43'21" E
C3	27°57'28"	49.00	12.20	23.91	S 54°14'22" E
C4	24°15'56"	84.90	18.25	35.96	N 57°10'16" W
C5	17°09'08"	13.00	1.96	3.89	N 72°52'48" W
C6	35°47'37"	65.42	21.13	40.87	N 63°33'34" W
C7	41°32'35"	48.00	18.21	34.80	N 66°26'03" W
C8	37°35'41"	79.00	26.89	51.84	N 68°24'29" W
C9	39°05'13"	73.00	25.91	49.80	N 69°09'15" W
C10	33°17'10"	94.50	28.25	54.90	N 72°03'17" W
C11	17°54'37"	113.00	17.81	35.32	N 64°22'00" W
C12	14°40'47"	27.00	3.48	6.92	N 80°39'42" W
C13	24°14'11"	55.45	11.91	23.46	N 75°53'00" W
C14	19°46'29"	94.00	16.38	32.44	N 73°39'09" W
C15	34°09'02"	62.00	19.04	36.95	N 66°27'53" W
C16	107°52'32"	12.00	16.48	22.59	S 76°40'22" W
C17	42°22'53"	51.50	19.97	38.09	N 48°59'40" E
C18	71°30'58"	21.50	15.48	26.84	N 34°25'37" E
C19	73°19'41"	59.50	44.29	76.15	S 54°38'53" W
C20	43°00'26"	82.00	32.31	61.55	S 69°48'31" W
C21	55°03'13"	95.00	49.51	91.28	S 75°49'54" W
C22	73°55'35"	33.00	24.83	42.58	N 39°40'42" W
C23	57°06'53"	64.50	35.10	64.30	N 31°16'21" W
C24	42°49'59"	53.00	20.79	39.62	N 38°24'48" W
C25	51°13'18"	33.00	15.82	29.50	N 42°36'27" W
C26	87°42'56"	2.00	1.92	3.06	S 66°35'34" W
C27	87°07'15"	2.00	1.90	3.04	N 20°49'32" W
C28	86°40'14"	3.00	2.83	4.54	N 44°39'58" W
C29	102°08'10"	3.00	3.71	5.36	S 55°18'51" W
C30	93°45'22"	3.00	3.20	4.91	N 26°39'32" W
C31	97°33'39"	3.00	3.42	5.11	N 67°02'24" E
C32	83°58'40"	3.00	2.70	4.40	N 69°47'33" E
C33	70°45'48"	9.50	6.75	11.73	S 05°32'33" E

DESIGN LINE TABLE

NUMBER	DIRECTION	DISTANCE
L1	N 40°02'18" W	17.06 FT
L2	N 73°19'18" W	5.65 FT
L3	N 88°00'05" W	1.82 FT
L4	S 22°44'06" W	27.28 FT
L5	N 31°24'08" E	2.41 FT
L6	S 73°11'04" E	53.66 FT
L7	S 68°13'07" E	17.21 FT

DESIGN POINT TABLE

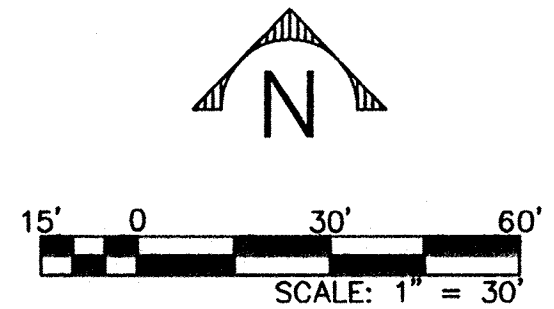
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1522286.59	371161.04	5148.19	POC
2	1522358.54	371004.15	5149.35	PI
3	1522360.60	371005.40	5149.47	PC
4	1522364.09	371014.55	5150.00	PT
5	1522300.99	371159.64	5148.86	POC
6	1522341.99	371200.97	5151.43	POC
7	1522348.56	371065.91	5151.61	PC
8	1522315.91	371115.67	5149.75	PRC
9	1522346.43	371072.23	5151.73	POC
10	1522342.73	371080.93	5151.73	POC
11	1522302.07	371134.88	5148.47	PT
12	1522243.42	371448.25	5147.58	POC
13	1522246.87	371456.54	5147.92	POC
14	1522295.69	371150.85	5148.31	PI
15	1522211.98	371495.58	5148.35	PI
16	1522225.04	371484.60	5148.11	PC
17	1522246.93	371456.42	5147.92	POC
19	1522249.50	371445.79	5147.92	POC
20	1522248.07	371452.71	5147.92	PRC
23	1522265.98	371416.71	5148.92	PRC
26	1522279.59	371385.50	5149.43	PRC
29	1522298.32	371338.16	5150.16	PRC
32	1522315.70	371292.52	5150.48	PRC
35	1522332.38	371241.02	5151.18	PRC
38	1522347.60	371209.30	5151.83	PT
41	1522349.22	371203.89	5151.84	PC
42	1522350.34	371197.09	5151.81	PT
45	1522350.40	371195.27	5151.79	PC
46	1522356.08	371172.69	5151.76	PRC
49	1522365.17	371141.72	5152.21	PRC
52	1522379.71	371108.33	5153.78	PRC
55	1522375.24	371089.46	5153.33	PT
58	1522350.08	371078.91	5151.96	PI
59	1522299.39	371158.76	5148.85	PC
60	1522323.82	371186.86	5150.36	PRC
63	1522344.55	371201.06	5151.56	PT
66	1522244.39	371448.58	5147.63	PC
67	1522203.28	371390.62	5144.59	PRC
70	1522182.53	371334.20	5143.99	PRC
73	1522161.04	371249.06	5142.82	PCC
76	1522191.56	371223.72	5144.04	PRC
79	1522244.29	371181.71	5145.81	PRC
82	1522274.62	371167.66	5147.56	PRC
85	1522285.61	371148.35	5148.32	PT

KEYED NOTES:

- CONSTRUCT 6" WIDE X 4" PCC SIDEWALK PER COA DRAWING DWG.2430.
- CONSTRUCT 8" WIDE X 6" SURFACE FOR PARK AND RECREATION VEHICLES TO ACCESS PARK FOR MAINTAINANCE. REFER TO COA DWG.2415 SECTION B-B FOR DETAILS.

6" THICK SIDEWALK FOR COA MAINTAINANCE ACCESS. ALL OTHER SIDEWALK PAVING SHALL BE 4" THICK UNLESS OTHERWISE NOTED.

Section B-B?



PROJECT NO. 198634
Smith Engineering Company
A Full Service Engineering Company
6000 Olympic Boulevard, N.E. Suite 1000 Albuquerque, New Mexico 87110

CITY OF ALBUQUERQUE CAPITAL IMPLEMENTATION PROGRAM LANDSCAPE ARCHITECTURE AND CONSTRUCTION SERVICES	
TITLE: RICHLAND HILLS PARK IMPROVEMENTS PROJECT	
HORIZONTAL GEOMETRY PLAN	
Design Review Committee	City Engineer Approval
City Project No. 566371	Zone Map No. C-12-Z
Sheet 7	of 15

AS BUILT INFORMATION		BENCH MARKS		SURVEY INFORMATION		ENGINEERS SEAL	
CONTRACTOR	WORK STARTED BY	MONUMENT IS A 1.75" ALUMINUM DISK STAMPED "ACS BM-2-C12" AND IS EXPOSED TO TOP OF CONCRETE CURB ON THE S.W. CURB RETURN AT THE INTERSECTION OF PARADISE HILLS BLVD. AND DAVENPORT ST. N.W.	DATE	BY	NO.	REMARKS	BY
	ACCEPTANCE BY		05/97	CREW: WMR, US, AG.		REVISIONS	
	FIELD DRAWING BY					DESIGN	
	CORRECTED BY						
	DRAWINGS						
	RECORDED BY						
	NO.						