



INDEX OF TEXAS ARCHAEOLOGY

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Volume 1992

Article 23

1992

Archeological Significance Testing at Site 41EC7, Ector County, Texas

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Archeological Significance Testing at Site 41EC7, Ector County, Texas

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ARCHEOLOGICAL SIGNIFICANCE TESTING AT
SITE 41EC7, ECTOR COUNTY, TEXAS

G. R. DENNIS PRICE

APRIL 1992

TEXAS DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY DESIGN
AUSTIN, TEXAS

ABSTRACT/MANAGEMENT SUMMARY

The Texas Department of Transportation (TxDOT) conducted archeological significance testing at site 41EC7, which is within the right-of-way of a proposed portion of Loop 338, southwest of Odessa in Ector County. The testing was undertaken in compliance with the Texas Antiquities Code, as construction will be undertaken with state funds.

When recorded in November 1992, by TxDOT archeologists conducting a cultural resources survey of the right-of-way for the proposed Loop, the site was noted to consist of a thin scatter of fire-cracked rock and occasional chert flakes spread along the north side of Monahans Draw for a distance of over 3000 meters; but, no chert flakes were found within the right-of-way.

The testing was conducted between March 9 and 17, 1993 under the supervision of G. R. Dennis Price. Approximately 337 work-hours were expended in testing and recording at the site.

Approximately eleven cubic meters of fill from twenty 1 x 1 meter test units was hand excavated and screened through 1/4-inch hardware cloth. A gross (144) of shovel tests approximately 30 x 30 cm in plan were also dug. Depths varied from as little as 5 cm to over 75 cm, depending on depth of bedrock. Fill was screened through 1/4-inch hardware cloth. Finally, three backhoe trenches, each approximately 1 meter in width and over 20 meters in length were also excavated to bedrock.

The only definite cultural remains recovered from the site consist of an edge-modified flake (perhaps a fragment of a scraper) and two chert chips. None of these artifacts can be associated with a particular time period or a particular culture. The artifacts were widely distributed across the area that was tested, so that no discrete locus of occupation or activity could be determined. Further, because of the distances between the artifacts, it is possible that they are not related to a single occupation or event.

Burned caliche observed primarily within a hundred or so feet of Monahans Draw may be the result of deliberate prehistoric human activity. However, no discrete hearths or well defined concentrations were observed, neither were any chert flakes.

Based on the general absence of cultural material recovered from the testing, it is believed that the portion of the reported site within the highway right-of-way does not meet the criteria of significance for State Archeological Landmark status.

Thus, it is recommended that highway construction should be allowed to proceed with no additional cultural resources research.

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INTRODUCTION

General

The Texas Department of Transportation (TxDOT) conducted archeological significance testing at site 41EC7, which is partially within the right-of-way of a proposed portion of Loop 338, southwest of Odessa in Ector County (Figure 1).

The site was recorded in November 1992, by TxDOT archeologists conducting a cultural resources survey of the right-of-way for the proposed Loop. At that time the site was noted to consist of a thin scatter of fire-cracked rock and occasional chert flakes spread along the north side of Monahans Draw for a distance of over 3000 meters. However, no chert flakes were found within the right-of-way (William Weaver, personal communication).

The testing was undertaken in compliance with the Texas Antiquities Code, as construction will be undertaken with state funds.

Fieldwork

The testing was conducted between March 9 and 17, 1993 under the supervision of G. R. Dennis Price. Approximately 337 work-hours were expended in testing and recording at the site.

Approximately eleven cubic meters of fill from twenty 1 x 1 meter test units was hand excavated and screened through 1/4-inch hardware cloth. A gross (144) of shovel tests approximately 30 x 30 cm in plan were also dug. Depths varied from as little as 5 cm to over 75 cm, depending on depth of bedrock. Fill was screened through 1/4-inch hardware cloth. Finally, three backhoe trenches, each approximately 1 meter in width and over 20 meters in length were also excavated to bedrock.

Acknowledgements

The field excavation crew was provided by the Resident Engineer (Mike McAnally) of TxDOT, District 6 (Odessa). Crew members were Dolores Rivas, Victor Rivas, Jose Torres, and Pedro Guerrero. Dolores Rivas also operated the backhoe. Horizontal plotting of excavated test units and backhoe trenches was undertaken by Fred Bustos and Augustine Aguirre.

The laboratory processing of recovered remains was undertaken by Jesus Gonzales. Illustrations were prepared by Milton Bell.

ENVIRONMENTAL SETTING

Topography

The site is located along the northern edge of Monahans Draw, a southeast-trending ephemeral stream (which eventually drains into the Colorado River) that is the major natural drainage in Ector County. Today, Monahans Draw stays inundated within the project area due to effluent from the Odessa wastewater treatment plant.

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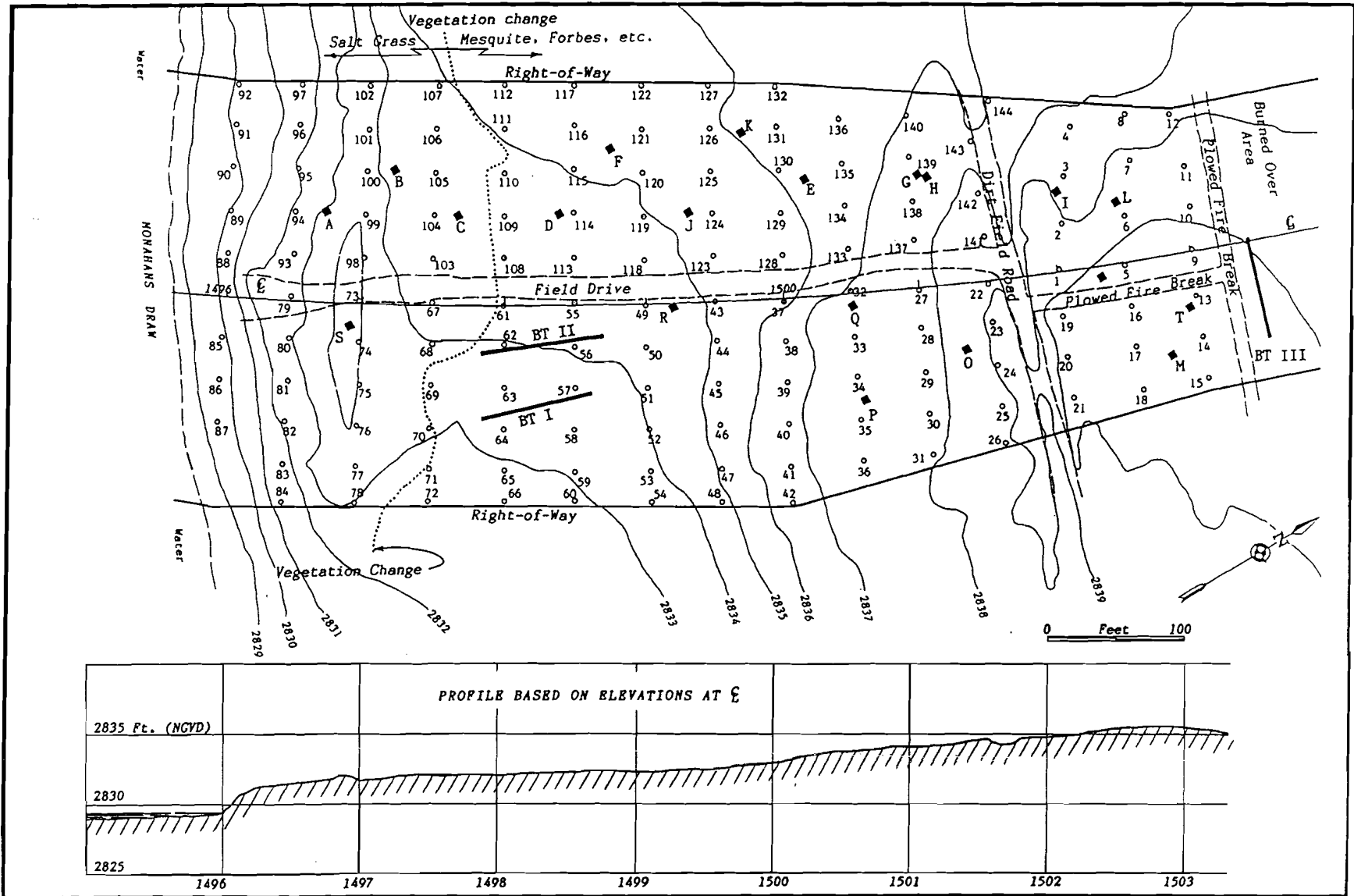


Figure 2. Site topography and locations of test units (base map: project plan and profile sheet).

Elevation at the waters edge is approximately 2829 feet NGVD (Figure 2). The land then rises gradually to an elevation of about 2840 feet NGVD at a distance of 600 feet from the stream, and then becomes essentially level. A very narrow, slight ridge, reminiscent of a natural levee was present at a distance of about 100 feet from the edge of the draw.

Geology

Surface geologic deposits within the project area have been mapped as late Pleistocene (pre-Holocene) alluvial terrace deposits immediately adjacent to Monahans Draw, with early Pleistocene windblown cover sand beyond (Bureau of Economic Geology 1976).

Soils

Soils within the project area have been mapped (Soil Conservation Service 1978:map sheets 21, 37) as belonging to the Holloman-Reeves association, nearly level, extending from the edge of Monahans Draw for a distance of about 600 feet. Beyond this distance, soils have been mapped as Conger loam, 0-2% slopes.

Holloman soils consist of very shallow to shallow, loamy soils, formed in calcareous, loamy gypsum materials on uplands (Ibid:31). The A horizon, which extends to a depth of between 8 and 50 cm, is light brown (7.5YR 6/4), brown (7.5YR 5/4), or light brownish gray loam. It is calcareous and moderately alkaline. The underlying Ccs horizon is very pale brown (10YR 8/3) or pink (7.5YR 8/4). It is weakly cemented gypsum beds that are calcareous and moderately alkaline.

Reeves soils consist of moderately deep loamy soils that formed over gypsumiferous loamy sediments on uplands (Ibid:36). The A horizon, which extends to a depth of about 25 cm, is light brown (7.5YR 6/4), brown (7.5YR 5/4), or light yellowish brown loam. The underlying B horizon, which may extend to a depth of about 70 cm, is light brown, pink, pale brown, or light yellowish brown, loam or clay loam. The underlying Ccacs horizon is white, pink, very pale brown, or brown loamy fine sand, sandy loam, or loam; 10-50% by volume soft to strongly cemented calcium sulfate (gypsum) and calcium carbonate crystals.

Conger soils consist of shallow loamy soils, formed in calcareous, loamy material (the upper part of which is indurated caliche) on uplands (Ibid:30). The A horizon, from 10 to 15 cm in thickness, consists of brown (7.5YR 4/2, 5/2) or grayish brown loam. The underlying B2 horizon consists of pale brown, light brown or brown loam or clay loam. The underlying Cca horizon is white, pink, or pinkish white, loam or clay loam earth that is weakly to strongly cemented.

Vegetation

Vegetation within the project area was observed to fall into two distinct categories. Within approximately 200 feet of the edge of Monahans Draw, vegetation consisted almost entirely of a clumpy tall grass, believed to be alkali sacaton (Sporobolus airoides). Beyond this was a mixed community of forbes and scattered mesquites. Beyond a distance of about 700 feet from Monahans

Draw, the right-of-way and adjacent land had been burned over accidentally after the archeological survey was conducted in November 1992, leaving blackened mesquite tree remains as the only observable vegetation.

The Soil Conservation Service (1978:Table 5) provides the following lists of characteristic plant communities for soils within the project area:

<u>Conger</u>	<u>Holloman</u>	<u>Reeves</u>
Black grama (30%)	Gyp grama (25%)	Blue grama (20%)
Sideoats grama (25%)	Alkali sacaton (20%)	Tobosa (15%)
Plains bristlegrass (10%)	Burrograss (15%)	Burrograss (10%)
Arizona cottontop (5%)	Coldenia (15%)	Alkali sacaton (10%)
Buffalograss (5%)	Tobosa (5%)	Sideoats grama (10%)
Sand dropseed (5%)	Mormon-tea (5%)	Winterfat (5%)
Burrograss (5%)	Fourwing saltbush (5%)	Broom snakeweed (5%)
		Black grama (5%)

Fauna

Mammals whose range includes the project area include: desert shrew, raccoon, ringtail, western spotted skunk, striped skunk, badger, desert fox, gray fox, coyote, gray wolf, cougar, bobcat, Mexican ground squirrel, spotted squirrel, black-tailed prairie dog, plains pocket gopher, various mice and rats, porcupine, jackrabbit, cottontail rabbit, javelina, white-tailed deer and bison (Davis 1978). Observed in the project area during the testing were a single live cottontail rabbit, and the remains of a porcupine. The scent of a skunk was also smelled in the area on several occasions. Numerous large burrows and associated low, mound-like animal dens, reputed to be those of badgers, were observed.

Birds observed in the project area included numerous doves, meadowlarks, hawks (including a red-shouldered hawk), and on the flooded portion of Manahans Draw, American anhinga.

Small fish were observed within the flooded portion of Monahans Draw, and numerous snakes and lizards probably inhabit the land portion of the right-of-way, though none were observed.

TESTING METHODOLOGY

Surface Observations

The project area in the vicinity of the site, particularly exposed surfaces adjacent to Monahans Draw and field roads and plowed fire lanes, was walked over in an attempt to identify any surface concentrations of artifacts or cultural features. As noted above, large burrows and associated low, mound-like animal dens, as well as smaller burrows were present throughout the project area. Spoil from these burrows was also inspected for evidence of cultural remains.

No definite cultural artifacts were observed on the surface within the project area. However, widely scattered fragments of black rock, generally about 3 cm in diameter and later identified as burned caliche (Michael B.

Collins, personal communication), were observed on the eroded caliche and gypsum surface within about 100 feet of the edge of Monahans Draw. No distinct groupings of rock or cultural features were observed. Field roads, plowed fire lanes and eroded areas of the right-of-way revealed relatively soft caliche, or closer to Monahans Draw, a mixture of relatively soft caliche and gypsum, over much of their surfaces.

Examination of the burned area revealed numerous fragments of caprock, or indurated (rock-like) caliche, on the surface. In general the range fire did not appear to have burned, or left evidence of burning on these rocks. However, in areas where there was more concentrated burning, such as around the roots of mesquite trees, particularly where animal burrows were present, rocks exhibited clear evidence (discoloration) of having been burned.

Shovel Testing

The program of shovel testing, though described here prior to the test units, was inaugurated after several test units had been excavated, and while excavation of others was still on-going. The program was initiated, after several test units had revealed widely differing depths of soil, in an attempt to locate those areas of deeper, theoretically less eroded, soils where any cultural remains were more likely to be in situ.

The tests were arranged at 10-pace intervals (approximately 10 meters) along a series of transects 50 feet apart and perpendicular to the marked and staked project centerline. Locations of the shovel tests, numbered in the order excavated from 1 through 144, are depicted in Figure 2.

Each of the 144 shovel tests was approximately 30 x 30 cm in plan, and extended to bedrock (gypsum, caliche, or caprock) or a maximum depth of approximately 80 cm. Fill was screened through 1/4-inch hardware cloth.

No cultural materials were recovered as a result of the shovel testing, but the testing did reveal that although the present surface is relatively level, the underlying bedrock is remarkably uneven. Depths and types of bedrock identified in each shovel test, where reached, are presented in Table 1.

Once the shovel testing program had been completed, the information was used in the planning and placement of additional test units and backhoe trenches.

Test Units

Twenty test units, each 1 x 1 meter in plan, were excavated by hand. The locations of the test units, designated sequentially by the letters A through T in the order excavated, are depicted on Figure 2. The initial unit, Test Unit A, was placed in an un-eroded-looking, island-like area vegetated with alkali sacaton and a small mesquite tree, on the sloping bank adjacent to Monahans Draw, in an area where numerous scattered fragments of black rock were observed on the surface of exposed gypsum and caliche. The remaining units were located so as to investigate the general nature of the entire area of the right-of-way in which archeological remains were reported to possibly occur. The exact location of any unit was determined by a number of factors

Table 1. Shovel Test Data.

Shovel Test #	Depth (cm)	Bed-rock	Shovel Test #	Depth (cm)	Bed-rock	Shovel Test #	Depth (cm)	Bed-rock
1	1	SC	49	45	IND	97	1	SC/Gyp
2	12	SC	50	29	IND	98	11	SC/Gyp
3	1	SC	51	11	SC	99	6	SC/Gyp
4	8	SC	52	30	SC	100	1	SC/Gyp
5	60	SC	53	10	SC	101	5	SC/Gyp
6	50	SC	54	7	SC	102	1	SC/Gyp
7	50	SC	55	75+	-	103	1	SC/Gyp
8	1	SC	56	75+	-	104	4	SC/Gyp
9	8	SC	57	54	IND	105	8	SC/Gyp
10	70	SC	58	28	SC	106	13	SC/Gyp
11	70	SC	59	15	SC	107	10	SC/Gyp
12	1	SC	60	15	SC	108	18	SC
13	47	SC	61	23	SC	109	70	IND
14	3	SC	62	75+	-	110	27	SC
15	44	SC	63	75+	-	111	23	SC
16	50	IND	64	75+	-	112	25	SC
17	33	SC	65	55	IND	113	75	SC
18	60	IND	66	75+	-	114	57	SC
19	10	SC	67	10	SC/Gyp	115	43	SC
20	33	SC	68	23	SC/Gyp	116	46	SC
21	25	SC	69	40	SC	117	15	SC
22	1	SC	70	24	SC/Gyp	118	70	SC
23	8	SC	71	40	SC	119	57	SC
24	60	IND	72	40	SC	120	36	SC
25	1	SC	73	8	SC/Gyp	121	15	SC
26	1	SC	74	30	SC/Gyp	122	13	SC
27	3	SC	75	22	SC/Gyp	123	8	SC
28	40	IND	76	5	SC/Gyp	124	8	SC
29	65	IND	77	11	SC/Gyp	125	18	SC
30	40	SC	78	20	SC/Gyp	126	75+	-
31	10	SC	79	1	SC/Gyp	127	1	SC
32	46	IND	80	1	SC/Gyp	128	1	SC
33	75+	-	81	1	SC/Gyp	129	1	SC
34	75+	-	82	1	SC/Gyp	130	1	SC
35	50	IND	83	1	SC/Gyp	131	46	IND
36	15	SC	84	1	SC/Gyp	132	75+	-
37	5	SC	85	1	SC/Gyp	133	1	SC
38	15	SC	86	1	SC/Gyp	134	1	SC
39	32	SC	87	1	SC/Gyp	135	75+	-
40	14	SC	88	1	SC/Gyp	136	68	IND
41	1	SC	89	1	SC/Gyp	137	27	SC
42	1	SC	90	12	SC/Gyp	138	1	SC
43	53	IND	91	1	SC/Gyp	139	33	SC
44	8	SC	92	5	SC/Gyp	140	8	SC
45	5	SC	93	5	SC/Gyp	141	60	IND
46	8	SC	94	1	SC/Gyp	142	1	SC
47	1	SC	95	1	SC/Gyp	143	1	SC
48	1	SC	96	1	SC/Gyp	144	18	SC

BEDROCK TYPES : SC= Soft Caliche; IND= Hard (rock-like) Indurated Caliche;
SC/Gyp=mixture of Soft Caliche and Gypsum

which included: the potential depth of soil deposits as indicated by shovel testing, the degree of surface disturbance, the presence of disturbed areas such as animal burrows and dens, and the presence and amount of vegetation, particularly mesquite.

In general, each of the test units was excavated in 10-cm levels, with excavation being continued until bedrock (soft caliche, gypsum, or a combination of the two, or indurated caliche) was encountered across the entire unit. The number of levels excavated in each unit, and the depths of the levels below the surface at the northeast corner of the unit are depicted in Table 2. Where the final level of each unit exceeds 10 cm, bedrock was found in part of the unit at a depth less than the full depth of the level. The only exceptions are in Test Units K and P, where because of the depth, the absence of cultural materials from previous levels, and the nature of the fill, the final level consisted of a shovel test, approximately 30 x 50 cm in plan. Where the final level is less than 10 cm in thickness, the natural surface of the bedrock was used as the base of the level. In areas where bedrock consisted of the relatively soft gypsum, caliche, or combination of the two, a shovel-wide trench was excavated adjacent to at least one wall, to a further depth of approximately 30 cm.

Fill from the test units was screened through 1/4-inch hardware cloth. In general, all materials that did not pass through the screen were bagged by level and returned to the laboratory for washing and further analysis. Exceptions to the general were Level 8 of Test Unit M, and all levels of Test Unit O, where prodigious amounts of natural rock fragments made returning all of them to the laboratory impractical.

The floors of each level were trowelled clean in an attempt to identify cultural features, and elevations were taken at each corner of the unit. After excavation of each unit, at least one wall was cleaned, photographed and profiled.

Backhoe Trenches

The three backhoe trenches, labelled I through III on Figure 2, were excavated to confirm that the profiles revealed by the test units were truly representative of subsurface conditions within the right-of-way. Backhoe Trenches I and II were placed to cross-cut the apparent deep soil anomaly encountered in Shovel Tests 55, 56, 62, 63, and 64. Backhoe Trench III was placed to investigate the radical difference in depth of bedrock observed both on the surface and in test units across the northern portion of the potential site area.

Each of the trenches was approximately 1 meter in width. Backhoe Trench I was 24.5 meters in length, Backhoe Trench II was 27 meters in length, and Backhoe Trench III was 22 meters in length. Each trench was excavated to bedrock, and sections of profile were sketched at regular one-meter intervals, and in areas of anomalies.

Table 2. Test Unit Level Data

Test Unit	Levels Excavated (depths in cm below surface)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
A	0-10	10-15*	15-25	25-35									
B	0-10	10-17*	17-25										
C	0-10	10-20*	20-25										
D	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80**					
E	0-10	10-20*											
F	0-10	10-20	20-31*										
G	0-10	10-20	20-30*										
H	0-10	10-20	20-30*										
I	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-85**					
J	0-10	10-17*											
K	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120-165***
L	0-10	10-20	20-30	30-40	40-50	50-60	60-88**						
M	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-115**					
N	0-5*												
O	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-87**				
P	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-173***			
Q	0-10	10-20	20-30	30-40	40-50	50-60	60-70**						
R	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-108**			
S	0-10	10-20	20-30	30-40	40-50	50-70**							
T	0-10	10-23**											

* Maximum depth to top of soft gypsum or caliche
** Maximum depth to top of hard, rocklike, indurated caliche
*** Final level consisted of 30 x 50 cm unit to top of hard, rocklike, indurated caliche

FEATURES

No cultural features were recognized in the floors of any of the levels of any of the test units; nor were any recognized in any of the cleaned wall profiles of the test units or backhoe trenches.

The only suggestion of a cultural feature was in Test Unit A, where a considerable number of fragments of black rock were recovered from Level 1. As described previously, this unit was placed in an island-like area of grasses around a mesquite tree, because numerous fragments of black rock were observed on adjacent eroded surfaces. Level 1 consisted of a sloping level, approximately 11 cm thick at the northeast corner and about 5 cm thick at the other corners, with fill comprised largely of grass roots. Level 2 was therefore excavated entirely by trowel, with the rocks being left in place. At the completion of the level, the rocks appeared to be generally spread across the unit, with no apparent patterning or special concentration, resting barely above a solid bedrock of soft gypsum and caliche. No chert flakes or other cultural materials were found in the unit, nor were any observed on adjacent eroded surfaces.

Evidence of natural sub-surface disturbance was observed in many of the test units. In Test Unit A, clear evidence of an infilled animal burrow was observed within the natural caliche/gypsum layers. Other filled-in krotovina, either from animal burrows or rotted out tree roots, were observed in several of the test units. Voids from rotting out tree roots were also observed, and existing tree roots were noted in virtually all units.

STRATIGRAPHY

Stratigraphy revealed by the profiles of the test units and backhoe trenches (illustrated in Appendix 1) all appeared to be reasonably consistent with the natural soil profiles of the area as mapped and described by the Soil Conservation Service (1978). There was no evidence of buried cultural horizons or old buried ground surfaces.

Tests Units within approximately 500 feet of the edge of Monahans Draw, and below an elevation of 2839 feet NGVD, (Test Units A, B, C, D, E, F, G, H, J, Q, R, and S) revealed soils consisting of brown (7.5YR 4/2 to 7.5YR 5/3, moist), very friable, loams, fine sandy loams, and clayey loams, generally with few rock fragments, extending to depths of less than 1 meter, and overlying gypsum, soft caliche, a mixture of gypsum and caliche, or indurated caliche (caprock). Two test units (K and P) revealed somewhat deeper soils. The upper parts of the profiles were consisted with those previously described. However, the lower part (below 105 cm) of the profile of Test Unit K consisted largely of crystalline calcium salts. In fact all profiles, after having been left overnight, were observed to have grown crystals of calcium salts. The lower part (below 50 cm) of the profile of Test Unit P, appeared to contain less calcium deposits than the upper part.

Test Units I, L, M, N, O, and T, more than 500 feet from the edge of Monahans Draw, and above an elevation of 2839 feet NGVD, revealed soils consisting of brown to light brown (7.5YR 4/2 to 7.5YR 6/3, moist), very friable, fine sandy loams with large quantities of indurated caliche (caprock) gravels.

Stratigraphy revealed by the backhoe trenches confirmed stratigraphy observed in the test units, and clearly demonstrated the uneven, eroded nature of the bedrock underlying the upper friable sandy loam deposits, which portrayed a generally smooth surface appearance.

RECOVERED MATERIALS

Materials that did not pass through the 1/4-inch hardware cloth were returned to the laboratory where they were washed and sorted by material. Although large amounts of material were processed, nearly all consisted of natural rock. Materials recovered are listed by level and test unit in Appendix 2. A summary, by unit, is presented in Table 3.

Table 3. Summary of Recovered Materials.

Test Unit	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Qtzite Pebbles #	Other
A	0-35	-	1,500.5	.0	130.0	2	-
B	0-25	1 chip	5.5	.0	68.5	4	-
C	0-25	-	2.0	0.0	175.0	2	1 Sst pebble
D	0-80	-	59.0	10.0	591.0	16	1 Sst pebble
E	0-20	-	0.5	8.5	629.5	5	-
F	0-30	-	24.5	14.5	349.5	6	-
G	0-30	-	8.5	62.5	2,283.0	8	-
H	0-30	-	36.0	18.8	5,036.0	17	-
I	0-85	1 chip	9.5	0.0	62,255.0	17	-
J	0-17	-	6.0	0.0	281.5	3	-
K	0-165	-	109.0	0.0	2,164.0	40	2 Succinea
L	0-88	-	0.0	0.0	70,025.0	3	-
M*	0-115	1 mod chip	0.0	0.0	100,060.0	1	-
N	0-5	-	0.0	0.0	0.0	-	-
O*	0-87	-	153.0	0.0	9,888.0	5	1 Succinea
P	0-173	-	134.5	0.0	4,939.5	13	1 Succinea
Q	0-70	-	109.5	0.0	4,596.0	20	-
R	0-108	-	75.0	0.0	1,390.0	32	1 Sst pebble 1 Succinea
S	0-70	-	25.5	0.0	263.0	7	-
T	0-23	-	5.5	0.0	1427.0	3	-
	TOTALS	1 mod chip 2 chips	2,264.0	114.3	266,551.5	204	3 Sst pebble 5 Succinea

Chipped Lithics

Only three chipped lithic pieces were recovered: an edge-modified chip, possibly a scraper fragment from Test Unit M, Level 4; a chip from Test Unit B, Level 2; and a chip from Test Unit I, Level 2.

The edge-modified flake (Figure 3) includes retouch along one curved edge on the dorsal surface. The ventral face appears to have been unworked. The

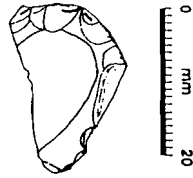


Figure 3. Edge-modified flake, Test Unit M, Level 4.

left edge, as illustrated, was broken with a hinge fracture. Material is a lustrous, semi-translucent chert, with intergrading swirls of dark reddish gray (10R 4/1), dusky red (10R 3/2), and dark grayish brown (10YR 4/2). Dimensions are: length, 23 mm; width, 16.4 mm; and thickness 4.3 mm.

The chip from Test Unit B, Level 2, is a medial section of light gray (5YR 7/1) to pinkish gray (5YR 7/2), waxy looking chert. Dimensions are: length, 6.6 mm; width, 11.5 mm; and thickness, 1.7 mm.

The chip from Test Unit I, Level 2, is a distal fragment of lustrous, semi-translucent, brown (7.5YR 4/2) chert. Dimensions are: length, 12 mm; width, 10 mm; thickness, 1.9 mm.

Burned Caliche

The fragments of burned caliche are hard, rock-like in consistency, and black in color throughout the matrix. Approximately 58.7% (1328.5 gms) of the total weight consisted of sixty-nine fragments, each over 1/2-inch in diameter. The remaining fragments were all less than 1/2-inch in diameter.

Burned Caprock

The burned caprock category consists of hard, rock-like, indurated caliche fragments, generally white in color, but with slight discoloration from burning, generally confined to the surface and near surface.

Un-Burned Caprock

The unburned caprock consists of hard, rock-like, indurated caliche. Of this material 8,844.5 gms (3.3% by weight) was larger than 2 inches in diameter, 123,273 gms (46.2% by weight) was between 1/2 and 2 inches in diameter, and the remaining 134,434 gms (50.4% by weight) was less than 1/2 inch in diameter.

Quartzite Pebbles

The quartzite pebbles were all between 1/4 and 1/2 inch in diameter.

Sandstone Pebbles

The three sandstone pebbles were all river rolled, and less than 1 inch in diameter.

Succinea

Five Succinea snail shells were the final items identified from the recovered materials. These appeared to be natural.

DISCUSSION

The only definite cultural remains recovered from the site consist of an edge-modified flake (perhaps a fragment of a scraper) and two chert chips. None of these artifacts can be associated with a particular time period or a particular culture.

The artifacts (from Test Units B, I, and M) were widely distributed across the area that was tested, so that no discrete locus of occupation or activity could be determined. Further, because of the distances between the artifacts, it is possible that they are not related to a single occupation or event.

Stratigraphically, the chip from Test Unit B, Level 2, comes from a disturbed layer that almost appears to have been plowed. The chip from Test Unit I, Level 2 comes from approximately the middle of the surface soil layer, as observed in the profile, and the edge-modified flake from Test Unit M, Level 4 also comes from the middle of a very gravelly (caprock) surface layer, as observed in the profile.

The burned caliche observed primarily within a hundred or so feet of Monahans Draw may be the result of deliberate human activity. However, no discrete hearths or well defined concentrations were observed, and if the fragments do represent the remains of discrete hearths, they have been scattered widely. Further, even though there is a general dearth of chert in the vicinity, given the excellent visibility on the eroded surfaces that allowed the observation of the burned caliche, it is reasonable to expect that lithic debitage would have been observed if the burned caliche did represent deliberate human action.

The discoloration observed on the burned caprock recovered from the test units corresponded well to observed discoloration on caprock fragments that had been burned in the recent accidental fire north of the tested area.

The enigmatic nature of the cultural remains do not allow for any great insight into prehistoric activities. The edge-modified flake may indicate a scraping activity, while the chips only indicate that some kind of lithic reduction, presumably of imported material, was undertaken. If the burned caliche is truly evidence of deliberate prehistoric human activity, the absence of lithic debitage may indicate that the area was used primarily as a brief transit stop close to a (potential) water source, with few activities being undertaken, or that activities did not require the use of stone tools.

SIGNIFICANCE

As the project is being constructed with state financing, the criteria for significance are those for determining eligibility for State Archeological Landmark status. Section 191.092 of the Antiquities Code of Texas states:

- a) Sites, objects, buildings, artifacts, implements, and locations of historical, archeological, scientific, or educational interest, including those pertaining to prehistoric and historical American Indians or aboriginal campsites, dwellings, and habitation sites, their artifacts and implements of culture, as well as archeological sites of every character

that are located in, on, or under the surface of any land belonging to the State of Texas or to any county, city, or political subdivision of the state are state archeological landmarks and are eligible for designation.

b) For the purposes of this section, a structure or a building has historical interest if the structure or building: 1) was the site of an event that has significance in the history of the United States or the State of Texas; 2) was significantly associated with the life of a famous person; 3) was significantly associated with an event that symbolizes an important principle or ideal; 4) represents a distinctive architectural type and has value as an example of a period, style, or construction technique; or 5) is important as part of the heritage of a religious organization, ethnic group, or local society.

Based on the above criteria, it is believed that sufficient testing has been conducted to demonstrate that the portion of the reported site within the highway right-of-way does not meet the above criteria of significance.

RECOMMENDATIONS

Based on the investigations carried out, it is believed that the portion of the reported site within the highway right-of-way is not significant. Thus, it is recommended that highway construction should be allowed to proceed with no additional cultural resources research.

REFERENCES CITED

Bureau of Economic Geology

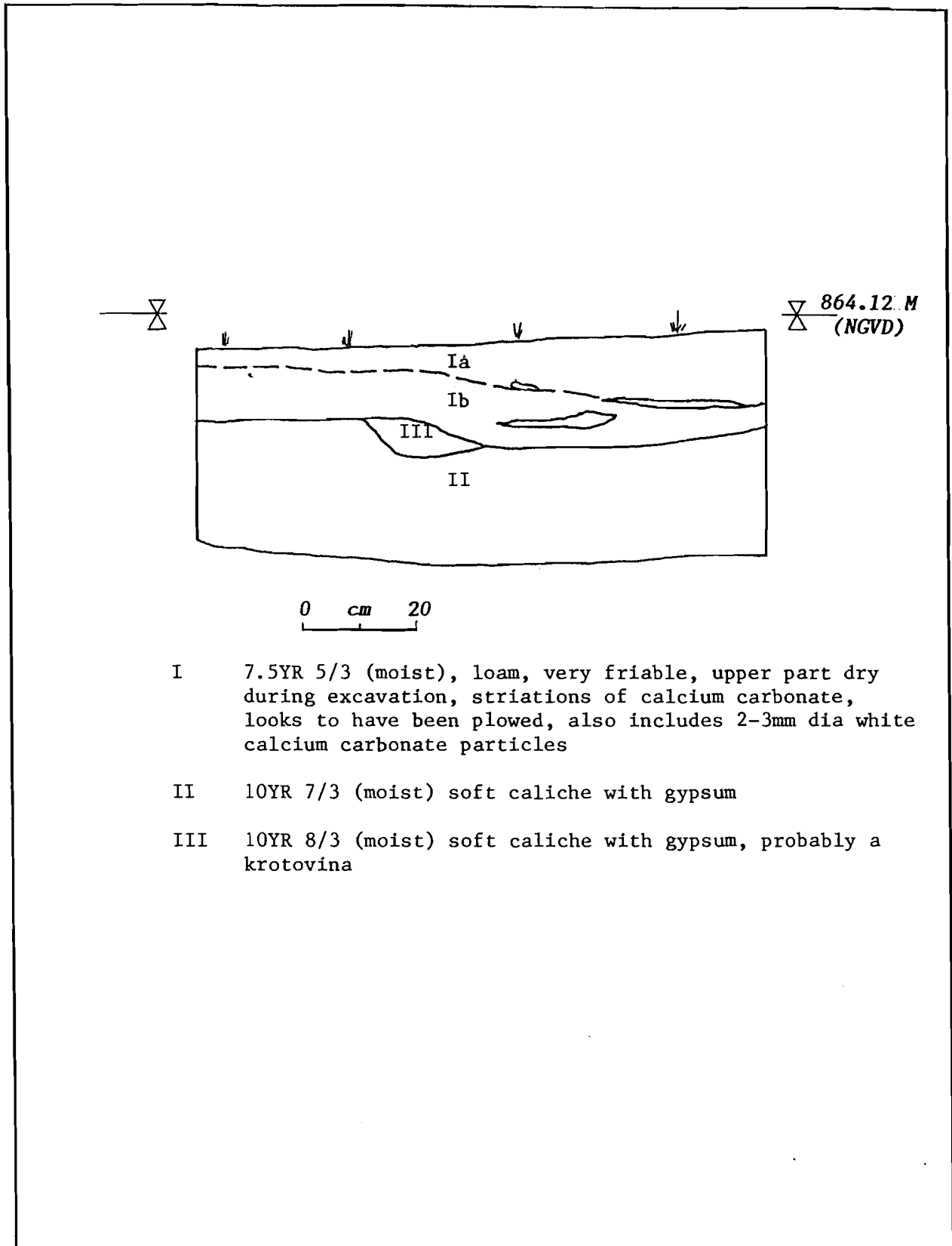
1976 Geologic Atlas of Texas: Pecos Sheet. Scale 1:250,000. The University of Texas at Austin.

Davis, William B.

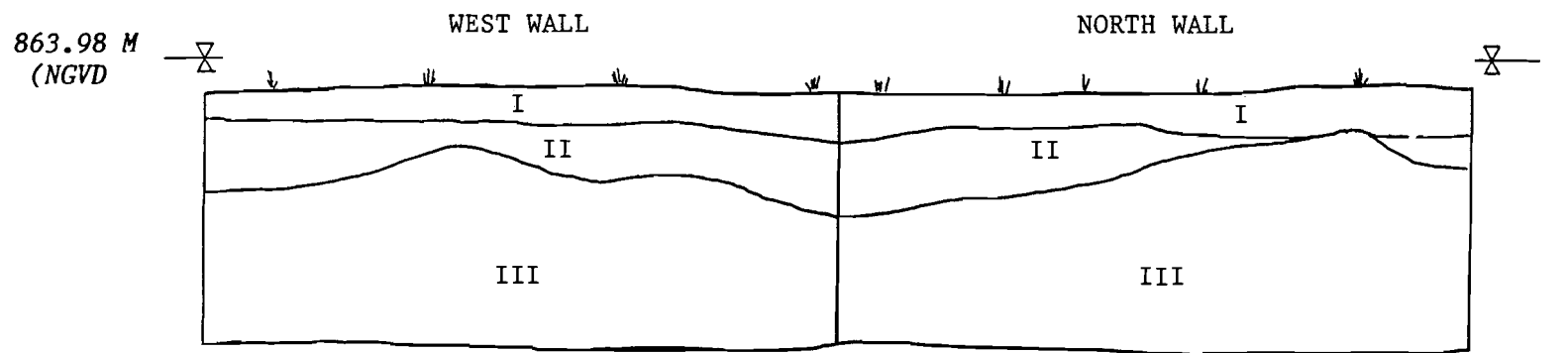
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Soil Conservation Service

1978 Soil Survey of Ector and Crane Counties. U.S. Government Printing Office (1978-250-070/13). Washington, D.C.

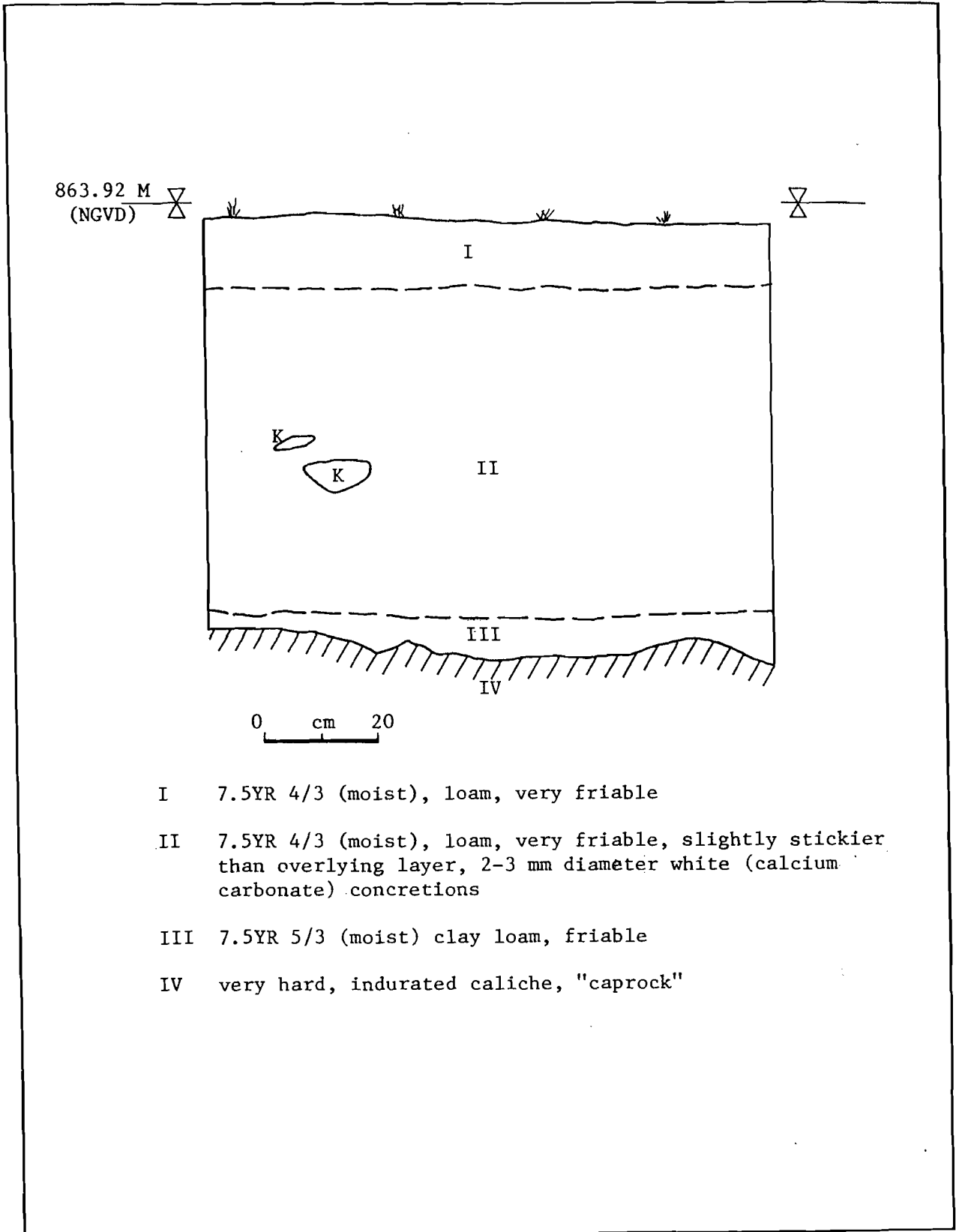


41EC7, Profile, North Wall, Test Unit B.



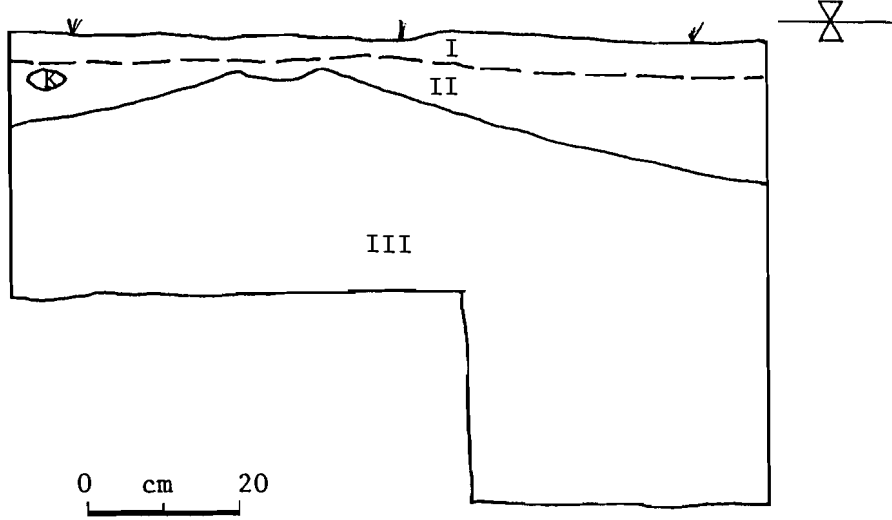
- I 10YR 5/3 (moist), dry, fine sandy loam, very friable
- II 7.5YR 4/2 (moist), fine sandy loam, very friable, 2-3mm diameter white (calcium carbonate) concretions
- III 10YR 7/3 (moist), caliche, fairly soft at surface, becoming harder with depth

41EC7, Profiles, North and West Walls, Test Unit C.



41EC7, Profile, North Wall, Test Unit D.

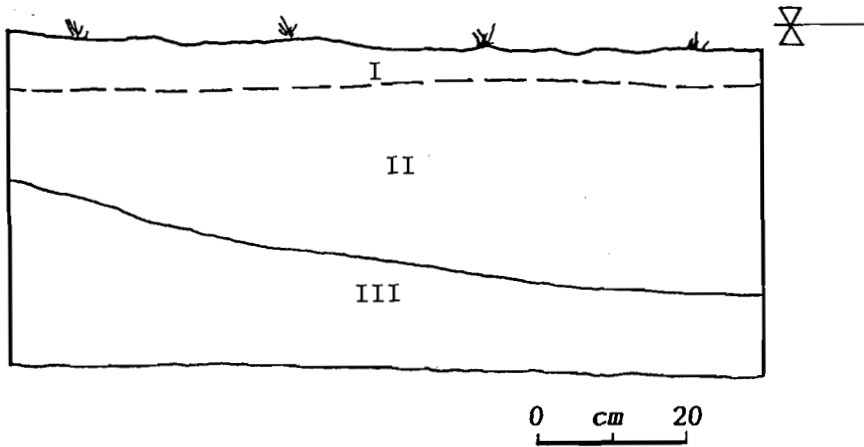
863.53 M
(NGVD)



- I 10YR 5/2, dry loam, (7.5YR 4/3, moist), very friable
- II 7.5YR 4/3 (moist), loam, very friable, 2-3 mm diameter white (calcium carbonate) concretions
- III 10YR 8/2 (moist), caliche, relatively soft

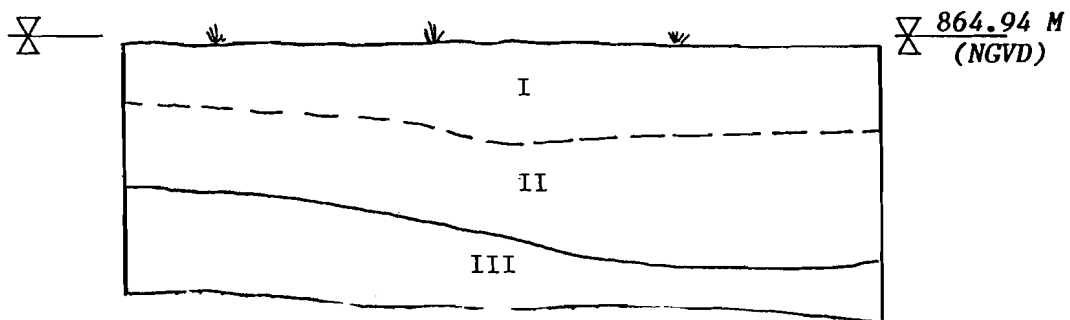
41EC7, Profile, East Wall, Test Unit E.

864.09 M
(NGVD)



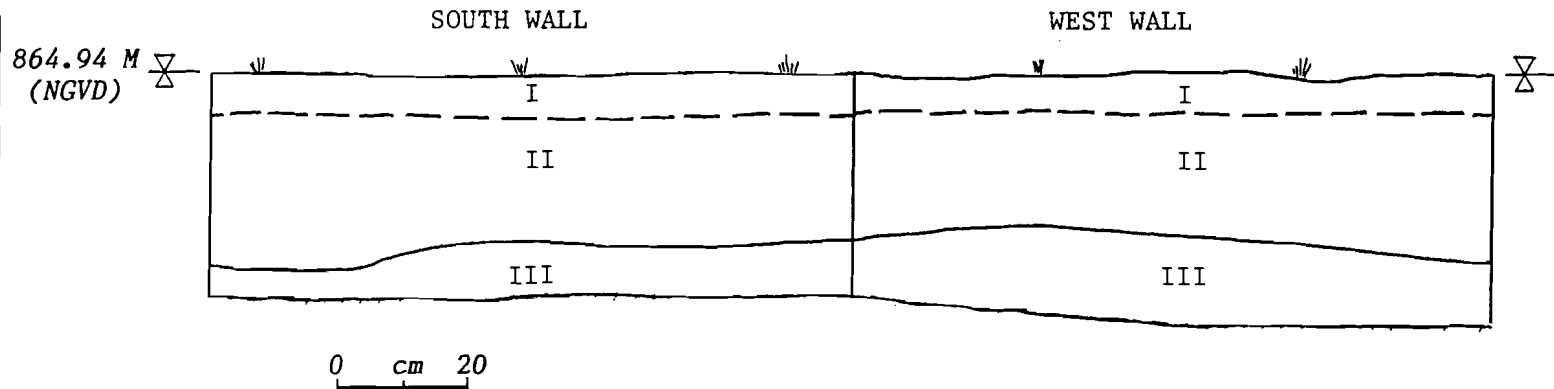
- I 7.5YR 4/3, dry, loam (7.5YR 4/2, 4/3 moist), very friable
- II 7.5YR 4/2, 4/3 (moist) loam, very friable, 2-3 mm diameter white (calcium carbonate) concretions
- III 10YR 8/3 (moist) caliche

41EC7, Profile, North Wall, Test Unit F



- I 7.5YR 5/3 (moist) loam, very friable
- II 7.5YR 5/3 (moist) loam, very friable, 2-3 mm diameter white (calcium carbonate) concretions
- III 10YR 8/2, 8/3 (moist) caliche, relatively soft

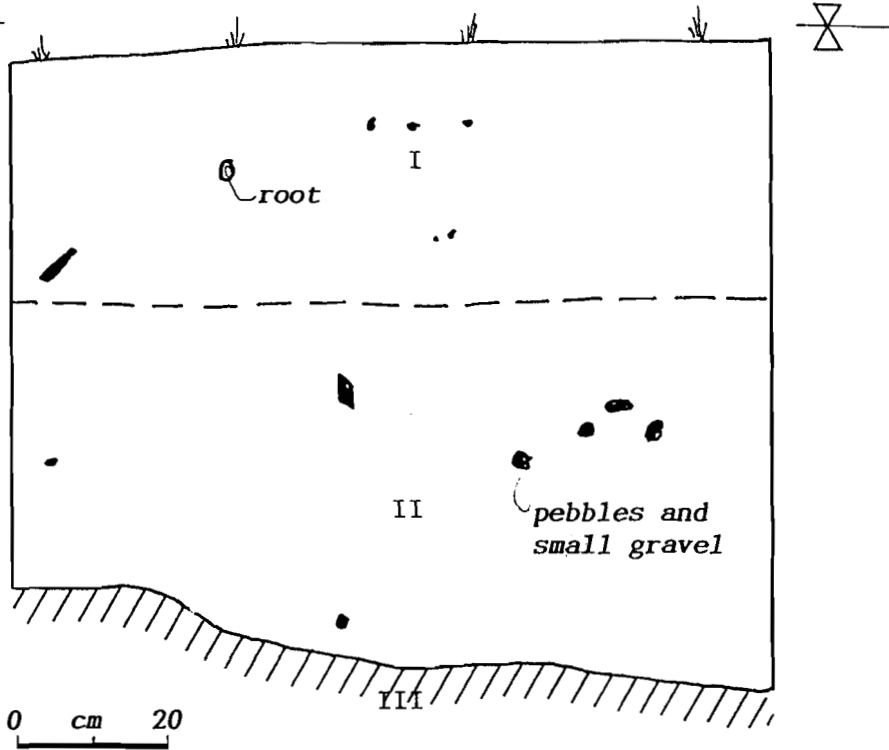
41EC7, Profile, North Wall, Test Unit G.



- I 7.5YR 5/3 (moist) loam, very friable
- II 7.5YR 5/3 (moist) loam, very friable, 2-3 mm diameter white (calcium carbonate) concretions
- III 10YR 8/2, 8/3 (moist) caliche, relatively soft

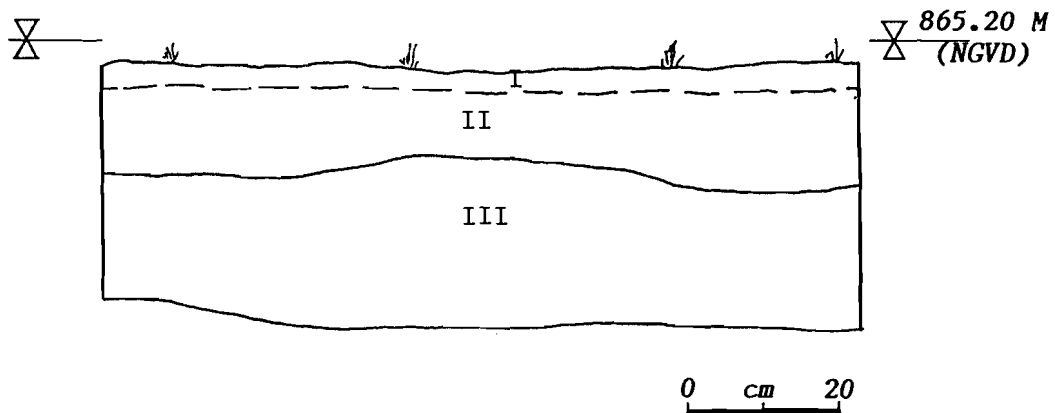
41EC7, Profiles, South and West Walls, Test Unit H.

862.42 M
(NGVD)



- I 7.5YR 4/3 (moist) at surface, 7.5YR 5/3 (moist) at bottom of layer, gradual change, loam, very friable, numerous fragments of "caprock", appear to have been rolled
- II 7.5YR 6/3, 6/4 (moist) loam, very friable, numerous fragments of "caprock", appear to have been rolled
- III very hard, indurated caliche, "caprock"

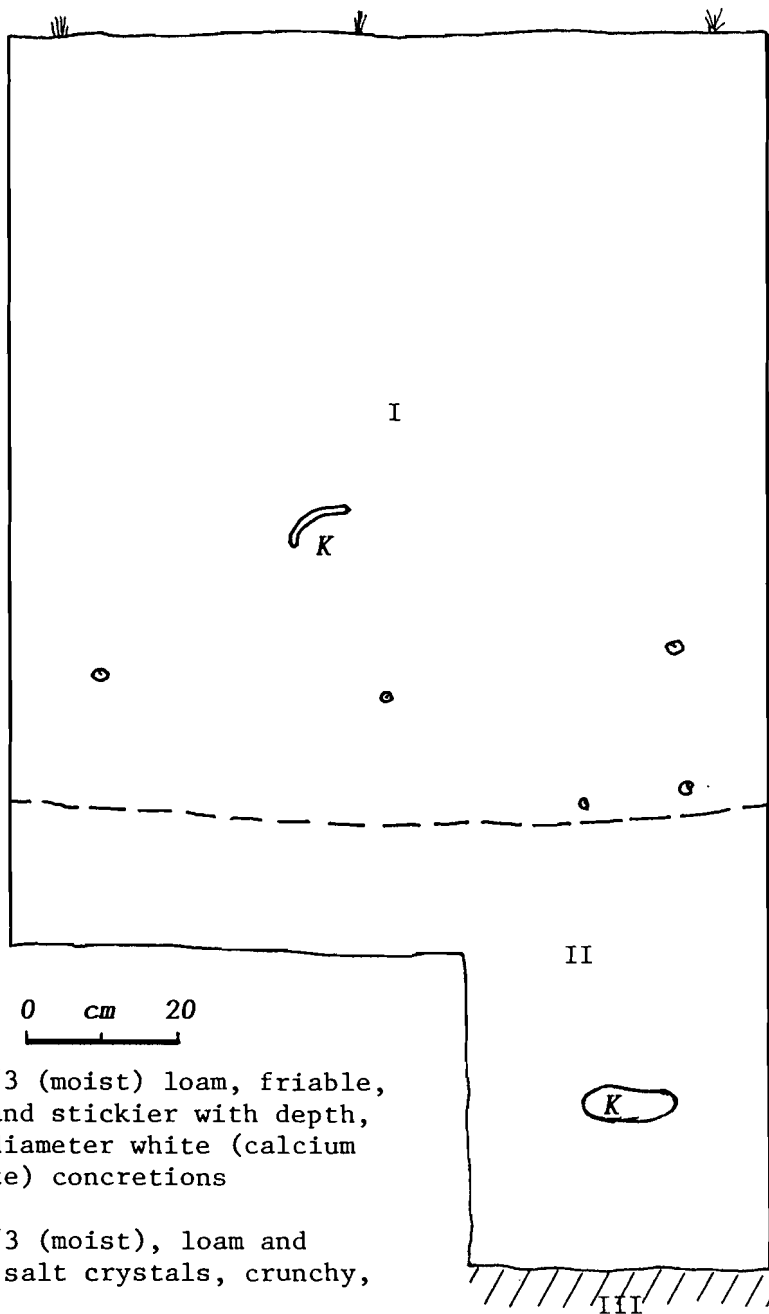
41EC7, Profile, West Wall, Test Unit I.



- I 7.5YR 4/2, 4/3 (moist) loam, very friable, dry in field
- II 7.5YR 4/2, 4/3 (moist) loam, very friable, 2-3 mm diameter white (calcium carbonate) concretions
- III 10YR 7/2, 7/3 (moist) caliche, relatively soft

41EC7, Profile, North Wall, Test Unit J.

866.46 M
(NGVD)



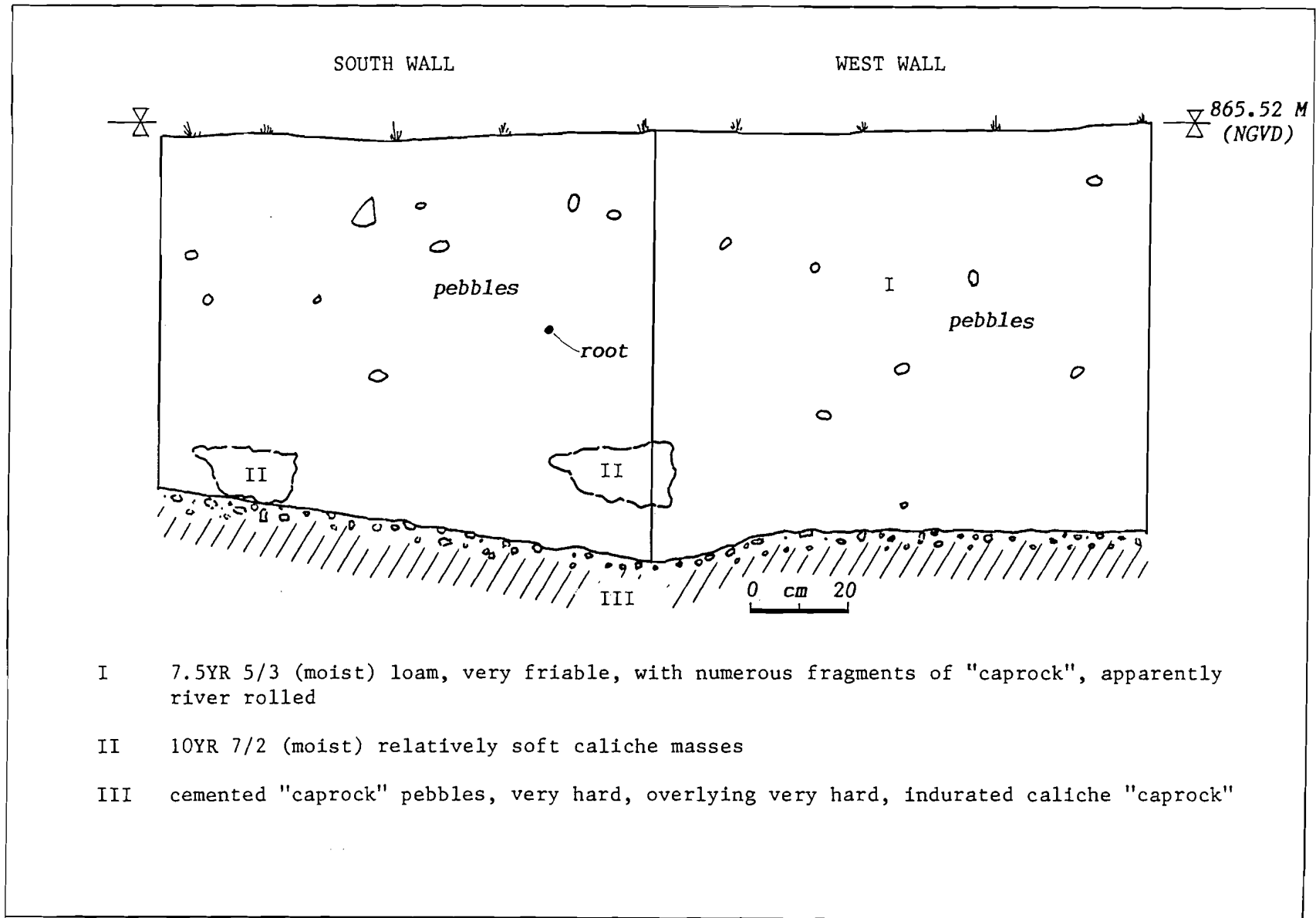
0 cm 20

I 7.5YR 4/3 (moist) loam, friable, damper and stickier with depth, 2-3 mm diameter white (calcium carbonate) concretions

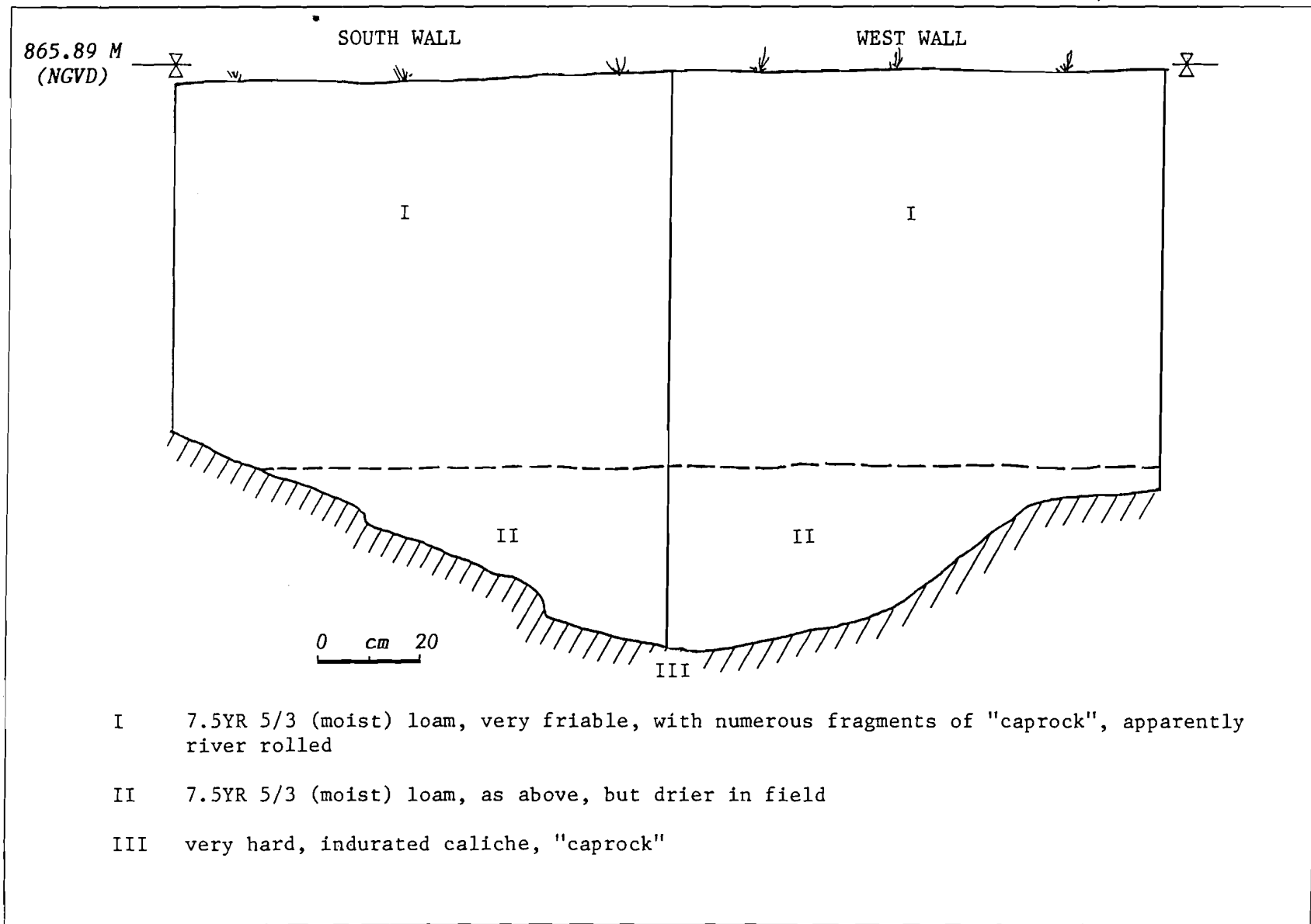
II 7.5YR 6/3 (moist), loam and calcium salt crystals, crunchy, friable

III very hard, indurated caliche, "caprock"

41EC7, Profile, North Wall, Test Unit K.

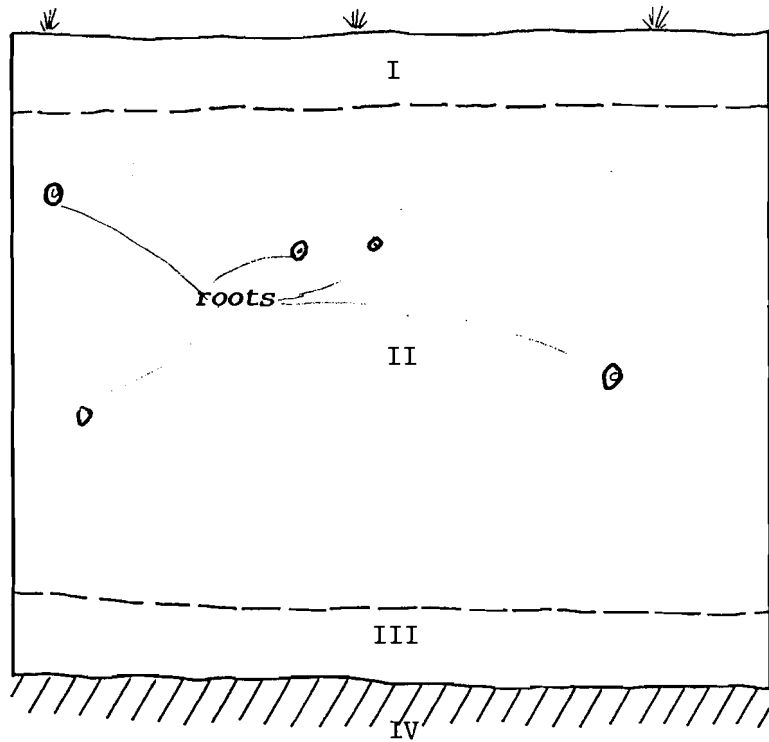


41EC7, Profiles South and West Walls, Test Unit L.



41EC7, Profiles, South and West Walls, Test Unit M.

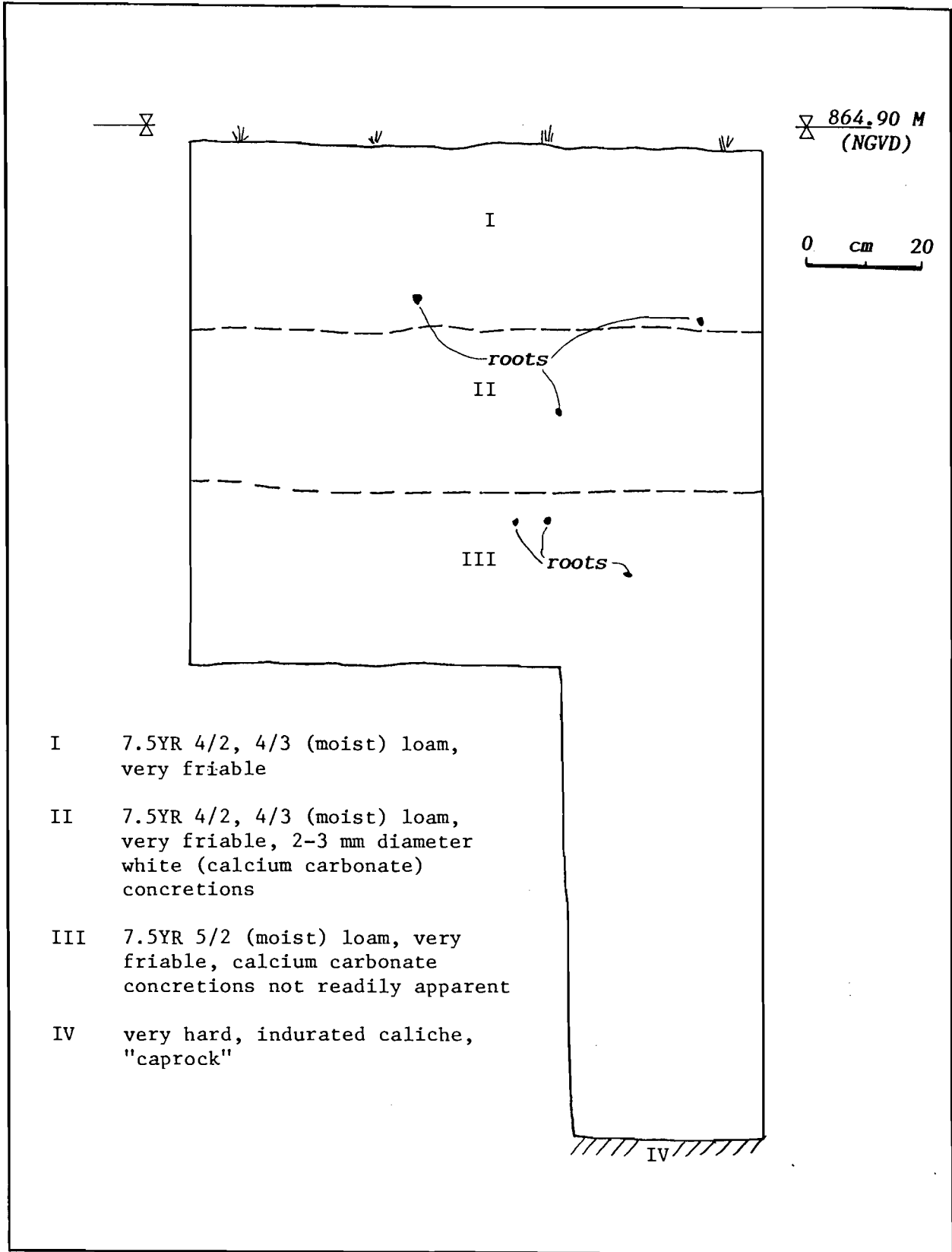
815.25 M



0 cm 20

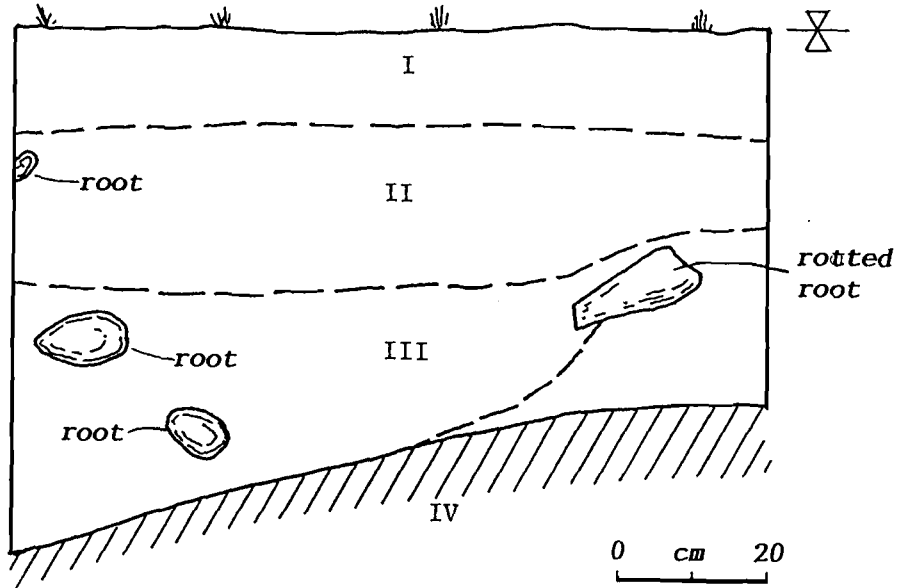
- I 7.5YR 4/2, 4/3 (moist) loam, very friable
- II 7.5YR 5/3 (moist) loam, very friable, with numerous fragments of "caprock"
- III virtually 100% fragments of "caprock" with 7.5YR 5/3 (moist) loam, very friable
- IV very hard, indurated caliche, "caprock"

41EC7, Profile, North Wall, Test Unit O.



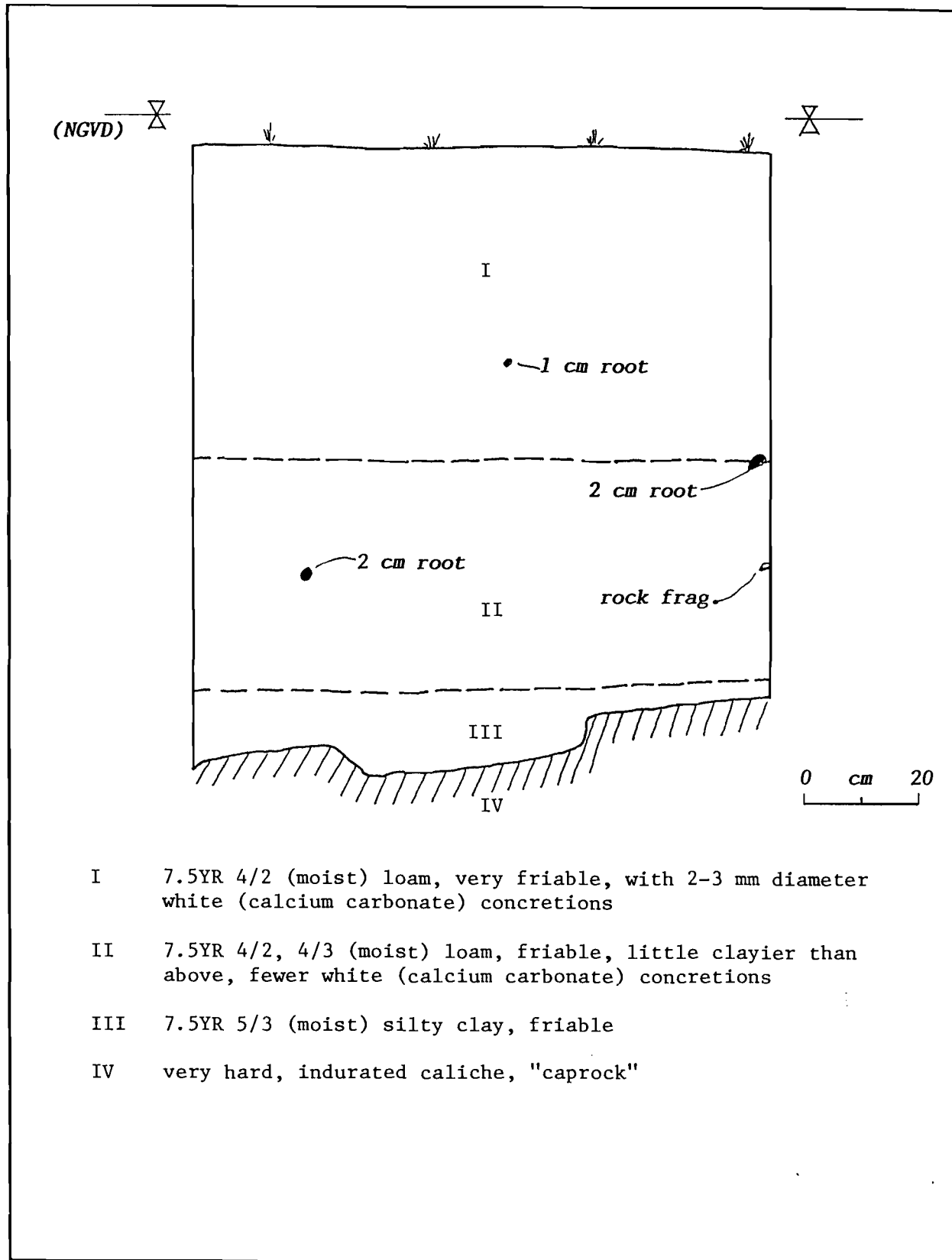
41EC7, Profile, West Wall, Test Unit P.

864.94 M
(NGVD)



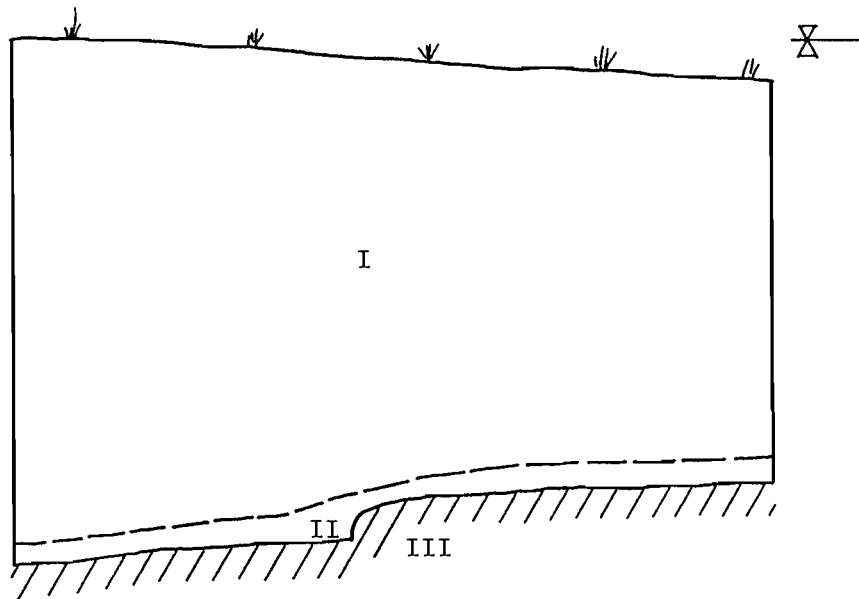
- I 7.5YR 4/3 (moist) loam, very friable, dry in field
- II 7.5YR 4/2, 4/3 (moist) loam, very friable
- III 7.5YR 4/2, 4/3 (moist) loam, very friable, with 2-3mm diameter white (calcium carbonate) concretions
- IV very hard, indurated caliche, "caprock"

41EC7, Profile, South Wall, Test Unit Q.



41EC7, Profile, South Wall, Test Unit R.

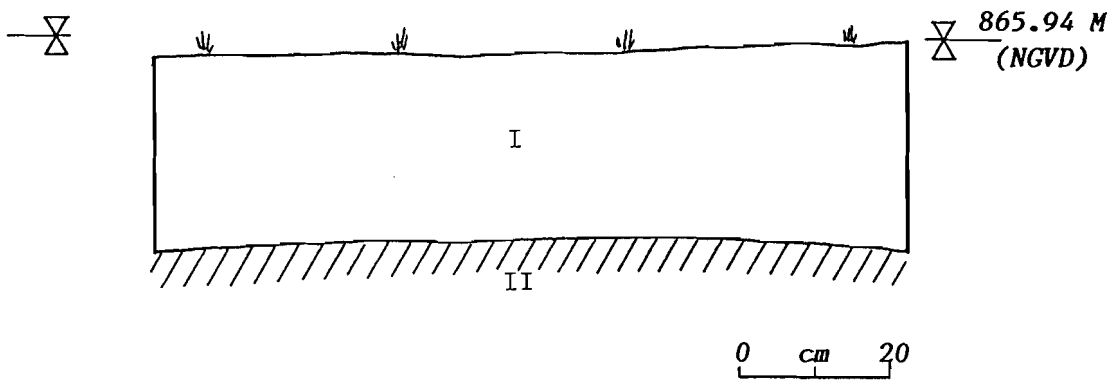
863.78 M
(NGVD)



0 cm 20

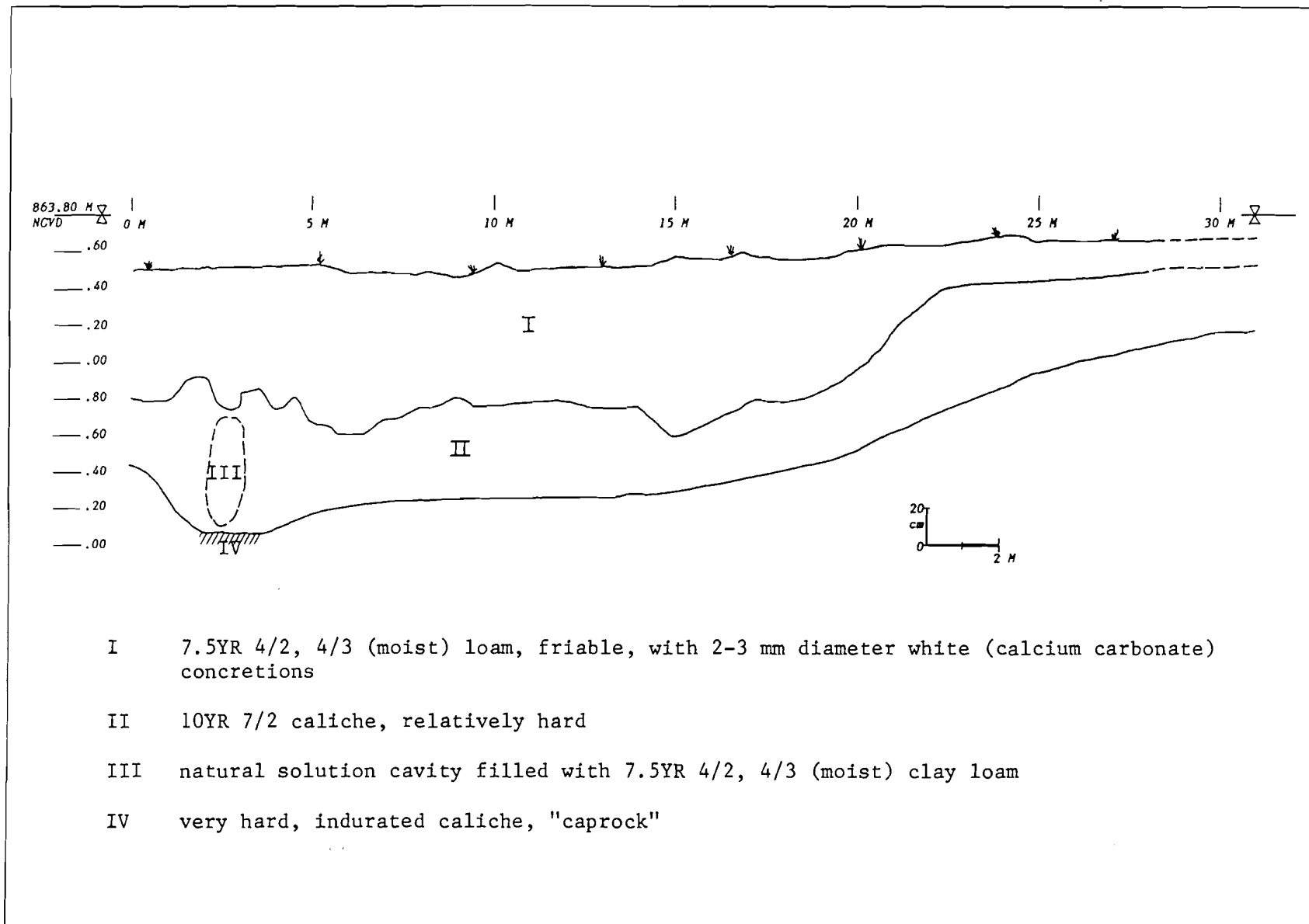
- I 7.5YR 4/2, 4/3 (moist) loam, very friable, with 2-3 mm diameter white (calcium carbonate) concretions
- II 7.5YR 6/3 (moist) silty clay
- III very hard, indurated caliche, "caprock"

41EC7, Profile, South Wall, Test Unit S.

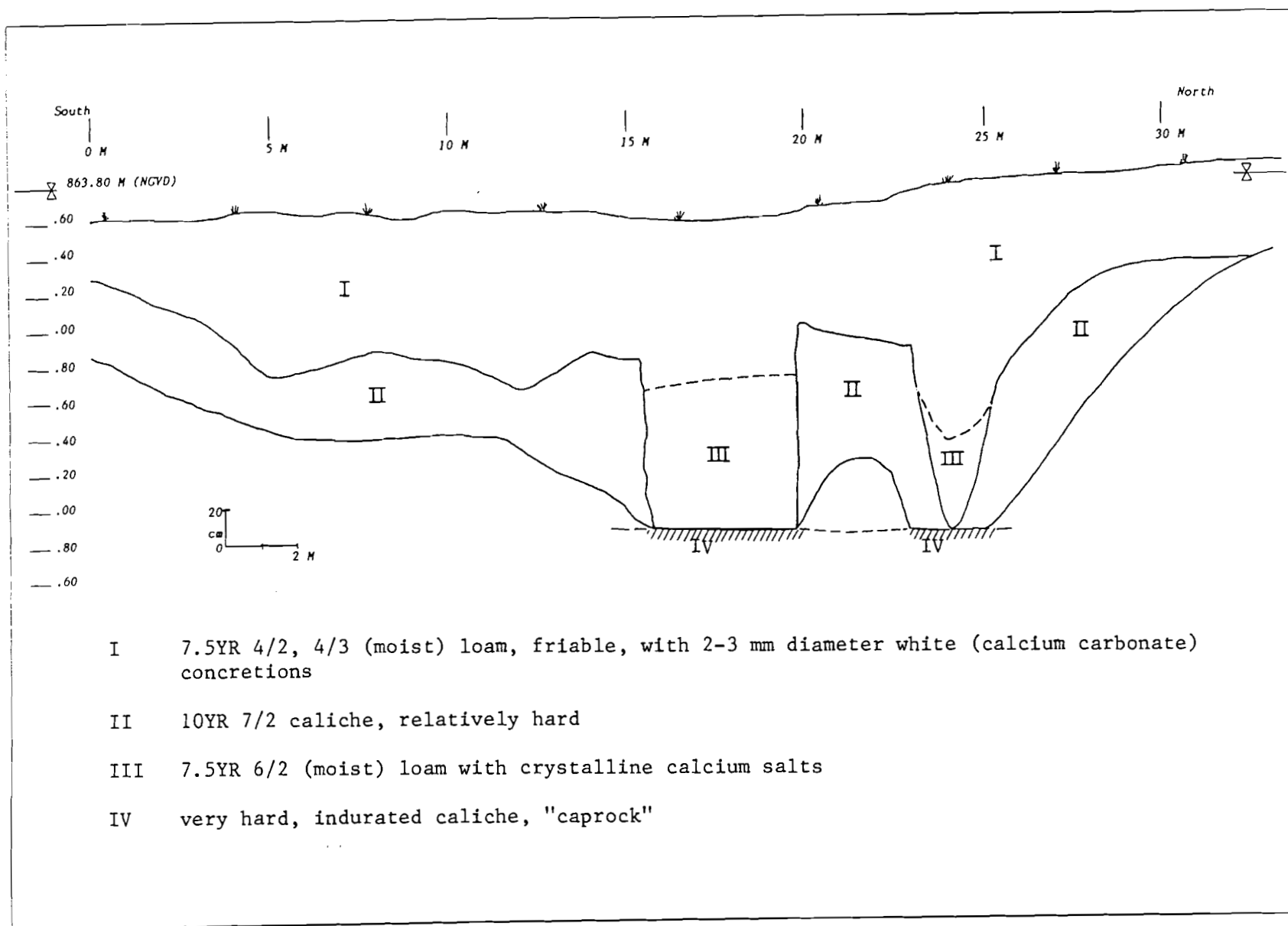


- I 7.5YR 4/3. 5/3 (moist) loam, very friable, with numerous fragments of "caprock"
- II very hard, indurated caliche, "caprock"

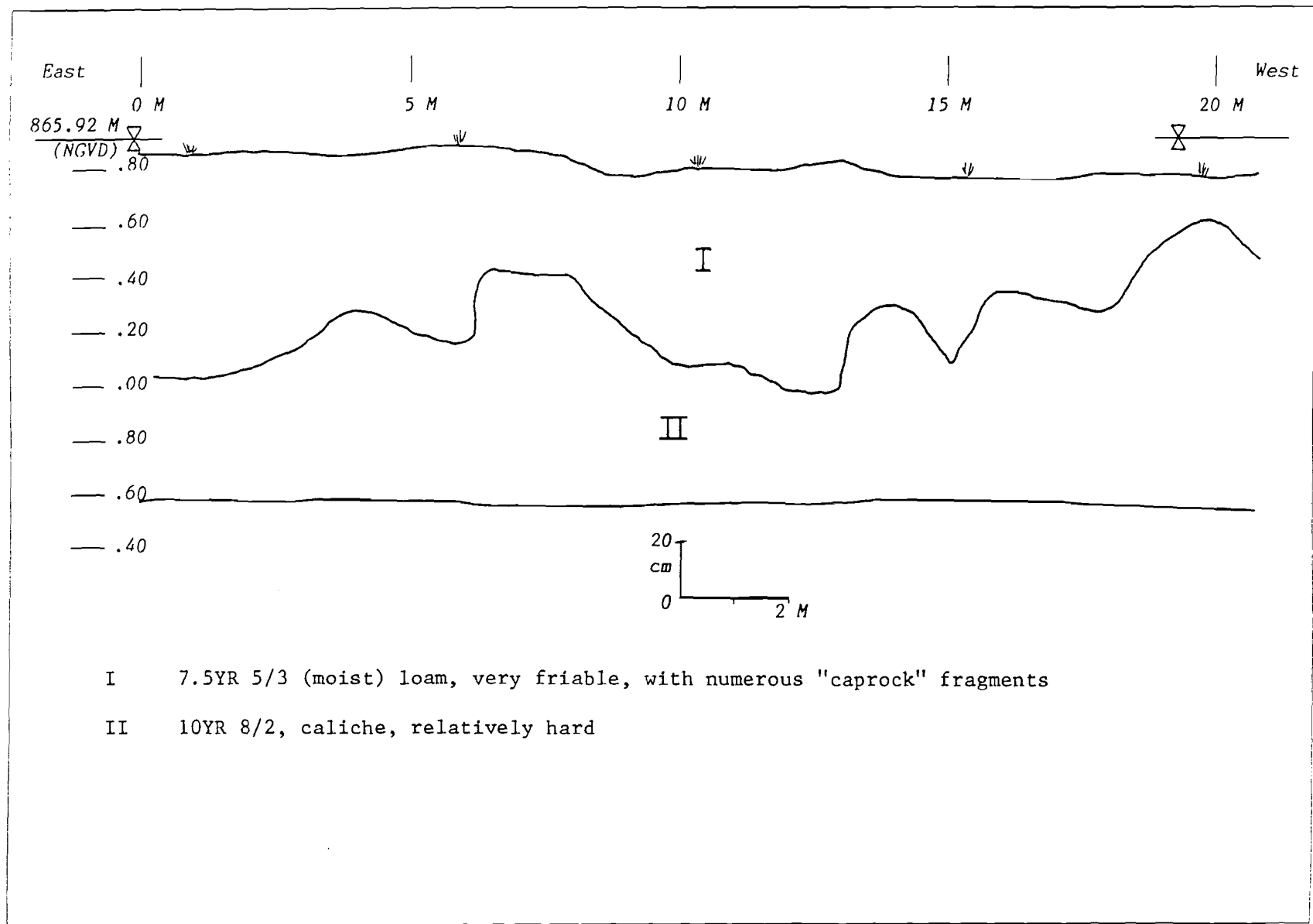
41EC7, Profile, South Wall, Test Unit T.



41EC7, Profile, West Wall, Backhoe Trench I.



41EC7, Profile, West Wall, Backhoe Trench II.



41EC7, Profile, South Wall, Backhoe Trench III.

41EC7 - APPENDIX 2 - RECOVERED MATERIALS

Recovered Materials, Test Unit A

Level #	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	755.0	0.0	24.0	1	-
2	10-15	-	705.5	0.0	93.0	1	-
3	15-25	-	40.0	0.0	13.0	-	-
4	25-35	-	0.0	0.0	0.0	-	-
TOTALS			1,500.5	.0	130.0	2	

Recovered Materials, Test Unit B

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	1.0	.0	3.0	-	-
2	10-17	1 chip	4.0	.0	32.5	4	-
3	17-25	-	.5	.0	33.0	-	-
TOTALS			5.5	.0	68.5	4	

Recovered Materials, Test Unit C

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles	Other
1	0-10	-	.0	.0	16.0	1	Sst pebble
2	10-20	-	2.0	.0	49.0	1	-
3	20-25	-	.0	.0	110.0	-	-
TOTALS			2.0	0.0	175.0	2	

Recovered Materials, Test Unit D

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles	Other
1	0-10	-	2.0	0.0	75.0	2	-
2	10-20	-	5.0	0.0	38.0	1	-
3	20-30	-	18.5	0.0	53.0	3	-
4	30-40	-	2.5	0.0	55.0	1	-
5	40-50	-	3.5	0.0	36.5	-	-
6	50-60	-	4.5	0.0	22.0	1	Sst pebble
7	60-70	-	2.0	10.0	58.0	6	-
8	70-80	-	21.0	0.0	253.5	2	-
TOTALS			59.0	10.0	591.0	16	

Recovered Materials, Test Unit E

Level #	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	0.5	8.5	538.5	4	-
2	10-20	-	0.0	.0	91.0	1	-
TOTALS			0.5	8.5	629.5	5	

Recovered Materials, Test Unit F

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	7.5	2.0	92.5	4	-
2	10-20	-	17.0	12.5	257.0	2	-
3	20-30	-	0.0	0.0	0.0	-	-
TOTALS			24.5	14.5	349.5	6	

Recovered Materials, Test Unit G

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	8.5	33.5	1656.5	6	-
2	10-20	-	0.0	2.0	507.0	1	-
3	20-30	-	0.0	27.0	119.5	1	-
TOTALS			8.5	62.5	2,283.0	8	

Recovered Materials, Test Unit H

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	0.0	18.5	1981.5	6	-
2	10-20	-	35.0	0.0	1871.5	8	-
3	20-30	-	1.0	0.0	1183.0	3	-
TOTALS			36.0	18.8	5,036.0	17	

Recovered Materials, Test Unit I

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	6.5	0.0	6890.0	-	-
2	10-20	1 chip	0.0	0.0	5035.0	5	-
3	20-30	-	0.0	0.0	6330.0	6	-
4	30-40	-	0.0	0.0	5115.0	1	-
5	40-50	-	3.0	0.0	10970.0	1	-
6	50-60	-	0.0	0.0	9705.0	2	-
7	60-70	-	0.0	0.0	13895.0	2	-
8	70-85	-	0.0	0.0	4315.0	-	-
TOTALS			9.5	0.0	62,255.0	17	

Recovered Materials, Test Unit J

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	4.0	0.0	185.0	2	-
2	10-17	-	2.0	0.0	96.5	1	-
TOTALS			6.0	0.0	281.5	3	

Recovered Materials, Test Unit K

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	6.0	0.0	128.5	1	-
2	10-20	-	20.0	0.0	192.0	-	-
3	20-30	-	5.5	0.0	141.0	1	-
4	30-40	-	9.5	0.0	229.5	6	-
5	40-50	-	7.0	0.0	237.0	3	1 Succinea
6	50-60	-	18.0	0.0	141.0	2	-
7	60-70	-	21.5	0.0	169.0	6	1 Succinea
8	70-80	-	12.5	0.0	137.0	6	-
9	80-90	-	4.0	0.0	367.0	5	-
10	90-100	-	3.0	0.0	140.5	5	-
11	100-110	-	1.5	0.0	119.0	3	-
12	110-120	-	0.5	0.0	162.5	2	-
13	120-165	-	0.0	0.0	0.0	-	-
TOTALS			109.00	0.0	2,164.0	40	

Recovered Materials, Test Unit L

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	0.0	0.0	8815.0	-	-
2	10-20	-	0.0	0.0	13025.0	1	-
3	20-30	-	0.0	0.0	12480.0	-	-
4	30-40	-	0.0	0.0	8630.0	-	-
5	40-50	-	0.0	0.0	7405.0	-	-
6	50-60	-	0.0	0.0	12715.0	2	-
7	60-88	-	0.0	0.0	6955.0	-	-
TOTALS			0.0	0.0	70,025.0	3	

Recovered Materials, Test Unit M

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	0.0	0.0	11130.0	-	-
2	10-20	-	0.0	0.0	12315.0	-	-
3	20-30	-	0.0	0.0	13450.0	-	-
4	30-40	Mod. flake	0.0	0.0	13240.0	-	-
5	40-50	-	0.0	0.0	12560.0	-	-
6	50-60	-	0.0	0.0	18620.0	-	-
7	60-70	-	0.0	0.0	18745.0	1	-
8	70-115	-	0.0	0.0	NOT KEPT	-	-
TOTALS			0.0	0.0	100,060.0	1	

Recovered Materials, Test Unit N

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-5	-	0.0	0.0	0.0	-	-

Recovered Materials, Test Unit R

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	2.0	0.0	20.5	1	-
2	10-20	-	20.0	0.0	116.5	5	-
3	20-30	-	13.5	0.0	257.0	6	1 sst pebble
4	30-40	-	7.5	0.0	200.5	5	-
5	40-50	-	6.5	0.0	198.5	-	-
6	50-60	-	6.5	0.0	192.0	8	-
7	60-70	-	7.5	0.0	138.5	3	2 Succinea
8	70-80	-	5.5	0.0	155.5	3	-
9	80-90	-	6.0	0.0	111.0	2	-
10	90-108	-	0.0	0.0	0.0	-	-
TOTALS			75.0	0.0	1,390.0	32	

Recovered Materials, Test Unit S

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	2.5	0.0	4.0	-	-
2	10-20	-	4.5	0.0	45.0	4	-
3	20-30	-	8.5	0.0	67.0	1	-
4	30-40	-	4.5	0.0	11.5	-	-
5	40-50	-	5.5	0.0	135.5	2	-
6	50-70	-	0.0	0.0	0.0	-	-
TOTALS			25.5	0.0	263.0	7	

Recovered Materials, Test Unit T

Level	Depth cm	Cultural	Burned Caliche (gms)	Burned Caprock (gms)	Un-Burned Caprock (gms)	Quartzite Pebbles #	Other
1	0-10	-	0.5	0.0	716.5	1	-
2	10-23	-	5.0	0.0	710.5	2	-
TOTALS			5.5	0.0	1427.0	3	