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File 1994-0064 Name: Final Plan - Moses Subdivision – 2666 Paradise Drive

Present	Scanned	
		A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the ISYS retrieval system. In some instances, items are found on the list but are not present in the scanned electronic development file because they are already scanned elsewhere on the system. These scanned documents are denoted with (**) and will be found on the ISYS query system in their designated categories. Documents specific to certain files, not found in the standard checklist materials, are listed at the bottom of the page. Remaining items, (not selected for scanning), will be listed and marked present. This index can serve as a quick guide for the contents of each file.
X	X	**Table of Contents**
		***Review Sheet Summary**
X	X	***Application form**
X		Review Sheets
X		Receipts for fees paid for anything
X	X	***Submittal checklist**
X	X	***General project report**
		Reduced copy of final plans or drawings
X		Reduction of assessor's map.
		Evidence of title, deeds, easements
X	X	***Mailing list to adjacent property owners**
		Public notice cards
		Record of certified mail
X	X	Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
		***Final reports for drainage and soils (geotechnical reports)**
		Other bound or non-bound reports
		Traffic studies
X	X	***Review Comments**
X	X	***Petitioner's response to comments**
X	X	***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**

DOCUMENT DESCRIPTION:

X	X	Correspondence	X		Composite Plan
X		Treasurer's Certificate of Taxes Due – 3/29/94	X		Roadway Plan and Profile
X	X	City Council Minutes – 6/5/96 - **	X		Water and Sewer Plan Profile
X		Job Description and Charges – Reyes Construction	X		Covenants, Conditions and Restrictions
X	X	Utility Plans	X	X	Avigation Easement – Bk 2108/Pg 390 –scanned with file/copy for file – original will be sent to Walker Airport Authority – airport is now separate entity
X	X	Final Plat	X	X	Road Plans
X	X	Paradise Hills - Geotechnical Investigation – 5/79	X		Warranty Deed - Bk 947 / Pg 19 – not conveyed to City
X	X	Geologic Hazards Report – 3/94	X		Improvement Location Certificate – 3/18/94
X	X	Geotechnical Engineering Study Paradise hills Subdivision – Filing 7	X		Articles of Incorporation - 9/29/94
X	X	Grading and Drainage Plan -	X	X	Declaration of Covenants, Conditions and Restrictions – Bk 2108 / Pg 393
X		Notice of Public Hearing mail-out – sent 4/22/94	X	X	Resolution No. 56-94 - **

X	X	Sewer Plans	X	X	Development Improvements Agreement – not signed by City – scanned with file not added to ISYS
X	X	Utility Plans			
		Historical Maps sent to GIS for scanning and retrieved for file retention			

SUBMITTAL CHECKLIST

MAJOR SUBDIVISION: FINAL

Location: 2666 PARAdise Drive Project Name: Moses Subdivision

DESCRIPTION #64 94

ITEMS: DESCRIPTION	SSID REFERENCE	● City Community Development	● City Dev. Eng.	● City Utility Eng.	● City Property Agent	● City Parks/Recreation	● City Fire Department	● City Attorney	● City G.J.P.C. (8 sets)	○ City Downtown Dev. Auth.	● City Police	● County Planning	○ County Bldg. Dept.	● County Surveyor	○ Walker Field	○ School Dist. #51	● Irrigation District Grand Valley	● Drainage District Grand Jct	● Water District UTE	○ Sewer District	● U.S. West	● Public Service	○ GVRP	○ CDOT	○ Corps of Engineers	○ Colorado Geologic Survey	● U.S. Postal Service	[illegible]	TOTAL REQ'D.
● Application Fee $845.00	VII-1	1																											
● Submittal Checklist*	VII-3	1																											
● Review Agency Cover Sheet*	VII-3	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	i	i	
● Application Form*	VII-1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
● 11"x17" Reduction of Assessor's Map	VII-1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
● Evidence of Title	VII-2	1			1			1																					
~~● Appraisal of Raw Land~~	VII-1	1			1	1																							
● Names and Addresses	VII-3	1																											
● Legal Description	VII-2	1			1																								
○ Deeds	VII-1	1			1			1																					
○ Easements	VII-2	1	1	1	1			1													1	1	1						
● Avigation Easement	VII-1	1			1			1																					
○ ROW	VII-3	1	1	1	1			1													1	1	1						
● Covenants, Conditions, & Restrictions	VII-1	1	1					1																					
○ Common Space Agreements	VII-1	1	1					1																					
● County Treasurer's Tax Cert.	VII-1	1																											
● Improvements Agreement/Guarantee*	VII-2	1	1	1				1																					
○ CDOT Access Permit	VII-3	1	1																										
○ 404 Permit	VII-3	1	1																										
○ Floodplain Permit*	VII-4	1	1																										
● General Project Report	X-7	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1		1	1	1	2	1	1	1	1	1	1	
● Composite Plan	IX-10	1	2	1	1																								
● 11"x17" Reduction Composite Plan	IX-10	1				1	1	1	8	1	1	1	1				1	1	1	1	1	1	1	1	1	1		1	
● Final Plat	IX-15	1	2	1	1			1						1															
● 11"x17" Reduction of Final Plat	IX-15	1							8	1	1	1			1	1	~~1~~	1	1	1	1	1	1				1		
~~● Cover Sheet~~	IX-11	1	2																										
● Grading & Stormwater Mgmt Plan	IX-17	1	2															1							1	1			
○ Storm Drainage Plan and Profile	IX-30	1	2															1			1	1	1						
● Water and Sewer Plan and Profile	IX-34	1	2	1			1												1	1	1	1	1					1	
● Roadway Plan and Profile	IX-28	1	2															1											
○ Road Cross-sections	IX-27	1	2																										
○ Detail Sheet	IX-12	1	2																										
○ Landscape Plan	IX-20	2	1	1																									
● Geotechnical Report	X-8	1	1										1													1			
○ Phase I & II Environmental Report	X-10,11	1	1																										
~~● Final Drainage Report~~	X-5,6	1	2															1											
○ Stormwater Management Plan	X-14	1	2															1							1				
○ Sewer System Design Report	X-13	1	2	1																1									
○ Water System Design Report	X-16	1	2	1															1										
○ Traffic Impact Study	X-15	1	2																					1					

NOTES: 1) An asterisk in the item description column indicates that a form is supplied by the City.
2) Required submittal items and distribution are indicated by filled in circles, some of which may be filled in during the pre-application conference. Additional items or copies may be subsequently requested in the review process.
3) Each submitted item must be labeled, named, or otherwise identified as described above in the description column.

PRE-APPLICATION CONFERENCE

Date: 1-28-94
Conference Attendance: Dr Moses, Dave Thornton, Jody Kliska
Proposal: FINAL PLAT
Location: 2666 Paradise Drive
Tax Parcel Number: 2701-264-00-020
Review Fee: $ 845.00
(Fee is due at the time of submittal. Make check payable to the City of Grand Junction.)
Drainage Fee - Approx. $ 4,380.00
Additional ROW required?
Adjacent road improvements required?
Area identified as a need in the Master Plan of Parks and Recreation? N/A
Parks and Open Space fees required? Yes Estimated Amount: 225.00 each
Recording fees required? Yes Estimated Amount: $ 20.00 plus ?
Half street improvement fees required? $ 8,000 up front AT PLAT & $1000 per each of the Eight Lots At Building permit Estimated Amount:
Revocable Permit required? N/A
State Highway Access Permit required? N/A
Applicable Plans, Policies and Guidelines N/A
Located in identified floodplain? FIRM panel #
Located in other geohazard area?
Located in established Airport Zone? Clear Zone, Critical Zone, ~~Area of Influence?~~
Avigation Easement required? Yes

While all factors in a development proposal require careful thought, preparation and design, the following "checked" items are brought to the petitioner's attention as needing special attention or consideration. Other items of special concern may be identified during the review process.

O Access/Parking	O Screening/Buffering	O Land Use Compatibility
O Drainage	O Landscaping	O Traffic Generation
O Floodplain/Wetlands Mitigation	O Availability of Utilities	O Geologic Hazards/Soils

O Other
Related Files: #97-93

It is recommended that the applicant inform the neighboring property owners and tenants of the proposal prior to the public hearing and preferably prior to submittal to the City.

PRE-APPLICATION CONFERENCE

WE RECOGNIZE that we, ourselves, or our representative(s) must be present at all hearings relative to this proposal and it is our responsibility to know when and where those hearings are.

In the event that the petitioner is not represented, the proposed item will be dropped from the agenda, and an additional fee shall be charged to cover rescheduling expenses. Such fee must be paid before the proposed item can again be placed on the agenda. Any changes to the approved plan will require a re-review and approval by the Community Development Department prior to those changes being accepted.

WE UNDERSTAND that incomplete submittals will not be accepted and submittals with insufficient information, identified in the review process, which has not been addressed by the applicant, may be withdrawn from the agenda.

WE FURTHER UNDERSTAND that failure to meet any deadlines as identified by the Community Development Department for the review process may result in the project not being scheduled for hearing or being pulled from the agenda.

X _____ X _____

Signature(s) of Petitioner(s) Signature(s) of Representative(s)

DEVELOPMENT APPLICATION

Community Development Department
250 North 5th Street Grand Junction, CO 81501
(303) 244-1430

Receipt 1105
Date 4-4-94
Rec'd By MP
File No. 64-94

We, the undersigned, being the owners of property situated in Mesa County, State of Colorado, as described herein do hereby petition this:

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
[X] Subdivision Plat/Plan	[ ] Minor [X] Major [ ] Resub		2666 Paradise Dr.	RSF - 4	Single family
[ ] Rezone				From: To:	
[ ] Planned Development	[ ] ODP [ ] Prelim [X] Final				
[ ] Conditional Use					
[ ] Zone of Annex					
[ ] Text Amendment					
[ ] Special Use					
[ ] Vacation					[ ] Right-of-Way [ ] Easement

[X] PROPERTY OWNER	[X] DEVELOPER	[X] REPRESENTATIVE
Wilford D. Moses	Wilford D. Moses	
Name	Name	Name
2666 Paradise Dr.	2666 Paradise Dr.	
Address	Address	Address
Grand Jct., Co. 81506	Grand Jct., Co. 81506	
City/State/Zip	City/State/Zip	City/State/Zip
242-0288	242-0288	
Business Phone No.	Business Phone No.	Business Phone No.

NOTE: Legal property owner is owner of record on date of submittal.

We hereby acknowledge that we have familiarized ourselves with the rules and regulations with respect to the preparation of this submittal, that the foregoing information is true and complete to the best of our knowledge, and that we assume the responsibility to monitor the status of the application and the review comments. We recognize that we or our representative(s) must be present at all hearings. In the event that the petitioner is not represented, the item will be dropped from the agenda, and an additional fee charged to cover rescheduling expenses before it can again be placed on the agenda.

X Wilford D. Moses — March 30, 1994
Signature of Person Completing Application — Date

X Marjean Moses — March 30, 1994

Signature of Property Owner(s) - Attach Additional Sheets if Necessary

#64-94

Saccamano Girls Trust
1st National Bank
P.O. Box 608
Grand Junction Co. 81502

Scott & Carol Barker
823 26½ Road
Grand Junction Co. 81506

Rodney & Susan Martinez
2662 Catalina Drive
Grand Junction Co. 81506

Glenn & Karen McClelland
838 26½ Road
Grand Junction Co. 81506

Dr.Thomas & Lori Towner
840 26½ Road
Grand Junction Co. 81506

John Robert & Rita Finley
2671 Caribbean Drive
Grand Junction Co. 81506

William & Joy RAley
2669 Caribbean Drive
Grand Junction Co. 81506

Kent & Francis Kohl
2667 Caribbean Drive
Grand Junction Co. 81506

Mark & JUdith Thomas
2667 Catalina Drive
Grand Junction Co. 81506

Rene Landry
836 Catalina Drive
Grand Junction Co. 81506

Riney & Josephine Wilbert
834 Catalina Court.
Grand Junction Co. 81506

John & Margo Cheney
833 Catalina Court
Grand Junction Co. 81506

Vincent & Sheila Tonc
835 Catalina Court
Grand Junction Co. 81506

Richard & Marilyn Lytle
2661 Catalina Crive
Grand Junction Co. 81506

William & Shari Bird
2659 Catalina Drive
Grand Junction Co. 81506

Joseph & Janet Steinkirchner
2670 Paradise Drive
Grand Junction Co. 81506

Harvey & Lestella Allen
2670 Bahamas Way
Grand Junction Co. 81506

Larry & Carmen Fuller
2672 Bahamas
Grand Junction Co. 81506

Lester, Delores Family Trust
2664 Bahamas Way
Grand Junction Co. 81506

Patricia & Jesus Guerrera Jr.
2666 Bahamas Way
Grand Junction Co. 81506

Stephen & Julie Heacock
820 Jamaica
Grand Junction Co. 81506

John & Barbara Prouty
2673 Paradise Drive
Grand Junction Co. 81506

L.J. Pavetti & Co.
2673 Paradise Drive
Grand Junction Co. 81506

Roger & Carole Benson
2665 Paradise Drive
Grand Junction Co. 81506

James Arnott
2669 Paradise Drive
Grand Junction Co. 81506

Michael Clayton
2671 Paradise Drive
Grand Junction Co. 81506

Stephen & Laurie McCall
2657 Paradise Drive
Grand Junction Co. 81506

Nicholas P Lupfer
16338 Goldenrod Way
Parker Co. 80134

Mamaie Joyce Brown
2655 Paradise Drive
Grand JUnction Co. 81506

Lawrence Wagner
2654 Paradise Drive
Grand Junction Co. 81506

Donna LaCount
2656 Paradise Drive
Grand Junction Co. 81506

Wilfod D. Moses
2666 Paradise Drive
Grand Junction, CO 81506

Randolph & Karolyn Admire
826 26½ Road
P.O. Box 401
Grand Lake Co. 80447

City of Grand Junction
Community Development Dept.
250 N 5th Street
Grand Junction, CO 81501

Richard & Marion Pond
2662 Paradise Drive
Grand Junction Co. 81506

Marguerite Dowd
2660 Paradise Drive
Grand Junction Co. 81506

GENERAL PROJECTS REPORT
Moses Subdivision
March 28, 1994

The proposed Moses subdivision is located in the Paradise Hills area with frontage on 261/2 road, Catalina Drive, and Paradise Drive. The project consists of 6.84 acres.

The purpose of this project is to provide more single family dwellings within an already established subdivision. The project is already surrounded with existing single family dwellings, with established utilities, roadways and services.

Lots 1 through 8 are accessed from Catalina Drive. Lots 9,10, and 11 are accessed from Paradise Drive. No lots will have access from 26 1/2 Road due to poor visibility. We can not foresee any traffic difficulties with this project.

All utilities are available from Catalina Drive and Paradise Drive. A fire hydrant will be placed on the North West corner of Lot #8 to service lots #1 through #8. Ute Water has plans to place a fire hydrant on the North East corner of Jamaica Drive and Paradise Drive which will service Lots #9,10, and 11. The project will provide 10 more single family homes and should have minimal effect on the public facilities and we can project no special demands on the utilities.

The soil in the surrounding area consists of mainly clay and rancos. A geological report is included.

We hope to have work completed and lots available by September 1, 1994. Hopefully then all lots can be sold within the next year.

POSTING OF PUBLIC NOTICE SIGNS

The posting of the Public Notice Sign is to make the public aware of development proposals. The requirement and procedure for public notice sign posting are required by the City of Grand Junction Zoning and Development Code.

To expedite the posting of public notice signs the following procedure list has been prepared to help the petitioner in posting the required signs on their properties.

1. All petitioners/representatives will receive a copy of the Development Review Schedule for the month advising them of the date by which the sign needs to be posted. IF THE SIGN HAS NOT BEEN PICKED UP AND POSTED BY THE REQUIRED DATE, THE PROJECT WILL NOT BE SCHEDULED FOR THE PUBLIC HEARING.
2. A deposit of $50.00 per sign is required at the time the sign is picked up.
3. You must call for utility locates before posting the sign. Mark the location where you wish to place the sign and call 1-800-922-1987. You must allow two (2) full working days after the call is placed for the locates to be performed.
4. Sign(s) shall be posted in a location, position and direction so that:
   a. It is accessible and readable, and
   b. It may be easily seen by passing motorists and pedestrians.
5. Sign(s) MUST be posted at least 10 days before the Planning Commission hearing date and, if applicable, shall stay posted until after the City Council Hearing(s).
6. After the Public Hearing(s) the sign(s) must be taken down and returned to the Community Development Department within three working days to receive full refund of the sign deposit. For each working day thereafter the petitioner will be charged a $5.00 late fee. After eight working days Community Development Department staff will retrieve the sign and the sign deposit will be forfeited in its' entirety.

Community Development Department staff will field check the property to ensure proper posting of the sign. If the sign is not posted, or is not in an appropriate place, the item will be pulled from the hearing agenda.

I have read the above information and agree to its terms and conditions.

Marjean Moses — 4-22-94

SIGNATURE — DATE

FILE #/NAME 64-94 Moses Sub. — RECEIPT #

PETITIONER/REPRESENTATIVE: Willard Moses — PHONE #

DATE OF HEARING: 5-3-94 — POST SIGN(S) BY: 4-22-94

DATE SIGN(S) PICKED-UP 4-21-94

DATE SIGN(S) RETURNED — RECEIVED BY:

March 11, 1994

Grand Jct. Community Development
250 North 5th St.
Grand Jct., Co. 81501

Dear Sir or Madam:

While talking to the people in the planning department, at city Hall, I was told the policy has been changed on requirements for developers to escro funds for artery road improvements connecting to their property. A new more equitable policy has been adopted to require all the properties a road services to escro their fair share.

In keeping with new policy and considering that I have not yet received final approval for my subdivision, I am requesting a review of my requirement for road improvements on 26½ Rd. to reflect a more reasonable assessment.

Thank you for your consideration.

Sincerely,

Wilford D. Moses
2666 Paradise Drive
Grand Jct., Co. 81506
Home phone 242-0589
work phone 242-0288

TREASURER'S CERTIFICATE OF TAXES DUE

Date: 03/29/94 Certificate No: 32086

STATE OF COLORADO
COUNTY OF MESA

I, the undersigned do hereby certify that the entire amount of taxes and assessments due upon the parcels of real estate described below, and all sales of the same for unpaid taxes or assessments shown by the books in my office, from which the same may still be redeemed, with the amount required for redemption, are as noted herein:

Title Co : INDIVIDUAL REQUEST Order #:
Seller : Buyer :
Lender : Ordered: WILFORD MOSES
Tax Year : 93
Schedule #: 2701-264-00-020

Description:
BEG S 89DEG52'10SEC E 50FT + N 0DEG07'50SEC E 37.16FT FR NW COR SW4SE4 SEC 26 1N 1W N 0DEG07'50SEC E 365FT S 89DEG52'10SEC E 50FT ALG ARC TO L=FT 207.04FT WITH A RAD 340FT THE CHORD BEARS N 67DEG37' 50SEC E 260.23FT N 45DEG07'50SEC E 105.8FT S 0DEG07 '50SEC W 179.39FT S 89DEG52'10SEC E 544.77FT S 5 DEG42' E 226.66FT ALG ARC CVE 191.07FT WITH A RAD 380FT CHORD BEARS S 74DEG32'06SEC W 189.05FT S 60DEG 07'50SEC W 232.61FT N 29DEG52'10SEC W 167.32FT S 56DEG04'27SEC W 200.49FT N 89DEG52'10SEC W 299.72 FT TO BEG EXC BEG MOST ELY COR LOT 4 BLK 10 PARADISE HILLS SUB FIL NO 2 N 29DEG52'10SEC W 153.18FT N 56 DEG04'27SEC E 200.49FT TO BEG S 29DEG52'10SEC E 167.32FT N 60DEG AS DESC IN B-1158 P-370 CO CLKS OFF

Base Tax Amounts Paid:

93 REAL	$	803.15

Amounts Due as of Certificate Date

Current Taxes		Base	Penalty
93 REAL	$	803.14	
Total Due	$	803.14	

BEFORE PAYING TOTAL DUE, PLEASE CALL FOR UPDATED FIGURES
IF PENALTY IS DUE OR IF THERE ARE OUTSTANDING TAX SALES

-- Continued --

2701-264-00-020
Tax Charges Distribution for Taxing Year '93:

Description	Rate	Amount	Description	Rate	Amount
Colo. River	0.3940	7.36			
GJ Rural FD	7.5960	141.89			
Sch Dst 51	40.8500	763.08			
Mesa County	21.0620	393.44			
Library	2.8100	52.49			
Ute Water	2.0000	37.36			
SD51 Bonds	6.6200	123.66			
Social Svcs	4.6580	87.01			
			Totals ------>	85.9900	1606.29

GENA M. HARRISON
Mesa County Treasurer

By: Gena M. Harrison

CERTIFIED DATE

March 29, 1994

REVIEW COMMENTS

FILE #64-94

TITLE HEADING: Final Plat/Plan - Moses Subdivision

LOCATION: Paradise Drive & 26 1/2 Road

PETITIONER: Wilford Moses

PETITIONER'S ADDRESS/TELEPHONE: 2666 Paradise Drive
Grand Junction, CO 81506
242-0288

STAFF REPRESENTATIVE: Dave Thornton

NOTE: WRITTEN RESPONSE BY THE PETITIONER TO THE REVIEW COMMENTS IS REQUIRED ON OR BEFORE 5:00 P.M., APRIL 26, 1994.

U.S. WEST **4/6/94**
Leon Peach **244-4964**

New or additional telephone facilities necessitated by this project may result in a "contract" and up-front monies required from developer prior to ordering or placing of said facilities. For more information, please call Leon Peach at 244-4964.

CITY DEVELOPMENT ENGINEER **4/11/94**
Jody Kliska **244-1591**

See attached comments and red-lined drawings.

CITY ATTORNEY **4/11/94**
Dan Wilson **244-1501**

1. Community Development should let Mr. Moses know the present status of the draft Impact ordinance.
2. Mr/Mrs Moses need to consult with an attorney, or other skilled drafter to submit an acceptable set of covenants. It is preferred that this subdivision be integrated into the existing homeowners association. A mechanism for imposition of annual assessments, and a collection method, is advised. I'll be happy to review once submitted.
3. Development Improvements Agreement, Avigation Easement and the plat need to reflect correct ownership: Wilford D. Moses & Marjean Moses - not "Moses Subdivision" or "Wilford D. and Marjean Moses".
4. Is the design for Lots 9, 10 & 11 optimum?

CITY UTILITY ENGINEER **4/12/94**
Bill Cheney **244-1590**

WATER - Ute Water - 6" line into cul-de-sac may not be needed for adequate domestic supply unless domestic water will be used for irrigation.

SEWER
1. Maintain minimum depth of cover of 72" wherever possible. Reduce slope of pipe to provide additional cover at manhole #2.
2. Show connection detail for manhole #1 into existing line.

GENERAL - Use different legend to denote "Set Property Corner" unless every property corner, both interior and exterior, has been set as indicated.

GRAND JUNCTION FIRE DEPARTMENT **4/12/94**
George Bennett **244-1400**

No requirements at this time. The fire hydrant placement looks good.

PARKS & RECREATION DEPARTMENT **4/14/94**
Don Hobbs **244-1542**

Project report indicates there will be ten (10) new dwelling units, yet the utility map and upper portion of the report indicate eleven lots. Open space fee based upon eleven (11) units at $225 each = $2,475.00 due.

UTE WATER **4/14/94**
Gary R. Mathews **242-7491**

Developer needs to contact Ute Water about the line size proposed for the project. Policies and fees in effect at the time of application will apply.

GRAND JUNCTION DRAINAGE DISTRICT **4/15/94**
John Ballagh **242-4343**

The site is outside the boundaries of the Grand Junction Drainage District.

COMMUNITY DEVELOPMENT DEPARTMENT **4/18/94**
Dave Thornton **244-1447**

See attached comments.

U.S. POSTAL SERVICE **4/22/94**
Cheryl Fiegel **244-3435**

This is City delivery - if centralized delivery is chosen, delivery will be extended immediately. If curbside or behind the sidewalk delivery is chosen then 4 houses must be complete before the postal service will extend delivery.

UTE WATER CONSERVANCY DISTRICT
560 25 Road, P.O. Box 460
Grand Junction, CO 81502

Office
Telephone: 303-242-7491
FAX: 303-242-9189

Treatment Plant
Telephone: 303-464-5563
FAX: 303-464-5443

April 27, 1994

Mr. Wilford D. Moses
2666 Paradise Drive
Grand Junction, CO 81506

Re: Fire Protection for Moses Subdivision

Mr. Moses:

As we discussed in my office on Monday of this week, the water system improvements within Moses Court are proper and necessary, and will be totally at your expense.

As I remember, lot #11 is where your existing residence is located, with access and domestic water service from Paradise Drive. Additionally, proposed lots #9 & #10 will have access and services from Paradise Drive. If, in fact, fire hydrant fire protection is an absolute conditional requirement to the development of lots #9 & #10, and if the City of Grand Junction Fire Department will accept as adequate protection, a hydrant installation off of the existing 4" water line, then this cost would be yours to bear also.

If, on the other hand, the Fire Department demands upgrading of the existing 4" to a larger line size, requires any system looping, or additional hydrants away from the frontage of lots #9, #10 and #11, then all properties (homeowners) who benefit from the improvements will be required to participate in the costs.

Under the terms of an agreement with the City of Grand Junction, the costs of such fire protection improvements are shared one-third by the City, one-third by the Ute District, and one-third by the benefiting properties. A joint effort by the City and Ute would identify specific sections of the eixsting system that require upgrading, the number and placement of fire hydrants, solicit competitive contractor bids, identify and notify benefiting property owners, and construct the project. The property owner's one-third share of the project cost would be an equal amount based on the number of benefiting properties.

The entire Paradise Hills area will be evaluated for fire protection needs and any necessary improvements will be completed within the next five year period.

If you have additional questions, please let me know.

Sincerely,

Charlie

C. E. Stockton
Assistant Manager
Ute Water Conservancy District

CES/rlc

xc: City of Grand Junction
Community Development Department
250 N. 5th Street

Response To Review Comments

File # 64-94 Final Plat/Plan Moses Subdivision

US West
Leon Peach We understand there will be a $400.00 to $600.00 per lot charge to install new telephone facilities.

City Development Engineer
Jody Kliska
Street plans

1. 20' radii on sidewalk will be placed on Catalina Dr. and Burmuda Ct. with handicap ramps. The name will be Burmuda Ct. not Moses Ct.

2. Detailed valley pans will be drawn in as to specifications with the side walk radii.

3. Detail of catch basins in drain will be drawn.

4. QED will correct the drawing of the grade break to specifications and change th 14' easement to read multipurpose easement. They will, also, draw the length, grade and spec of the 12' pipe for the storm drain.

5. The street sign and location of street light will be shown on the plans.

Plat

Computerized printout of external boundary closure will be shown.

Grading and Drainage

1. To control the erosion in area of the catch basin on lot #8 there will be some terracing and grass planted on lots #7 and #9.

2. We will have an irrigation drain valve that will drain into the drainage catch basin which will help keep it flushed out.

3. The maintenance responsibility will go to the homeowners association and is addressed in the agreement we are submitting in the review.

4. We are working on the drainage pipe across Catalina.

Water and Sewer

Note #7 will be added to the plans.

Covenants

Storm drainage system belongs to homeowners Association and will be maintained by the association.

City Attorney
Dan Wilson

1. We appreciate knowning the present status of the draft impact ordinance.

2. We have included a set of covenants and articles of incorporation which were done by our attorney.

3. We have shown correct ownership on the improvements agreement, avigation easement and the plat.

4. The design of lots 9, 10 and 11 reflect the needs of those people who plan to build homes on them.

Utility Engineer
Bill Cheney

Water — Ute water has indicated a 3' water line will be adequate for domestic water supply as we do not intend it to be used for irrigation.

Sewer — QED is maintaining a minimum depth of cover of 72' wherever possible. and reducing the slope of pipe to provide additional cover at manhole #2. They are showing the connection detail for manhole #1 into existing line and correcting legend for property corners.

Grand Junction Fire Department
George Bennett

No response necessary

Parks and recreation Department
Don Hobbs

We only have 10 undeveloped lots. #11 has a home on it. We have the money necessary to pay the fee.

Ute Water
Gary R. Mathews

Ute water has been contacted and a 3' line is needed past the fire hydrant.

Grand Junction Drainage District
John Ballagh

NO response necessary

Community Development Department
Dave Thornton

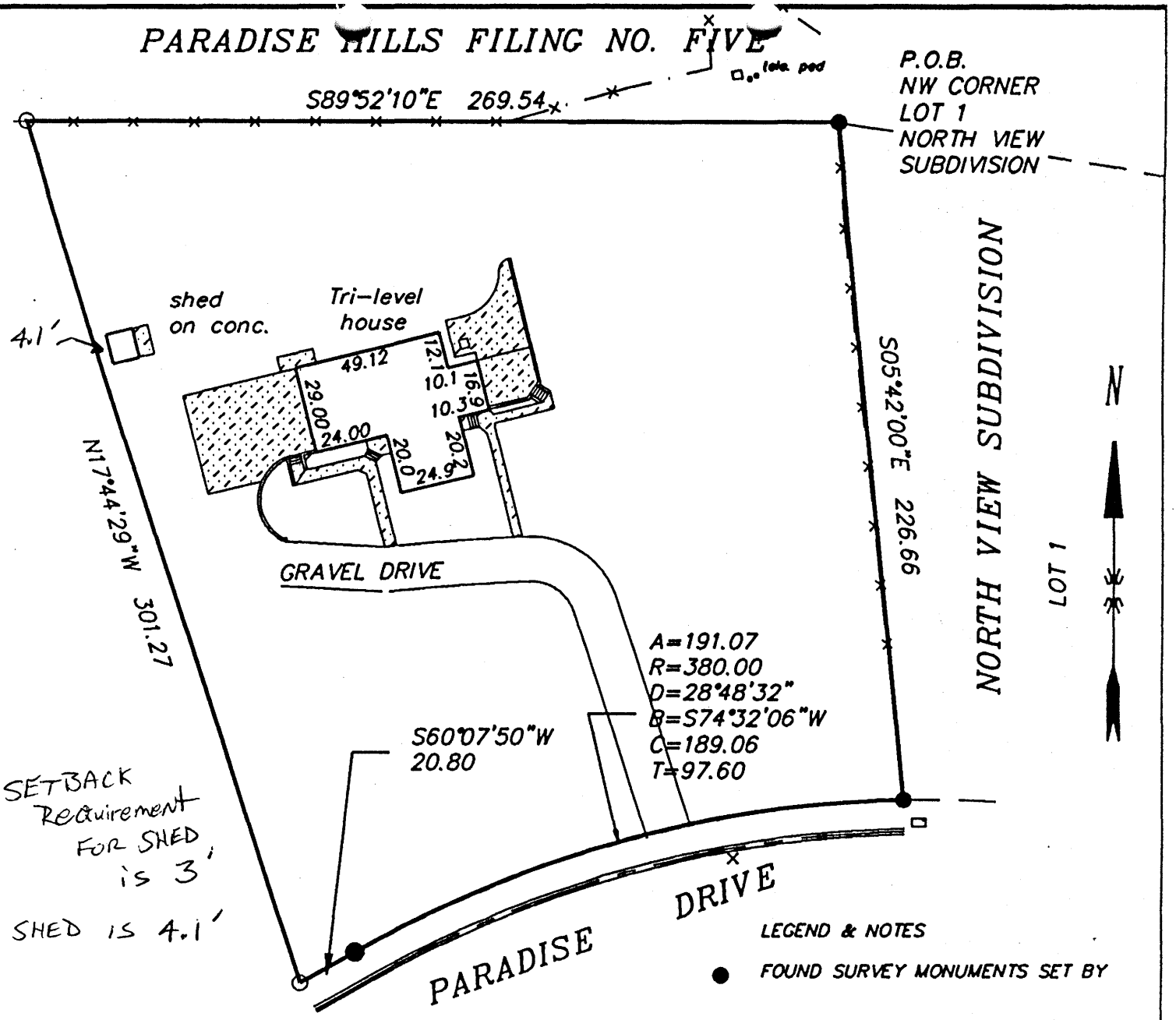
Covenants and Home owner association documents are included. I talked with Charley Stockton at Ute water. He said the cost of installing the fire hydrant to serve Paradise Dr. should be split three ways. He is writing you a letter pertaining to our conversation which you will receive Tuesday or Wednesday.

QED will show existing structures on composite plan. We understand the open space fee and appreciate the information on the road improvement fee proposal. No access to 26½ Rd. will be shown on the plans for lots 1-3. Set backs and fencing will, also, be addressed. We are prepared to pay all recording fees.

I trust I have adequately addressed all review comments and appreciate your help with this development.

Sincerely.

Wilford B. Moses.
2666 Paradise Drive
Grand Junction, CO. 81506
242-0288 or 242-0589



LEGEND & NOTES

● FOUND SURVEY MONUMENTS SET BY

○ SET NO. 5 RE-BAR W/CAP L.S. 16413

THIS PROPERTY DOES NOT FALL WITHIN THE 100 YEAR FLOOD PLAIN

FIRST AMERICAN TITLE NO. 118060

DESCRIPTION

A parcel of land situated in the SE1/4 of Section 26, Township 1 North, Range 1 West of the Ute Meridian being described as follows: Commencing at the SW corner of the NW1/4 SE1/4 of Sec. 26, T1N, R1W, U.M., and considering the West line of the NW1/4 SE1/4 to bear N00°07'50"E and all bearings contained herein to be relative thereto; thence N00°07'50"E 397.16 feet along the West line of the NW1/4 SE1/4 Sec. 26; thence S89°52'10"E 960.00 feet to the Point of Beginning, also being the NW corner of Lot 1 North View Subdivision; thence S05°42'00"E 226.66 feet to the North right-of-way line for Paradise Drive; thence 191.07 feet along the arc of a curve to the left with a radius of 380.00 feet and whose chord bears S74°32'06"W 189.06 feet; thence S60°07'50"W 20.80 feet; thence N17°44'29"W 301.27 feet; thence S89°52'10"E 269.54 feet to the point of beginning, containing 1.38 Acres as described.

IMPROVEMENT LOCATION CERTIFICATE

I hereby certify that this improvement location certificate was prepared for NORWEST MORTGAGE; the improvement location being based on monuments as shown hereon, and is not to be relied upon for the establishment of fence, building or other future improvement lines. I further certify that the improvements on the above described parcel on this date, 3/21/94, except utility connections, are entirely within the boundaries of the parcel, except as shown, and that there are no encroachments upon the described premises by improvements or any adjoining premises except as indicated, and that there is no evidence or sign of any easement crossing or burdening any part of said parcel, except as noted.

STAFF REVIEW

FILE: #64-94 Moses Subdivision

DATE: April 18, 1994

STAFF: Dave Thornton

ACTION REQUESTED: Request for final plat approval for Moses Subdivision consisting of 11 lots located at the SE corner of 26 1/2 Road and Catalina Drive.

LOCATION: SE corner of 26 1/2 Road and Catalina Drive

APPLICANTS: Wilford Moses

EXECUTIVE SUMMARY: The petitioner is requesting final approval of a 11 lot Moses Subdivision at the SE corner of 26 1/2 Road and Catalina Drive. This site was recently annexed into the City as part of the Paradise Hills annexation. The Preliminary Plan for this subdivision was approved by the Planning Commission and City Council in October, 1993 prior to annexation.

EXISTING LAND USE: One single family house at 2666 Paradise Drive

PROPOSED LAND USE: Residential

SURROUNDING LAND USE:
NORTH -- Residential
EAST -- Residential
SOUTH -- Residential
WEST -- Agricultural

EXISTING ZONING: RSF-4

PROPOSED ZONING: No Change

SURROUNDING ZONING:
NORTH -- RSF-4
EAST -- RSF-4
SOUTH -- RSF-4
WEST -- Agricultural/Forestry/Transitional (AFT) in County

RELATIONSHIP TO COMPREHENSIVE PLAN/POLICIES/GUIDELINES: No Plan exists for this area.

STAFF ANALYSIS:

This final plat proposal for Moses subdivision consists of 11 lots on approximately 6.84 acres. As proposed, all units will be single family detached homes.

At preliminary plan approval the City Council approved the plan with the following

conditions: 1) Sidewalks will not be required on the proposed cul-de-sac but will be required on Catalina Drive. 2) Adjacent road improvement fees for 26 1/2 Road shall be required. Estimated costs was $16,000. 50% of the required fee($8,000) is required before Final Plat is recorded. The other half of the road improvement fee will be required at building permit for the 8 lots porposed on the cul-de-sac with each lot paying one/eighth ($1,000) of the remaining 50% ($8,000).

STAFF REVIEW

FILE: #64-94 Moses Subdivision

DATE: April 27, 1994

STAFF: Dave Thornton

ACTION REQUESTED: Request for final plat approval for Moses Subdivision consisting of 11 lots located at the SE corner of 26 1/2 Road and Catalina Drive.

LOCATION: SE corner of 26 1/2 Road and Catalina Drive

APPLICANTS: Wilford Moses

EXECUTIVE SUMMARY: The petitioner is requesting final approval of a 11 lot Moses Subdivision at the SE corner of 26 1/2 Road and Catalina Drive. This site was recently annexed into the City as part of the Paradise Hills annexation. The Preliminary Plan for this subdivision was approved by the Planning Commission and City Council in October, 1993 prior to annexation.

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NORTH -- Residential
EAST -- Residential
SOUTH -- Residential
WEST -- Agricultural

EXISTING ZONING: RSF-4

PROPOSED ZONING: No Change

SURROUNDING ZONING:
NORTH -- RSF-4
EAST -- RSF-4
SOUTH -- RSF-4
WEST -- Agricultural/Forestry/Transitional (AFT) in County

RELATIONSHIP TO COMPREHENSIVE PLAN/POLICIES/GUIDELINES: No Plan exists for this area.

STAFF ANALYSIS:

This final plat proposal for Moses subdivision consists of 11 lots on approximately 6.84 acres. As proposed, all units will be single family detached homes. There is currently an existing single family home on lot #11. No major changes ~~have~~ are being proposed from what was approved at the Preliminary Plan stage.

At preliminary plan approval the City Council approved the plan with the following conditions: 1) Sidewalks will not be required on the proposed cul-de-sac but will be required on Catalina Drive. 2) Adjacent road improvement fees for 26 1/2 Road shall be required. Estimated costs was $16,000. 50% of the required fee($8,000) is required before Final Plat is recorded. The other half of the road improvement fee will be required at building permit for the 8 lots proposed on the cul-de-sac with each lot paying one/eighth ($1,000) of the remaining 50% ($8,000).

All Review Agency comments have been or are currently being addressed by the petitioner.

STAFF RECOMMENDATION:

Staff recommends approval subject to the following conditions:

1. All technical issues regarding construction drawings and the plan and plat be adequately addressed.
2. Lots 1-3 shall meet rear yard setbacks along 26 1/2 road for structures and fencing. Vehicular access will NOT be allowed from 26 1/2 Road and shall be shown as a note on the final plat.
3. The Restrictive Covenants shall be approved by Staff.
4. All existing structures on Lot 11 shall meet current setbacks for the RSF-4 zone

SUGGESTED PLANNING COMMISSION MOTION:

Mr. Chairman, on item #64-94, I move that we approve this subject to staff recommendations.

Approve 5-0 - Staff recommendations

CITY OF GRAND JUNCTION FILE #64-94 FINAL PLAT FOR MOSES SUBDIVISION LOCATED AT PARADISE DRIVE & 26 1/2 ROAD IN THE CITY OF GRAND JUNCTION HAS BEEN REVIEWED AND APPROVED BY THE UTILITY COORDINATING COMMITTEE.

L. Dale Clawson — May 11, 1994

CHAIRMAN — DATE

November 11, 1994

City of Grand Junction, Colorado
250 North Fifth Street
81501-2668
FAX: (303) 244-1599

Dr. Wolford Moses
2666 Paradise Drive
Grand Junction, CO 81501

Subject: Moses Subdivision

Dear Dr. Moses:

A final inspection of the streets and drainage facilities in Moses Subdivision was conducted on October 14, 1994. As a result of this inspection, a list of remaining items was given to you for completion. These items were reinspected on October 28, 1994 and found to be satisfactorily completed.

"As Built" record drawings and required test results for the streets and drainage facilities were received on October 28, 1994. These have been reviewed and found to be acceptable.

In light of the above, the streets and drainage improvements are accepted for future maintenance by the City of Grand Junction.

This acceptance is subject to a warranty of all materials and workmanship for a period of one year beginning October 14, 1994.

Thank you for your cooperation in the completion and acceptance of this project.

Sincerely,

Jody Kliska
City Development Engineer

cc: Don Newton
Doug Cline
Walt Hoyt
Kathy Portner

Reyes Construction

523½ Sara Ln.
Clifton, CO 81520
434-2796

STATEMENT DATE: 8-31-94

JOB/PO #:

COMPLETION DATE:

LOCATION: Moses Subdivision 26½ & Catali

HI RIVER CONSTRUCTION & GRAVEL
Attn: Paul Horbets
3521 F Rd
Clifton, CO. 81520

TOTAL AMOUNT DUE: $ 14,710.76

AMOUNT ENCLOSED: $

DETACH AND MAIL WITH YOUR CHECK. YOUR CANCELLED CHECH IS YOUR RECEIPT.

JOB DESCRIPTION & CHARGES:	BALANCE
-CONCRETE WORK-	
-583 L. F. of Curb & Gutter & Sidewalk $12.60 P/L. F.--	$ 7,345.80
-V-pan of 192 S. F. $3.08 p/S. F. ----------	591.36
-1,656 S. F. for Handicap Ramp & filet $2.90 p/S. F.--	4,802.40
-1,408 S. F. of Sidewalk $1.40 p/S. F. ----------	1,971.20
	$14,710.76

4,802.40
1,971.20
6,773.60
-5,000.00
1,773.60 credit

Total for Sidewalk on Catalina Dr.

Dr. Walford Moses

TCP = Ø

Please pay promptly. Thank you. TOT

A finance charge of 1 1/2% per month will be charged for a

TYPE LEGAL DESCRIPTION (S) BELOW, USING ADDITIONAL SHEETS AS NECESSARY. USE SINGLE SPACING WITH A ONE INCH MARGIN ON EACH SIDE.

****

Commencing at the SW Corner of the NW1/4 SE1/4 of Section 26. Township 1 North Range 1 West, Ute Meridian, and considering the West line of the NW1/4 SE1/4 Section 26 to bear N00°07'50"W and all bearings contained herein to be relative thereto; thence N00°097'50"W 37.16 feet; thence S89°52'10"E 50.00 feet to the NW corner of Paradise Hills Filing No. Two; thence N00°07'50"E 365.00 feet; thence S89°52'10'E 50 feet; thence 267.04 feet along the arc of a curve to the left with a ralius of 340.00 feet and whose chord bears N67°37'50"E 260.23 feet; thence N45°07'50"E 105.80 feet to the West line of Lot 19, Block 15, Paradise Hills Filing No. 5; thence S00°07'50"W 179.39 feet to the SW corner of Lot 19; thence S89°52'10"E 544.74 feet along the South line of Lot 1 to the North right-of-way line for Paradise Drive; thence 191.07 feet along the arc of a curve to the left with a radius of 380.00 feet and whose chord bears S74°32'06"W 189.06 feet; thence S60°07'50'W 132.61 feet; thence N29°52'10"W 150.00 feet; thence S69°57'2r"W 101.49 feet; thence S56?04'27"W 200.49 feet thence N89°52'10"W 299.72 feet to the point of beginning containing 6. acres as described

GEOTECHNICAL INVESTIGATION
PARADISE HILLS SUBDIVISION

GRAND JUNCTION, COLORADO

Prepared For: Bray and Company
1015 N. 7th Street
Grand Junction, CO 81501

Job #792283

May, 1979

TABLE OF CONTENTS

INTRODUCTION

We made this study to provide preliminary information to assist in determining the best types and depths of foundations for the structure and design criteria for them. Data from our field investigation of April 20, 1979 and subsequent laboratory work are summarized on Figures #1 through #7 and Table #1, attached.

PROPOSED CONSTRUCTION

We understand the proposed Paradise Hills Subdivision, Filing No. 4 will consist of lightweight single family homes, similar to those common in the Grand Junction area.

For the purpose of our analyses, we assumed maximum column loads on the order of 5000 lbs. and wall loads of 2000 lbs/ft.

If final designs vary from these assumptions, we should be advised to permit re-evaluation of our recommendations and conclusions

SITE CONDITIONS

The proposed subdivision occupies an undeveloped area of small flat alluvial valleys, low sand and gravel covered terraces and low, barren hills of weathered siltstone and shale of the Mancos Formation. There is a six foot deep gully which was dry at the time of investigation in the northern alluvial valley. The Highline Canal bounds the proposed subdivision to the north and the east. The canal was dry at the time of drilling. On May 3, 1979, after the canal had been filled for several weeks, there was no apparent seepage along the south and west bank below the water level but the vegetation along the bank suggests that some seepage does occur. There are also irrigation ditches to the south and west of the property. The flat valleys are covered with weeds and have been under cultivation in the past. There are some scattered trees. The terrace

surfaces have some grass and weeds upon them. Towards the northeast of the northern valley near the bank of the ditch, there were places where the surface soils had collapsed into subsurface tunnels, indicating that the soils are easily eroded.

SUB SOILS

Our test borings showed there to be considerable variation in soils. In the flat valley areas, the near surface soils were sandy silts, clayey silts and silty clays. Weathered shale was encountered beneath the valley alluvial soils as shallow as 3 feet below the surface near the sides of the valleys. Holes drilled to TB 4 14 and TB 1 29 feet near the center of the valleys were totally in alluvium and did not encounter weathered shale. The zone of advanced weathering of the shales appears to be from 2 to 5 feet thick, below which the shale is more competent.

Laboratory testing showed the near surface valley silty and clayey soils to be extremely collapsible and compressible when wet (see Figures #4 and #5). The tunneling observed in the northern valley indicates that these soils may be dispersive as well.

The near surface soils on the terraces are silts and sandy silts with scattered pebbles. Silty, sandy gravel was found at 1½ feet and 3 feet in test bores #4 and #5. The gravel layer is about 5 feet thick at both locations, and overlies weathered shale. In test bore #3, we encountered at 4½ feet an extremely hard calcite cemented silt layer which extended for at least 5½ feet. Laboratory testing showed this silt layer to be both collapsible and compressible upon wetting (see Figure #6). The depth to weathered shale or siltstone at our test hole locations on the terrace varied from 4 feet to over 8 feet. In general, the shallower depths to bedrock should be found adjacent to the low weathered shale and siltstone hills.

Laboratory testing of two samples of shale showed both to be moderately swelling, developing swell pressures up to 700 psf with no volume change. Higher swell pressures may be encountered.

Ground water was not encountered in any of the test holes at the time of drilling. Test holes 2, 7, 8, and 9, located in low areas near the Highline Canal, were cased with perforated PVC pipe. When checked on May 23, several weeks after the Highline Canal was filled, there was no groundwater at least to depths of 6 feet for hole 2 and 7½ feet for holes 7, 8, and 9.

FOUNDATIONS

There is considerable variation in soil types and thicknesses over the proposed subdivision, making generalizations about foundation types difficult. The following recommendations are preliminary only. A detailed soils investigation should be conducted for each lot prior to final foundation design and construction.

Those houses built on the low terrace surfaces should be founded on spread footings, footingless stemwalls or voided stemwalls, or drilled piers depending on the depth to and swell characteristics of the underlying shale. Spread footings may be used where the shale is at least 4 feet below the base of the footings. The shallow silty soils are collapsible and compressible. Consolidation tests should be performed on samples from foundation level to provide a basis for the calculation of maximum allowable soil bearing pressures: We recommend that the silty soils, if testing shows them to be collapsible when wet, be overexcavated at least one footing width below the base of the footing. The soils should then be wetted to optimum moisture content and compacted to 95% of maximum dry density (ASTM D-698). With compaction and overexcavation, where necessary footings probably can be designed for soil bearing pressures of 2000 psf.

Where shale is encountered at or just below foundation level, the shale should be tested for swell potential and some type of foundation which concentrates the dead loading, such as stem walls or drilled piers should be used. Our preliminary estimate is that stem-walls designed for soil bearing pressures of at least 1000 psf based on dead load only may be used in most cases.

Houses built in the shallow alluvial valleys should probably be founded upon drilled piers where bedrock is relatively shallow. We recommend piers because of the extremely collapsible and compressible nature of the soils. The piers should penetrate unweathered bedrock. Our preliminary estimate is that they should be designed for a minimum soil bearing pressure of 6000 psf and a maximum of 12000 psf.

Where bedrock beneath the valleys is prohibitively deep for piers houses may be founded upon overexcavated and recompacted soil, as described previously. However, because of the evidence of rapid subsurface erosion in these soils, and their extreme compressibility when wet, it might be preferable to use those areas with deep bedrock for open space.

The piezometers placed at hole locations 2, 7, 8, and 9 should be checked for a rising water table later in the year before homes are constructed in the valleys. Special drainage measures such as perimeter drains may be necessary should a high water table be found. Basements should not be included with homes built on the valley floor.

FLOOR SLABS

We believe the most practical type of floor would be a floating slab-on-grade. For slab-on-grade construction, we suggest the following:

1. Place a minimum of 4" of gravel beneath the slab compacted to a minimum of 70% relative density as determined by ASTM D-2049.

2. Provide moderate slab reinforcement and carry the reinforcement through the interior slab joints, but not to foundation walls or load bearing walls.

3. Omit under slab plumbing. Where such plumbing is unavoidable, pressure test it during construction to minimize the possibility of leaks that result in foundation wetting. Utility trenches should be compacted to a minimum of 95% maximum dry density as determined by ASTM D-698.

PAVED AREAS

Based on the results of our field and laboratory studies, we believe a minimum of 6 inches of the on-site silty clays, silts and gravels should be scarified, wetted and mixed, and then compacted to a minimum of 95% of maximum dry density as determined by ASTM D-698. The basecourse placed over the prepared subbase should be a minimum of 4 inches and compacted to 100% of maximum dry density as determined by ASTM D-698. A minimum of 2 inches of asphaltic concrete should overlie the basecourse.

WETTING OF FOUNDATION SOILS

Wetting of foundation soils always causes some degree of volume change in the soils and should be prevented during and after construction. Methods of doing this include compaction of "impervious" backfill around the structure, provision of an adequate grade for rapid runoff of surface water away from the structure, and discharge of roof downspouts and other water collection systems well beyond the limits of the backfill.

GENERAL INFORMATION

Our exploratory borings were spaced as closely as feasible in order to obtain a preliminary picture of the sub soil conditions;

however, erratic soil conditions may occur between test borings. Each homesite should be evaluated individually to determine the best type of foundation for that particular location. The fieldwork, analyses and writing of this report were conducted by Mr. Michael Burke.

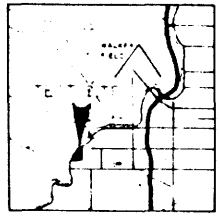
ARMSTRONG ENGINEERS & ASSOCIATES, INC.

Edward A. Armstrong

Edward A. Armstrong, PE-LS
President

MPB/kr

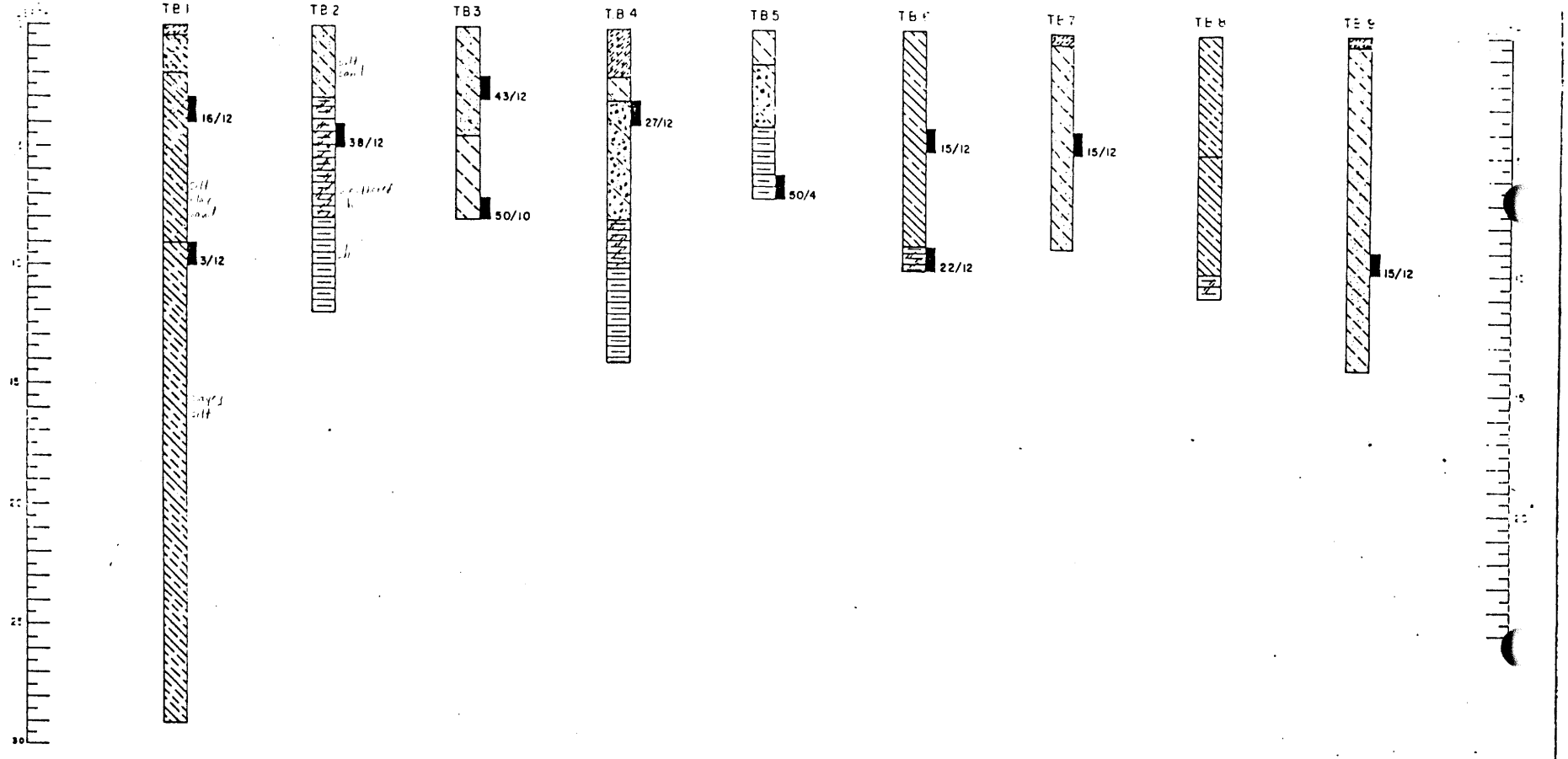
LOCATION MAP



ARMSTRONG ENGINEERS

PARADISE HILLS SUBDIVISION

SHEET 1 of 2



ARMSTRONG ENGINEERS

As Shown	PARADISE HILLS SUBDIVISION
6-05-79	TEST BORE LOGS
WRS	
MPB	SHEET 2 of 2
4-20-79	792283

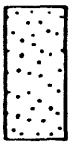
Topsoil

Asphalt w/ Base Course

Fill (Non-specific)

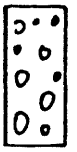
Clay

Silt

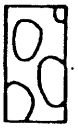


Sand

Gravel



Cobbles

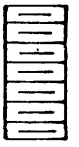


Boulders

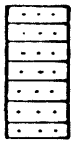
Weathered Zone

Siltstone

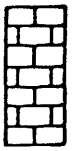
Claystone



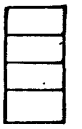
Shale (Interbedded Sandstones, Siltstones and Claystones).



Sandstone

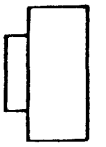


Limestone



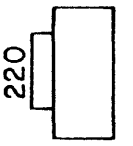
Very hard igneous or Metamorphic rock, i.e.; Granite, Schist, Gneiss, Quartz, etc.

Concrete



Undisturbed Shelby Tube Sample

2 inch diameter Drive Sample (The Symbol 4/12 indicates that 4 blows of a 140 lb. hammer falling 30 inches were required to drive Sampler 12 inches.



Indicates that a permeability of 220 feet/year was determined for the interval shown.

COMBINED SYMBOLS INDICATE THAT THE SOIL IS COMPOSED OF MORE THAN ONE SOIL TYPE.

EXAMPLES:

Silty Sandy Gravel (Note the greater concentration of the gravel symbol)

Silty Clay (Note the greater concentration of the clay symbol)

Clayey Sand (Note the greater concentration of the sand symbol)

Practical Rig Refusal

Water Table and number of Days after Drilling

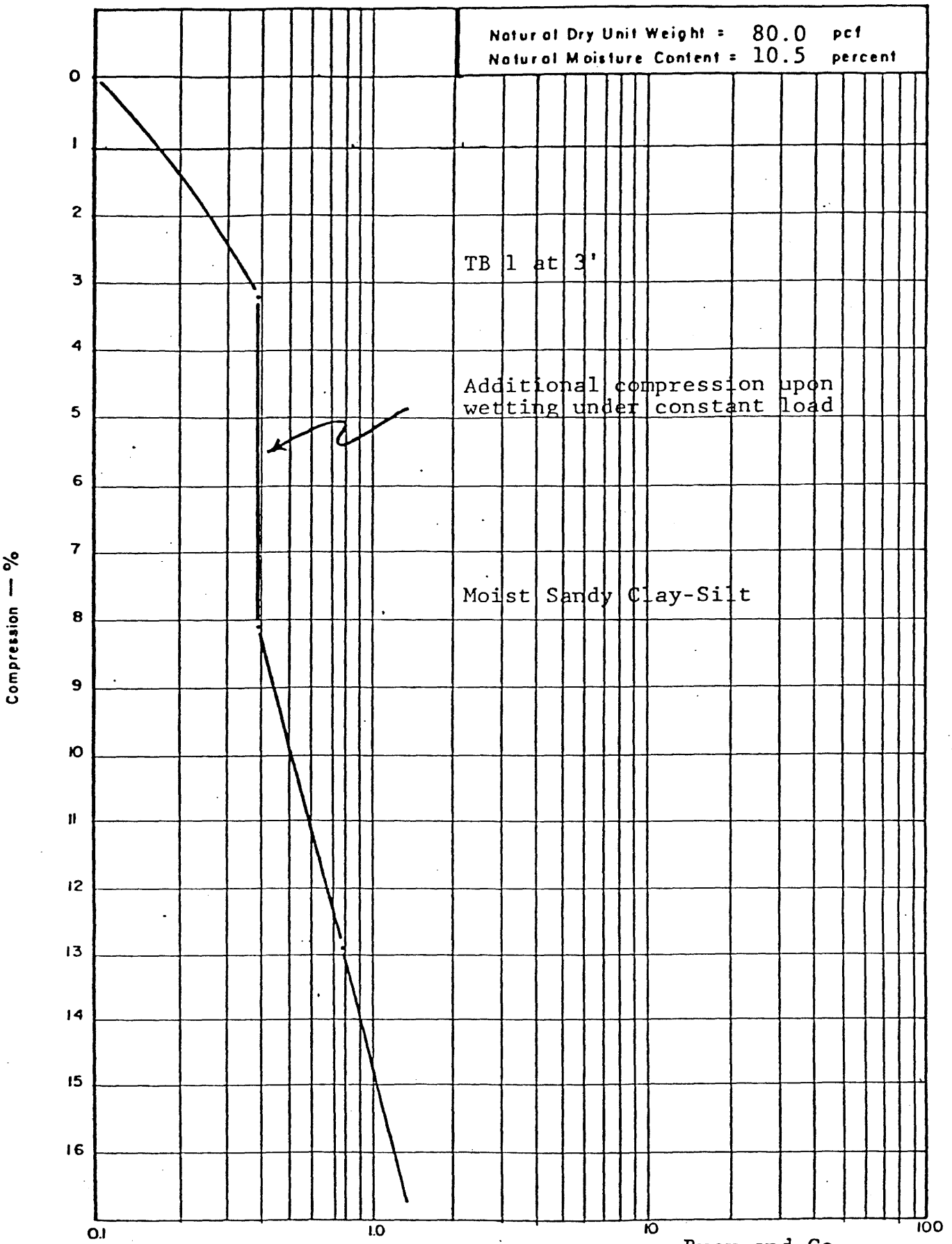
Hole caved in at depth indicated

FIGURE No. 3

Soils Legend & Notes

ARMSTRONG ENGINEERS
ENGINEERING-SURVEYING
CONCRETE & SOILS TESTING

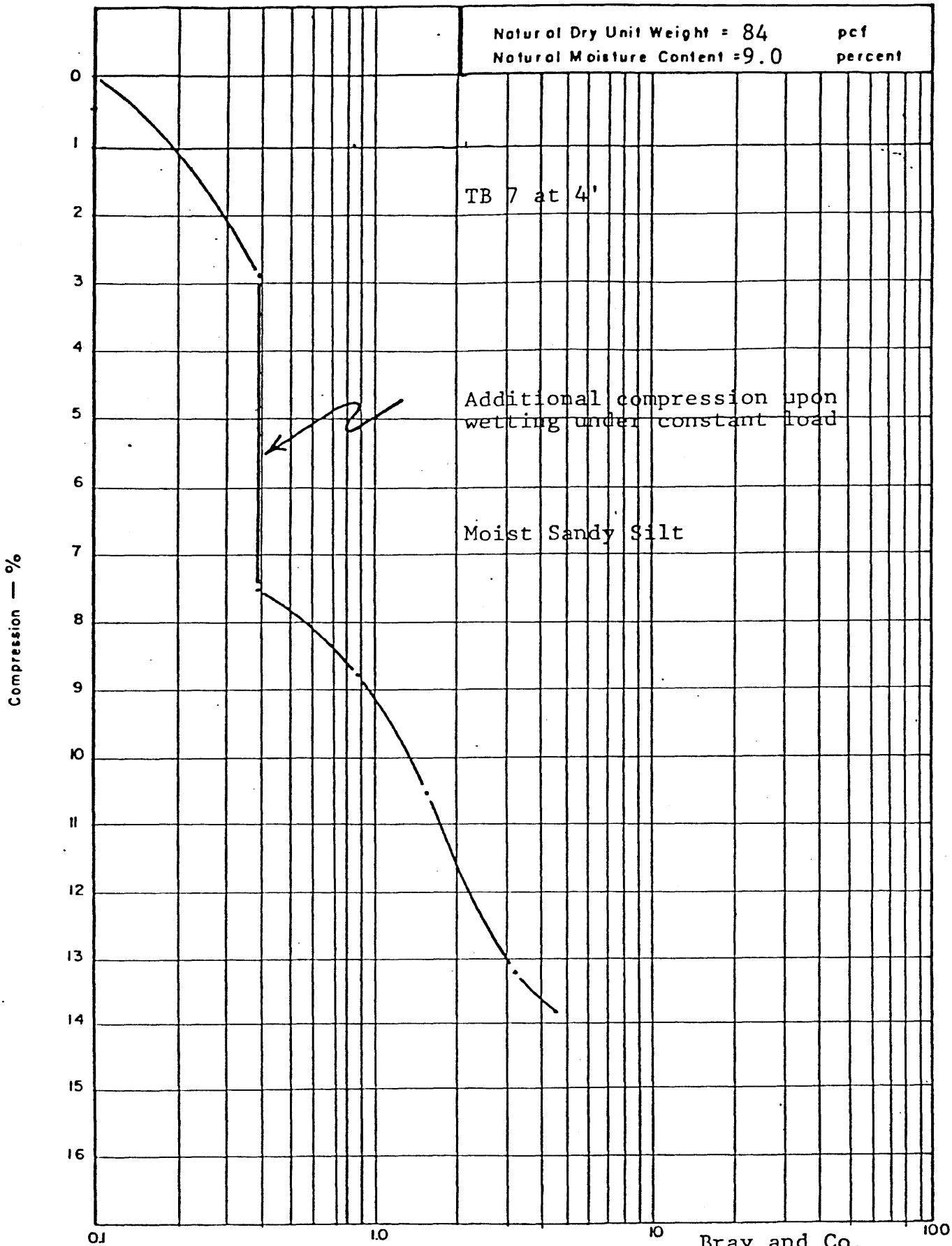
ARMS[illegible]NG ENGINEERS & ASS[illegible]TES



Swell-Consolidation Test Results

Bray and Co.
Job #792283
Figure #4

ARMS[illegible]G ENGINEERS & ASS[illegible]TES



Swell-Consolidation Test Results

Bray and Co.
Job #792283
Figure #5

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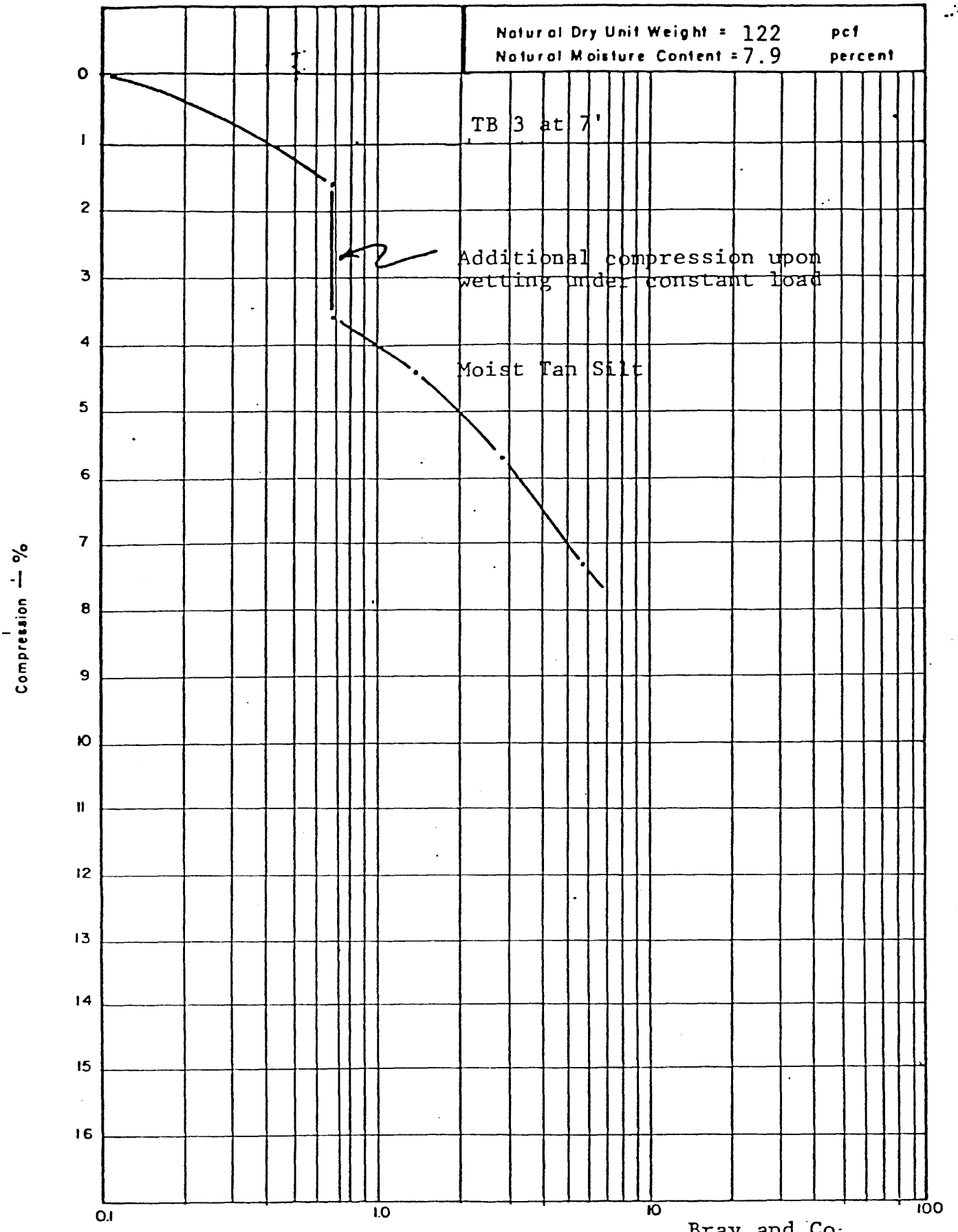


Swell-Consolidation Test Results

Bray and Co.
Job #792283
Figure #6

GEOLOGIC HAZARDS REPORT
FOR
MOSES SUBDIVISION

CITY OF GRAND JUNCTION, COLORADO

MARCH, 1994

Prepared by:

Barnes Geologic Consulting, Inc.
2325 Elderberry Court
Grand Junction, CO 81506
Phone (303) 242-8655

Client:

Wilford D. Moses
2666 Paradise Drive
Grand Junction, CO 81506
Phone (303) 242-0589

GEOLOGIC HAZARDS REPORT
FOR
MOSES SUBDIVISION

CITY OF GRAND JUNCTION, COLORADO

MARCH, 1994

INTRODUCTION

The Moses Subdivision is located in part of the SE$\frac{1}{4}$ of Section 26, Township 1 North, Range 1 West, Ute Principal Meridian. The property is about 3 miles north of downtown Grand Junction, Colorado, and is about $\frac{1}{4}$ mile north of the intersection of H Road and 26$\frac{1}{2}$ Road.

A parcel of about 6 acres is to be divided into 11 lots for single family residences. The property is adjacent to the large residential subdivision of Paradise Hills.

The purpose of this report is to identify geologic hazards, particularly hazards that might have an adverse effect on the various features of a residential subdivision, and is based on a surface reconnaissance of the property and adjacent terrain. No subsurface exploration was conducted specifically for this study. References used to supplement surface observations included USGS Professional Paper 451 and soils mapping by the Soil Conservation Service (SCS).

In addition, reference was made to a report titled "Geotechnical Engineering Study, Proposed Paradise Hills Subdivision, Filing Number 7" by Lambert and Associates dated May 21, 1991. This rather detailed investigation involved an area with similar geology and subsurface materials located approximately 1,800 feet northeast of the Moses Subdivision.

REGIONAL GEOLOGY

The property is located on the northeast flank of the Uncompahgre Uplift where the underlying sedimentary beds dip about 3° to the northeast into the Piceance Basin. The site is in the extensive Grand Valley which has been eroded into Mancos Shale of Cretaceous age by the Colorado River. Mancos Shale is a marine deposit and was originally about 4,000 feet in thickness.

The Grand Valley has a history of minor seismic activity and the seismic risk is low. Recent and nearby earthquakes, which occurred in 1971 and 1975, had Richter magnitudes of 4.0 and 4.4, respectively. A mild quake of 2.5 magnitude occurred near Palisade on October 20, 1990. No damage was reported from any of these events.

SITE GEOLOGY

The Moses Subdivision is located in the broad Grand Valley which has been eroded from Mancos Shale. The site has an elevation of about 4,720 feet above sea level.

Geologic Formations and Soils

The property can be described as two levels separated by a bluff about 25 feet high (see attached soils map). The upper level is a gently sloping terrace, which geologically is a remnant of a once extensive pediment surface. The soils on the upper terrace are sandy silts and silty clays containing varying amounts of sandstone cobbles and boulders up to 36 inches across. Bedrock has been exposed in one location on the bluff by recent excavation and is gently dipping, weathered Mancos Shale. Based on exposures along the bluff, the soil capping the upper level is about 5 to 15 feet in thickness.

The lower level has an unknown depth of alluvial soil over Mancos Shale bedrock. Additionally, much of the lower level has recently been covered by up to about 6 feet of a mixture of fine grained soils and shale fragments. A portion of the lower level soils has been deposited by intermittent washes, such as the nearby Leach Creek.

The near-surface soils have been mapped for agricultural purposes as Chipeta-Persayo silty clay loam, Fruita and Ravola gravelly loam, and Ravola very fine sandy loam by the Soil Conservation Service. A soils map is attached to this report.

Geologic Structure

The dip of the underlying bedrock is about 3° to the northeast away from the nearby Uncompahgre Uplift. The Redlands fault, a dominant structural feature, is located about 7.5 miles to the southwest.

Foundation Materials

The foundation materials on the upper level of this subdivision (Lots 9, 10, and 11) are comprised of sandy silts and silty clays containing some cobbles and boulders which overlie Mancos Shale. Based on exposures on the nearby bluff, the thickness of these fine grained soils is an estimated 5 to 15 feet. A high water table is not expected on this upper terrace. Some of the soils could be expansive upon wetting and also could settle upon loading and/or saturation. The soil characteristics must be determined prior to final design. The underlying shale could contain expansive clays and, if it is determined that the shale would be a part of any foundation material, its

shrink/swell potential should also be determined.

The soils underlying the lower level (Lots 1 to 8) are not well exposed but are expected to be principally sandy to gravelly silts and clays. The depth to the shale bedrock is unknown but may be in the range of 5 to 20 feet. The depth to the water table is also not known, but there is no surface evidence of high ground water. In addition to the natural soils, much of the lower level has recently been leveled with approximately 3 to 6 feet of man-made fill consisting of a mixture of soils and shale fragments. The shrink/swell characteristics and densities of both the in-place soils and the man-made fill should be ascertained prior to final design of streets and residences.

Once the engineering properties of the underlying materials are determined, the foundation for each residential structure can be designed in accordance with the site-specific conditions. Re-compaction may be necessary to prevent settlement of some of the materials upon loading and/or saturation. Swelling clays could be present in the soils as well as the Mancos Shale. Good drainage must be maintained away from each structure.

The soils and shale at this site contain soluble salts that could cause deterioration of concrete. Sulfate resistant cement should be used to avoid this possibility.

Water Table

A high water table is not expected on the upper terrace due to the topographic relief. No evidence of high ground water was observed on the lower level, but the water table should be identified in this area prior to final design of foundations or basements. A perched water level is possible due to landscape irrigation around nearby residences and the proximity to Leach Creek. Any water table can be expected to vary with the season of the year.

Slope Stability

A minor slope stability hazard exists along the 25-foot bluff separating the two levels. This bluff would involve primarily only Lots 9 and 11 (an existing residence occupies Lot 11). Stability problems can be avoided by residence site selection, proper drainage to avoid saturation of the steeper slopes, and other design considerations such as retaining walls.

FLOOD POTENTIAL

A flood hazard does not exist due to the topography and lack of drainageways across the property. A small intermittent drainage named Leach Creek is about 200 feet northwest of the

parcel but is approximately 10 feet lower than the lowest elevation of the subdivision.

RADIATION HAZARD

This property was surveyed for gamma radiation by the Department of Energy on July 14 and 16, 1993, and no residual radioactive material in excess of EPA standards was found (see attached letter from DOE dated July 30, 1993). Point sources of four iron pipes found on the parcel have been transported from the site to an approved disposal area.

CONCLUSIONS

A surface reconnaissance was conducted on March 24, 1994, at the proposed Moses Subdivision to identify geologic hazards to subdivision development. The hazards and recommendations are summarized as follows:

1. The foundation soils at this property are principally sandy silts and silty clays of alluvial origin. Additionally, much of the lower level of the site has been filled and leveled with fine grained soils and shale fragments. Therefore, both the in-place and man-made materials could have low density due to their origin, and clays with expansive properties could be present. The site-specific engineering properties of the materials must be determined and utilized in the final design of any structure.

2. Mancos Shale could be present in some foundations and, as appropriate, should be tested for expansive properties.

3. The soils and shale in the area contain varying amounts of sulfate salts and sulfate resistant cement should be used in the concrete.

4. The depth to ground water should be determined, especially under the lots on the lower level, prior to foundation or basement design.

5. A minor slope stability hazard exists on the bluff on Lot 9. Proper site selection and design can mitigate this potential hazard.

6. Due to the topography, there is no flood hazard at this site.

7. The entire property was surveyed for gamma radiation by the DOE on July 14 and 16, 1993, and no radioactive materials in excess of background were found.

8. The area has a low probability of destructive seismic events.

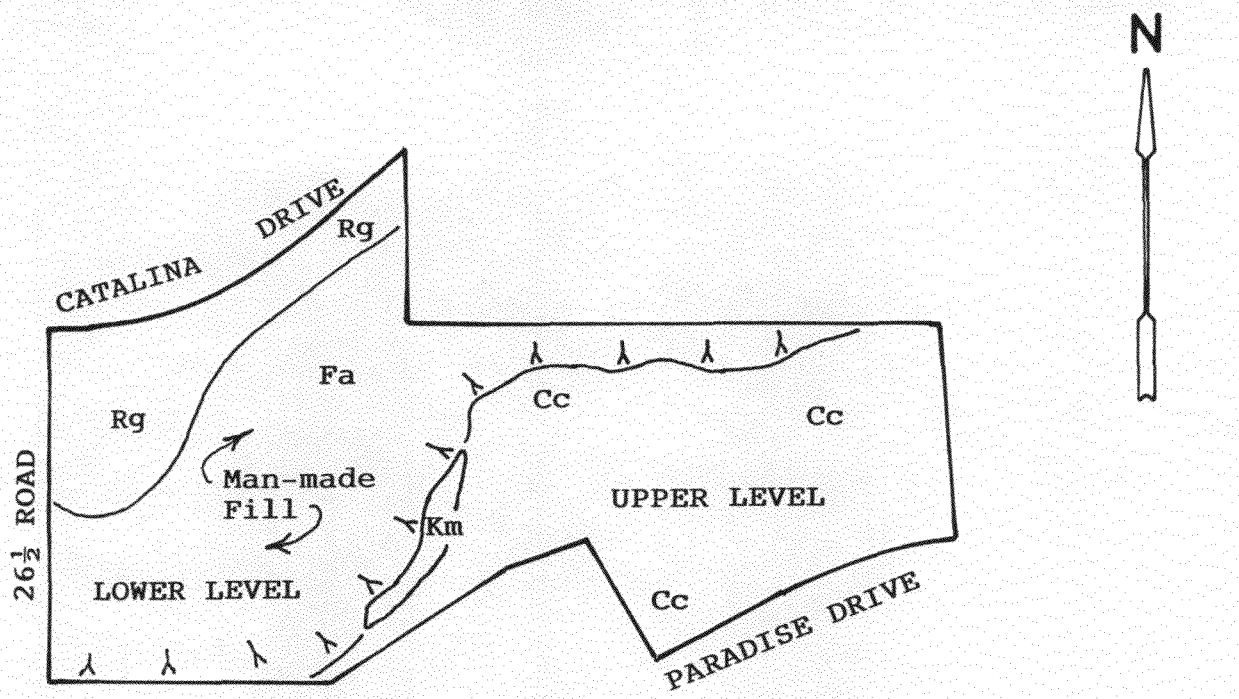
Several potential geologic hazards, mainly both natural and man-made, low density soils and potential expansive clays and shale have been identified at this subdivision, but these conditions can be mitigated by proper engineering design prior to construction. The geotechnical data necessary to allow adequate foundation design can be obtained by appropriate techniques such as drilling or augering, sampling, laboratory testing of the materials, and measurement of the ground water levels.

Prepared by:

BARNES GEOLOGIC CONSULTING, INC.

Joe G. Barnes

Joe G. Barnes, President
Engineering Geologist



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SCALE OF FEET

EXPLANATION

Cc	Chipeta-Persayo silty clay loam
Fa	Fruita and Ravola gravelly loam
Rg	Ravola very fine sandy loam
Km	Mancos Shale exposed
Y Y	Line of low bluff

Adapted from "Soil Map, Grand Junction Area, Colorado", Soil Conservation Service, surveyed 1939-40. The bluff and lower level have been altered by cut and fill since the SCS mapping.

SOILS MAP

MOSES SUBDIVISION

MARCH, 1994

Barnes Geologic Consulting, Inc.
Drawn by JGB

MOSES SUBDIVISION -- Panoramic views looking from north (top photo) to east (bottom photo) showing the subject property in the foreground. The Bookcliffs are in the background.

PHOTOS BY JOE G. BARNES

MARCH 24, 1994

SOIL CONSERVATION SERVICE
SOIL DATA SHEET

CHIPETA-PERSAYO SILTY CLAY LOAMS, 5 to 10 percent slopes, Class VIe (Cc)

The soils are derived from material weathered from the thick Mancos shale formation. Except for their silty clay loam texture in the surface layer, the soils are very similar to those of the Chipeta-Persayo shaly loam complex on 5 to 10 percent slopes.

The Persayo soil in this complex contains somewhat more silt and fine sand and is slightly more permeable than the Persayo soil in the complex of Chipeta and Persayo shaly loams, but it is nonetheless highly erodible if cropped. In fact, the platy, compact, impervious shale under both soils of this complex permits so much erosion that only a sharp or choppy surface remains.

Soil limitations are classified as severe for local roads and streets (high plasticity index, shrink-swell), shallow excavations (shallow to consolidated shale), dwellings with basements (shallow to shale, shrink-swell), sanitary land fill (shallow to consolidated shale), septic tank absorption fields (slowly permeable, shallow), and sewage lagoons (slope, shallow to impervious layer).

SOIL CONSERVATION SERVICE
SOIL DATA SHEET

FRUITA AND RAVOLA GRAVELLY LOAMS, 5 to 10 percent slopes, Class IVe (Fa)

In the virgin state, the soils of this undifferentiated unit are spotted and variable. Ordinarily, the soil at the upper levels - Fruita gravelly loam, 5 to 10 percent slopes - has a very pale-brown loam surface layer and a moderate accumulation of lime in the subsoil. In contrast, the soil at the lower levels - chiefly Ravola gravelly loam, 5 to 10 percent slopes - has a very pale-brown to pale-brown surface layer and only a weak accumulation of lime in the subsoil. In both positions, the lime can be seen in the subsoils. Shale ordinarily occurs at depths of $2\frac{1}{2}$ to $4\frac{1}{2}$ feet, but the alluvial mantle may be 10 to 12 feet thick in some places.

The soils of this unit are friable and permeable enough to permit easy penetration of plant roots down to the underlying shale. Ordinarily, they are very spotty and contain considerable amounts of sandstone gravel and semirounded stones.

Soil limitations are severe for dwellings with basements (shallow to shale), and moderate to severe for septic tank absorption fields (shallow to shale in places).

SOIL CONSERVATION SERVICE
SOIL DATA SHEET

RAVOLA VERY FINE SANDY LOAM, 2 to 5 percent slopes, Class IIe Land (Rg)

Except for greater slope, this soil is very similar to Ravola very fine sandy loam, 0 to 2 percent slopes. Most of it is not cultivated. If it were leveled and cultivated, it would need about the same management as Ravola very fine sandy loam, 0 to 2 percent slopes, and should produce approximately the same yields.

No severe limitations exist for this soil type.

Department of Energy
Post Office Box 2567
Grand Junction, Colorado 81502-2567

JUL 30 1993

Location No.: GJ-02688

Address: 2666 Paradise Drive
Grand Junction, CO

Wilford Moses
2666 Paradise Drive
Grand Junction, CO 81506

Dear Mr. Moses:

Under the Uranium Mill Tailings Radiation Control Act of 1978, Public Law 95-604, the Department of Energy (DOE) is authorized to conduct remedial action at properties contaminated with residual radioactive material from the inactive uranium mill site in Grand Junction, Colorado.

Evaluation of your property identified above has not revealed the presence of residual radioactive material in excess of standards established by the Environmental Protection Agency (EPA). Therefore, the DOE has determined that your property does not require remedial action under the Uranium Mill Tailings Remedial Action Project. For your records, we have enclosed a copy of the survey report on your property.

Should you have any questions regarding the Remedial Action Project, please write to me at the above address, or call me or Joseph Virgona at 303/248-6014. Your cooperation in granting us access to your property to conduct radiation surveys is greatly appreciated.

Sincerely,

R Eldon Bray

R. Eldon Bray
Project Officer

Enclosure
As stated

cc: Property File - Geotech
State Representative

Enclosure was "ISC Condensed Exclusion Report -- Location Number GJ02688, 2666 Paradise Drive, Grand Junction, CO 81506" dated July 28, 1993 and prepared by Oak Ridge National Laboratory.

JOB NO. 2283

ARMSTRONG ENGINEERS AND ASSOCIATES

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS

HOLE	DEPTH (FEET)	NATURAL MOISTURE (%)	NATURAL DRY DENSITY (PCF)	ATTERBERG LIMITS		UNCONFINED COMPRESSIVE STRENGTH (PSF)	DIRECT SHEAR TESTS QUICK, UNDRAINED		% PASS. #200 SIEVE	SOIL TYPE	STD. PENT. TEST
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		Ø	COHESION C			
1	3	10.5	80.0	23.2	4.5				57.8	Sandy Clay-Silt(CL-ML)	o/1
2	4	15.7	112	32.6	8.1				100.0	Silty Shale (ML)	3/1
3	2	15.1	114	26.7	3.0				69.7	Sandy Silt (ML)	43/1
3	7	7.9	122							Silt	50/1
4	3									Silty Sandy Gravel	27/1
5	6			24.5	8.6				85.0	Shale (CL)	50/4
6	4	18.2	109							Silty Clay	15/1
7	4	9.0	84	21.6	NP				72.5	Sandy Silt (ML)	15/1
9	9								81.5	Sandy Silt	15/1

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

GEOTECHNICAL ENGINEERING STUDY

PROPOSED PARADISE HILLS SUBDIVISION

FILING NUMBER 7

GRAND JUNCTION, COLORADO

Prepared for:

ARMSTRONG CONSULTANTS, INC.

PROJECT NUMBER: M91Ø37GE

MAY 21, 1991

P.O. BOX 3986
GRAND JUNCTION, CO 81502
(303) 245-6506

P.O. BOX 0045
MONTROSE, CO 81402
(303) 249-2154

463 TURNER, 104 A
DURANGO, CO 81301
(303) 259-5095

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

May 21, 1991

Armstrong Consultants, Inc.
861 Rood Avenue
Grand Junction, CO 81501

PN: M91037GE

Subject: Geotechnical Engineering Study for the
Proposed Paradise Hills Subdivision,
Filing Number 7,
Grand Junction, Colorado

Gentlemen:

Lambert and Associates is pleased to present our geotechnical engineering study for the subject project. The field study was completed on April 22, 1991. The laboratory study was completed on May 14, 1991. The California bearing ratio test results were presented in a separate letter dated May 8, 1991. The analysis was performed and the report prepared from May 15, 1991 through May 21, 1991. Our geotechnical engineering report is attached.

Section 2.0 provides a technical guide for design team members for rapid information retrieval from our report. We are available to review the geotechnical engineering aspects of your plans and specifications for the project including the earthwork specifications as discussed in this report.

If you have any questions concerning the geotechnical aspects of your project please contact us. Thank you for the opportunity to perform this study for you.

Respectfully submitted,

LAMBERT AND ASSOCIATES

Norman W. Johnston, P.E.

NWJ/sh

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1.Ø INTRODUCTION

This report presents the results of the geotechnical engineering study we conducted for the proposed Paradise Hills Filing 7 Subdivision. The study was conducted at the request of Mr. Tom Logue, Armstrong Consultants for Mr. Robert Bray.

The conclusions, suggestions and recommendations presented in this report are based on the data gathered during our site and laboratory study and on our experience with similar soil conditions. Factual data gathered during the field and laboratory work are summarized in Appendices A and B.

1.1 Proposed Construction

It is our understanding that the proposed development will consist of about nineteen (19) acres divided into about fifty-two (52) residential lots. The proposed structures may be wood frame superstructures supported on reinforced concrete foundations. Some of the structures may include concrete slab-on-grade floors and basements.

1.2 Scope of Services

Our services included geotechnical engineering field and laboratory studies, and analysis and report preparation for the proposed site. The scope of our services is outlined below.

- The field study consisted of describing and sampling the soils encountered in eight (8) auger advanced test borings at various locations throughout the proposed development.

- The soils encountered in the test borings were described and samples retrieved for the subsequent laboratory study.

- The laboratory study included tests of select soil samples obtained during the field study to help assess the strength and swell/consolidation potential of the soils tested. A soil sample was tested for sulfate chemicals which may be potentially corrosive to concrete.

- This report presents our geotechnical engineering suggestions and recommendations for planning and design of site development including:

  . Viable foundation types for the conditions encountered,
  . Allowable bearing pressures for the foundation types,
  . Lateral earth pressure recommendations for design of laterally loaded walls, and
  . Geotechnical considerations and recommendations for concrete slab-on-grade floors.

- Our recommendations and suggestions are based on the subsoil and ground water conditions encountered during our site and laboratory studies.

2.Ø TECHNICAL GUIDE FOR DESIGN TEAM

This report contains geotechnical engineering suggestions and recommendations with background and support information. Design specific values may be difficult to locate quickly within the sections that present each design criteria. Therefore, some of the design values are discussed briefly in this section. The values presented here are a brief synopsis of the design values presented in the appropriate sections of this report and therefore do not present all of the pertinent information for that section.

The design soil bearing capacity for spread footings will depend on the minimum depth of embedment of the bottom of the

footing below the lowest adjacent grade and the type of material supporting the footings. The soil bearing capacity for footings on the on-site soils is 15ØØ pounds per square foot, with a minimum depth of embedment of one (1) foot and a minimum dead load of 5ØØ pounds per square foot. The soil bearing capacity for footings supported on unweathered undisturbed formational material is 45ØØ pounds per square foot with a minimum depth of embedment of one (1) foot and a minimum dead load of 15ØØ pounds per square foot. The soil bearing capacity may be increased by about 2Ø percent for transient loads such as wind and seismic loads. Foundation design considerations are presented in section 6.Ø.

Drilled pier foundations may be used. They should be drilled a minimum of ten (1Ø) feet into the hard unweathered formational material and designed using an end bearing capacity of 2Ø,ØØØ pounds per square foot and a minimum dead load of 5ØØØ pounds per square foot. Drilled pier foundations are discussed in section 7.4.

We recommend that we be contacted to observe the foundation excavations during construction to verify the soil support conditions and our recommendations. We will then revise our recommendations based on our observations if necessary.

Concrete slab-on-grade floors should be separated from all bearing members and placed on a blanket of compacted structural fill which is at least two (2) feet thick. We suggest the floor

slab be reinforced with a 6 x 6 - W2.9 x W2.9 (6 x 6 - 6 x 6) welded wire mesh as a minimum reinforcement. Concrete floor slabs should be jointed with jointed areas about 2ØØ square feet and approximately square. Concrete floor slabs are discussed in section 8.Ø.

Lateral earth pressures for the design of basement walls are; active lateral earth pressure of 45 pounds per cubic foot per foot of depth, at rest lateral earth pressure of 65 pounds per cubic foot per foot of depth, passive lateral earth pressure of 275 pounds per cubic foot per foot of embedment and a coefficient of friction between the concrete and soil of Ø.3 for the natural on-site soils. Lateral earth pressure values for the unweathered undisturbed formational material are; active lateral earth pressure of 3Ø pounds per cubic foot per foot of depth, at rest lateral earth pressure of 45 pounds per cubic foot per foot of depth, passive lateral earth pressure of 575 pounds per cubic foot per foot of embedment and a coefficient of friction between the concrete and formational material of Ø.3. Lateral earth pressures are discussed in section 1Ø.Ø

3.Ø SITE CHARACTERISTICS

Site characteristics include observed existing and pre-existing site conditions that may influence the geotechnical engineering aspects of the proposed site development.

3.1 Site Location

The proposed development is located north of the intersection of 12th Street and H Road, Grand Junction, Colorado, north of the existing Paradise Hills Subdivision. A project vicinity map is presented on Figure 1.

3.2 Site Conditions

The proposed site was undeveloped at the time of our field study. The development site is bounded on the south by a large open man made drainage ditch and on the east and north by the Highline Canal. The site slopes down generally to the south west with slope inclinations ranging from about 5Ø to 1 (horizontal to vertical) to about 2 to 1. The site is characterized by a low lying nearly flat area in the southeast portion of the site and a low lying nearly flat area in the north west portion of the site. The low lying areas appear to have been used for agricultural purposes in the recent past and are separated by a series of formational ridges in the central portion of the site. A natural drainage course crosses the site in the north west portion of the site and remnants of a drainage course were observed in the south east portion of the site.

3.3 Subsurface Conditions

The subsurface exploration consisted of observing, describing and sampling the soils encountered in eight (8) test borings. The approximate locations of the test borings are shown

on Figure 2. The logs describing the soils encountered in the test borings are presented in Appendix A.

The soils encountered in the test borings consisted generally of various mixtures of sandy clay. The sandy clay soils tested have a low to moderate swell potential when wetted and may consolidate under moderate building loads. Loose man-placed fill was encountered in the north east corner of the development site.

Formational material was encountered in the test borings at a depth ranging from about two (2) to fifteen (15) feet. The formational material was a silty clay shale of the Mancos formation. The Mancos shale typically has a moderate to very high swell potential when wetted.

No free subsurface water was encountered in the test borings at the time of our field study. We anticipate that shallow ground water may exist near existing drainage courses during wetter seasons.

4.Ø PLANNING AND DESIGN CONSIDERATIONS

The proposed development will include roadway construction. The pavement thickness design recommendations will be provided by others. We anticipate that the roadway construction will include some minor cuts and no significant fills. If significant cutslopes or fills higher than about two (2) to three (3) feet will be included in the proposed roadway construction we should

be contacted to provide fill construction recommendations and cut slope recommendations.

We anticipate that soft yielding soils may be encountered in some of the roadway areas at about subgrade elevations. Soft yielding soils may not be adequate for support of construction traffic. If soft yielding soils are encountered it may be necessary to overexcavate the soils in these areas and replace with a geotextile stabilization fabric and backfill with a Class 3 type road base aggregate to provide adequate support for construction equipment. We suggest the yielding areas be overexcavated about one and one-half (1 1/2) to two (2) feet to provide the additional stabilization of the yielding areas.

5.Ø ON-SITE DEVELOPMENT CONSIDERATIONS

We anticipate that the subsurface water elevation may fluctuate with seasonal and other varying conditions. Deep excavations may encounter subsurface water and soils that may tend to cave. It may be necessary to dewater construction excavations to provide more suitable working conditions. Excavations should be well braced or sloped to prevent wall collapse. Federal, state and local safety codes should be observed.

The formational material encountered in the test borings was hard. We anticipate that it may be possible to excavate this material, however additional effort may be necessary. We do not

recommend blasting to aid in excavation of the material. Blasting may fracture the formational material which will reduce the integrity of the support characteristics of the formational material.

It has been our experience that sites in developed areas may contain existing subterranean structures or poor quality man-placed fill. If subterranean structures or poor quality man-placed fill are suspected or encountered, they should be removed and replaced with compacted structural fill as discussed under COMPACTED STRUCTURAL FILL below.

6.Ø FOUNDATION DISCUSSION

Two criteria for any foundation which must be satisfied for satisfactory foundation performance are:

1) contact stresses must be low enough to preclude shear failure of the foundation soils which would result in lateral movement of the soils from beneath the foundation, and

2) settlement or heave of the foundation must be within amounts tolerable to the superstructure.

The soils encountered in the test borings have varying engineering characteristics that may influence the design and construction considerations of the foundations. The characteristics include swell potential, settlement potential, bearing capacity and the bearing conditions of the soils supporting the foundations. These are discussed below.

6.1 Swell Potential

Some of the materials encountered in the test borings at the anticipated foundation depth may have swell potential. Swell potential is the tendency of the soil to increase in volume when it becomes wetted. The volume change occurs as moisture is absorbed into the soil and water molecules become attached to or adsorbed by the individual clay platlets. Associated with the process of volume change is swell pressure. The swell pressure is the force the soil applies on its surroundings when moisture is absorbed into the soil. Foundation design considerations concerning swelling soils include structure tolerance to movement and dead load pressures to help restrict uplift. The structure's tolerance to movement should be addressed by the structural engineer and is dependent upon many facets of the design including the overall structural concept and the building material. The uplift forces or pressure due to wetted clay soils can be addressed by designing the foundations with a minimum dead load. Suggestions and recommendations for design dead load are presented below.

6.2 Settlement Potential

Settlement potential of a soil is the tendency for a soil to experience volume change when subjected to a load. Settlement is characterized by downward movement of all or a portion of the supported structure as the soil particles move closer together

resulting in decreased soil volume. Settlement potential is a function of foundation loads, depth of footing embedment, the width of the footing and the settlement potential or compressibility of the influenced soil. Foundation design considerations concerning settlement potential include the amount of movement tolerable to the structure and the design and construction concepts to help reduce the potential movement. The anticipated post construction settlement potential is based on site specific soil conditions and is presented below.

6.3 Soil Support Characteristics

The soil bearing capacity is a function of the engineering properties of the soils supporting the foundations, the foundation width, the depth of embedment of the bottom of the foundation below the lowest adjacent grade, the influence of the ground water and the amount of settlement tolerable to the structure. Soil bearing capacity and associated minimum depth of embedment are presented below.

The foundation for the structure should be placed on relatively uniform bearing conditions. Varying support characteristics of the soils supporting the foundation may result in nonuniform or differential performance of the foundation. Formational material was encountered in the test borings at shallow and varying depths. We anticipate that the surface of the formational material may undulate throughout the site. If

this is the case it may result in a portion of the foundation for a structure being placed on the formational material and a portion of the foundation being placed on the overlying soils. Varying support material will result in nonuniform bearing conditions. The influence of nonuniform bearing conditions may be reduced by placing the footings entirely on the shallow soils or entirely on the shallow soils or entirely on the formational material but not both.

7.Ø FOUNDATION RECOMMENDATIONS

We have analyzed spread footings and drilled piers as potential foundation systems for the proposed structures. These are discussed below. We have provided design parameter for several foundation types. Of these, because of the expansion potential of the site soils, we feel that the drilled piers will provide the foundation type with the least likelihood of significant post construction movement. All of the design parameters are based on extraordinary craftsmanship, care during construction and post construction cognizance of the potential swelling soil hazard, with appropriate home owner maintenance.

7.1 Spread Footings on Shallow Soils

Structures may be founded on spread footings which are placed on the natural undisturbed soils. The soil bearing capacity will depend on the minimum depth of embedment of the bottom of the footing below the lowest adjacent grade. The

embedment concept is shown on Figure 3. The footings may be designed using a soil bearing capacity of 15ØØ pounds per square foot with a minimum depth of embedment of at least one (1) foot and a minimum dead load of 5ØØ pounds per square foot when placed on the natural undisturbed soils. The bottom of footings should be located at an elevation of at least five (5) feet higher than the surface of the formational material when supported on the undisturbed clay soils. This is to help reduce the influence of potential swelling of the formational material. The depth to the formational material should be verified for each site when supporting the structures on the natural soils. If the bottom of a footing will be within five (5) feet of the surface of the formational material the stem wall should be extended to place the footing entirely on the formational material or the structure should be supported on drilled piers. Spread footings on formational material and drilled piers are discussed below.

If the foundations are designed and constructed as discussed above we anticipate that the post construction total settlement may be about three fourths (3/4) inch.

7.2 Spread Footings on Formational Material

The structures may be supported on spread footings which are supported on unweathered undisturbed formational material. The footings may be designed using a formational material bearing capacity of 45ØØ pounds per square foot with a minimum dead load

of 1500 pounds per square foot and a minimum depth of embedment of the bottom of the footing below the lowest adjacent grade of one (1) foot. The embedment concept is shown on Figure 3. The bottom of the foundation excavation should be thoroughly cleaned to assure that the footings are supported on undisturbed formation material. The foundation excavation should be lightly wetted and/or kept moist prior to constructing the footings. Keeping the subgrade soils moist prior to construction will reduce post construction swell potential. If the footings are supported on formational material and designed as discussed above we anticipate that the post construction settlement may be about one fourth (1/4) inch.

7.3 General Spread Footing Considerations

In our analysis it was necessary to assume that the material encountered in the test borings extended throughout each building site and to a depth below the maximum depth of the influence of the footings. We should be contacted to observe the soils exposed in the foundation excavations prior to placement of foundations to verify the assumptions made during our analysis.

We anticipate that the surface of the formational material may undulate which may result in a portion of the footings supported on the overlying soils. If this happens the foundations will perform differently between the areas supported on formational material and the areas supported on the non-

formational material. For this reason we suggest that if formational material is encountered only in portions of the foundation excavations at footing depth the foundation in all areas should be extended to support all footings on the formational material.

The bottom of any footings exposed to freezing temperatures should be placed below the maximum depth of frost penetration for the area. Refer to the local building code for details.

The bottom of the foundation excavations should be proof rolled or proof compacted prior to placing compacted structural fill or foundation concrete. The proof rolling is to help reduce the influence of any disturbance that may occur during the excavation operations. Any areas of loose, low density or yielding soils evidenced during the proof rolling operation should be removed and replaced with compacted structural fill. Caution should be exercised during the proof rolling operations. Excess proof rolling may increase pore pressure of the soil and degrade the integrity of the soils.

All footings should be proportioned as much as practicable to reduce the post construction differential settlement. Footings for large localized loads should be designed for bearing pressures and footing dimensions in the range of adjacent

footings to reduce the potential for differential settlement. We are available to discuss this with you.

Foundation walls may be reinforced, for geotechnical purposes. We suggest at least two (2) number 5 bars, continuous at the top and the bottom (4 bars total), at maximum vertical spacing. This will help provide the walls with additional beam strength and help reduce the effects of slight differential settlement. The walls may need additional reinforcing steel for structural purposes. The structural engineer should be consulted for foundation design. The structural engineering reinforcing design tailored for this project will be more appropriate than the suggestions presented above.

7.4 Drilled Piers

Drilled piers or caissons that are drilled into the unweathered formational material may be used to support the proposed structures. The piers should be drilled into the formational material a distance equal to at least two (2) pier diameters, or ten (1Ø) feet, whichever is deeper. The piers should be designed as end bearing piers using a formational material bearing capacity of 2Ø,ØØØ pounds per square foot with a minimum dead load of 5ØØØ pounds per square foot and a side friction of 2,ØØØ pounds per square foot for the portion of the pier in the unweathered formational material. When using skin friction for bearing support or resisting uplift we suggest that

you discount the upper portion of the pier embedment in the formational material to a depth of at least one and one half (1 1/2) pier diameters into the formational material. The bottom of the pier holes should be cleaned to insure that all loose and disturbed materials are removed prior to placing pier concrete. Because of the rebounding potential in the formational materials when unloaded by excavation and the possibility of desiccation of the newly exposed material we suggest that concrete be placed in the pier holes immediately after excavation and cleaning. If the piers are designed and constructed as discussed above we anticipate that the post construction settlement potential of each pier may be less than about one quarter (1/4) inch.

The portion of the pier above the formational surface and in the weathered formational material should be cased with a sono tube or similar casing to help prevent flaring on the top of the pier holes and help provide a positive separation of the pier concrete and the adjacent soils. Construction of the piers should include extreme care to prevent flaring of the top of the piers. This is to help reduce the potential of swelling soils to impose uplift forces which will put the pier in tension. The drilled piers should be vertically reinforced to provide tensile strength in the piers should swelling on-site soils apply tensile forces on the piers. The structural engineer should be consulted to provide structural design recommendations.

The grade beams between caissons should be provided with void spaces between the soil and the grade beam. The grade beam should not come in contact with the soils. This is to help reduce the potential for heave of the foundations should the soils swell.

Our experience has shown that some lenses of fractured shale carrying water may exist at shallow depths in the formational material. We anticipate that ground water may be encountered in the pier holes. If ground water is encountered, the pier holes should be dewatered prior to placing the pier concrete and no pier concrete should be placed when more than six (6) inches of water exists in the bottom of the pier holes. The piers should be filled with a tremie placed concrete immediately after the drilling and cleaning operation is complete. It may be necessary to case the pier holes with temporary casing to prevent caving during pier construction.

Very difficult drilling conditions were encountered in the formational material during our field study. We anticipate that the formational material may be very difficult to drill with pier drilling readily available in western Colorado. It may be necessary to obtain specialty pier drilling equipment to drill piers into the formational material encountered in our test borings.

The structural engineer should be consulted to provide structural design recommendations for the drilled piers and grade beam foundation system.

8.Ø INTERIOR FLOOR SLAB DISCUSSION

It is our understanding that, as currently planned, the floors may be either concrete slab-on-grade or supported structural floors. The natural soils that will support interior floor slabs are stable at their natural moisture content. However, the owner should realize that when wetted, the site soils may experience volume changes.

Engineering design dealing with swelling soils is an art which is still in its infancy. The owner is cautioned that the soils on this site may have swelling potential and concrete slab-on-grade floors and other lightly loaded members may experience movement when the supporting soils become wetted. We suggest you consider floors suspended from the foundation systems as structural floors or a similar design that will not be influenced by subgrade volume changes. If the owner is willing to accept the risk of possible damage from swelling soils supporting concrete slab-on-grade floors, the following recommendations to help reduce the damage from swelling soils should be followed. These recommendations are based on generally accepted design and construction procedures for construction on soils that tend to experience volume changes when wetted and are intended to help

reduce the damage caused by swelling soils. Lambert and Associates does not intend that the owner, or the owner's consultants should interpret these recommendations as a solution to the problems of swelling soils, but as measures to reduce the influence of swelling soils.

Concrete flatwork, such as concrete slab-on-grade floors, should be underlain by compacted structural fill. The layer of compacted fill should be at least two (2) feet thick and constructed as discussed under COMPACTED STRUCTURAL FILL below.

The natural soils exposed in the areas supporting concrete slab-on-grade floors should be kept very moist during construction prior to placement of concrete slab-on-grade floors. This is to help increase the moisture regime of the potentially expansive soils supporting floor slabs and help reduce the expansion potential of the soils. We are available to discuss this concept with you.

Concrete slab-on-grade floors should be provided with a positive separation, such as a slip joint, from all bearing members and utility lines to allow their independent movements and to help reduce possible damage that could be caused by movement of soils supporting interior slabs. The floor slab should be constructed as a floating slab. All water and sewer pipe lines should be isolated from the slab. Any appliances, such as a water heater or furnace, placed on the floating floor

slab should be constructed with flexible joints to accommodate future movement of the floor slab with respect to the structure. We suggest partitions constructed on the concrete slab-on-grade floors be provided with a void space above or below the partitions to relieve stresses induced by elevation changes in the floor slab.

The concrete slabs should be scored or jointed to help define the locations of any cracking. The areas defined by scoring and jointing should be about square and enclose about 2ØØ square feet. Also, joints should be scored in the floors a distance of about three (3) feet from, and parallel to, the walls.

If moisture rise through the concrete slab-on-grade floors will adversely influence the performance of the floor or floor coverings a moisture barrier may be installed beneath the floor slab to help discourage capillary and vapor moisture rise through the floor slab. The moisture barrier may consist of a heavy plastic membrane, six (6) mil or greater, protected on the top and bottom by at least two (2) inches of clean sand. The plastic membrane should be lapped and taped or glued and protected from punctures during construction.

The Portland Cement Association suggests that welded wire reinforcing mesh is not necessary in concrete slab-on-grade floors when properly jointed. It is our opinion that welded wire

mesh may help improve the integrity of the slab-on-grade floors. We suggest that concrete slab-on-grade floors should be reinforced, for geotechnical purposes, with at least 6 x 6 - W2.9 x W2.9 (6 x 6 - 6 x 6) welded wire mesh positioned midway in the slab. The structural engineer should be contacted for structural design of the floor slabs.

9.Ø COMPACTED STRUCTURAL FILL

Compacted structural fill is typically a material which is constructed for direct support of structures or structural components.

There are several material characteristics which should be examined before choosing a material for potential use as compacted structural fill. These characteristics include; the size of the larger particles, the engineering characteristics of the fine grained portion of material matrix, the moisture content that the material will need to be for compaction with respect to the existing initial moisture content, the organic content of the material, and the items that influence the cost to use the material.

Compacted fill should be a non-expansive material with the maximum aggregate size less than about two (2) to three (3) inches and less than about twenty five (25) percent coarser than three quarter (3/4) inch size.

The reason for the maximum size is that larger sizes may have too great an influence on the compaction characteristics of the material and may also impose point loads on the footings or floor slabs that are in contact with the material. Frequently pit-run material or crushed aggregate material is used for structural fill material. Pit-run material may be satisfactory, however crushed aggregate material with angular grains is preferable. Angular particles tend to interlock with each other better than rounded particles.

The fine grained portion of the fill material will have a significant influence on the performance of the fill. Material which has a fine grained matrix composed of silt and/or clay which exhibits expansive characteristics should be avoided for use as structural fill. The moisture content of the material should be monitored during construction and maintained near optimum moisture content for compaction of the material.

Soil with an appreciable organic content may not perform adequately for use as structural fill material due to the compressibility of the material and ultimately due to the decay of the organic portion of the material.

The natural on-site soils are not suitable for use as compacted structural fill material supporting building or structure members because of their clay content and swell potential. The natural on-site soils may be used as compacted

fill in areas that will not influence the structures such as to establish general site grade. We are available to discuss this with you.

All areas to receive compacted structural fill should be properly prepared prior to fill placement. The preparation should include removal of all organic or deleterious material and the areas to receive fill should be proof rolled after the organic deleterious material has been removed. Any areas of soft, yielding, or low density soil, evidenced during the proof rolling operation should be removed. Fill should be moisture conditioned, placed in thin lifts not exceeding six (6) inches in compacted thickness and compacted to at least 9Ø percent of maximum dry density as defined by ASTM D1557, modified Proctor.

We recommend that the geotechnical engineer or his representative be present during the proof rolling and fill placement operations to observe and test the material.

1Ø.Ø LATERAL EARTH PRESSURES

Laterally loaded walls supporting soil, such as basement walls, will act as retaining walls and should be designed as such.

Walls that are designed to deflect and mobilize the internal soil strength should be designed for active earth pressures. Walls that are restrained so that they are not able to deflect to mobilize internal soil strength should be designed for at-rest

earth pressures. The values for the lateral earth pressures will depend on the type of soil retained by the wall, backfill configuration and construction technique. We suggest that for design of laterally loaded walls you consider an active lateral earth pressure of 45 pounds per cubic foot per foot of depth and an at-rest lateral earth pressure of 65 pounds per cubic foot per foot of depth for the on-site clay soils retained.

We suggest that for design of laterally loaded walls you consider an active lateral earth pressure of 3Ø pounds per cubic foot per foot of depth and an at-rest lateral earth pressure of 45 pounds per cubic foot per foot of depth for the undisturbed formational material.

The soils tested have measured swell pressure of about 6ØØ pounds per square foot. Our experience has shown that the actual swell pressure may be much higher. If the retained soils should be come moistened after construction the soil may swell against retaining or basement walls. The walls should be designed to resist the swell pressure of the soils.

The above lateral earth pressures may be reduced by overexcavating the wall backfill area beyond the zone of influence and backfilling with crushed rock type material. The zone of influence concept is presented on Figure 4. We suggest that you consider, if the backfill areas are overexcavated beyond the zone of influence and backfilled with crushed rock type

material, an active lateral earth pressure of 35 pounds per cubic foot of depth and an at-rest lateral earth pressure of 5Ø pounds per cubic foot per foot of depth for the design of laterally loaded walls.

Resistant forces used in the design of the walls will depend on the type of soil that tends to resist movement. We suggest that you consider a passive earth pressure of 275 pounds per cubic foot per foot of embedment and a coefficient of friction of Ø.3 for the on-site clay soils and 575 pounds per cubic foot per foot of embedment and a coefficient of friction of Ø.4 for the undisturbed formational material.

The lateral earth pressure values provided above, for design purposes, should be treated as equivalent fluid pressures. The lateral earth pressures provided above are for level well drained backfill and do not include surcharge loads or additional loading as a result of compaction of the backfill. Unlevel or non-horizontal backfill either in front of or behind walls retaining soils will significantly influence the lateral earth pressure values. Care should be taken during construction to prevent construction and backfill techniques from overstressing the walls retaining soils. Backfill should be placed in thin lifts and compacted, as discussed in this report to realize the lateral earth pressure values.

Walls retaining soil should be designed and constructed so that hydrostatic pressure will not accumulate or will not affect the integrity of the walls. Drainage plans should include a subdrain behind the wall at the bottom of the backfill to provide positive drainage. Exterior retaining walls should be provided with weep holes to help provide an outlet for collected water behind the wall. The ground surface adjacent to the wall should be sloped to permit rapid drainage of rain, snow melt and irrigation water away from the wall backfill. Sprinkler systems should not be installed directly adjacent to retaining or basement walls.

11.Ø DRAIN SYSTEM

Free ground water was not encountered in the test borings at the time of our field study. However, a drain system should be provided around building spaces below the finished grade and behind any walls retaining soil. The drain systems are to help reduce the potential for hydrostatic pressure to develop behind retaining walls. A sketch of the drain system is shown on Figure 5.

Subdrains should consist of a three (3) or four (4) inch diameter perforated pipe surrounded by a filter. The filter should consist of a filter fabric or a graded material such as washed concrete sand or pea gravel. If sand or gravel is chosen the pipe should be placed in the middle of about four (4) cubic

feet of aggregate per linear foot of pipe. The drain system should be sloped to positive gravity outlets. If the drains are daylighted the drains should be provided with all water outlets and the outlets should be maintained to prevent them from being plugged or frozen. We should be called to observe the soil exposed in the excavations and to verify the details of the drain system.

12.Ø BACKFILL

Backfill areas and utility trench backfill should be constructed such that the backfill will not settle after completion of construction, and that the backfill is relatively impervious for the upper few feet. The backfill material should be free of trash and other deleterious material. It should be moisture conditioned and compacted to at least 9Ø percent relative compaction using a modified Proctor density (ASTM D1557). Only enough water should be added to the backfill material to allow proper compaction. Do not pond, puddle, float or jet backfill soils.

Backfill placement techniques should not jeopardize the integrity of existing structural members. We recommend recently constructed concrete structural members be appropriately cured prior to adjacent backfilling.

13.Ø SURFACE DRAINAGE

The foundation soils should be prevented from becoming wetted after construction. This can be aided by providing positive and rapid drainage of surface water away from the building.

The final grade of the ground surface adjacent to the building should have a definite slope away from the foundation walls on all sides. We suggest a minimum fall of about one (1) foot in the first ten (1Ø) feet away from the foundation. Downspouts and faucets should discharge onto splash blocks that extend beyond the limits of the backfill areas. Splash blocks should be sloped away from the foundation walls. Snow storage areas should not be located next to the structure. Proper surface drainage should be maintained from the onset of construction through the proposed project life.

14.Ø LANDSCAPE IRRIGATION

An irrigation system should not be installed next to foundation walls, concrete flatwork or asphalt paved areas. If an irrigation system is installed, the system should be placed so that the irrigation water does not fall or flow near foundation walls, flatwork or pavements. The amount of irrigation water should be controlled.

We recommend that wherever possible the xeriscaping concept be used. Generally the xeriscape concept includes planning and

design concepts which will reduce irrigation water. The reason we suggest xeriscape concepts for landscaping is because the reduced landscape water will decrease the potential for water to influence the long term performance of structures' foundations and flatwork. Many publications are available which discuss xeriscape. Colorado State University Cooperative Extension has several useful publications and most landscape architects are familiar with the subject.

15.Ø SOIL CORROSIVITY TO CONCRETE

Chemical tests were performed on a sample of soil obtained during the field study. The soil sample was tested for pH, water soluble sulfates, and total dissolved salts. The results are presented in Appendix B. The test results indicate a water soluble sulfate content of Ø.112 to Ø.872 percent. Based on the American Concrete Institute (ACI) information these water soluble sulfate contents indicate severe exposure to sulfate attack on concrete. We suggest sulfate resistant cement be used in concrete which will be in contact with the on-site soils. American Concrete Institute recommendations for sulfate resistant cement based on the water soluble sulfate content should be used.

16.Ø CONCRETE QUALITY

It is our understanding current plans include reinforced structural concrete for building foundations and walls, and may

include concrete slabs-on-grade and pavement. To insure concrete members perform as intended the structural engineer should be consulted and should address factors such as design loadings, anticipated movement and deformations.

The quality of concrete is influenced by proportioning of the concrete mix, placement, consolidation and curing. Desirable qualities of concrete include compressive strengths, water tightness and resistance to weathering. Engineering observations and testing of concrete during construction is essential as an aid to safeguard the quality of the completed concrete. Testing of the concrete is normally performed to determine compressive strength, entrained air content, slump and temperature. We recommend that your budget include provisions for testing of concrete during construction and that the testing consultant be retained by the owner or the owner's engineer or architect, not the contractor, to maintain third party credibility.

17.Ø POST DESIGN CONSIDERATIONS

This subsoil and foundation study is based on limited sampling, therefore it is necessary to assume that the subsurface conditions do not vary greatly from those encountered in the test borings. Our experience has shown that significant variations are likely to exist and can become apparent only during additional on-site excavation. For this reason, and because of our familiarity with the project, Lambert and Associates should

be retained to observe foundation excavations prior to foundation construction, to observe the geotechnical aspects of the construction, and to be available in the event any unusual or unexpected conditions are encountered. The cost of the geotechnical engineering observations and material testing during construction or additional engineering consultation is not included in the fee for this report. We recommend that your construction budget include site visits early during construction for the project geotechnical engineer to observe foundation excavations and for additional site visits to test compacted soil. We recommend that the observation and material testing services during construction be retained by the owner or the owner's engineer or architect, not the contractor, to maintain third party credibility. We are experienced and available to provide material testing services. We have included a copy of a report prepared by Van Gilder Insurance which discusses testing services during construction. It is our opinion that the owner, architect and engineer be familiar with the information. If you have any questions regarding this concept please contact us.

It is difficult to predict if unexpected subsurface conditions will be encountered during construction. Since such conditions may be found we suggest that the owner and the contractor make provisions in their budget and construction schedule to accommodate unexpected subsurface conditions.

This report does not provide earthwork specifications. We can provide guidelines for your use in preparing project specific earthwork specifications. Please contact us if you need these for your project.

18.Ø LIMITATIONS

It is the owner's and the owner's representatives responsibility to read this report and become familiar with the recommendations and suggestions presented. We should be contacted if any questions arise concerning the geotechnical engineering aspects of this project as a result of the information presented in this report.

The recommendations outlined above are based on our understanding of the currently proposed construction. We are available to discuss the details of our recommendations with you, and revise them where necessary. This geotechnical engineering report is based on the proposed site development and scope of services as provided to us by Mr. Tom Logue, Armstrong Associates, on the type of construction planned, existing site conditions at the time of the field study, and on our findings. Should the planned, proposed use of the site be altered, Lambert and Associates must be contacted, since any such changes may make our suggestions and recommendations given inappropriate. This report should be used ONLY for the planned development for which this report was tailored and prepared, and ONLY to meet

information needs of the owner and the owner's representatives. In the event that any changes in the future design or location of the building are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report are modified or verified in writing. It is recommended that the geotechnical engineer be provided the opportunity for a general review of the final project design and specifications in order that the earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications.

This report presents both suggestions and recommendations. The suggestions are presented so that the owner and the owner's representatives may compare the cost to the potential risk or benefit for the suggested procedures.

We represent that our services were performed within the limits prescribed by you and with the usual thoroughness and competence of the current accepted practice of the geotechnical engineering profession in the area. No warranty or representation either expressed or implied is included or intended in this report or our contract. We are available to discuss our findings with you. If you have any questions please contact us. The supporting data for this report is included in the accompanying figures and appendices.

This report is a product of Lambert and Associates. Excerpts from this report used in other documents may not convey the intent or proper concepts when taken out of context or they may be misinterpreted or used incorrectly. Reproduction, in part or whole, of this document without prior written consent of Lambert and Associates is prohibited.

We have enclosed a copy of a brief discussion about geotechnical reports published by Association of Soil and Foundation Engineers for your reference.

Please call when further consultation or observations and tests are required.

If you have any questions concerning this report or if we may be of further assistance, please contact us.

Respectfully submitted;

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THE PROFESSIONAL LIABILITY PERSPECTIVE

Vol. 8, No. 8 Copyright 1988 August 1988

WHO HIRES THE TESTING LABORATORY?

It is one of those relatively small details in the overall scheme of things. Independent testing may be required by local building codes, or it may be insisted upon by lenders. Additional testing can usually be ordered by the design team during construction. Whatever the source of the requirement, many owners perceive it to be an unnecessary burden—an additional cost imposed principally for someone else's benefit.

What does this have to do with you? You may be the only one in a position to influence the use of testing and inspection services so they become more, rather than less likely to contribute to a successful outcome. There seems to be an almost irresistible inclination on the part of some owners to cast aside their potential value to the project in favor of the administrative and financial convenience of placing responsibility for their delivery into the hands of the general contractor.

Resist this inclination where you can. It is not in your client's best interests, and it is certainly not in yours. There are important issues of quality and even more important issues of life safety at stake. In the complex environment of today's construction arena, it makes very little sense for either of you to give up your control of quality control. Yet it happens altogether too often.

What's Behind this Misadventure?

The culprit seems to be the Federal Government. In the 1960's, someone came up with the idea that millions could be saved by eliminating the jobs of Federal workers engaged in construction inspection. The procurement model used to support this stroke of genius was the manufacturing segment of the economy, where producers of goods purchased by the Government had been required for years to conduct their own quality assurance programs. The result was a trendy new concept in Federal construction known as Contractor Quality Control (CQC).

It was a dumb idea. Costs were simply shifted from the Federal payroll to capital improvement budgets. Government contractors, selected on the basis of the lowest bid, were handed resources to assure the quality of their own performance. Some did so; many did not. All found themselves caught up in an impossible conflict between the demands of time and cost, on one hand, and the dictates of quality, on the other.

CQC was opposed by the Associated General Contractors of America, by independent testing laboratories, by the design professions, and by those charged with front-line responsibility for quality control in the Federal Agencies. Eventually, even the General Accounting Office came to the conclusion that it ought to be abandoned. But, once set in motion and fueled by the pervasive influence of the Federal Government, the idea spread—first to state and local governments; finally, to the private sector.

Why would the private sector embrace such an ill-conceived notion? Because so many

owners view testing and inspection as an undertaking which simply duplicates something they are entitled to in any event. They are confident they will be protected by contract documents which cover every detail and contingency. They look to local building inspectors to assure compliance with codes. And they fully expect the design team to fulfill its obligation to safeguard the quality of the work.

A Fox in the Henhouse

If testing is perceived as little more than an unnecessary, but unavoidable expense, why not make the general contractor responsible for controlling the cost? It may produce a savings, and it certainly eliminates an adminstrative headache. If contractual obligations dealing with the project schedule and budget can be enforced, surely those governing quality can be enforced, as well. Possibly so, but who is going to do it?

Some testing consultants will not accept CQC work. The reasons they give come from firsthand experience. They include: 1) inadequate to barely adequate scope, 2) selection based on the lowest bid; 3) non-negotiable contract terms inappropriate to the delivery of a professional service; 4) intimidation of inspectors by field supervisors; and 5) suppression of low or failing test results. This ought to be fair warning to any owner.

Keeping Both Hands on the Wheel

The largest part of the problem, from your point of view, is one of artful persuasion. If you cannot convince your client of the value of independent testing and inspection, no one can. Yet, if you do not, you are likely to find yourself responsible for an assurance of quality you are in no position to deliver. How can you keep quality control where it belongs and, in the process, prevent the owner from compromising his or her interests in the project as well as yours? Consider these suggestions:

1. Put the issue on an early agenda. It needs your attention. Anticipate the owner's inclination to avoid dealing with testing and inspection, and explain its importance to the success of the project. Persist, if you can, until your client agrees to hire the testing laboratory independently and to establish an adequate budget to meet the anticipated costs. A testing consultant hired by the owner cannot be fired by the general contractor for producing less than favorable results.

2. Tailor the testing requirements carefully. Scissors and paste can be your very worst enemies. Specify what the job requires, retain control of selection and hiring, make certain the contractor's responsibilities for notification for scheduling purposes are clear, and require that copies of all reports be distributed by the laboratory directly to you.

3. Insist on a preconstruction testing conference. It can be an essential element of effective coordination. Include the owner, the general contractor, major subcontractors, the testing consultant, and the design team. Review your requirements, the procedures to be followed, and the responsibilities of each of the parties. Have the testing consultant prepare a conference memorandum for distribution to all participants.

4. Monitor tests and inspections closely. Make certain your field representative is present during tests and inspections, so that deficiencies in procedures or results can be reported and acted upon quickly. Scale back testing if it becomes clear it is appropiate to do so under the circumstances; do not hesitate to order additional tests if they are required.

5. Finally, keep your client informed. Without your help, he or she is not likely to understand what the test results mean, nor will your actions in response to them make much sense. If additional testing is called for, explain why. Remember, it is an unexpected and, possibly, unbudgeted additional cost for which you will need to pave the way. In this sense, independent testing and inspection can serve an important, secondary purpose. You might view it as a communications resource. Use it in this way, and it just may yield unexpected dividends.

IMPORTANT INFORMATION
ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

More construction problems are caused by site subsurface conditions than any other factor. As troublesome as subsurface problems can be, their frequency and extent have been lessened considerably in recent years, due in large measure to programs and publications of ASFE/ The Association of Engineering Firms Practicing in the Geosciences.

The following suggestions and observations are offered to help you reduce the geotechnical-related delays, cost-overruns and other costly headaches that can occur during a construction project.

A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

A geotechnical engineering report is based on a subsurface exploration plan designed to incorporate a unique set of project-specific factors. These typically include: the general nature of the structure involved, its size and configuration; the location of the structure on the site and its orientation; physical concomitants such as access roads, parking lots, and underground utilities, and the level of additional risk which the client assumed by virtue of limitations imposed upon the exploratory program. To help avoid costly problems, consult the geotechnical engineer to determine how any factors which change subsequent to the date of the report may affect its recommendations.

Unless your consulting geotechnical engineer indicates otherwise, *your geotechnical engineering report should not be used:*

- When the nature of the proposed structure is changed, for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one;
- when the size or configuration of the proposed structure is altered;
- when the location or orientation of the proposed structure is modified;
- when there is a change of ownership, or
- for application to an adjacent site.

Geotechnical engineers cannot accept responsibility for problems which may develop if they are not consulted after factors considered in their report's development have changed.

MOST GEOTECHNICAL "FINDINGS" ARE PROFESSIONAL ESTIMATES

Site exploration identifies actual subsurface conditions only at those points where samples are taken, when they are taken. Data derived through sampling and subsequent laboratory testing are extrapolated by geotechnical engineers who then render an opinion about overall subsurface conditions, their likely reaction to proposed construction activity, and appropriate foundation design. Even under optimal circumstances actual conditions may differ from those inferred to exist, because no geotechnical engineer, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than a report indicates. Actual conditions in areas not sampled may differ from predictions. *Nothing can be done to prevent the unanticipated, but steps can be taken to help minimize their impact.* For this reason, *most experienced owners retain their geotechnical consultants through the construction stage,* to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

SUBSURFACE CONDITIONS CAN CHANGE

Subsurface conditions may be modified by constantly-changing natural forces. Because a geotechnical engineering report is based on conditions which existed at the time of subsurface exploration, *construction decisions should not be based on a geotechnical engineering report whose adequacy may have been affected by time.* Speak with the geotechnical consultant to learn if additional tests are advisable before construction starts.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical report. The geotechnical engineer should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND PERSONS

Geotechnical engineers' reports are prepared to meet the specific needs of specific individuals. A report prepared for a consulting civil engineer may not be adequate for a construction contractor, or even some other consulting civil engineer. Unless indicated otherwise, this report was prepared expressly for the client involved and expressly for purposes indicated by the client. Use by any other persons for any purpose, or by the client for a different purpose, may result in problems. *No individual other than the client should apply this report for its intended purpose without first conferring with the geotechnical engineer. No person should apply this report for any purpose other than that originally contemplated without first conferring with the geotechnical engineer.*

A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical engineering report. To help avoid these problems, the geotechnical engineer should be retained to work with other appropriate design professionals to explain relevant geotechnical findings and to review the adequacy of their plans and specifications relative to geotechnical issues.

BORING LOGS SHOULD NOT BE SEPARATED FROM THE ENGINEERING REPORT

Final boring logs are developed by geotechnical engineers based upon their interpretation of field logs (assembled by site personnel) and laboratory evaluation of field samples. Only final boring logs customarily are included in geotechnical engineering reports. *These logs should not under any circumstances be redrawn* for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to minimize the possibility of contractors misinterpreting the logs during bid preparation. When this occurs, delays, disputes and unanticipated costs are the all-too-frequent result.

To minimize the likelihood of boring log misinterpretation, *give contractors ready access to the complete geotechnical engineering report* prepared or authorized for their use. Those who do not provide such access may proceed under the *mistaken* impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes which aggravate them to disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY

Because geotechnical engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against geotechnical consultants. To help prevent this problem, geotechnical engineers have developed model clauses for use in written transmittals. These are *not* exculpatory clauses designed to foist geotechnical engineers' liabilities onto someone else. Rather, they are definitive clauses which identify where geotechnical engineers' responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your geotechnical engineering report, and you are encouraged to read them closely. Your geotechnical engineer will be pleased to give full and frank answers to your questions.

OTHER STEPS YOU CAN TAKE TO REDUCE RISK

Your consulting geotechnical engineer will be pleased to discuss other techniques which can be employed to mitigate risk. In addition, ASFE has developed a variety of materials which may be beneficial. Contact ASFE for a complimentary copy of its publications directory.

Published by

ASFE

ASSOCIATION OF SOIL AND FOUNDATION ENGINEERS

8811 Colesville Road/Suite 225
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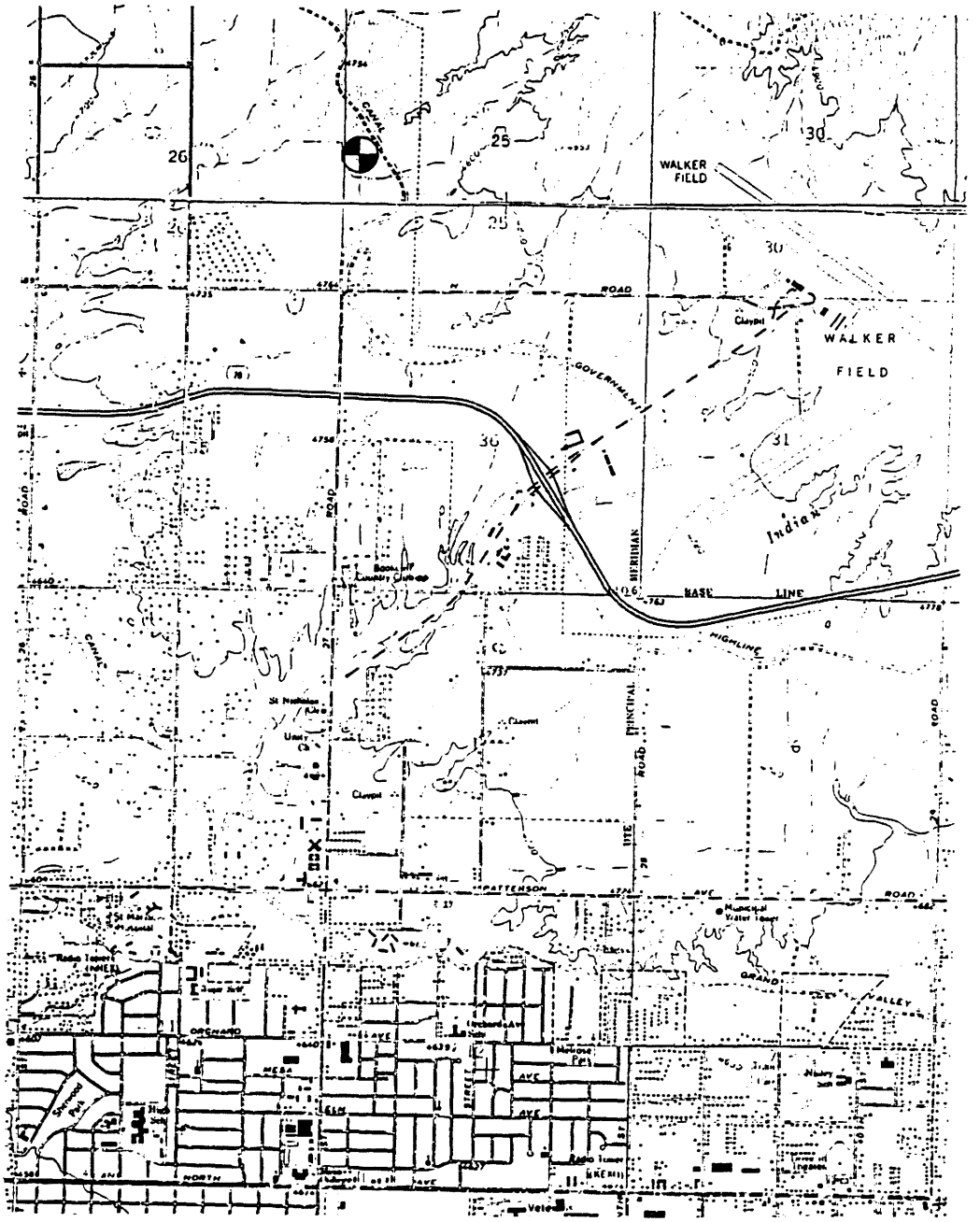


N

NO SCALE

Indicates approximate project location

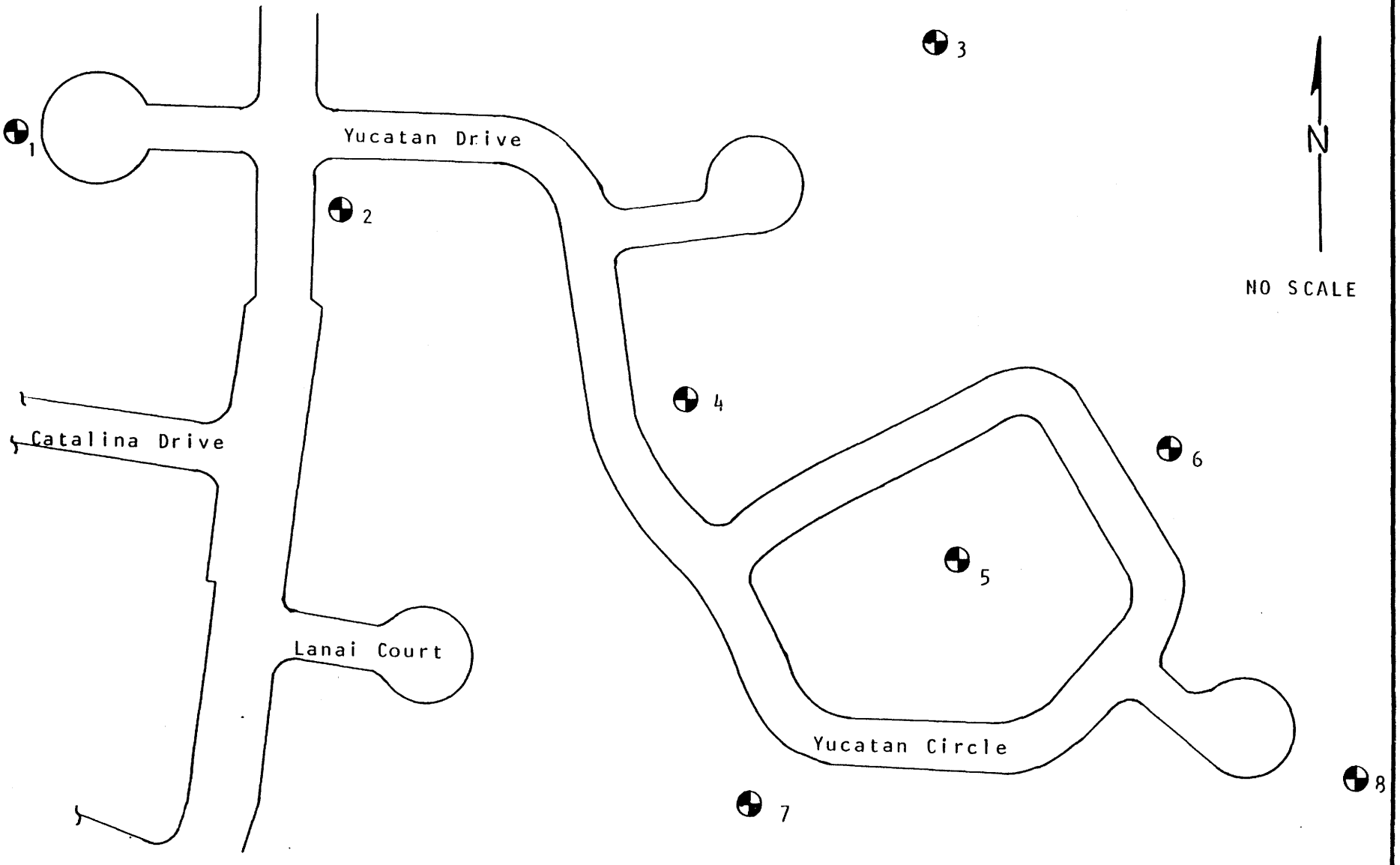
This map was excerpted from a map provided by United State Geologic survey and is intended to present geotechnical data only

PROJECT VICINITY MAP

Lambert and Associates

Project No.:	M91037GE
Date:	5/21/91
Figure:	1

Lambert and Associates

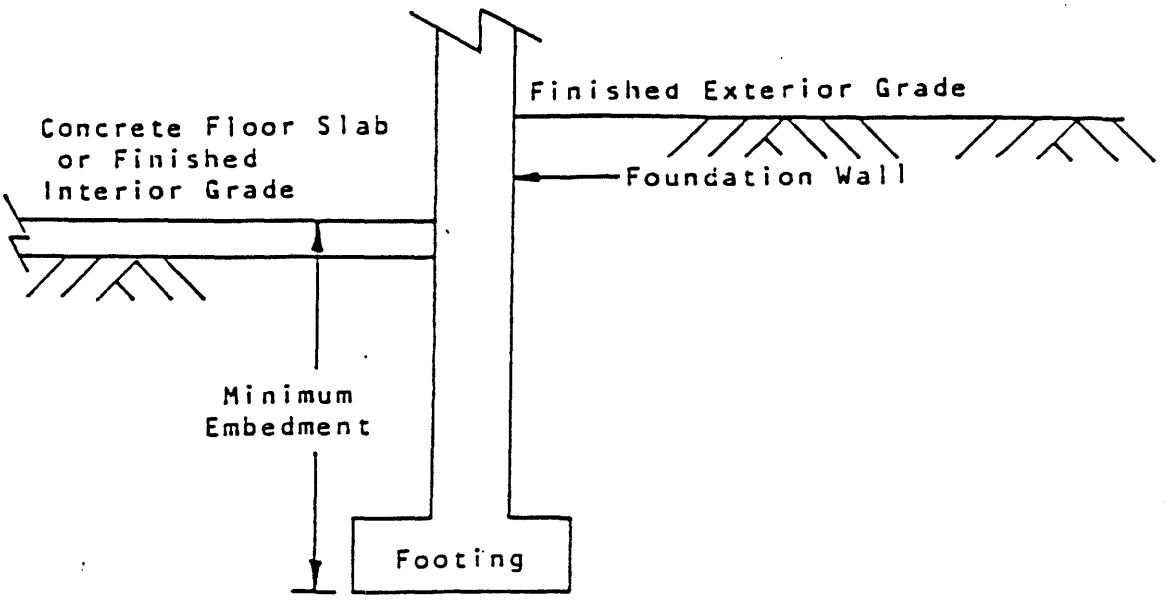


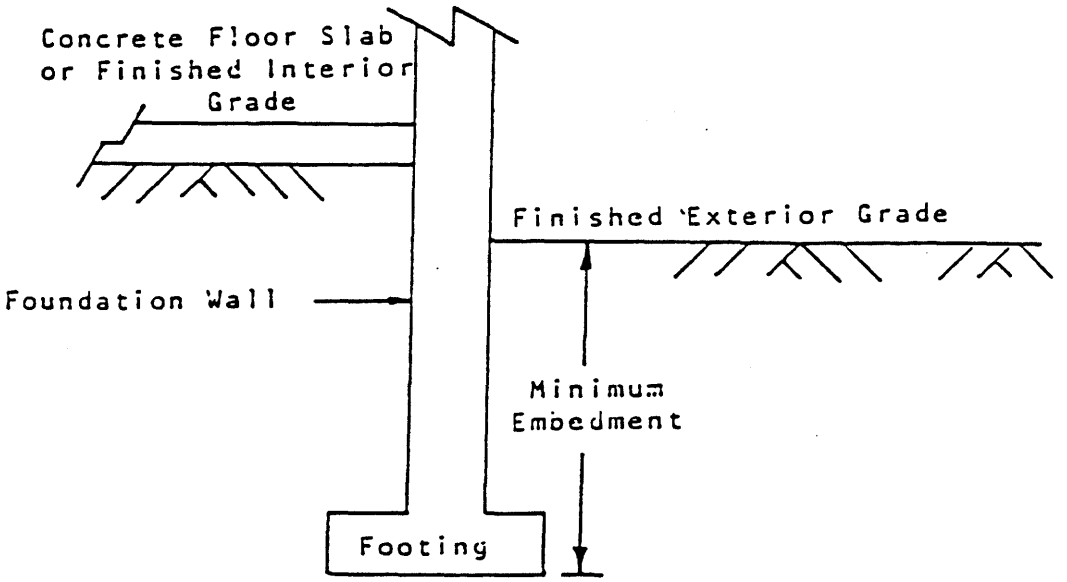
TEST BORING LOCATION SKETCH

Indicates approximate location of test borings

This sketch was reproduced from a map provided by others and is intended to present geotechnical data only

Project No.: M91037GE
Date: 5/21/91
Figure: 2



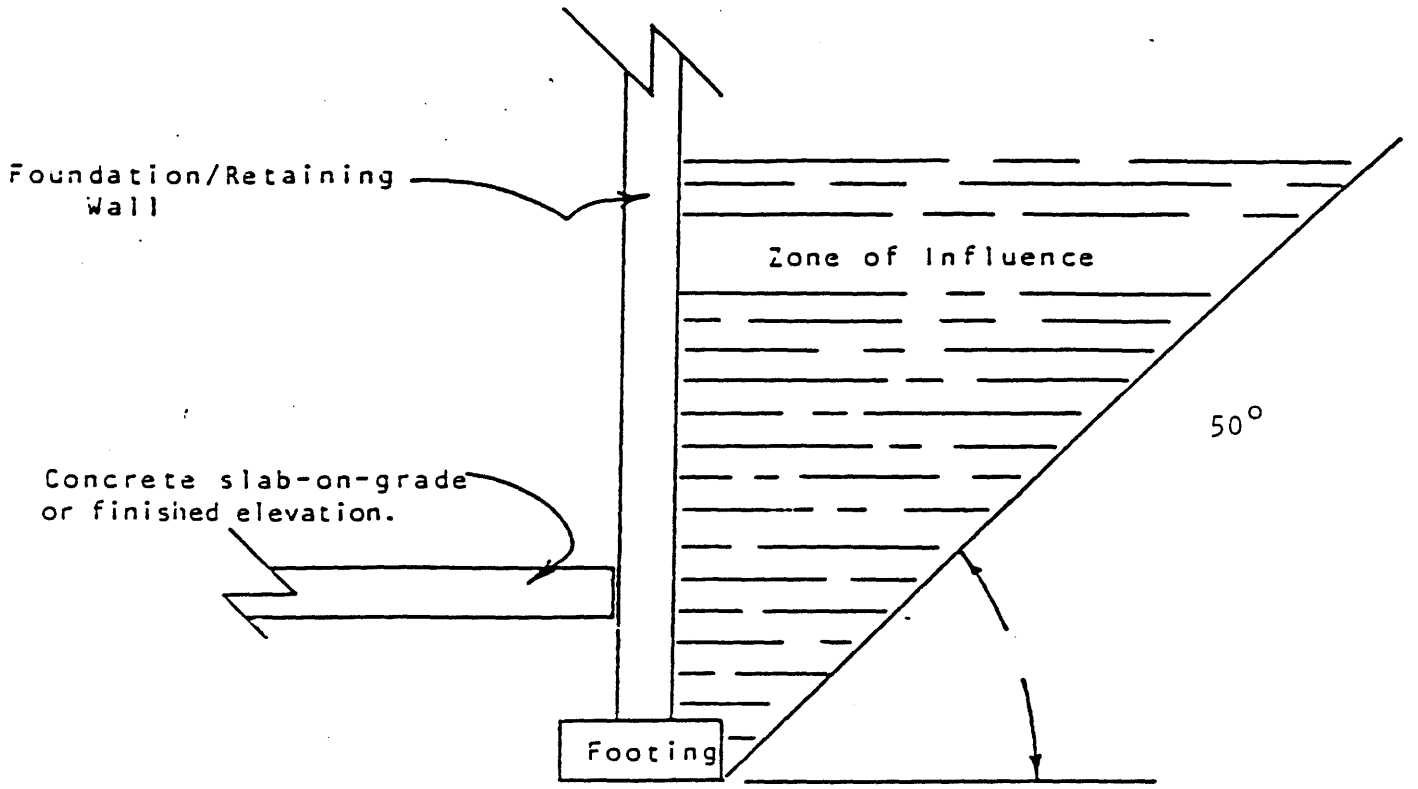


EMBEDMENT CONCEPT

NO SCALE

Lambert and Associates

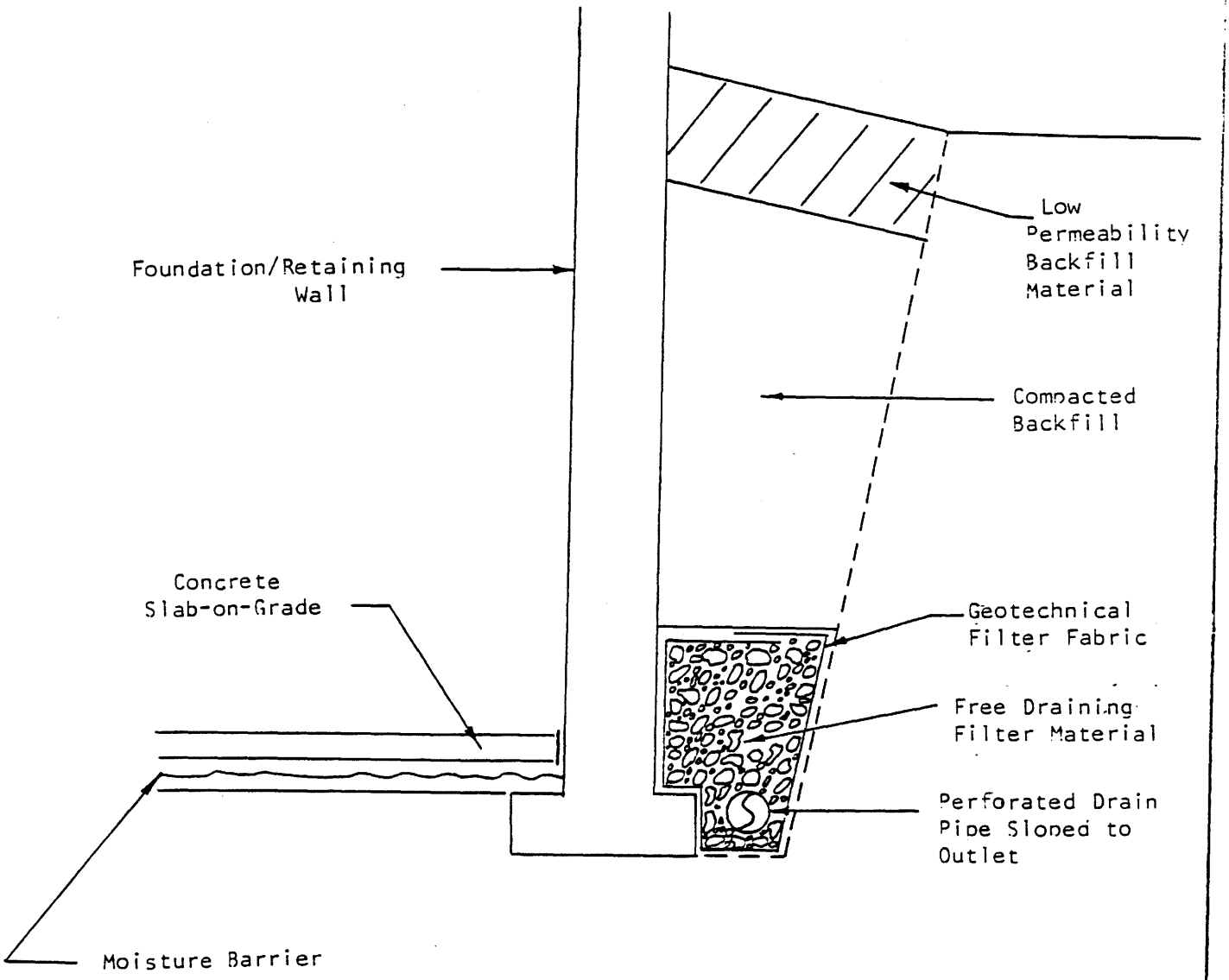
Project No.:	M91037GE
Date:	5/21/91
Figure:	3



BACKFILL ZONE OF INFLUENCE CONCEPT

Lambert and Associates

Project No.:	M91037GE
Date:	5/21/91
Figure:	4



This sketch is to show concept only.
The text of our report should be
consulted for additional information.

CONCEPTIONAL SKETCH OF FOUNDATION DRAIN SYSTEM

Lambert and Associates

Project No.:	M91037GF
Date:	5/21/91
Figure:	5

APPENDIX A

The field study was performed on April 22, 1991. The field study consisted of logging and sampling the soils encountered in eight (8) auger advanced test borings. The approximate locations of the test borings are shown on Figure 2. The log of the soils encountered in the test borings are presented on Figures A2 through A9.

The test borings were logged by Lambert and Associates and samples of significant soil types were obtained. The samples were obtained from the test borings using a Modified California Barrel sampler and bulk disturbed samples were obtained. Penetration blow counts were determined using a 140 pound hammer free falling 30 inches. The blow counts are presented on the logs of the test borings such as 45/6 where 45 blows with the hammer were required to drive the sampler 6 inches.

The engineering field description and major soil classification are based on our interpretation of the materials encountered and are prepared according to the Unified Soil Classification System, ASTM D2488. Since the description and classification which appear on the test boring log is intended to be that which most accurately describes a given interval of the test boring (frequently an interval of several feet)

discrepancies do occur in the Unified Soil Classification System nomenclature between that interval and a particular sample in the interval. For example, an interval on the test boring log may be identified as a silty sand (SM) while one sample taken within the interval may have individually been identified as a sandy silt (ML). This discrepancy is frequently allowed to remain to emphasize the occurrence of local textural variations in the interval.

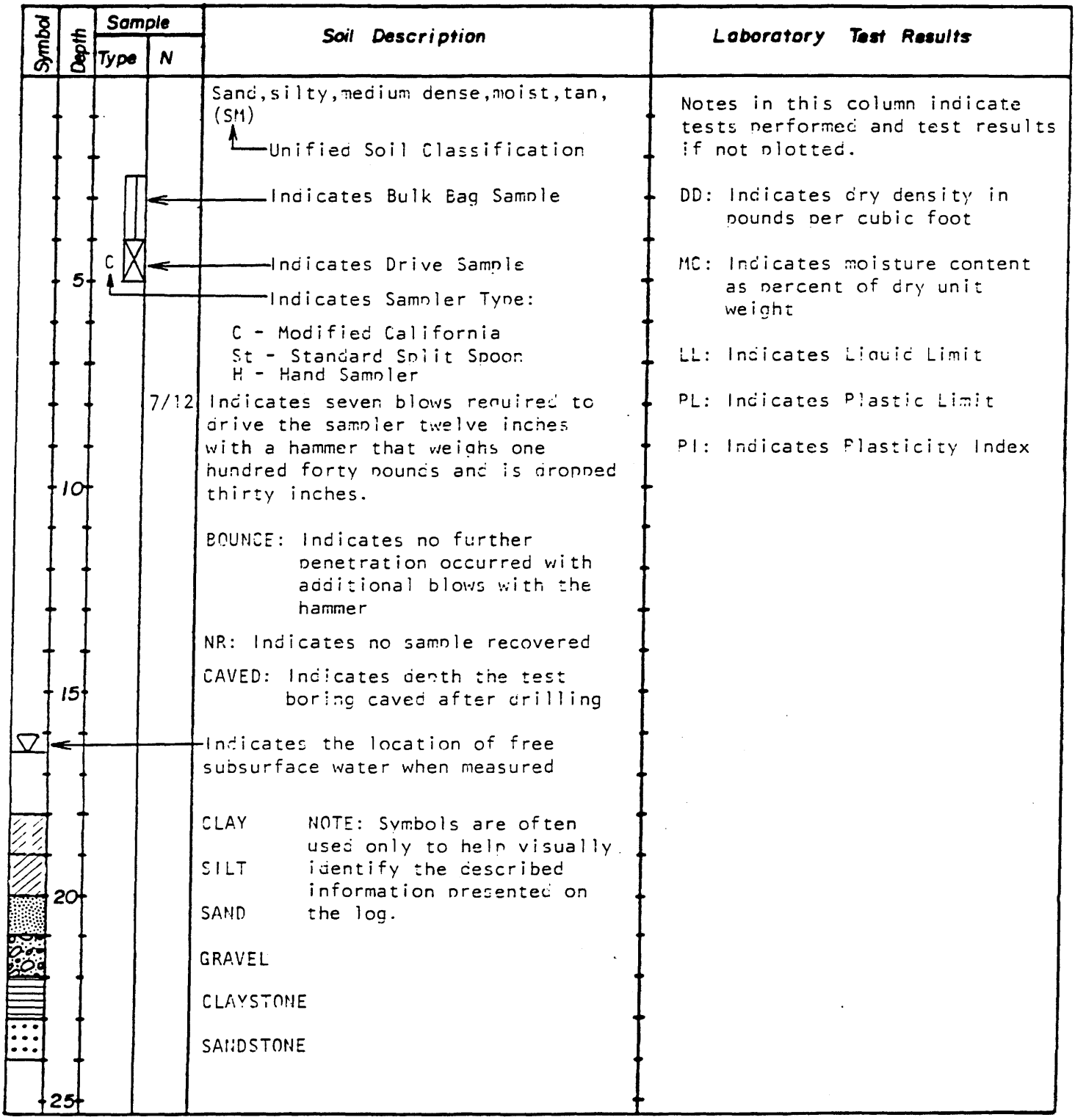
The stratification lines presented on the logs are intended to present our interpretation of the subsurface conditions encountered in the test borings. The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

KEY TO
LOG OF TEST BORING

Date Drilled _____ **Field Engineer** _____ **Boring Number** _____

Location _____ **Elevation** _____

Diameter _____ **Total Depth** _____ **Water Table** _____



Project Name Paradise Hills Subdivision **Project Number** M91037GE **Figure** A1

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

LOG OF TEST BORING

Johnston

Date Drilled 4/22/91 **Field Engineer** Woods **Boring Number** 1

Location See Test Boring Location Sketch **Elevation** _____

Diameter 4 inches **Total Depth** 9 feet **Water Table** None Encountered

Symbol	Depth	Sample Type	Sample N	Soil Description	Laboratory Test Results
		B		Clay, silty, medium stiff, slightly moist, brown (CL)	
	5	C	7/6	Formational material, silty, clay shale, hard, brown to gray Mancos formation	
	10			Bottom of Test Boring 1 @ 9 feet	
	15				
	20				
	25				

Project Name Paradise Hills Subdivision **Project Number** M91037GE **Figure** A2

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

LOG OF TEST BORING

Johnston

Date Drilled 4/22/91 **Field Engineer** Woods **Boring Number** 2

Location See Test Boring Location Sketch **Elevation** _____

Diameter 4 inches **Total Depth** 19 feet **Water Table** None Encountered

Symbol	Depth	Sample Type	Sample N	Soil Description	Laboratory Test Results
				Clay,silty,sandy,slightly stiff slightly moist,brown,organic to 1/2 foot (CL)	
	5	C	3/6 7/6		Direct Shear Strength Test: MC: 10.8% DD: 104.0pcf
	10				
	15			Formational material,silty,clay shale,hard,brown to gray, Mancos formation	
	20			Bottom of Test Boring 2 @ 19 ft.	
	25				

Project Name Paradise Hills Subdivision **Project Number** M91037GE **Figure** A3

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

LOG OF TEST BORING

Johnston

Date Drilled 4/22/91 **Field Engineer** Woods **Boring Number** 3

Location See Test Boring Location Sketch **Elevation** _____

Diameter 4 inches **Total Depth** 14 feet **Water Table** None encountered

Symbol	Depth	Sample Type	Sample N	Soil Description	Laboratory Test Results
				Clay, silty, slightly gravelly, medium stiff, slightly moist, brown (CL)	
	5				
				Clay, silty, medium stiff, slightly slightly moist, brown (CL)	
		C	45/6		Swell Consolidation Test: MC: 7.2% DD: 89.0 pcf
	10			Formational material, silty clay shale, hard, brown to gray, Mancos formation	
	15			Bottom of Test Boring 3 at 14ft.	
	20				
	25				

Project Name Paradise Hills Subdivision **Project Number** M91037GE **Figure** A4

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

LOG OF TEST BORING

Date Drilled 4/22/91 Field Engineer Johnston Woods Boring Number 4

Location See Test Boring Location Sketch Elevation

Diameter 4 inches Total Depth 9 feet Water Table None Encountered

Symbol	Depth	Sample Type	Sample N	Soil Description	Laboratory Test Results
		B		Clay, silty, medium stiff, slightly moist, brown (CL)	
				Formational material, silty, clay shale, hard, brown to gray, Mancos formation	
	5	C	25/6		Swell Consolidation Test: MC: 8.9% DD: 103.0 pcf
				Bottom of Test Boring 4 at 9 ft.	
	10				
	15				
	20				
	25				

Project Name Paradise Hills Subdivision Project Number M91037GE Figure A5

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

LOG OF TEST BORING

Johnston

Date Drilled 4/22/91 **Field Engineer** Woods **Boring Number** 5

Location See Test Boring Location Sketch **Elevation**

Diameter 4 inches **Total Depth** 9 feet **Water Table** None Encountered

Symbol	Depth	Sample Type	Sample N	Soil Description	Laboratory Test Results
				Clay, silty, sandy, medium stiff, slightly moist, brown (CL)	
	5	C	24/6 45/6	Formational material, silty, clay shale, hard, brown to gray Mancos formation	
	10			Bottom of test boring 5 at 9 ft.	
	15				
	20				
	25				

Project Name Paradise Hills Subdivision **Project Number** M910037GE **Figure** A6

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

LOG OF TEST BORING

Date Drilled 4/22/91 **Field Engineer** Johnston Woods **Boring Number** 6

Location See Test Boring Location Sketch **Elevation** _____

Diameter 4 inches **Total Depth** 10 feet **Water Table** None Encountered

Symbol	Depth	Sample Type	Sample N	Soil Description	Laboratory Test Results
				Clay, silty, sandy, soft, very moist to wet, brown, organic to 1/2 foot (CL)	
	5	C	4/6 12/6	Formational material, silty, clay shale, hard, brown to gray, Mancos formation	Direct Shear Strength Test: MC: 25.7% DD: 95.0 pcf
	10	C	19/6 33/6	Harder	
				Bottom of Test Boring 6 at 10 ft	
	15				
	20				
	25				

Project Name Paradise Hills Subdivision **Project Number** M91037GE **Figure** A7

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

LOG OF TEST BORING

Johnston

Date Drilled 4/22/91 **Field Engineer** Woods **Boring Number** 7

Location See Test Boring Location Sketch **Elevation** _____

Diameter 4 inches **Total Depth** 19 feet **Water Table** None Encountered

Symbol	Depth	Sample Type	Sample N	Soil Description	Laboratory Test Results
		B		Clay, silty, sandy, medium stiff, slightly moist, brown (CL)	
	5	C	6/6 6/6		Swell Consolidation Test: MC: 8.9% DD: 100.0 pcf
	10	C	6/6 9/6		
	15			Formational material, silty, clay shale, hard, brown to gray, Mancos formation	
	20			Bottom of Test Boring 7 at 19ft	
	25				

Project Name Paradise Hills Subdivision **Project Number** M91037GE **Figure** A8

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

LOG OF TEST BORING

Johnston

Date Drilled 4/22/91 **Field Engineer** Woods **Boring Number** 7

Location See Test Boring Location Sketch **Elevation** _____

Diameter 4 inches **Total Depth** 19 feet **Water Table** None Encountered

Symbol	Depth	Sample Type	Sample N	Soil Description	Laboratory Test Results
		B		Clay, silty, sandy, medium stiff, slightly moist, brown (CL)	
	5	C	6/6 6/6		Swell Consolidation Test: MC: 8.9% DD: 100.0 pcf
	10	C	6/6 9/6		
	15			Formational material, silty, clay shale, hard, brown to gray, Mancos formation	
	20			Bottom of Test Boring 7 at 19ft	
	25				

Project Name Paradise Hills Subdivision **Project Number** M91037GE **Figure** A8

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

AVIGATION EASEMENT

BOOK 2108 PAGE 390

1699720 03:38 PM 10/31/94
MONIKA TODD CLK&REC MESA COUNTY CO
DOC EXEMPT

THIS EASEMENT is made and entered into by and between the WALKER FIELD, COLORADO, PUBLIC AIRPORT AUTHORITY, a body corporate and politic and constituting a political subdivision of the State of Colorado, hereinafter called GRANTEE, and Wilford D. Moses and Marjean Moses

hereinafter, GRANTOR;

WHEREAS, Grantee is the owner and operator of Walker Field Airport situated in the County of Mesa, State of Colorado, and in close proximity to the land of Grantor, and Grantee desires to obtain and preserve for the use and benefit of the public a right of free and unobstructed flight for aircraft landing upon, taking off from, or maneuvering about said airport; and

WHEREAS, Grantor is the owner in fee simple of that certain parcel of land situated in the County of Mesa, State of Colorado, to wit:

SEE ATTACHED EXHIBIT A

NOW, THEREFORE, in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, the Grantor, for himself, his heirs, administrators, executors, successors and assigns, does hereby grant, bargain, sell and convey unto the Grantee, its successors and assigns, for the use and benefit of the public, an easement and right of way appurtenant to Walker Field Airport, for the passage of all aircraft ("aircraft" being defined for the purposes of this instrument as any device known or hereafter invented, used or designed for navigation or flight in the air) by whomsoever owned and operated, in the navigable airspace above the surface of Grantor's Property to an infinite height above said Grantor's property, together with the right to cause in said airspace such noise and vibrations, smoke, fumes, glare, dust, fuel particles and all other effects that may be caused by the normal operation of aircraft landing at or taking off from or operating at or on said Walker Field Airport, and Grantor hereby waives, remises and releases any right or cause of action which Grantor now has or which Grantor may have in the future against Grantee, its successors and assigns, due to such noise, vibrations, smoke, fumes, glare, dust, fuel particles caused by the normal operation of such aircraft.

FURTHER, Grantor hereby covenants, for and during the life of this easement, that Grantor:

(a) shall not hereafter construct, permit or suffer to maintain upon said land any obstruction that extends into navigable airspace required for use of said airport runway surfaces; (Navigable airspace is defined for the purpose of this instrument as airspace at and above the minimum flight altitudes, including take off and landing, as prescribed in Federal Aviation Administration Federal Air Regulations Part 91, and as such regulations are amended.)

(b) shall not hereafter use or permit or suffer use of said land in such a manner as to create electrical or electronic interference with radio communication or radar operation between the installation upon Walker Field Airport and aircraft, or to make it difficult for flyers to distinguish between airport lights and others or to result in glare in the eyes of flyers using the said airport, or to impair visibility in the vicinity of the airport, or otherwise to endanger the landing, taking off or maneuvering or aircraft.

Grantor agrees the aforesaid covenants and agreements shall run with the land for the benefit of Grantee, its successors and assigns, until said airport shall be abandoned and shall cease to be used for public airport purposes.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal on this 28 day of January, A.D. 1994.

Wilford D. Moses

Marjean Moses

STATE OF COLORADO)
) ss:
COUNTY OF MESA)

The foregoing instrument was acknowledged before me this 28th day of January, A.D. 1994, by Wilford D. Moses.

My Commission expires: 9/23/97.

Eva Marie Freed
Notary Public

ate of Colorado)
ounty of Mesa) ss.

Recorded at 11:55 o'clock A M., JUN 2 1970 BOOK 941 PAGE 18

Reception No. 988644 Recorder.

EXHIBIT A

RECORDER'S STAMP

State Documentary Fee
Date JUN 2 1970
$ 1.40

BOOK 2108 PAGE 392

THIS DEED, Made this 11th day of May, 19 70, between

PARADISE HILLS SUBDIVISION, INC., a corporation duly organized and existing under and by virtue of the laws of the

~~of the~~ ~~County of~~ ~~and~~ State of Colorado, of the first part, and

WILFORD D. MOSES and MARJEAN MOSES

of the County of Mesa and State of Colorado, of the second part:

WITNESSETH, that the said party of the first part, for and in consideration of the sum of --Ten Dollars and other valuable considerations, ~~DOLLARS~~,

to the said party of the first part in hand paid by the said parties of the second part, the receipt whereof is hereby confessed and acknowledged, has granted, bargained, sold and conveyed, and by these presents do es grant, bargain, sell, convey and confirm unto the said parties of the second part, their heirs and assigns forever, not in tenancy in common but in joint tenancy, all the following described lot or parcel of land, situate, lying and being in the County of Mesa and State of Colorado, to wit:

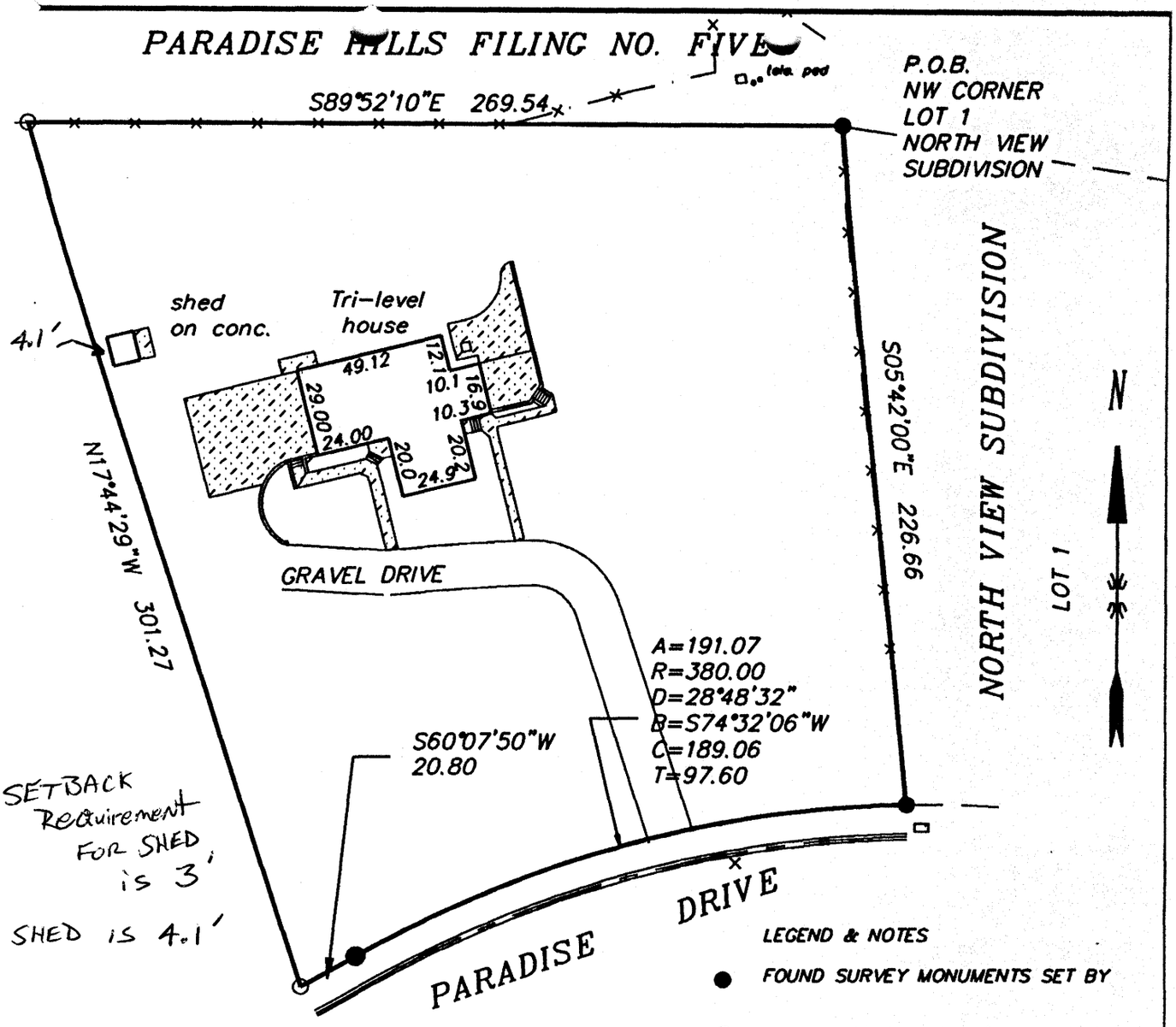
Beginning at a point which bears South 89°52'10" East 50 feet and North 00°07'50" East 37.16 feet from the Northwest Corner of the SW¼ SE¼ of Section 26, Township 1 North, Range 1 West of the Ute Meridian, which is the Northwest Corner of Paradise Hills Filing No. 2, thence North 00°07'50" East 365.0 feet, thence South 89°52'10" East 50 feet, thence 267.04 feet along the arc of a 340.0 foot radius curve to the left, the chord of which bears North 67°37'50" East 260.23 feet, thence North 45°07'50" East 105.8 feet, thence South 00°07'50" West 179.39 feet, thence South 89°52'10" East 544.77 feet, thence South 05°42' East 226.66 feet, thence 191.07 feet along the arc of a 380 foot radius curve to the left, the chord of which bears South 74°32'06" West 189.05 feet, thence South 60°07'50" West 232.61 feet, thence North 29°52'10" West 167.32 feet, thence South 56°04'27" West 200.49 feet, thence North 89°52'10" West 299.72 feet to the point of beginning; containing 7.00 acres more or less;

(In accepting conveyance of said property, grantees agree that if, in the future, the presently existing irrigation ditch, approximately on the South edge of said property and into which waste water from said property is drained, is removed or abandoned, then at that time grantees will make other alternative provisions for wasting water from said property so as not to drain onto property lying to the South. This agreement shall be a covenant running with the land and shall be binding upon all subsequent owners of said property.)

Selling Price $14,000.00

TOGETHER with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever of the said party of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

No. 768. WARRANTY DEED—To Joint Tenants.—Bradford Publishing Company, 1824 Stout Street, Denver, Colorado —8-69



LEGEND & NOTES

● FOUND SURVEY MONUMENTS SET BY

○ SET NO. 5 RE-BAR W/CAP L.S. 16413

THIS PROPERTY DOES NOT FALL WITHIN THE 100 YEAR FLOOD PLAIN

FIRST AMERICAN TITLE NO. 118060

DESCRIPTION

A parcel of land situated in the SE1/4 of Section 26, Township 1 North, Range 1 West of the Ute Meridian being described as follows: Commencing at the SW corner of the NW1/4 SE1/4 of Sec. 26, T1N, R1W, U.M., and considering the West line of the NW1/4 SE1/4 to bear N00°07'50"E and all bearings contained herein to be relative thereto; thenc N00°07'50"E 397.16 feet along the West line of the NW1/4 SE1/4 Sec. 26; thence S89°52'10"E 960.00 feet to the Point of Beginning, also being the NW corner of Lot 1 North View Subdivision; thence S05°42'00"E 226.66 feet to the North right-of-way line for Paradise Drive; thence 191.07 feet along the arc of a curve to the left with a radius of 380.00 feet and whose chord bears S74°32'06"W 189.06 feet; thence S60°07'50"W 20.80 feet; thence N17°44'29"W 301.27 feet; thence S89°52'10"E 269.54 feet to the point of beginning, contoinaing 1.38 Acres as described.

IMPROVEMENT LOCATION CERTIFICATE

I hereby certify that this improvement location certificate was prepared for NORWEST MORTGAGE; the improvement location being based on monuments as shown hereon, and is not to be relied upon for the establishment of fence, building or other future improvement lines. I further certify that the improvements on the above described parcel on this date, 3/21/94, except utility connections, are entirely within the boundaries of the parcel, except as shown, and that there are no encroachments upon the described premises by improvements or any adjoining premises except as indicated, and that there is no evidence or sign of any easement crossing or burdening any part of said parcel, except as noted.

Max E. Morris, Registered Colorado Land Surveyor #16413

IMPROVEMENT LOCATION CERTIFICATE

2666 PARADISE DRIVE

FOR: MOSES	Q.E.D. SURVEYING SYSTEMS Inc. 1018 COLO. AVE. GRAND JUNCTION COLORADO 81501 464-7568 241-2370	SURVEYED BY: SB MF
		DRAWN BY: MEM
SCALE: FEET 0 10 20 30 40 50 / 0 3 6 9 12 15 METERS 1"IN = 50'FT		ACAD ID: MOSESILC
		SHEET NO.
DATE: 3/18/94		FILE: 94078

DEVELOPMENT IMPROVEMENTS AGREEMENT

1. **Parties:** The parties to this Development Improvements Agreement ("the Agreement") are Wilford D. Moses and Marjean Moses ("the Developer") and **THE CITY OF GRAND JUNCTION**, Colorado ("the City").

THEREFORE, for valuable consideration, the receipt and adequacy of which is acknowledged, the Parties agree as follows:

2. **Effective Date:** The Effective Date of the Agreement will be the date that this agreement is recorded which is not sooner than recordation of the _____.

RECITALS

The Developer seeks permission to develop property within the City to be known as Moses Subdivision, which property is more particularly described on Exhibit "A" attached and incorporated by this reference (the "Property"). The City seeks to protect the health, safety and general welfare of the community by requiring the completion of various improvements in the development and limiting the harmful effects of substandard developments. The purpose of this Agreement is to protect the City from the cost of completing necessary improvements itself and is not executed for the benefit of materialmen, laborers, or others providing work, services or material to the development or for the benefit of the purchasers or users of the development. The mutual promises, covenants, and obligations contained in this Agreement are authorized by state law, the Colorado Constitution and the City's land development ordinances.

DEVELOPER'S OBLIGATION

3. **Improvements:** The Developer will design, construct and install, at its own expense, those on-site and off-site improvements listed on Exhibit "B" attached and incorporated by this reference. The Developer agrees to pay the City for inspection services performed by the City, in addition to amounts shown on Exhibit B. The City estimates that $ _____ will be required for City inspection of the required improvements. The Developer's obligation to complete the improvements is and will be independent of any obligations of the City contained herein.

4. **Security:** To secure the performance of its obligations under this Agreement (except its obligations for warranty under paragraph 6), the Developer will enter into an agreement which complies with either option identified in paragraph 28, or other written agreement between the City and the Developer.

5. **Standards:** The Developer will construct the Improvements according to the standards and specifications required by the City Engineer or as adopted by the City.

6. **Warranty:** The Developer warrants that the Improvements, each and every one of them, will be free from defects for a period of twelve (12) months from the date that the City Engineer accepts or appr es the improvements completed by the Developer.

2. 7. **Commencement and Completion Periods:** The improvements, each and every one of them, will be completed within 2 from the Effective Date of this Agreement (the "Completion Period").

8. **Compliance with Law:** The developer will comply with all relevant federal, state and local laws, ordinances, and regulations in effect at the time of final approval associated with the development when fulfilling its obligations under this Agreement.

9. **Notice of Defect:** The Developer's Engineer will provide timely notice to the Developer, contractor, issuer of security and the City Engineer whenever inspection reveals, or the Developer's Engineer otherwise has knowledge, that an improvement does not conform to City standards and any specifications approved in the development application or is otherwise defective. The developer will have thirty (30) days from the issuance of such notice to correct or substantially correct the defect.

10. **Acceptance of Improvements:** The City's final acceptance and/or approval of improvements will not be given or obtained until the Developer presents a document or documents, for the benefit of the City, showing that the Developer owns the improvements in fee simple and that there are no liens, encumbrances, or other restrictions on the improvements. Approval and/or Acceptance of any improvements does not constitute a waiver by the City of any rights it may have on account of any defect in or failure of the improvement that is detected or which occurs after the approval and/or acceptance.

2. 11. **Use of Proceeds:** The City will use funds deposited with it or drawn pursuant to any written disbursement agreement entered into between the parties only for the purpose of completing the Improvements or correcting defects in or failure of the Improvements.

12. **Events of Default:** The following conditions, occurrences or actions will constitute a default by the Developer during the Completion Period:

a. Developers failure to complete each portion of the Improvements in conformance with the agreed upon time schedule; the City may not declare a default until a fourteen (14) calendar day notice has been given to the Developer;

b. Developer's failure to demonstrate reasonable intent to correct defective construction of any improvement within the applicable correction period; the City may not declare a default until a fourteen (14) calendar day notice has been given to the Developer;

c. Developer's insolvency, the appointment of a receiver for the Developer or the filing of a voluntary or involuntary petition in bankruptcy respecting the Developer; in such event the City may immediately declare a default without prior notification to the Developer;

d. Notification to the City, by any lender with a lien on the property, of a default on an obligation; the City may immediately declare a default without prior notification to the Developer;

e. Initiation of any foreclosure action of any lien or initiation of mechanics lien(s) procedure(s) against the Property or a portion of the Property or assignment or conveyance of the Property in lieu of foreclosure; the City may immediately declare a default without prior notification to the Developer.

13. **Measure of Damages:** The measure of damages for breach of this Agreement by the Developer will be the reasonable cost of satisfactorily completing the Improvements plus reasonable City administrative expenses. For improvements upon which construction has not begun, the estimated costs of the Improvements as shown on Exhibit "B" will be prima facie evidence of the minimum cost of completion; however, neither that amount or the amount of a letter of credit, the subdivision improvements disbursement agreement or cash escrow establish the maximum amount of the Developer's liability.

14. **City's Rights Upon Default:** When any event of default occurs, the City may draw on the letter of credit, escrowed collateral, or proceed to collect any other security to the extent of the face amount of the credit or full amount of escrowed collateral, cash, or security less ninety percent (90%) of the estimated cost (as shown on Exhibit "B") of all improvements previously accepted by the City or may exercise its rights to disbursement of loan proceeds or other funds under the improvements disbursement agreement. The City will have the right to complete improvements itself or it may contract with a third party for completion, and the Developer grants to the City, its successors, assigns, agents, contractors, and employees, a nonexclusive right and easement to enter the Property for the purposes of constructing, reconstructing, maintaining, and repairing such improvements. Alternatively, the City may assign the proceeds of the letter of credit, the improvements disbursement agreement, the escrowed collateral, cash, or other funds or assets to a subsequent developer (or a lender) who has acquired the development by purchase, foreclosure or otherwise who will then have the same rights of completion as the City if and only if the subsequent developer (or lender) agrees in writing to complete the unfinished improvements and provides reasonable security for the obligation. In addition, the City may also enjoin the sale, transfer, or conveyance of lots within the development, until the improvements are completed or accepted. These remedies are cumulative in nature and are in addition to any other remedies the City has at law or in equity.

15. **Indemnification:** The Developer expressly agrees to indemnify and hold the City, its officers, employees and assigns harmless from and against all claims, costs and liabilities

of every kind and nature, for injury or damage received or sustained by any person or entity in connection with, or on account of the performance of work at the development or the Property pursuant to this Agreement. The Developer further agrees to aid and defend the City in the event that the City is named as a defendant in an action concerning the performance of work pursuant to this Agreement. The Developer further agrees to aid and defend the City in the event that the City is named as a defendant in an action concerning the performance of work pursuant to this Agreement except where such suit is brought by the Developer against the City. The Developer is not an agent or employee of the City.

16. **No Waiver:** No waiver of any provision of this Agreement by the City will be deemed or constitute a waiver of any other provision, nor will it be deemed or constitute a continuing waiver unless expressly provided for by a written amendment to this Agreement signed by both City and Developer; nor will the waiver of any default under this Agreement be deemed a waiver of any subsequent default or defaults of the same type. The City's failure to exercise any right under this Agreement will not constitute the approval of any wrongful act by the Developer or the acceptance of any improvement.

17. **Amendment or Modification:** The parties to this Agreement may amend or modify this Agreement only by written instrument executed on behalf of the City by the City Manager or his designee and by the Developer or his authorized officer. Such amendment or modification will be properly notarized before it may be effective.

18. **Attorney's Fees:** Should either party be required to resort to litigation to enforce the terms of this Agreement, the prevailing party, plaintiff or defendant, will be entitled to costs, including reasonable attorney's fees and expert witness fees, from the opposing party. If the court awards relief to both parties, the attorney's fees may be equitably divided between the parties by the decision maker.

19. **Vested Rights:** The City does not warrant by this Agreement that the Developer is entitled to any other approval(s) required by the City, if any, before the Developer is entitled to commence development or to transfer ownership of property in the development.

20. **Third Party Rights:** No person or entity who or which is not a party to this Agreement will have any right of action under this Agreement.

21. **Time:** For the purpose of computing the Abandonment and Completion Periods, and time periods for City action, such times in which war, civil disasters, or acts of God occur or exist will not be included if such times prevent the Developer or City from performing its obligations under the Agreement.

22. **Severability:** If any part, term, or provision of this Agreement is held by the courts to be illegal or otherwise unenforceable, such illegality or unenforceability will not affect the validity of any other part, term, or provision and the rights of the parties will be construed as if the part, term, or provision was never part of the Agreement.

23. **Benefits:** The benefits of this Agreement to the Developer are personal and may not be assigned without the express written approval of the City. Such approval may not be unreasonably withheld, but any unapproved assignment is void. Notwithstanding the foregoing, the burdens of this Agreement are personal obligations of the Developer and also will be binding on the heirs, successors, and assigns of the Developer, and shall be a covenant(s) running with the Property. There is no prohibition on the right of the City to assign its rights under this Agreement. The City will expressly release the original Developer's guarantee or obligations under the improvements disbursement agreement if it accepts new security from any developer or lender who obtains the Property. However, no other act of the City will constitute a release of the original Developer from his liability under this Agreement.

24. **Notice:** Any notice required or permitted by this Agreement will be deemed effective when personally delivered in writing or three (3) days after notice is deposited with the U.S. Postal Service, postage prepaid, certified, and return receipt requested, and addressed as follows:

If to Developer: Wilford D. Moses
2666 Paradise Drive
Grand Junction, Co. 81506

If to City: City of Grand Junction
Community Development Director
250 N. 5th Street
Grand Junction, Colorado 81501

25. **Recordation:** Developer will pay for any costs to record a copy of this Agreement in the Clerk and Recorder's Office of Mesa County, Colorado.

26. **Immunity:** Nothing contained in this Agreement constitutes a waiver of the City's sovereign immunity under any applicable state law.

27. **Personal Jurisdiction and Venue:** Personal jurisdiction and venue for any civil action commenced by either party to this Agreement whether arising out of or relating to the Agreement, letter of credit, improvements disbursements agreement, or cash escrow agreement or any action to collect security will be deemed to be proper only if such action is commenced in Mesa County. The Developer expressly waives his right to bring such action in or to remove such action to any other court whether state or federal.

28. The **improvements guarantee** required by the City Code to ensure that the improvements described in the improvements agreement are constructed (to city standards) may be in the form of an agreement: (I) between a bank doing business in Mesa County and the City or as described in (II), below. The agreement between a bank and the City

(I) shall provide, among other things, for the bank to guarantee and warrant to the City that it shall:

a. have available money equal to the estimated costs of the required improvements, in an amount equal to the amount agreed upon in the Improvements Agreement;

b. only pay such amounts to contractors who have constructed required Improvements;

c. only pay such amounts after the bank has received the written approval of the City Engineer, or his designee; the City Engineer shall inspect within three (3) working days of request;

d. in the event the bank disburses without the City Engineer having approved such disbursement, the Bank shall pay, in addition to all other sums it would otherwise be obligated to pay, to the City the amount of the wrongful disbursement if the City Engineer determines that the work is not acceptable, based on the approved plans and specifications. The City shall use such money to cause the work to be constructed in accordance with the approved plans and specifications;

II. An alternative agreement may be executed for a development which is expected to require not more than 10 transactions shall contain the following provisions:

a. The Finance Department of the City will act as disbursing agent and will account for disbursements to Developer contractors as required improvements are completed and accepted.

b. The City will accept a cash deposit from the Developer equal to the City approved estimate of the required improvements, for purposes of securing and guaranteeing the construction of the required sewer, water, streets, and on-site improvements in the development plan. Such deposit(s), currently estimated at approximately $_____ shall be given to the City's Finance Department, commingled with other funds of the City and specifically invested in the short term market. Interest income shall be allocated to the Developer's escrow account monthly, in the same manner as other short-term investments of the city.

c. Such interest income shall be used to reimburse the General Fund of the City for accounting and transaction costs incurred in making payments to the appropriate contractors. For purposes of this agreement, the City's costs shall be one hundred dollars ($100.00) for each check disbursement or other transaction which is made. In any event the amount retained by the City for

its transaction costs shall not be less than two percent (2%) of the amount deposited. After all required improvements have been made and accepted by the City, any surplus funds remaining in the account (in excess of the two percent minimum or the calculated transaction costs) shall be returned to the developer within thirty (30) days of said acceptance date. Any transaction costs which are not covered by the amount of the deposit plus accrued interest shall be paid to the City by the Developer in like manner within thirty (30) days of completion of the improvements. No guarantee as to the level of interest income or rate of return on the funds so deposited is either implied or made in this agreement; the City agrees only to keep the funds invested as with other City funds.

d. in any event, the Developer promises to construct the required improvements to the satisfaction of the City Engineer, in accordance with the approved plans and specifications.

29. a. Conditions of Acceptance: The City shall have no responsibility or liability with respect to any street, or other improvement(s), notwithstanding the use of the same by the public, unless the street or other improvements shall have been accepted by the City.

Prior to requesting final acceptance of streets, storm drainage facilities, or other required improvements, the Developer shall furnish to the City Engineer as-built drawings in reproducible form and copies of results of all construction control tests required by City specifications.

b. Phased Development: If the City allows a street to be constructed in stages, the Developer of the first one-half street opened for traffic shall construct the adjacent curb, gutter and sidewalk in the standard location and shall construct the required width of pavement from the edge of gutter on his side of the street to enable an initial two-way traffic operation without on-street parking. That Developer is also responsible for end-transitions, intersection paving, drainage facilities, and adjustments to existing utilities necessary to open the street to traffic.

Attest:

City of Grand Junction
250 North Fifth Street
Grand Junction CO 81501

By: _____

Stephanie Nye
City Clerk

Mark K. Achen
City Manager

Attest:

TYPE LEGAL DESCRIPTION(S) BELOW, USING ADDITIONAL SHEETS AS NECESSARY. USE SINGLE SPACING WITH A ONE INCH MARGIN ON EACH SIDE.

****

Exhibit A

Commencing at the SW Corner of the NW1/4 SE1/4 of Section 26. Township 1 North Range 1 West, Ute Meridian, and considering the West line of the NW1/4 SE1/4 Section 26 to bear N00°07'50"W and all bearings contained herein to be relative thereto; thence N00°097'50"W 37.16 feet; thence S89°52'10"E 50.00 feet to the NW corner of Paradise Hills Filing No. Two; thence N00°07'50"E 365.00 feet; thence S89°52'10'E 50 feet; thence 267.04 feet along the arc of a curve to the left with a radius of 340.00 feet and whose chord bears N67°37'50"E 260.23 feet; thence N45°07'50"E 105.80 feet to the West line of Lot 19, Block 15, Paradise Hills Filing No. 5; thence S00°07'50"W 179.39 feet to the SW corner of Lot 19; thence S89°52'10"E 544.74 feet along the South line of Lot 1 to the North right-of-way line for Paradise Drive; thence 191.07 feet along the arc of a curve to the left with a radius of 389.00 feet and whose chord bears S74°32'06"W 189.06 feet; thence S60°07'50'W 132.61 feet; thence N29°52'10"W 150.00 feet; thence S69°57'34"W 101.49 feet; thence S56?04'27"W 200.49 feet thence N89°52'10"W 299.72 feet to the point of beginning containing 6. acres as described

Exhibit B

IMPROVEMENTS LIST/DETAIL

DATE: 3-30

NAME OF DEVELOPMENT: _____

LOCATION: _____

PRINTED NAME OF PERSON PREPARING: _____

	UNITS	TOTAL QTY.	UNIT PRICE	TOTAL AMOUNT
I. SANITARY SEWER				
1. Clearing and grubbing				
2. Cut and remove asphalt				1160.00
3. PVC sanitary sewer main (incl. trenching, bedding & backfill)		210	18.00	4508.00
4. Sewer Services (incl. trenching, bedding, & backfill)		520	12.00	6744.00
5. Sanitary sewer manhole(s)	2	1500 SQ FT		4000.00
6. Connection to existing manhole(s)				
7. Aggregate Base Course	50 TON			75
8. Pavement replacement				600
9. Driveway restoration				
10. Utility adjustments				
II. DOMESTIC WATER				
1. Clearing and grubbing				
2. Cut and remove asphalt				
3. Water Main (incl. excavation, bedding, backfill, valves and appurtenances)		310	12.00	3720.00
4. Water services (incl. excavation, bedding, backfill, valves, and appurtenances)		320	9.00	3768.00
5. Connect to existing water line				
6. Aggregate Base Course				
7. Pavement Replacement				
8. Utility adjustments				
III. STREETS				
1. Clearing and grubbing				
2. Earthwork, including excavation and embankment construction				3000.00
3. Utility relocations				
4. Aggregate sub-base course (square yard)		2250 TON		15,000.00
5. Aggregate base course (square yard)	6"	200 TON	10.00	2835.00
6. Sub-grade stabilization				1500.00
7. Asphalt or concrete pavement (square yard)				15,000.00
8. Curb, gutter & sidewalk (linear feet)				9552.00 3368.00
9. Driveway sections (square yard)	1			
10. Crosspans & fillets				
11. Retaining walls/structures				
12. Storm drainage system		320 LF	5.00	1900.00

Grand Valley Rural Power				20119.00
13. Signs and other traffic control devices				120.00
14. Construction staking				
15. Dust control				
16. Street lights (each)				NA
IV. LANDSCAPING				
1. Design/Architecture				
2. Earthwork (includes top soil, fine grading, & berming				
3. Hardscape features (includes walls, fencing, and paving)				
4. Plant material and planting				
5. Irrigation system	1,378 Ft	labor & Material		5,200.00
6. Other features (incl. statues, water displays, park equipment, and outdoor furniture)				
7. Curbing				
8. Retaing walls and structures				
9. One year maintenance agreement				
V. MISCELLANEOUS				
1. Design/Engineering				3,000.00
2. Surveying				5,000.00
3. Developer's inspection costs				
4. Quality control testing				
5. Construction traffic control				
6. Rights-of-way/Easements				
7. City inspection fees				700.00
8. Permit fees				80.00
9. Recording costs				150.00
10. ~~Bonds~~ Public Service				3,312.00
11. ~~Newsletters~~ U.S. West		10 Lots		4000.00
12. General Construction Supervision				
13. Other Drainage Fee Option		10 Lots	438.00	4380.00
14. Other Parks & Recreation Fee		10 Lots	250.00	2500.00

TOTAL ESTIMATED COST OF IMPROVEMENTS: $ 131781.00

Kenneth O. Moore — 5-26-94

SIGNATURE OF DEVELOPER — DATE

(If corporation, to be signed by President and attested to by Secretary together with the corporate seals.)

I have reviewed the estimated costs and time schedule shown above and, based on the plan layouts submitted to date and the current costs of construction, I take no exception to the above.

J. Don Newton — 5-26-94

CITY ENGINEER — DATE

COMMUNITY DEVELOPMENT — DATE

NW CORNER
SE1/4
SECTION 26
T1N, R1W, U.M.

Existing 12" cmp
North end needs exposed

Proposed catch basin
Rim = 4707.0
Inv out = 4702.3
Inv in = 4702.5

Proposed catch basin
Rim = 4710.0
Inv out = 4708.0

Provide erosion control
if needed to prevent clogging.

PARADISE HILLS FILING NO. FIVE

CATALINA DRIVE

30'

BURMUDA COURT

R=50'

LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11

PROPOSED 18" RCP PIPE

shed on conc.

Tri-level house

GRAVEL DRIVE

existing power line to be rerouted

PARADISE DRIVE

30'

30'

50'

26 1/2 ROAD

TBM = 4723.96

SW CORNER
NW1/4 SE1/4
SECTION 26
T1N, R1W, U.M.

NORTH VIEW SUBDIVISION

LOT 1

N

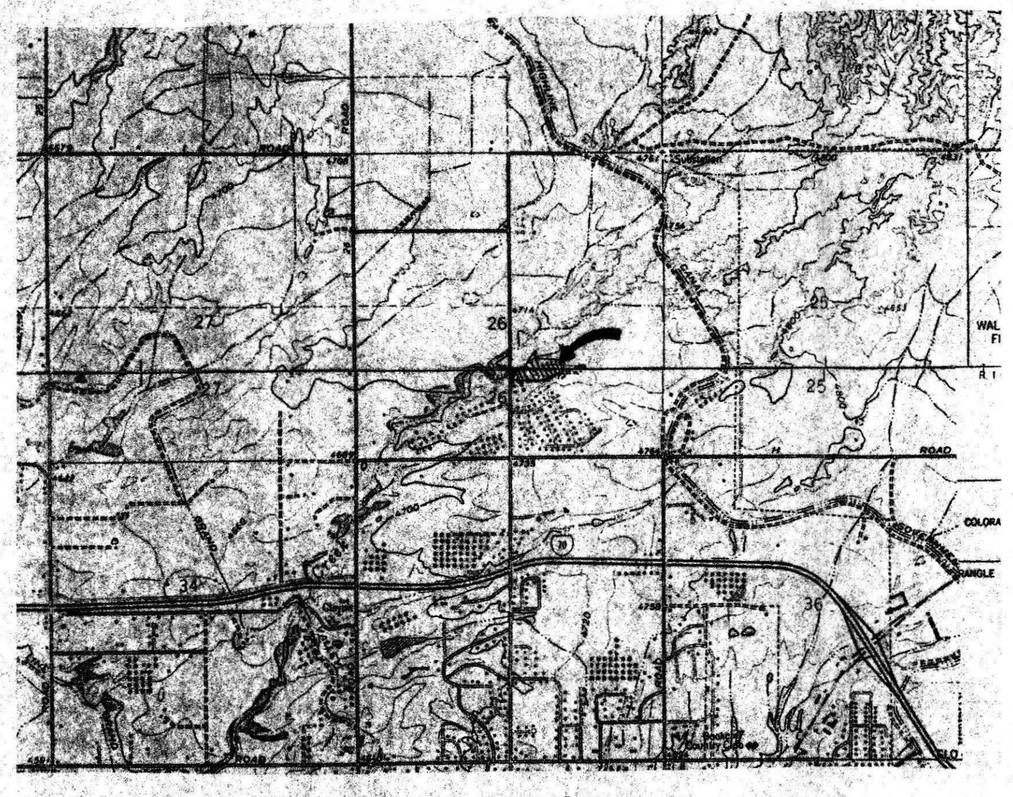
LEGEND & NOTES

- ● FOUND SURVEY MONUMENTS SET BY OTHERS NO. 5 RE-BAR
- ○ SET NO. 5 RE-BAR W/CAP L.S. 16413
- ♦ MESA COUNTY BRASS CAP

- EXISTING CONTOURS
- FUTURE CONTOURS
- DIRECTION OF EXISTING DRAINAGE
- DIRECTION OF STREET AND LOT DRAINAGE

CONTOUR INTERVAL = 1.0'FT

ELEVATIONS BASED ON 4723.96 FEET
ON BRASS CAP FOR SW CORNER
NW1/4 SE1/4 SECTION 26



AREA MAP: SCALE: 1"IN = 2000'FT

NOTICE:

ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

TERRY NICHOLS
REGISTERED
12093
P.E. & L.S.
STATE OF COLORADO

MOSES SUBDIVISION

revised 4/27/94

GRADING AND DRAINAGE PLAN

FOR: MOSES

SCALE: 1"IN = 50'FT

DATE: 3/23/94

Q.E.D. SURVEYING SYSTEMS Inc.
1018 COLO. AVE.
GRAND JUNCTION
COLORADO 81501
(303) 241-2370
464-7568

SURVEYED BY: SB MF
DRAWN BY: MEM
ACAD ID: MSDRAIN
SHEET NO.
FILE: 94026.1

NOTE: SEE EXHIBIT "E" CITY OF GRAND JUNCTION'S STANDARD CONCRETE DETAILS FOR DETAILS ON VALLEY PAN AND WHEEL CHAIR RAMPS

begin 4' walk along existing curb here 0+00 (BOW) N 5296.08 E 4229.39

0+70.39 PC BOW N 5295.92 E 4299.78

1+54.58 PCC BOW N 5306.51 E 4383.07

2+44.99 PCC BOW N 5341.06 E 4466.30

end 4' walk along existing curb here 4+33.01 N 5465.81 E 4606.20

PROPOSED VALLEY PAN

CATALINA DRIVE

Note: See Exhibit "F" of the City of Grand Junction's Standard Storm Drain Details File No. EX-F-92.dwg for catch basin details.

Proposed 4' sidewalk to be added to the existing curb & gutter

0+00 N 5341.25 E 4429.99

0+08.06 FL = 4709.12 bow 10.00 slope = 7.5%

3+27.21 PT BOW N 5391.17 E 4531.22

EXISTING MANHOLE Rim elev. = 4707.34

Existing 12" cmp fl = 4702.3

FL = 4708.79 0+21.68

bow 9.1 slope = 3.3%

bow 10.00 proposed stop sign

LOT 8

0+18.62 GRADE BREAK

proposed catch basin Rim = 4710 inv out = 4708 N 5282.18 E 4613.21

14' utility, irr. & drainage esmt.

proposed street ID sign

376.37' of 12" ADS pipe slope 1.45%

50'

Proposed catch basin Rim = 4707.0 inv out = 4702.3 inv in = 4702.5 N 5283.10 E 4236.85

LOT 1

LOT 7

LOT 9

LOT 11

BURMUDA COURT N00°07'50"E 242.47

PC 1+89.29 fl 4=21

PT 2+09.64

14' 14' fl 11.42 11.48 fl 11.68 11.68

LOT 2

LOT 6

ctr. cul-de-sac 2+42.47 N 5098.78 E 4429.44

42' fl 13.16

street light

3+20.13

LOT 3

LOT 5

LOT 10

LOT 4

26 1/2 ROAD

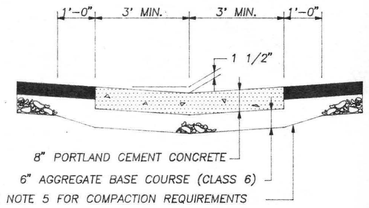
edge of existing pavement

OVERHEAD POWER LINES

existing curb & gutter 30'

PARADISE DRIVE

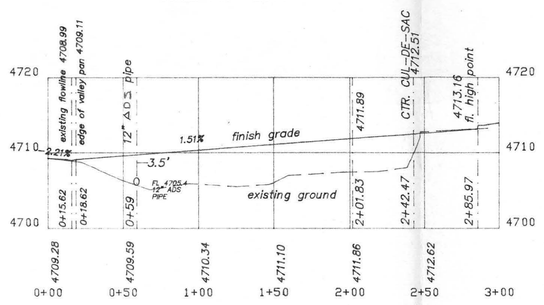
PARADISE HILLS FILING NO. FIVE



VALLEY PAN

PER CITY OF GRAND JUNCTION SPECS. (TYPICAL)

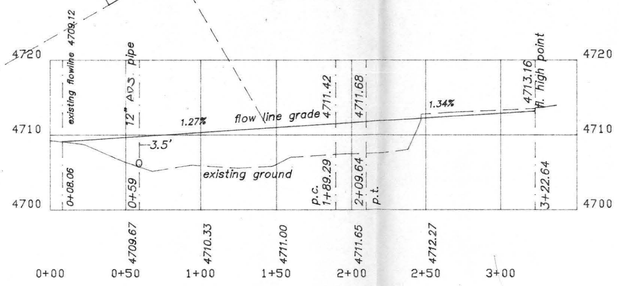
SCALE: 1"IN = 2.0'FT



BURMUDA COURT

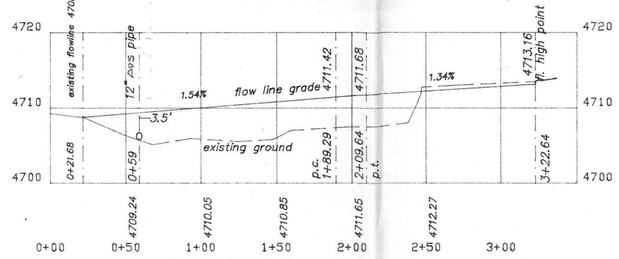
CENTERLINE OF STREET

SCALE: HORZ. 1"IN = 50'FT
VERT. 1"IN = 10'FT



BURMUDA COURT

FLOW LINE LEFT SIDE



BURMUDA COURT

FLOW LINE RIGHT SIDE

TERRY NICHOLS REGISTERED 12093 20 May 94 P.E.L.S. STATE OF COLORADO

APPROVED FOR CONSTRUCTION

CITY OF GRAND JUNCTION 5-25-94 DATE

INITIAL ACCEPTANCE

CITY OF GRAND JUNCTION DATE

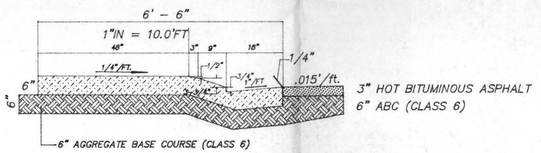
LEGEND & NOTES

1. Elevation control bench = 4723.96 on Mesa County Brass Cap SW corner NW1/4 SE1/4 Sec. 26
2. Also the rim elevation of the existing Manhole at the intersection of 26 1/2 Road and Catalina is 4707.34
3. All materials and workmanship shall be subject to inspection by the City of Grand Junction. The City of Grand Junction reserve the right to accept or reject any materials and workmanship that does not conform to the standards and specifications of the City of Grand Junction.
4. The Contractor shall have one signed copy of the Plans, and a copy of the City of Grand Junction's standards and specifications at the job site at all times.
5. All curbs, gutters, sidewalks, driveways, drainage pans and other concrete work shall be underlaid with aggregate base course (class 6) compacted to at least 90% of AASHTO T-180 maximum density. See details for base thickness. The top 6 inches of subgrade under all concrete shall be compacted to at least 90% of AASHTO T-99 maximum density. All saturated or unsuitable subgrade material shall be removed and replaced.

N

NOTES:

1. ALL CONSTRUCTION TO COMPLY WITH THE CITY OF GRAND JUNCTIONS STANDARDS & SPECIFICATIONS

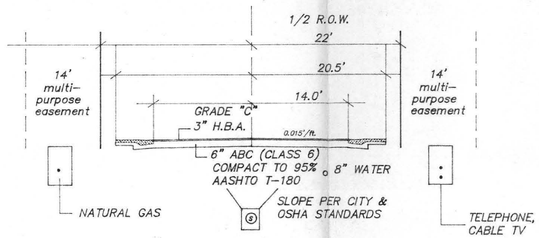


DRIVE OVER CURB, GUTTER & SIDEWALK

PER CITY OF GRAND JUNCTION SPECS.

(TYPICAL)

SCALE: 1"IN = 2.0'FT



NOT TO SCALE

MOSES COURT

revised 5/20/94
revised 5/19/94
revised 4/26/94

MOSES SUBDIVISION

ROAD PLAN

SITUATED IN SECTION 26, TOWNSHIP 1 NORTH, RANGE 1 WEST, UTE MERIDIAN

FOR: MOSES

SCALE: 1"IN = 50'FT

DATE: 3/18/94

Q.E.D. SURVEYING SYSTEMS Inc. 1018 COLO. AVE. GRAND JUNCTION COLORADO 81501 (303) 241-2370 464-7568

SURVEYED BY: SB MF

DRAWN BY: MEM

ACAD ID: MSROAD

SHEET NO.

FILE: 94026.1

RECEIVED GRAND JUNCTION PLANNING DEPARTMENT MAY 25 1994

Approved Plans 5-25-94