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File 1993-0093-2 Name: Ridge Heights Subdivision - Preliminary Plan - N. of Bella Pago

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**
		Review Sheets
X		Receipts for fees paid for anything
X	X	***Submittal checklist**
X	X	***General project report**
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		Reduction of assessor's map.
		Evidence of title, deeds, easements
		***Mailing list to adjacent property owners**
		Public notice cards
		Record of certified mail
		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**
		***Petitioner's response to comments**
		***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**

DOCUMENT DESCRIPTION:

X		Treasurer's Certificate of taxes Due - 8/27/93			
X	X	Planning Commission Minutes - 8/3/93 - **			
X		E-mails			
X	X	Correspondence			
X	X	Planning Commission Notice of Public Hearing			
X	X	Ridge Heights Subdivision map - ** - GIS Historical Maps			
X		Ridge Heights Composite Plan			
X	X	Boundary Line Adjustment - to be scanned			

DEVELOPMENT APPLICATION

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

Receipt _____
Date _____
Rec'd By _____
File No. 91-93-2

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				
[ ] Rezone				From: To:	
[X] Planned Development	[ ] ODP [ ] Prelim [X] Final	51± acres	North of Bella Pago	PR	RESIDENTIAL
[ ] Conditional Use					
[ ] Zone of Annex					
[ ] Text Amendment					
[ ] Special Use					
[ ] Vacation					[ ] Right-of-Way [ ] Easement

[X] PROPERTY OWNER [ ] DEVELOPER [ ] REPRESENTATIVE

x Community Hospital Foundation		
Name	Name	Name
2021 N. 12th		
Address	Address	Address
Grand Junction, Co 81503		
City/State/Zip	City/State/Zip	City/State/Zip
242-0920		
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 JOSEPH F. BOYLE — 8-31-93
Signature of Person Completing Application — Date

x _____

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

Original
Do NOT Remove
From Office

MAJOR-F

SUBMITTAL CHECKLIST

91-93-2

MAJOR SUBDIVISION: FINAL

Location: North of Bella Page   Project Name: Ridge Hts.

ITEMS | DISTRIBUTION

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	○ Drainage District	○ Water District	○ Sewer District	● U.S. West	● Public Service	○ GVRP	○ CDOT	○ Corps of Engineers	○ Colorado Geologic Survey	○ U.S. Postal Service	● ~~Persigo WWTF~~						TOTAL REQ'D.
● Application Fee	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	1	1						
● 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~~ FEE	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.

General Project Report for "Ridge Heights" subdivision

"Ridge Heights" is a development of 51± acres located in The Ridges, Phase III, lot #7. It is bounded on the east by Country Club Park, on the south by Bella Pago Drive, on the west by the Energy Center subdivision and by The Ridges filing no. 3 (west of High Ridge Drive), and on the north by a parcel of land south of the Redlands Canal that at this time has no dedicated access. Ridge Heights is located in the NE¼ NW¼ of Section 21, Township 1 South, Range 1 West of the Ute Meridian, Mesa County, Colorado. Access is from Colorado State Highway 340 via Ridges Boulevard to Ridgeway Drive, to Hidden Valley Drive, to High Ridge Drive; and from Colorado State Highway 340 via Country Club Park Road to Bella Pago Drive.

Proposed use is for low density development: The approximately 51 acres will be divided into 11 lots ranging from 2 to approximately 8 acres. The property is currently vacant and consists of nonirrigated native vegetation. The development will be consistent with the surrounding areas, which are predominantly single-family subdivisions, and will tend toward large and expensive units similar to those south of Bella Pago Drive.

Public benefit of the proposed subdivision is both aesthetic and practical. First, the area has a rugged beauty that is the result of a series of knolls cut by ravines, with rock outcroppings and typical high desert flora such as cactus and wild flowers. The lot boundaries of this low density development are determined by the contours of the land, so that ten of the eleven sites are located on knolls with unobstructed views. Consequently, the land will be disturbed as little as possible in the development. Secondly, the development will benefit surrounding subdivisions in a number of practical ways: The development will help alleviate the tax liens in existing Ridges subdivisions; other surrounding areas outside The Ridges (Country Club Park) will feel minimal impact from increased traffic because of the low density, and the visual and noise impact will also be minimal (the previous 1980 proposal had upward of 100 units planned for this property!); and the residents of Country Club Park will also receive better utility service, because the power line that deadends on Bella Pago will become part of a power loop brought up from The Ridges.

Utilities will be provided through The Ridges or through Bella Pago Drive, depending on the closest access. Dual access is necessary because the property is cut by deep ravines in several places, so that access for some lots is not feasible from The Ridges. In the case of power and gas, a utility loop will be brought up from The Ridges that will connect with the line on Bella Pago. In the case of water (Ute), telephone (U.S. West), and cable television (United Artists Cable TV of Western Colorado), there are sufficient capacities on Bella Pago for those few units that have access from that end of the site, while these facilities are available at the top of High Ridge Drive for the sites that have access through The Ridges. Because Bella Pago is a county road while The Ridges is part of the city, the city will need to trade some water-service rights with Ute Water. The units with access from The Ridges will be on city sewer while the units with access from Bella Pago will be on septic. Irrigation will not be provided: The County Planning Commission on an earlier occasion specified that xeriscaping shall be used in this area (lots #1-6) for maximum soil stability. (The Soil Conservation Service [SCS] identifies the site as consisting of one soil type, classified

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as Badland [Ba]. No interpretations regarding soil characteristics are made by the SCS due to variable soil properties.) Because the density is two acres or less per site, no additional fire protection is required. Finally, the site does not lie within the designated 100-year flood plain, and it is not adversely affected by off-site drainage flows. Storm water from the site follows natural drainage courses to existing drainage ditches nearby. If a system of drainage fees is adopted by City Planning and is available, I am interested in following that plan.

The sites will be marketed as soon as the approval process is completed, and development will proceed in accordance with the plans of individual site owners.

Protective Covenants for "Ridge Heights" PUD

In order to protect the value, convenience, and use of the owners of Ridge Heights subdivision, the following restrictions shall apply:

1) Each of the eleven lots is a complete entity: It may not be subdivided, and only a single-unit dwelling may be constructed on each lot. Dwellings must be within the designated construction envelopes; the envelope for lot #11 is a perimeter 35' within its boundaries. Setbacks are not provided because building envelopes are specified for each site.

2) The minimum size of single-unit dwellings for all lots except #3 & 11 shall be 2100 square feet for a single level above ground, or 1100 square feet for a main floor when there are two levels above ground; garage space may be included in the square footage, and measurements shall be on the outside wall. The minimum size of single-unit dwellings for lots #3 & 11 shall be 1600 square feet. All dwellings shall have an attached garage that is a minimum of two car widths, and a minimum of four off-street parking spaces must be provided. To provide fire fighting and emergency access, driveways that are longer than 150' must be a minimum of 20' wide and at the dwelling must end in an area in conjunction with the drive that is at least 40' wide to provide a turnaround for emergency equipment. Maximum height of any structure is 25' from finished grade adjoining the structure. Extremely steep or "Chalet style" roofs (greater than 7 x 12) are prohibited.

3) As per the 7 April 1992 recommendation of the Colorado Geological Survey to the Mesa County Planning Department, considering the variability of soil conditions in the area and throughout the Grand Valley, the architect for the dwelling on each site will collaborate with a qualified soils and foundation engineer prior to final foundation-design selection. Architects should also address exterior drainage of dwellings and driveways to ensure maximum soil stability.

4) As per the 23 March 1992 project review recommendations of the Mesa county Planning Commission for this site, desert landscaping shall be used. No irrigation water will be provided, and except for minimal irrigation such as drip systems in conjunction with xeriscaping, normal irrigation is expressly prohibited due to potential soil instability. Small trees and shrubs (25-30') may be planted, but shall barely exceed the maximum allowable height of the dwelling (25'); large trees are expressly prohibited. Hedges and fences are prohibited except patio fences, which may be constructed of wood or rock and if painted shall be of natural tones.

5) Except for the dwelling site, driveways, and landscape immediate to the dwelling, natural vegetation may not be altered, damaged, or destroyed. Natural features such as rock outcroppings and wildlife shall be left intact and unharmed. All dwellings, and any alterations of the landscape, shall be such as to harmonize with the natural surroundings in terms of design, materials, and color as much as possible. Exterior lights shall be ordinary low intensity lights and shall be placed and used in a manner to prevent lighting nuisances.

6) Gravel or permeable hard surface driveways are recommended. If a nonpermeable driveway surface is used, the architect must confer with a

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qualified soils engineer to ensure that increased drainage does not adversely affect the site or neighboring sites. Driveways shall be pleasing in appearance and shall be maintained to allow safe and ready access for emergency and fire-fighting equipment.

7) There is a blanket easement over all areas for the purpose of installation, replacement, repair, and maintenance of all utilities, and to all law enforcement and emergency vehicles and personnel. Electrical lines and other utilities shall be underground, and no permanent structures or plantings may be placed in such a way as to interfere with utilities easements or to interfere with the service or repair of utilities. Easement areas of each lot shall be maintained continuously by the owner of the lot.

8) Towers and visible radio or TV antennae are forbidden, and satellite dishes must be concealed, camouflaged, or installed in such a way that they are not readily apparent and do not created an eyesore.

9) Clotheslines, equipment, wood piles, storage piles, and unsightly objects shall be screened or concealed from view as much as possible. Rubbish and trash shall be removed and will not be allowed to accumulate. Storage tanks for natural gas, gasoline, oil, or other fuel are prohibited.

10) No noxious or offensive activity shall be carried on upon any property, nor shall anything be done that is or may become a nuisance or cause disturbance or annoyance to others, or that might constitute a health hazard.

11) No animals, poultry, or birds shall be kept or maintained on any lands in the PUD except ordinary house pets, not to exceed County regulations as to number. All pets must be maintained so that they do not become a nuisance to the neighborhood and do not run at large or endanger or harass other animals--including wildlife upon the owner's site, adjoining sites, or the public domain. Ordinary house pets will be contained on owner's property or on leash. No livestock may be allowed to graze, and horses may not be kept.

12) With the exception of one "For Rent" or "For Sale" sign, which shall not be larger than 18 by 24 inches or exceed Mesa County specifications, and except for one entrance gate sign of a style and design approved by the county, no signs, advertising, or billboards shall be permitted.

13) Snowmobiles, motorcycles, ATV, and other recreational vehicles shall not be operated in the PUD, except that motorcycles may be used for transportation in and out of the PUD, but only upon dedicated roads.

14) No firearms shall be discharged on any property in the PUD. No hunting, shooting, trapping, or otherwise harming of wildlife shall be permitted in the PUD; in this manner it is the intent to conserve and protect all wildlife to the fullest extent possible.

15) No open fires shall be lighted, including for burning trash or rubbish. Barbecues are permitted in appropriate containers.

16) Each single-family dwelling shall be completed no later than one year after commencement of construction; all landscaping shall be completed within one year from the date of occupancy of any dwelling. Dwellings shall be

maintained in good repair and appearance.

17) No property shall be used for the purpose of mining, quarrying, drilling, boring, or exploring for or removing water, oil, gas, or other hydrocarbons, minerals, rocks, stones, gravel, or earth.

18) Detached accessory buildings shall not exceed in area 10% of the number of square feet in the exterior measurements in the principal dwelling and shall blend with the architectural design of the family dwelling.

19) There shall not be permitted any trade, business, or industry on any site except for home occupations for gain or support as long as the primary use of the building is as a dwelling. Articles may not be sold or offered for sale on the premises, and only persons who reside in the dwelling may carry on any business on the premises, and no additional entrances for business purposes may be added to the dwelling. The business may not interfere with the peace, quiet, and dignity of the neighborhood and adjoining properties. Veterinary hospitals are expressly prohibited.

20) No owner shall permit any thing or condition to exist upon his lot that shall induce, breed, or harbor infectious plant diseases or noxious insects.

21) No vehicle shall be parked to impede or prevent emergency access or egress to or from a building. All recreational vehicles, including but not limited to campers, trailers, and boats, must be kept in a recreational vehicle storage facility such as that provided by The Ridges. Such vehicles must be stored in the designated area at all times with exception to a reasonable time of loading and unloading such vehicles.

22) Unreasonably loud noises are prohibited on any property.

23) The owners of the eleven lots of Ridge Heights shall form an Owners Association to address property issues of common interest such as the formation of an architectural review board. Issues shall be decided by a majority vote.

revised 30 August 1993

91-3-2

INTRODUCTION

PROJECT DESCRIPTION

This report presents the results of our geotechnical evaluation performed to determine the general subsurface conditions of the site applicable to construction of a 10 lot, residential subdivision. A vicinity map is included in the Appendix of this report.

To assist in our exploration, we were provided with a Plot Plan, prepared by ROLLAND ENGINEERING. The Exploration Pit Location Plan attached to this report is based on that plan provided to us.

We understand that the proposed structures will probably consist of one and two story, wood framed residential structures with possible full basements and concrete floor slabs on grade. Lincoln DeVore has not seen a set of building plans, but structures of this type typically develop wall loads on the order of 800 to 2200 plf and column loads on the order of 8 to 20 kips.

The characteristics of the subsurface materials encountered were evaluated with regard to the type of construction described above. Recommendations are included herein to match the described construction to the soil characteristics found. The information contained herein may or may not be valid for other purposes. If the proposed site use is changed or types of construction proposed, other than noted herein, Lincoln DeVore should be contacted to determine if the information in this report can be used for the new construction without further

field evaluations.

PROJECT SCOPE

The purpose of our exploration was to evaluate the surface and subsurface soil and geologic conditions of the site and, based on the conditions encountered, to provide recommendations pertaining to the geotechnical aspects of the site development as previously described. The conclusions and recommendations included herein are based on an analysis of the data obtained from our field explorations, laboratory testing program, and on our experience with similar soil and geologic conditions in the area.

The scope of our geotechnical exploration consisted of a surface reconnaissance, a geophoto study, subsurface exploration, conducting field percolation testing, obtaining representative samples, laboratory testing, analysis of field and laboratory data, and a review of geologic literature.

Specifically, the intent of this study is to:

1. Explore the subsurface conditions to the depth expected to be influenced by the proposed construction.

2. Evaluate by laboratory and field tests the general engineering properties of the various strata which could influence the development.

3. Define the general geology of the site including likely geologic hazards which could have an effect on site development.

4. Develop geotechnical criteria for site grading and earthwork.

5. Identify potential construction difficulties and provide recommendations concerning these problems.

6. Recommend an appropriate foundation system for the anticipated structure and develop criteria for foundation design.

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FIELD EXPLORATION AND LABORATORY TESTING

A field evaluation was performed on August 31, 1993, and consisted of a site reconnaissance by our geotechnical personnel and the digging of 9 exploration Pits. These shallow pits were excavated near the proposed buildings, near the anticipated locations of the possible on-site sewage disposal fields, as indicated on the Boring Location Plan. The exploration pits were located to obtain a reasonably good profile of the subsurface soil conditions. All exploration pits were excavated using a small, rubber-tyred backhoe to depths of approximately 6 to 10 feet. Samples were taken by bulk methods. Logs describing the subsurface conditions are presented in the attached figures.

Laboratory tests were performed on representative soil samples to determine their relative engineering properties. Tests were performed in accordance with test methods of the American Society for Testing and Materials or other accepted standards. The results of our laboratory tests are included in this report. The in-place moisture content and the standard penetration test values are presented on the attached drilling logs.

FINDINGS

SITE DESCRIPTION

The project site is located in the center portion of the North Half of Section 21, Township 1S, Range 1W of the Ute Principal Meridian, Mesa County, Colorado. More specifically the site is located in the eastern portion of the Redlands, south of Colorado State Highway 340 and within the City Limits of Grand Junction.

The topography of the site is that of a moderate to steep hillsides, dissected by several well developed drainages and dropping generally to the north, northeast. The slope gradient on this site is in excess of 100 at some locations however, the building envelopes anre generally limmited to less than 20. The direction of surface runoff on this site will be locally controlled by the proposed construction but, in general, surface runoff will travel to the northeast to a well defined gully system, into the Redlands Power Canal, eventually entering the Colorado River. Surface drainage is good; subsurface drainage is good to very poor, depending on the subsurface soils profile for each building site.

On-site erosion can be a significant problem if drainage and vegetation are not carefully controlled. Vegetation will probably be maintained in the immediate area around the building sites, but special care should be taken to maintain vegetation on the steeper slopes. We recommend that runoff from these slopes be carefully controlled to prevent erosion caused by irrigation practices, sheetwash or seepage. It may be necessary to provide culverts or drainage ways to prevent

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excessive erosion along steeper slopes.

GENERAL GEOLOGY AND SUBSURFACE DESCRIPTION

The geologic materials encountered under the site consist of the upper members of The Dakota Formation, covered with thin colluvial deposits and remnants of the Ancient Colorado River Terrace on the ridge tops. The geologic and engineering properties of the materials found in our nine exploration pits will be discussed in the following sections.

The surface colluvial soils were found to be quite thin and somewhat variable in composition. These soils have been designated as Soil Type I.

This Soil Type was classified as a gravelly silty clay sand (SC) under the Unified Classification System. This material is of low plasticity, of low to moderate permeability, and was encountered in a low density, dry condition. This soil may undergo mild expansion with the entry of small amounts of moisture, but will undergo long-term consolidation upon the addition of larger amounts of moisture. This soil will settle after being loaded. The maximum allowable bearing capacity for this soil was found to be 1300 psf, with 350 minimum dead load pressure required. **Due to the expansive characteristic of the underlaying soils, it is generally recommended this soil type not be utilized for foundation bearing** The finer grained portion of Soil Type No. I contains sulfates in detrimental quantities.

The cobbles and gravels of the ancient Colorado River Terrace has been designated as Soil Type II.

This Soil Type is classified as a Silty, Sandy Gravel (GM) of coarse grain size under the Unified Classification System. This soil type is non plastic and of low to medium density. This soil will have virtually no tendency to expand upon the addition of moisture. Settlement will be minimal under the recommended foundation loads. This soil will undergo elastic settlement upon application of static foundation pressures. Such settlement is characteristically rapid and should be virtually complete by the end of construction. If the recommended allowable bearing values are not exceeded, and if all other recommendations are followed, differential movement will be within tolerable limits. At shallow foundation depths this soil was found to have an average allowable bearing capacity of 2000 to 4500 psf.

The soils encountered as a part of the Dakota Formation were found to consist of thin beds of sandstone, siltstone, shale and carbonaceous siltstone, shale and mudstone. These soils are quite variable and will change both laterally and vertically. For purposes of this report, the clays of the Dakota Formation will be specifically addressed, due to the expansive characteristics. This soil is designated as Soil Type III.

This soil type was classified as a low plastic silty clay (CL) under the Unified Classification System. This soil is plastic and is sensitive to changes in moisture content. Upon increasing moisture, it will tend to expand. With decreased moisture, it will tend to shrink, with some cracking upon desiccation. Expansion tests were performed on typical samples of the soil and expansive pressures on the order of 600 to

1700 psf were found to be typical. The allowable maximum bearing value was found to be on the order of 5500 psf. for shallow foundation systems. A minimum dead load of 2000 psf will be required. This soil was found to contain sulfates in detrimental quantities.

Indications of hillside creep were noted on the site, during the course of the field investigation. The soil on the site appears to be in a relatively stable condition at the time of investigation. However, great care is required to design subsurface drainage and cuts and fills in order to minimize the possibility of a large scale movement. We recommend that buildings be carefully placed on the site, properly and well drained, and that all cuts and fills should be controlled to avoid inadvertent triggering of hillside creep or mass movement.

The exploration logs and related information show subsurface conditions at the date and location of this exploration. Soil conditions may differ at locations other than those of the exploratory borings. If the structures are moved any appreciable distance from the locations of the pits, the soil conditions may not be the same as those reported here. The passage of time may also result in a change in the soil conditions at the exploration locations.

The lines defining the change between soil types or rock materials on the attached logs and soil profiles are determined by interpolation and therefore are approximations. The transition between soil types may be abrupt or may be gradual.

GROUND WATER:

No free water was encountered during drilling on this site. In our opinion the true free water surface is fairly deep in this area, and hence, should not affect construction. Seepage moisture may affect construction if surface drainage is not properly controlled.

Due to the proximity of the Dakota Formation, there exists a possibility of a perched water table developing in the alluvial soils which overlie the soil. This perched water would probably be the result of increased irrigation due to the presence of lawns and landscaping and roof runoff. While it is believed that under the existing conditions at the time of this exploration the construction process would not be effected by any free-flow waters, it is very possible that several years after development is initiated, a troublesome perched water condition may develop which will provide construction difficulties. In addition, this potential perched water could create some problems for existing or future foundations on this tract. Therefore it is recommended that the future presence of a perched water table be considered in all design and construction of both the proposed residential structures and any subdivision improvements.

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CONCLUSIONS AND RECOMMENDATIONS

GENERAL DISCUSSION

No geologic conditions were apparent during our reconnaissance which would preclude the site development as planned, provided the recommendations contained herein are fully complied with. Based on our investigation to date and the knowledge of the proposed construction, the site condition which would have the greatest effect on the planned development is expansive clays of the Dakota Formation.

Since the exact magnitude and nature of the foundation loads are not precisely known at the present time, the following recommendations must be somewhat general in nature. Any special loads or unusual design conditions should be reported to Lincoln DeVore so that changes in these recommendations may be made, if necessary. However, based upon our analysis of the soil conditions and project characteristics previously outlined, the following recommendations are made.

OPEN FOUNDATION OBSERVATION

Since the recommendations in this report are based on information obtained through random pits, it is possible that the subsurface materials between the exploration points could vary. Therefore, prior to placing forms or pouring concrete, an open excavation observation should be performed by representatives of Lincoln DeVore. The purpose of this observation is to determine if the subsurface soils directly below the proposed foundations are similar to those encountered in our exploration pits. If the materials below the proposed founda-

tions differ from those encountered, or in our opinion, are not capable of supporting the applied loads, additional recommendations could be provided at that time.

Some difficulties are anticipated in the course of excavating into the soils of teh Dakota Formation on the site. It is probable that safety provisions such as sloping or bracing the sides of excavations over 4 feet deep will be necessary. Any such safety provisions shall conform to reasonable industry safety practices and to applicable OSHA regulations. The OSHA Classification for excavation purposes on this site for the weathered Dakota Formation is Soil Class A. The OSHA Classification for excavation purposes on this site for the alluvial gravels and colluvial soils is Soil Class C.

We recommend that all backfill placed around the exterior of the buildings, and in utility trenches which are outside the perimeter of the building and not located beneath roadways or parking lots, be compacted to a minimum of 85% of its maximum Proctor dry density (ASTM D 698).

In general, we recommend all structural fill in the area beneath any proposed structure or roadway be compacted to a minimum of 90% of its maximum modified Proctor dry density (ASTM D1557). This structural fill should be placed in lifts not to exceed six (6) inches after compaction. We recommend that fill be placed and compacted at approximately its optimum moisture content (+/-2%) as determined by ASTM D 1557. Structural fill should be a granular, non-expansive soil.

DRAINAGE AND GRADIENT:

Adequate site drainage should be provided in the foundation area both during and after construction to prevent the ponding of water and the saturation of the subsurface soils. We recommend that the ground surface around the structure be graded so that surface water will be carried quickly away from the building. The minimum gradient within 10 feet of the building will depend on surface landscaping. We recommend that paved areas maintain a minimum gradient of 2%, and that landscaped areas maintain a minimum gradient of 8%.

It is further recommended that roof drain downspouts be carried across all backfilled areas and discharged at least 10 feet away from the structure. Proper discharge of roof drain downspouts may require the use subsurface piping in some areas. Planters, if any, should be so constructed that moisture is not allowed to seep into foundation areas or beneath slabs or pavements.

We recommend that a perimeter drain be placed around the exterior walls of the structure at foundation level or below, for foundations in contact with or in the vicinity of the Dakota Formation. A drain of this type includes a perforated pipe and an adequate gravel collector, the whole being wrapped in a geotextile filter fabric. We recommend that the discharge pipe for this drain be given a free gravity outlet to exit at ground surface. If "daylight" cannot be obtained, we recommend that a sealed sump and pump be used to discharge the seepage. Under no circumstances shall a "dry well" be used on

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this site.

Should an automatic lawn irrigation system be used on this site, we recommend that the sprinkler heads be installed no less than 5 feet from the building. In addition, these heads should be adjusted so that spray from the system does not fall onto the walls of the building and that such water does not excessively wet the backfill soils.

FOUNDATIONS

We recommend the use of a conventional shallow foundation system consisting of continuous spread footings beneath all bearing walls and isolated spread footings beneath all columns and other points of concentrated load. Such a shallow foundation system, resting on the **Gravels of the Ancient Colorado River Terrace**, may be designed on the basis of an allowable bearing capacity of 4500 psf maximum. No minimum dead load is required assuming the Dakota Formation is not in near proximity of the Foundation Level.

Contact stresses beneath all continuous walls should be balanced to within + or - 150. psf at all points. Isolated interior column footings should be designed for contact stresses of about 150 psf less than the average used to balance the continuous walls. The criterion for balancing will depend somewhat upon the nature of the structure. Single-story, slab on grade structures may be balanced on the basis of dead load only. Multi-story structures may be balanced on the basis of dead load plus 1/2 live load, for up to 3 stories.

For Foundations placed near or in contact with the Dakota Formation and assuming that some amount of differential movement can be tolerated, three foundation types which could be utilized for for residential construction are recommended based on our experience in this area. The choice between these foundation types depends on the internal loading of the foundation members and the amount of excavation planned to achieve the finished lower elevations.

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The three foundation types preliminarily recommended are as follows:

1. The voided wall on grade foundation system with a stemwall resting directly on the shale formation.

2. The isolated pad and grade beam foundation system in which the grade beam is voided and loads are transferred to the isolated pads.

3. The drilled pier and fully voided grade beam system with the loads transferred to the piers.

SHALLOW FOUNDATIONS

A conventional shallow foundation system consisting of either a voided wall on grade or an isolated pad and grade beam system, resting on the relatively unweathered expansive clays of the Dakota Formation, may be designed on the basis of an allowable bearing capacity of 5500 psf maximum, and a minimum dead load of 2000 psf must be maintained. Contact stresses beneath all continuous walls should be balanced to within + or - 150 psf at all points. Isolated interior column footings should be designed for contact stresses of about 150 psf more than the average used to balance continuous walls. The criteria use for balancing will depend somewhat upon the nature of the structure. Single-story, slab on grade structures and single-story crawlspace structures may be balance on the basis of dead load only. Multi-story structures may be balanced on the basis of Dead Load plus one half live load, for up to three stories.

Stem walls for a shallow foundation system should be designed as grade beams capable of spanning at

least 14 feet. These "grade beams" should be horizontally reinforced both near the top and near the bottom. The horizontal reinforcement required should be placed continuously around the structure with no gaps or breaks. A foundation system designed in this manner should provide a rather rigid system and, therefore, be better able to tolerate differential movements associated with the swelling clays.

DRILLED PIERS:

We recommend that drilled piers have a minimum shaft length of 6 feet and be embedded at least 6 feet into the relatively unweathered bedrock. At this level,these piers may be designed for a maximum end bearing capacity of 25000 psf, plus 1800 psf side support considering only the side wall area embedded in the bedrock. Due to the expansive potential of the bedrock, a minimum dead load uplift is required, consisting of a point uplift of 2000 psf and 300 psf side uplift, based on the side wall embedded in the bedrock. The weight of the concrete in the pier may be incorporated into the required dead load.
It is recommended that the bottoms of all piers be thoroughly cleaned prior to the placement of concrete. The amount of reinforcing in each pier will depend on the magnitude and nature of loads involved. As a rule of thumb, reinforcing equal to approximately 1/2 of 1% of the gross cross- sectional concrete area should be used. Additional reinforcing should be used if structural conditions warrant. We recommend that reinforcing extend through the full length of pier.

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To minimize the possibilty of voids developing in the drilled piers, concrete with a slump of 5 to 6 inches is recommended. We recommend that piers be dewatered and thoroughly cleaned of all loose material prior to placing the steel cage and concrete. The pier excavation should contain no more than 2 inches of free water unless the concrete is placed by means of a tremie extending to the bottom of the pier. A free fall in excess of 5 feet is not recommended when placing concrete in drilled piers. We recommend that casing be pulled as the concrete is being placed and that a 5 foot head of concrete be maintained while pulling the casing. It is recommended that drilled piers be plumb with 2% of their length and that the shaft maintain a constant diameter for the full length of the pier and not allowed to "mushroom" at the top.

DRILLED PIER OBSERVATION: The foundation installation for drilled piers should be continuously observed by a representative of Lincoln DeVore to determine that the recommended bearing material has been adequately penetrated and that soil conditions are as anticipated by the exploration. This observation will aid in attaining an adequate foundation system. In addition, abnormalities in the subsurface conditions encountered during foundation installation can be identified and corrective measures taken as required. Lincoln DeVore requires a minimum of one working day's notice, and a copy of the foundation plan, to schedule any field observation.

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GRADE BEAMS: A reinforced concrete grade beam is recommended to carry the exterior wall loads in conjunction with the deep foundation system. We recommend that this grade beam be designed to span from bearing point to bearing point and not be allowed to rest on the ground surface between these points. We recommend a void space be left between the bottom of the grade beam and the subgrade below due to the expansive nature of the subgrade soils.

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CONCRETE SLABS ON GRADE

Slabs could be placed directly on the natural soils or on a structural fill. We recommend that all slabs on grade be constructed to act independently of the other structural portions of the building. One method of allowing the slabs to float freely is to use expansion material at the slab-structure interface.

If the slab is to be placed directly on the expansive soils or on a thin fill overlying these soils, the risk of slab movement is high and stringent mitigation techniques are recommended. No design method known at this time will prevent slab movement should moisture enter the expansive soils below. Therefore, to mitigate the effects of slab movement should they occur, we recommend the following:

1. Control joints should be placed in such a manner that no floor area exceeding 400 square feet remains without a joint. Additional joints should be placed at columns and at inside corners. These control joints should minimize cracking associated with expansive soils by controlling location and direction of cracks.

2. We recommend that all slabs on grade be isolated from structural members of the building. This is generally accomplished by an expansion joint at the floor slab / foundation interface. In addition, positive separation should be maintained between the slab and all interior columns, pipes and mechanical systems extending through the slab.

3. The slab subgrade should be kept moist 3 to 4 days prior to placing the slab. This is done by periodically sprinkling the subgrade with water. However, under no circumstances should the subgrade be kept wet by the flooding or ponding water.

4. Any partitions which will rest on the slabs on grade should be constructed with a minimum void space of 2 inches at the bottom of the wall (see figure in the Appendix). This base should allow for future upward movement of the floor slabs and minimize movement and

damage in walls and floors above the slabs. This void may require rebuilding after a period of time, should heave exceed 2 inches.

It is recommended that floor slabs on grade be constructed with control joints placed to divide the floor into sections not exceeding 360 square feet, maximum. Also, additional control joints are recommended at all inside corners and at all columns to control cracking in these areas.

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EARTH RETAINING STRUCTURES

The active soil pressure for the design of earth retaining structures may be based on an equivalent fluid pressure of 55 pounds per cubic foot. The active pressure should be used for retaining structures which are free to move at the top (unrestrained walls). For earth retaining structures which are fixed at the top, such as basement walls, an equivalent fluid pressure of 70 pounds per cubic foot may be used. It should be noted that the above values should be modified to take into account any surcharge loads, sloping backfill or other externally applied forces. The above equivalent fluid pressures should also be modified for the effect of free water, if any.

The passive pressure for resistance to lateral movement may be considered to be 210 pcf per foot of depth. The coefficient of friction for concrete to soil may be assumed to be .3 for resistance to lateral movement. When combining frictional and passive resistance, the latter must be reduced by approximately 1/3.

REACTIVE SOILS

Since groundwater in the Redlands area typically contains sulfates in quantities detrimental to a Type I cement, a Type II or Type I-II or Type II-V cement is recommended for all concrete which is in contact with the subsurface soils and bedrock. Calcium chloride should not be added to a Type II, Type I-II or Type II-V cement under any circumstances.

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LIMITATIONS

This report is issued with the understanding that it is the responsibility of the owner, or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project, and are incorporated into the plans. In addition, it is his responsibility that the necessary steps are taken to see that the contractor and his sub-contractors carry out these recommendations during construction. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in acceptable or appropriate standards may occur or may result from legislation or the broadening of engineering knowledge. Accordingly, the findings of this report may be invalid, wholly or partially, by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 3 years.

The recommendations of this report pertain only to the site investigated and are based on the assumption that the soil conditions do not deviate from those described in this report. If any variations or undesirable conditions are encountered during construction or the proposed construction will differ from that planned on the day of this report, Lincoln DeVore should be notified so that supplemental recommendations can be provided, if appropriate.

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Lincoln DeVore makes no warranty, either expressed or implied, as to the findings, recommendations, specifications or professional advice, except that they were prepared in accordance with generally accepted professional engineering practice in the field of geotechnical engineering.

REVIEW COMMENTS

DATE: **September 1993**

FILE #91-93-2 **TITLE HEADING: RIDGE HEIGHTS**

ACTIVITY: FINAL PLAN - MAJOR SUBDIVISION

LOCATION: Ridges, north of Bella Pago

PETITIONER: Barry Tharaud, Community Hospital Foundation

PETITIONER'S ADDRESS/TELEPHONE: 2021 N. 12th Street
Grand Junction, CO 81501
242-0920

ENGINEER/REPRESENTATIVE: Rolland Engineering

STAFF REPRESENTATIVE: Karl Metzner

NOTE: **WRITTEN RESPONSE BY THE PETITIONER TO THE REVIEW COMMENTS IS REQUIRED ON OR BEFORE 5:00 P.M., September 28, 1993**

CITY AGENCIES:

CITY ATTORNEY
Dan Wilson **244-1505**

- Will want to discuss the final form of the covenants prior to approval. The concepts set forth in the 30th of August '93 version are okay. Please have the proponent contact Dan Wilson when appropriate.

- Sewer service to all lots shold be recommended.

- Narrative says "building envelopes" yet plat shows "ordinary" setbacks?

- Dedicatory language, if accepted, may be intended to obligate the City to perform maintenance - this should be carefully reviewed by engineering staff. Homeowners should be alerted to this on-going responsibility in the covenants.

- Are they proposing private drives over the easements? I couldn't tell if any of these parcels are "land locked" ?

CITY FIRE DEPARTMENT
George Bennett 244-1400

Adequate turnarounds and access roads for fire department vehicles are required. Access roads are to be a minimum clear and unobstructed width of twenty feet. Turnarounds are required when access roads are greater than 150 feet in length. They must accommodate all fire department vehicles.

CITY PARKS & RECREATION
Don Hobbs 244-1542

Open space fee based upon 11 lots at $225. each for a total of $2,475.00 due.

POLICE DEPARTMENT
Mark Angelo 244-3587

First concern is access to the lots for emergency vehicles. What type of road base is going to be used and how wide will the driveways be?

Recommend that they be wide enough to handle the width of 2 vehicles. There has been occasion when we have parked a distance from a residnece on a private drive, and walked in for officers safety. Then we have had to ask for medical assistance and cleared them to respond. If we have parked on the driveway, they would need to get by our parked cars. In addition, I would recommend asphalt driveways with a minimum width of 20 feet; if not, at least paving into the driveway entrance 10 feet from the street to prevent rocks from being carried onto the street.

DEVELOPMENT ENGINEER
Gerald Williams 244-1590

PLAT:

1. Irrigation and drainage easements should not appear in the dedication. The attached memorandum is provided for your use.

2. A printout of boundary closure must be provided.

3. The northern limits of the ingress-egress easement must by delineated.

4. Provide building envelope information.

COMPOSITE PLAN:

1. Will Ute Water allow 4 lot services from one service tap? (see Lots 4-7)

2. Provide full information on the water and sewer lines extended from Hidden Valley Drive.

DRAINAGE:
1. The drainage fee must be paid prior to the recording of the plat.

COMMUNITY DEVELOPMENT DEPARTMENT
Karl Metzner 244-1447

See Attached.

COUNTY & STATE AGENCIES:

MESA COUNTY HEALTH
Caryn Romeo, Sanitarian 248-6970

Mesa County Health Department has strong objections to the proposed Ridge Heights Subdivision in regard to the use of individual sewage disposal systems (I.S.D.S.) for any of the parcels. Though no percolation tests, specific soils informaiton, or testing locations have been submitted to this Department, the narrative indicates extremely adverse soils conditions exist on at least six (Lots 4,5,6,7,8 & 9) of the eleven parcels. From the elevation plat, it appears that the only parcels that may be feasible for sewer connections are Lots 1,2,& 3 bordering High Ridge Drive. These are the only parcels which have suitable soils indicated for I.S.D.S. installation. Due to the probability of complex Registered Professional Engineer (RPF) designs being required for on-site sewage disposal on the majority of the proposed lots, denial of this subdivision as proposed is recommended by this Department unless community sewer connection is required for all parcels.

OTHER REVIEW AGENCIES:

U.S. WEST
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.

Mesa County Assessor

Mesa County Courthouse Annex P.O. Box 20,000-5003 Grand Junction, Colorado 81502-5003 (303) 244-1610

May 6, 1994

Katherine Portner
City of Grand Junction
Planning Department
250 N. 5th St.
Grand Junction, CO 81501

RE: 2945-212-00-041 & 2945-211-00-023

Dear Ms. Portner,

Mr. Ted Munkres called today and requested this letter regarding the boundary adjustment on the properties referenced above.

The removal of .66 acres from parcel #2945-212-00-041 and from the "Ridges Metro Dist. #2" would have virtually no impact on the taxing district.

It is my understanding that the city will be "de-annexing" the .66 ac, rather than annex parcel #2945-211-00-023.

Please let me know if you have any questions.

Sincerely,

Barbara R. Butler
Deputy Assessor

cc: Mr. Munkres

CITY OF GRAND JUNCTION
CITY COUNCIL WORKSHOP

DATE: 7/18/94
STAFF: Kathy Portner
Community Development

ACTION REQUESTED: Council consideration of a request to de-annex .6 acres from both the City and the Ridges Metropolitan District.

EXECUTIVE SUMMARY: A boundary line adjustment is proposed between the Ridge Heights development and a property on Bella Pago to settle an encroachment dispute. The proposal includes asking the Council to de-annex 0.6 acres of land from both the City and the Ridges Metropolitan District.

FISCAL IMPACT: Insignificant

BACKGROUND/ISSUES/OPTIONS: To settle a boundary line dispute the owners of the property know as Ridge Heights have agreed to deed .6 acres of their property to Lori Hill, the owner of the parcel of land to the east of Ridge Heights along Bella Pago Drive. The .6 acres to be deeded to Ms. Hill is within the City limits and the Ridges Metropolitan District. Ms. Hill's property is not within either the City or the Ridges Metro District. Upon completion of the boundary line adjustment, Ms. Hill will be requesting that the .6 acres be de-annexed from both the City and the Ridges Metropolitan District. Staff is looking for direction on how to proceed with the boundary line adjustment process and the request for de-annexation.