FEE $ 10.00
TCP $
SIF $

PLANNING CLEARANCE

(Single Family Residential and Accessory Structures)

Community Development Department

BLDG PERMIT NO.

pl

11007 3-58153

Building Address 2077 RAINDANCE CT.

Parcel No. 2947-151-53-004

Subdivision INDEPENDENCE RANCH

Filing 11 Block 1 Lot 4

No. of Existing Bldgs 1 No. Proposed 0

Sq. Ft. of Existing Bldgs 4244 Sq. Ft. Proposed 0

Sq. Ft. of Lot / Parcel .37 ACRES

Sq. Ft. Coverage of Lot by Structures & Impervious Surface (Total Existing & Proposed) _____

Height of Proposed Structure _____

OWNER INFORMATION:

Name DENNIS CORSI

Address 2077 RAINDANCE CT.

City / State / Zip GRAND JUNCTION CO 81503

DESCRIPTION OF WORK & INTENDED USE:

- ☐ New Single Family Home (*check type below)
- ☐ Interior Remodel ☐ Addition
- ☒ Other (please specify): INGROUND FIBERGLASS POOL 38' x 15'

APPLICANT INFORMATION:

Name Brian Phelps/Phelps Construction

Address 427 S. Camp Rd

City / State / Zip GJ CO 81503

Telephone 261-8934 Brian

*TYPE OF HOME PROPOSED:

- ☐ Site Built ☐ Manufactured Home (UBC)
- ☐ Manufactured Home (HUD)
- ☐ Other (please specify): _____

NOTES: _____

REQUIRED: One plot plan, on 8 1/2" x 11" paper, showing all existing & proposed structure location(s), parking, setbacks to all property lines, ingress/egress to the property, driveway location & width & all easements & rights-of-way which abut the parcel.

THIS SECTION TO BE COMPLETED BY COMMUNITY DEVELOPMENT DEPARTMENT STAFF

ZONE PD

SETBACKS: Front 20 from property line (PL)

Side 10 from PL Rear 25 from PL

Maximum Height of Structure(s) _____

Voting District A

Driveway Location Approval _____ (Engineer's Initials)

Maximum coverage of lot by structures _____

Permanent Foundation Required: YES _____ NO _____

Parking Requirement _____

Special Conditions Follow Recommendations from GJ Lincoln-Devore's 7/18/07 Letter KBF 7/23/07

Modifications to this Planning Clearance must be approved, in writing, by the Community Development Department. The structure authorized by this application cannot be occupied until a final inspection has been completed and a Certificate of Occupancy has been issued, if applicable, by the Building Department (Section 305, Uniform Building Code).

I hereby acknowledge that I have read this application and the information is correct; I agree to comply with any and all codes, ordinances, laws, regulations or restrictions which apply to the project. I understand that failure to comply shall result in legal action, which may include but not necessarily be limited to non-use of the building(s).

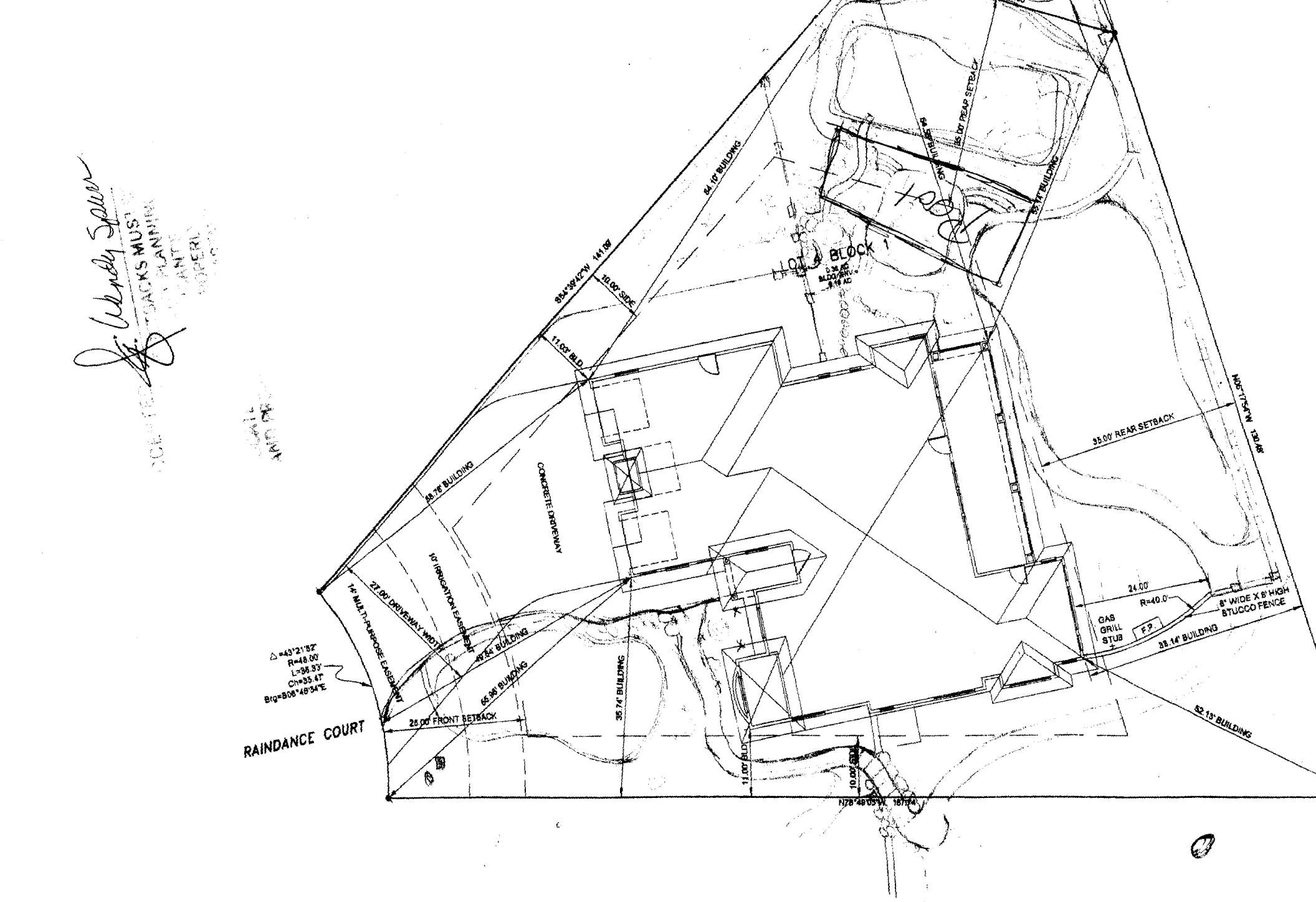
Applicant Signature B Phelps Date 6-8-07

Department Approval MS Date 7/23/07

Additional water and/or sewer tap fee(s) are required:	YES	NO	W/O No.
Utility Accounting		Date 7/23/07	

VALID FOR SIX MONTHS FROM DATE OF ISSUANCE (Section 2.2.C.1 Grand Junction Zoning & Development Code)

(White: Planning) (Yellow: Customer) (Pink: Building Department) (Goldenrod: Utility Accounting)


LOT 1 BLOCK 1
RAINDANCE COURT
64.19' BUILDING
S54°39'42"W 141.08'
10.00' SIDE
11.00' BLDG.
35.00' PEAP SETBACK
64.39' BUILDING
55.11' BUILDING
35.00' REAR SETBACK
N35°17'54"W 130.48'
24.00'
R=40.0'
8' WIDE X 8' HIGH STUCCO FENCE
GAS GRILL STUB
F.P.
38.14' BUILDING
52.13' BUILDING
N78°48'05"W 187.24'
11.00' BLDG.
10.00' SIDE
35.74' BUILDING
25.00' FRONT SETBACK
65.96' BUILDING
49.54' BUILDING
14' MULTI-PURPOSE EASEMENT
27.00' DRIVEWAY WIDTH
10' IRRIGATION EASEMENT
CONCRETE DRIVEWAY
38.76' BUILDING
Δ=43°21'52"
R=48.00'
L=36.33'
Ch=35.47'
Brg=S06°49'54"E

GRAND JUNCTION
LINCOLN - DeVORE, Inc.
GEOTECHNICAL ENGINEERS - GEOLOGISTS

1441 Motor St.
Grand Junction, CO 81505

TEL: (970) 242-8968
FAX: (970) 242-1561

July 18, 2007

Phelps Construction
427 S. Camp Road
Grand Junction, CO 81503

Re: Slope Concerns for Pool Construction
Corsi Residence, 2077 Raindance Court, Grand Junction, CO

Gentlemen:

Edward M. Morris, P.E., of Grand Junction Lincoln DeVore met with Mr. Phelps and Mr. Corsi at the above-referenced site on June 28, 2007. The existing excavation for the preformed swimming pool structure was observed in conjunction with the existing site grading, landscaping and drainage. This site was the subject of a previous slope stability analysis prior to construction of the residence (Building Slope Setback, 2077 Raindance Court, Grand Junction Lincoln DeVore Job #91891-GJ, dated August 11, 2005) and a Slope Stability Study for the subdivision, Grand Junction Lincoln DeVore Job #89914-GJ, dated March 1, 2005. The results of these previous site studies have been incorporated into our analysis of this site for the swimming pool construction. Following are our findings and conclusions.

The pool area corresponds with the previous slope study for Section S-6 along the north side of the now present residence. The original figures presented in our report of Building Slope Setback for this site are still appropriate. The constructed slope is slightly different from our assumptions in that approximately 1 to 2 feet of additional material has been pushed out over the slope edge during the final construction and grading of this residence. This extra material was modeled utilizing the GEO Studio 2004, V. 6.21, Slope/W Module. The additional material at the top edge of the slope has virtually no effect on the overall slope stability but represents a material which will undergo long-term sloughing type failure.

The existing pool excavation is within the bounded area of a computed safety factor of 1.82 at the extreme west end, closest to the residence, and 1.42 at the extreme east/northeast end, closest to the slope edge. For structures such as a pool and associated concrete slabs, a safety factor of 1.3 or greater is normally considered appropriate. The pool structure should not adversely affect the slope stability on this lot, and the computed slope stability safety factors are such that movement beneath the pool structure is not anticipated. Due to the lower computed safety factors close to the bank edge, we recommend that slab and apron construction, which adjoins the pool, be terminated at 10 feet from the original bank edge approximately 11 to 12 feet from the existing, slightly modified bank edge. This area may undergo minor sloughing over the years and will probably undergo minor distortion in the area up to 10 feet away from the original bank edge. This distortion may not incorporate a full slope failure but would be similar to what is referred to as soil creep by engineering geologists.

To minimize long-term distortion of the bank edge and sloughing of the thin soils on the actual slope edge, the original recommendations contained in our Building Slope Setback Report of August 18, 2005 are restated to account for the pool construction and increased concrete slabs on grade in this area.

- The subsurface drain around the structure, which has been exposed at the time of our observations, needs to be reconnected, and the actual discharge needs to be confirmed as to location and operability.

- Since this drain is not set in the Mancos Shale Formation as required in our original letter report, the effectiveness of this drain is greatly diminished.

- The drain daylight discharge to the northeast of the structure must be confirmed. The drain channel has not been properly constructed with a plastic or rubber membrane underneath the drain so that water collected in the drain is allowed to enter the underlying soils along the length of the drain.

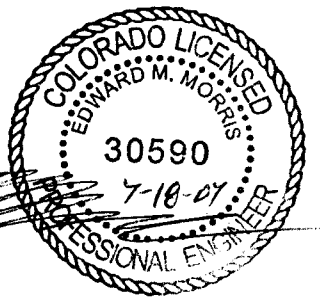
- It must be emphasized that a free water surface must not develop within this backyard area, particularly within the pool area. Proper removal of downspout discharges, limiting the landscape irrigation, and proper maintenance of the plumbing associated with this pool structure are very important.

- The onsite roof downspouts must be continued past the drain and pool area, to discharge well away from the structure. The discharges at this end of the structure are to continue past the pool area.

It is believed that all pertinent points have been addressed. If any further questions arise regarding this project, or if we can be of any further assistance, please do not hesitate to contact this office at any time.

Respectfully submitted,

GRAND JUNCTION
LINCOLN DeVORE, INC.



by: Edward M. Morris, P.E.
Principal Engineer

GJLD Job #93085-GJ

GRAND JUNCTION
LINCOLN - DeVORE, Inc.
GEOTECHNICAL ENGINEERS - GEOLOGISTS

1441 Motor St.
Grand Junction, CO 81505

TEL: (970) 242-8968
FAX: (970) 242-1561

August 11, 2005

Mike Bagrzebski
695 25 Rd.
Grand Junction, CO 81505

Re: Building/Slope Setback, 2077 Raindance Ct., Grand Junction, CO

The Grand Junction Lincoln DeVore records regarding the Slope Stability Analysis for the Filing 10 of Independence Ranch Subdivision have been reviewed in light of the site plan provided for the Webber residence. The site in question is Lot 4, Block 1 of Filing 10, with a physical address of 2077 Raindance Ct.

The site grading and structure placement, after installation of a subsurface drain and following the Conclusion and Recommendations of the GJLD Report # 89144-GJ, 3-18-03, is such that the proposed residential structure on this lot is not affected by the Area of Special Slope Stability Concern, as shown on the Thompson Langford Corporation mapping for this subdivision . Attached are reproductions of the original analysis sections S6 and S7 which were presented in the above report.

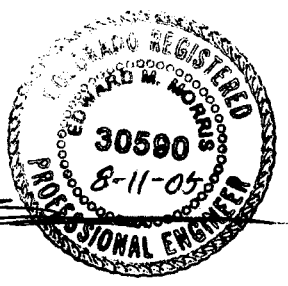
These sections show the building setbacks, without remedial drainage measures. The Thompson Langford drawing indicates a 35' Building Setback Line (Typ.), which requires the construction of a subsurface drain. A drain is to be installed, meeting the following requirements.

- The subsurface drain is to be placed at least 25 feet within (northwest of) the 35' Building Setback Line.
- The drain is to extend down to and at least 6 inches into the Mancos Shale, beneath the structure.
- The drain is to grade to a 'daylight' discharge, both south of the structure and northeast of the structure (2 outlets).
- The drain 'channel' shall be 'sealed' with a plastic or rubber membrane to minimize drain water from entering the Mancos Shale.
- The drain is to collect/intercept subsurface water which is moving in from the west and northwest of the site. A Free Water Surface must not develop in the 'Back Yard' area, east of the structure.
- Onsite roof downspouts must **not** discharge into this drain, but may utilize separate sealed piping which is laid within the same trench.
- The attached diagram '*Underground Moisture Barrier and Drain*' demonstrates the above requirements and our recommendations.

It is believed that all pertinent points have been addressed. If any further questions arise regarding this project or if we can be of any further assistance, please do not hesitate to contact this office at any time.

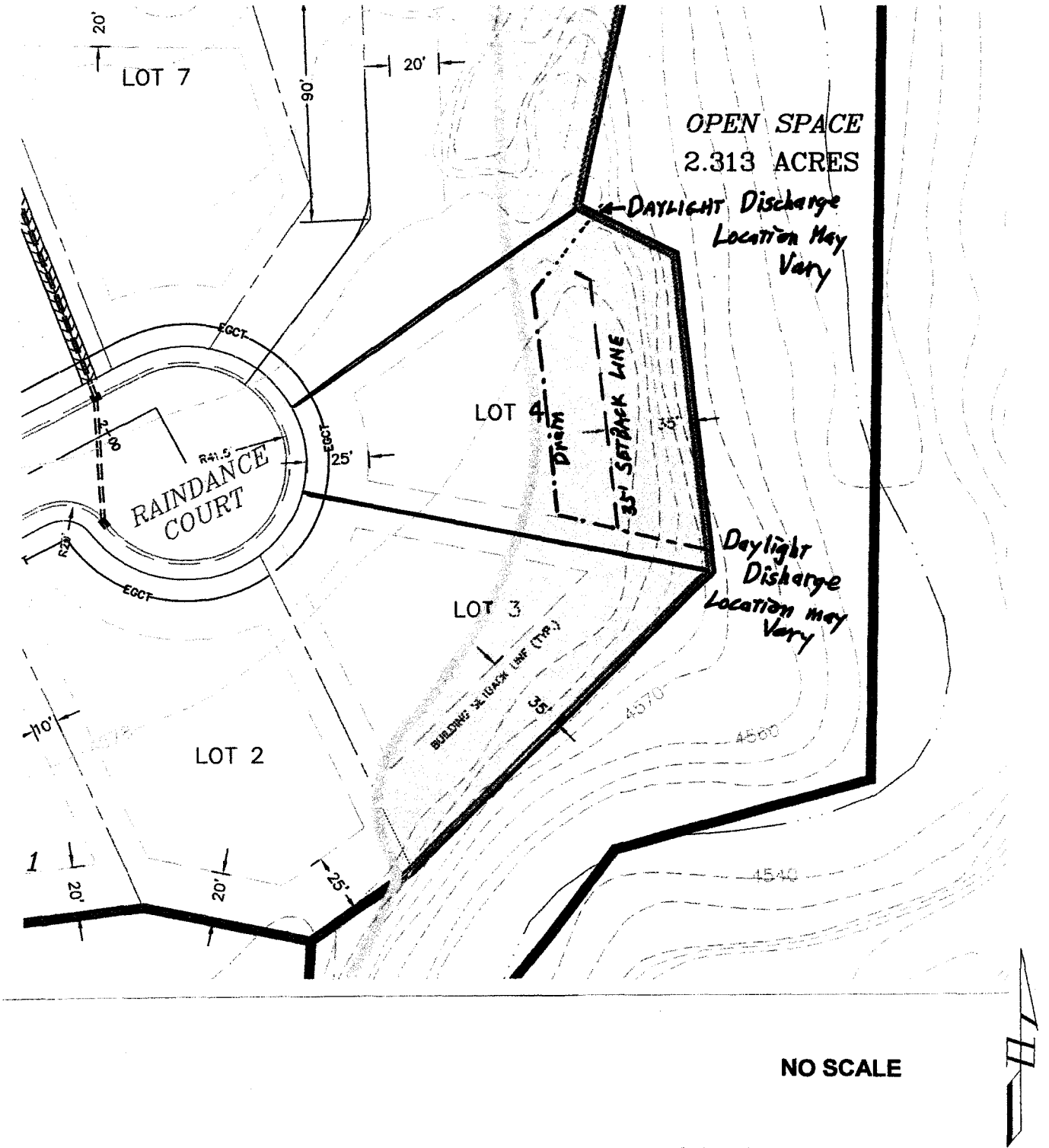
Respectfully Submitted,

GRAND JUNCTION
LINCOLN DeVORE, Inc.



by: Edward M. Morris PE
Principal Engineer

GJLD Job No.: 91891-GJ



PLAN Adapted From THOMPSON-LANGFORD Drawing

SLOPE SETBACK DIAGRAM

GRAND JUNCTION LINCOLN - DeVORE, Inc. Geotechnical Consultants **Grand Junction, Colorado**	**RESIDENCE, SETBACK for SLOPES** **2077 Raindance Ct., Grand Junction, CO.**	
	MIKE BARQRZEBSKI **Grand Junction, Colorado**	Date **8-11-2005**
	Job No. **91891-GJ**	Drawn **EMM**

- The barrier/drain trench to be located at least 10 feet away from the foundation. Excavate the trench as narrow as practical.
- The sides and bottom of the trench is to be smooth and must be graded to drain to 'Daylight' Discharge. *Minimum 1% Grade.*
- The ground slope between the trench and the foundation to be excavated and smoothed to grade toward the trench (*8% minimum*) and to provide 8" minimum cover above the Geomembrane. Surface and all backfill to be mechanically compacted to at least 85% of the soils Maximum Dry Density, ASTM D-1557, at ±3% of the soils Optimum Moisture Content.
- All cut and graded earth surfaces in contact with the Geomembrane to be smooth, free of pockets, no loose rocks and have no sharp projections OR a protective Geotextile or sand cushion layer must be installed between the soil and the Geomembrane.
- Geomembrane to be placed on ground surface away from the foundation, down the trench side, across the trench bottom and return up the opposite side 5" to 10" (3" to 6" above Drain Pipe).
- In Non-Traffic Areas, The Geomembrane to be a Polyethylene or equal and have these characteristics:

Minimum Thickness, ASTM D-5199	1.5 mm (20 mils)
Minimum Tensile Break Strength, ASTM D-638	14 kN/m (80 lbs/in)
Minimum Puncture Resistance, FTMS 101c, Method 2065	0.13 kN (28 lbs)
Minimum Tear Resistance, ASTM D-1203	0.5 kN (11 lbs)
Maximum Permeability Coefficient, ASTM D-4491	$1x10^{-7}$ cm/sec

- All joints in the Geomembrane shall be overlapped and glued with products and in such a manner that conforms to the membrane manufacturer's recommendations. If glue joints are not used, the membrane shall be overlapped a minimum of 32 inches (0.6 m). The overlaps shall be 'shingled' so the exposed edges face in the same direction as the flow of drainage.
- A Geosynthetic Clay Liner may be an appropriate substitution for the Geomembrane. Confirm with the Design Engineer.

- A Perforated Plastic Pipe (PVC) is to be Enclosed within the Geomembrane , at the base of the trench. The pipe is to have a minimum 2 inch diameter but, must be sized for the anticipated flows. The Perforated Plastic Pipe must be graded to drain to 'Daylight' Discharge. *Minimum 1% Grade.*
- The Perforated Plastic Pipe is to be protected from clogging. Such protection can be achieved by wrapping the pipe with a non-woven Geotextile Filter Fabric (Such as Amoco 4547, Contech C-50W, Mirafi 140N).

- A Permeable Sand or Gravel Water Drainage/Collection medium is to be placed around and above the Perforated Plastic Pipe. This Drainage/Collection Medium must be compacted to at least 80% of its Maximum Dry Density, ASTM D-1557.
- With the approval of the Design Engineer, Geocomposite Drains, Board Drains and Edge Drains may be substituted for portions of the Drain.

- Required Observations by the Design Engineer or approved representative:

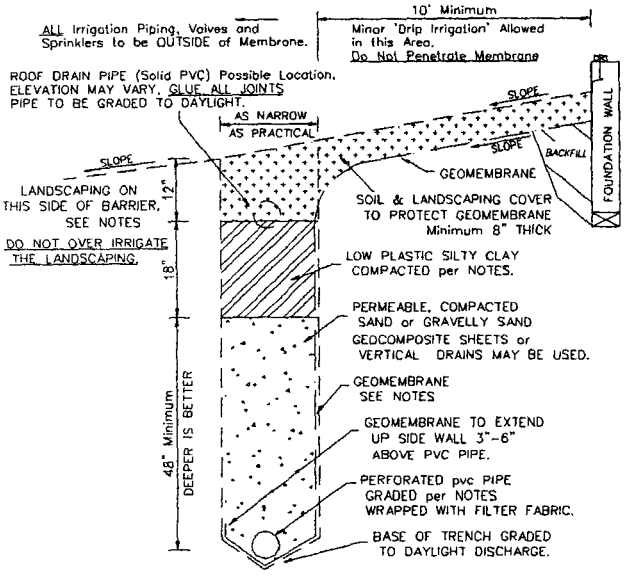
Completion of Trench & Surface Excavation and Preparation, prior to Membrane Installation. (Soil compaction testing)

Perforated Drain Pipe in place, protected from clogging.

Top of Water Drainage/Collection Medium. (May require soil compaction testing)

Top of Low Plastic Silty Clay Layer. (Soil compaction testing)

Final Soil Cover, surface graded and prior to final Landscaping.



MOISTURE BARRIER & AREA DRAIN

ACTUAL DIMENSIONS MAY VARY DUE TO SITE SPECIFIC CONDITIONS

GRAND JUNCTION
LINCOLN-DeVORE, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

UNDERGROUND MOISTURE BARRIER & DRAIN

DATE: 4-15-99

SCALE: NONE

File # D-DRAIN4

CONCLUSIONS AND RECOMMENDATIONS

GENERAL DISCUSSION

No geologic conditions were apparent during our reconnaissance which would preclude the site development, provided the recommendations contained herein are fully complied with. None of the planned building envelopes adjacent to the Colorado River bank will require minor adjustment based upon the results of our Subsurface Soils Exploration and Slope Stability Study. The building envelope on 3, filing will be somewhat restricted, due to slope stability concerns. The Mechanically Reinforced Structural Fill on Lots 5 and 6, Filing 11, will be restricted, due to slope stability concerns and the geometry of the fill placement. 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 are the unstable banks along the medium sized gully, along the east side of Filing 11.

OPEN FOUNDATION OBSERVATION

Since the recommendations in this report are based on information obtained through random borings, it is possible that the subsurface materials between the boring points could vary. Therefore, prior to placing forms or pouring concrete, an open excavation observation should be performed by representatives of Grand Junction 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 borings. This observation will also determine if the final building placement is similar with the modeling parameters of the Slope Stability Study. If the materials below the proposed foundations differ from those encountered, are unstable, or in our opinion, are not capable of supporting the applied loads, additional recommendations could be provided at that time.

EXCAVATION & STRUCTURAL FILL

All earth work and grading for this site development should be accomplished in accordance with the grading recommendations contained in this soils report and Chapter 18 of the International Building Code (IBC). In addition, no additional fill or addition of material by grading is to be allowed within the Building Set Back Area from the Colorado River bank and the gullies. This Building Set Back is presented on the attached Boring and Setback Location Diagram of the Independence Ranch Subdivision. Cuts or removals of material within this Building Set Back are allowed and, encouraged, as long as surface drainage within in and adjacent to the set backs is improved over the native conditions at the time of our explorations. Any existing, uncontrolled man-made fills adjacent to the gullies may require removal and replacement or removal in entirety. Any man-made fills placed around new structures or roadways which are beyond the Building Set Back but, within 30 feet of the building set back shall be investigated by a Geotechnical Engineer

with regard to slope stability on both the site and the global condition of the Colorado River bank/slope or gully bank/slope. General, fills greater than 4 feet are strongly discouraged in the area within 30 feet of the Building Set Back, unless these fills have been previously modeled in the Slope Stability Study.

Subgrade Site preparation in all areas to receive structural fill should begin with the removal of all topsoil, vegetation, and other deleterious materials. Prior to placing any fill, the subgrade should be observed by representatives of Grand Junction Lincoln DeVore to determine if the existing vegetation has been adequately removed and that the subgrade is capable of supporting the proposed fills. The subgrade should then be scarified to a depth of 10 inches, brought to near optimum moisture conditions and compacted to at least 90% of its maximum modified Proctor dry density [ASTM D-1557]. The moisture content of this material should be within + or - 2% of optimum moisture, as determined by ASTM D-1557.

Structural Fill Soil It appears that the majority of the material excavated from cut areas is suitable for reuse as structural fill. Material to be approved shall be free of deleterious matter and oversized hard rock. We recommend that no predominantly clayey soils or claystones be included in the structural fill.

Structural Fill 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). 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, coarse grained, non-free draining, non-expansive soil. This structural fill should be placed in the overexcavated portion of this site in lifts not to exceed 6 inches after compaction. This Structural Fill must be brought to the required density by mechanical means. No soaking, jetting or puddling techniques of any type should be used to obtain the final compaction of fill on this site.

Non-Structural Fill We recommend that all backfill placed around the exterior of the building, 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 modified Proctor dry density (ASTM D-1557).

Fill Limits To provide adequate lateral support, we recommend that any zones of over excavation extend at least 2 feet beyond the perimeter of any building or structural elements, on all sides. Any structural fill placed beneath residential structures should be a minimum of 2 feet in final compacted thickness, as indicated in the Foundations portions of this report.

No major difficulties are anticipated in the course of excavating into the surficial soils 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 is Soil Class C for Soil Type I and II. Excavation into the Mancos Shale Formation is not anticipated.

Field Observation & Testing During the placement of any structural fill, it is recommended that a sufficient amount of field tests and observation be performed under the direction of the geotechnical engineer. The geotechnical engineer should determine the amount of observation time and field density tests required to determine substantial conformance with these recommendations. It is recommended that surface density tests be taken at maximum 2 foot vertical interval.

The opinions and conclusions of a geotechnical report are based on the interpretation of information obtained by random borings. Therefore the actual site conditions may vary somewhat from those indicated in this report. It is our opinion that field observations by the geotechnical engineer who has prepared this report are critical to the continuity of the project.

Slope Angles Allowable slope angle for cuts in the native soils is dependent on soil conditions, slope geometry, the moisture content and other factors. Should deep cuts be planned for this site, we recommend that a slope stability analysis be performed when the location and depth of the cut is known.

Preliminary site grading plan has been made available at the time of writing this report. The extent of proposed site grading and the proposed footing elevations is known. These grading recommendations are considered preliminary until Grand Junction Lincoln DeVore has had the opportunity to review the final site grading plans.

DRAINAGE AND GRADIENT

Adequate site drainage should be provided in the building foundation areas and in the mechanically Stabilized Structural Fill Area both during and after construction to prevent the ponding of water and the wetting or saturation of the subsurface soils. We recommend that the ground surface around the structures be graded so that surface water will be carried quickly away from the buildings. 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 at least 5 feet beyond all backfilled areas and discharged a minimum 10 feet away from the structure. **Proper discharge of roof drain downspouts may require the use of subsurface piping in some areas**. Under no circumstances should a 'dry well discharge'

be used on this site, unless specifically sited by a Geotechnical Engineer. Planters, if any, should be so constructed that moisture is not allowed to seep into foundation areas or beneath slabs or pavements.

The existing drainage on the site must either be maintained carefully or improved. We recommend that water be drained away from structures as rapidly as possible and not be allowed to stand or pond near the building. We recommend that water removed from one building not be directed onto the backfill areas of adjacent buildings. We recommend the hydrologist or drainage engineer of record for this project monitor any modifications of the drainage plan for this site.

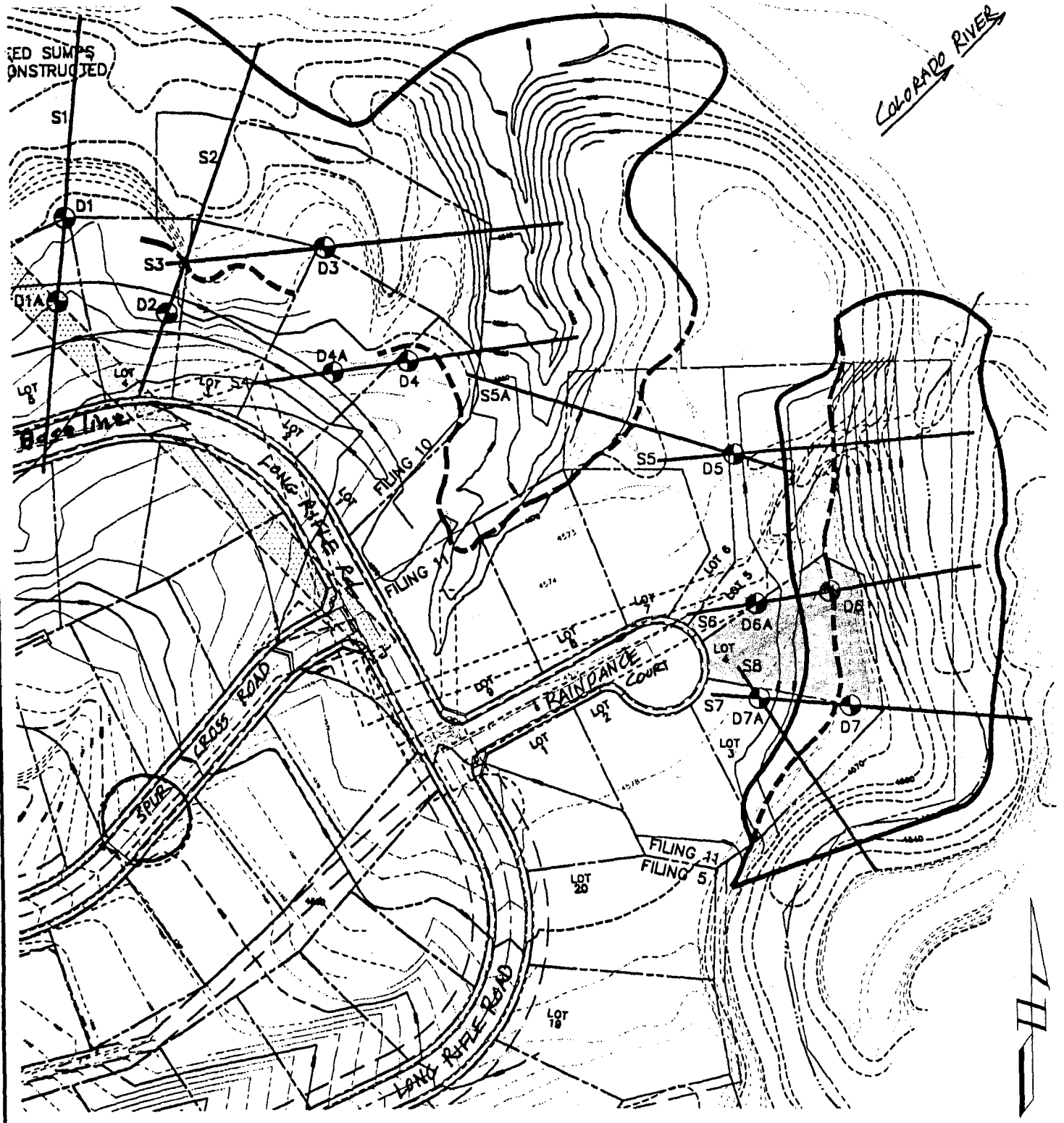
As automatic lawn irrigation systems are normally used on similar sites, we recommend that the sprinkler heads, irrigation piping and valves be installed no less than 5 feet from any building. In addition, these heads should be adjusted so that spray from the system does not fall onto the walls of the building and that such water does not excessively wet the backfill soils.

It is recommended that lawn and landscaping irrigation be reasonably limited, so as to prevent undesirable saturation of subsurface soils or backfilled areas. Several methods of irrigation water control are possible and, due to the slope stability concerns on this site, must be implemented.

* **Not provide a separate irrigation water system for the residences unless specifically controlled and metered for each individual site. Irrigation from either a metered irrigation or domestic water source is strongly recommended.**
* Sizing any irrigation distribution service piping to limit on-site water usage.
* Encourage efficient landscaping practices.
* Enforcing reasonable limits on the size of high water usage landscaping for each lot and any park areas.
* Incorporating 'xeriscaping' landscaping and irrigation techniques.

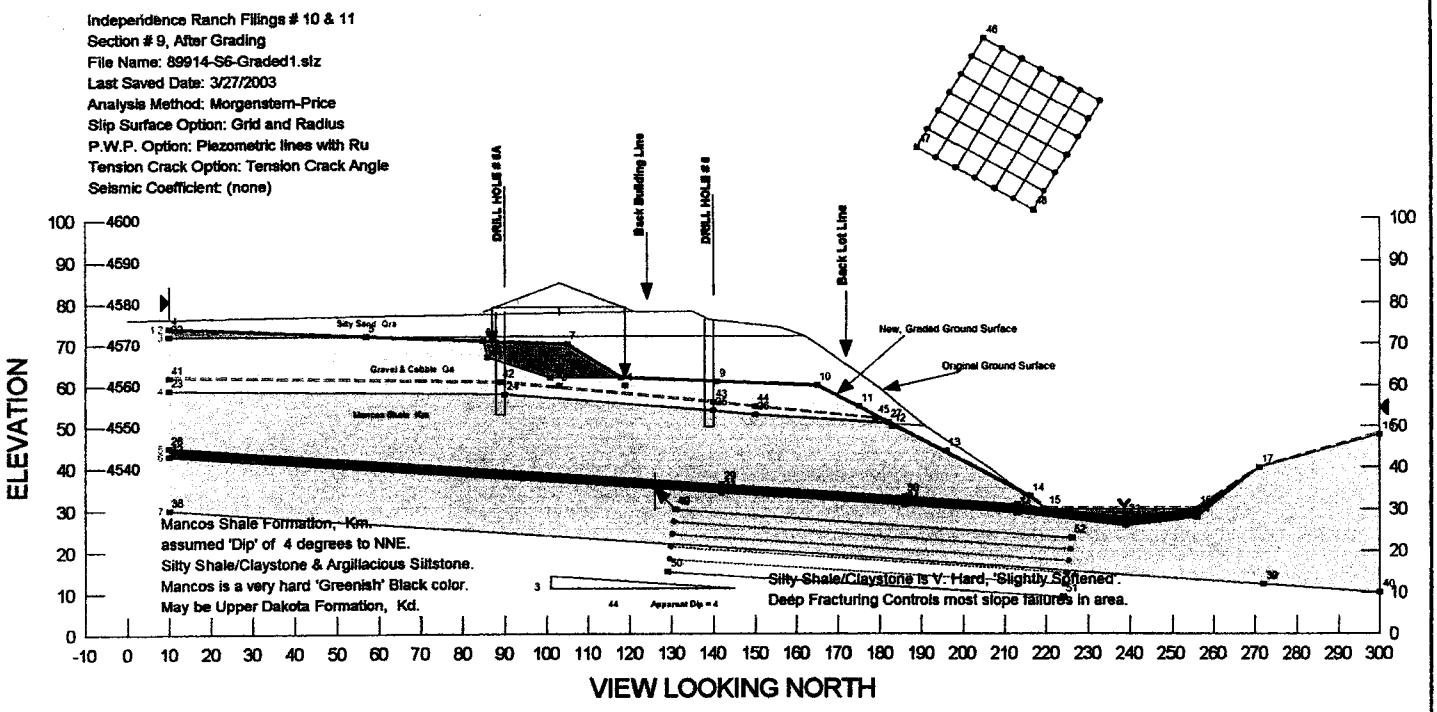
GRADING PLAN REVIEW

The grading plan for Filings 10 and 11, Composite Site Plan, 7-26-03, Project # 0296-013, provided by Thompson Langford Corp., indicate significant amounts of cut and regrading of the 'bluff' lots. In addition, some areas of fill are proposed. Grand Junction Lincoln DeVore has reviewed those plans and has incorporated the grading elevations into our slope stability computations. The proposed grading plan, as a whole, has been accomplished in general conformance with the previous and present grading and drainage recommendations for this subdivision which have been prepared by Grand Junction Lincoln DeVore. The drainage and gradient recommendations presented in this present report, will apply to both subdivision wide grading and individual lot grading.



BORING LOCATION DIAGRAM

GRAND JUNCTION **LINCOLN - DeVORE, Inc.** Geotechnical Consultants **Grand Junction, Colorado**	**SLOPE STABILITY STUDY, Fil. 10 & 11** **Independence Ranch Sub., Grand Junction, CO.** **LAUGHING WATERS, LLC** **Grand Junction, Colorado**	Date **2-22-2003**
	Job No. **89914-GJ**	Drawn **EMM**



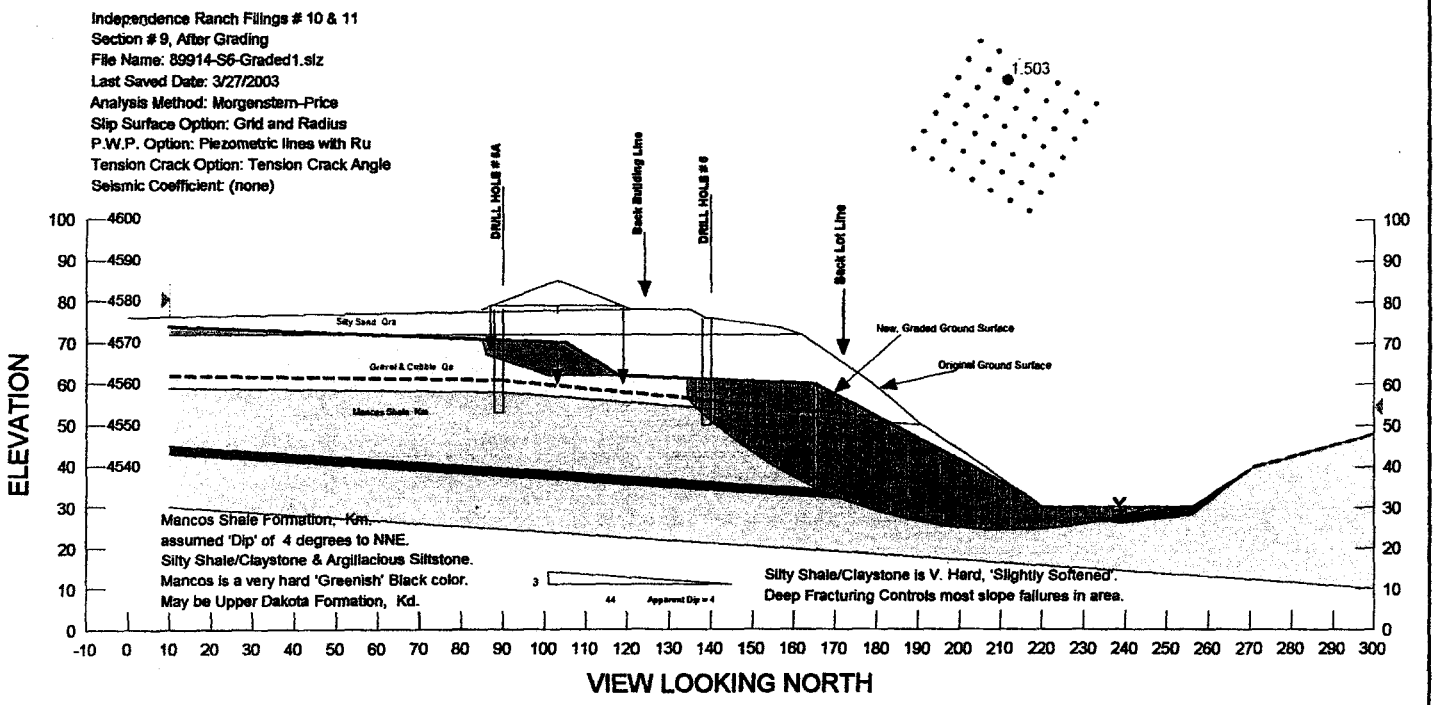
This Study is Along Section S6, Overlooking the Medium Depth Gully and Includes the South End Regrading of the Slope Using Mechanically Stabilized Soil (MSS)

The Site has been Developed, The Site Grading has Removed up to 16 Feet of Alluvial Sands and Gravels.
The Structure has been Constructed as a 'Walkout Basement and the Landscaping is irrigated.
The Upper Water Table is Elevated to within 10 feet of the Basement Floor and Seepage is Intercepted by the Lower Slope Drain, Constructed 'back of' the Mechanically Stabilized Soil (MSS).
Building Loads are Modeled at 1500 plf. For the Interior and 2000 plf for the Exterior, Placed At Test Hole 4A.
Fill is Placed at the Building Area But, No Overlot Grading Fill is Placed Toward the Slope Edge..

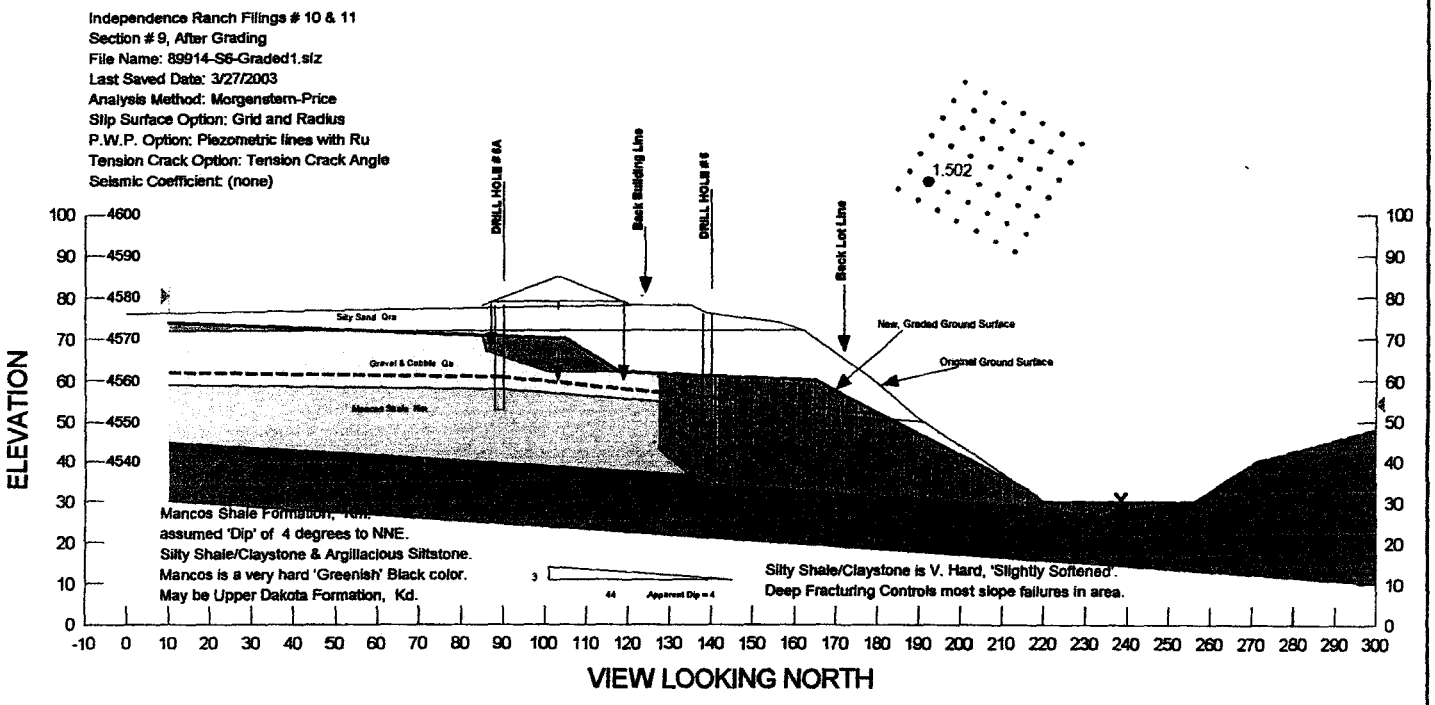
The Building/Setback is over 45' From the Back Lot Line & about 40' From the New Crest of the Slope.
The Building Setback is essentially at the 3:1 (hor : vert) Limit of the IBC, Chapter 18.

The Very Weathered Mancos Shale (VWx) IV, is the Former and Existing Erosional Surfaces and is considered to be 'Fully Softened', for this analysis and includes the slope face.
The Weathered Mancos Shale (Vwx) V, is considered to be 'Softened', for this analysis.
The Mancos Shale (Vwx) V, Residual Strength is considered to be 'Fully Softened', for this analysis and represents the anticipated Failure Plane..
The Slightly Weathered Shale & Siltstone Strata are considered to be 'Slightly Softened', for this analysis.

Slope stability calculations were performed on the existing slopes overlooking the Colorado River and the Deeper Gullies. The stability analysis addressed portions of the individual slopes and the 'global' condition of the entire slope height. The analysis was performed using the PC software SLOPE/W, Version 5.13, Geo-Slope International LTD, Calgary, Alberta, Canada. The Limit Equilibrium Theory for the factor of safety, incorporating the Morgenstern-Price Method which uses both Moment and Force Equilibrium Theory, generally considered to be a relatively rigorous analysis.



Probable Failure Mode **Computed S.F. = 1.503**



Probable Failure Mode **Computed S.F. = 1.502**

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Figure II-6

INDEPENDENCE RANCH Sub. Fil. # 10 & 11
GJLD # 89144-GJ, March 27, 2003

STUDY SECTION S6 Building Lot 5 & 6, Filing 11

All Soils
Soil 1
Qa/Fill
Soil Model Mohr-Coulomb
Unit Weight 125
Cohesion 0
Phi 30
Piezometric Line # 1
Ru 0
Pore-Air Pressure 0

Soil 2
Silty Sand, Qra
Soil Model Shear/Normal Fn.
Unit Weight 124
Shear/Normal Fn. # 2
Unit Wt. above WT 111
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 1
Ru 0
Pore-Air Pressure 0

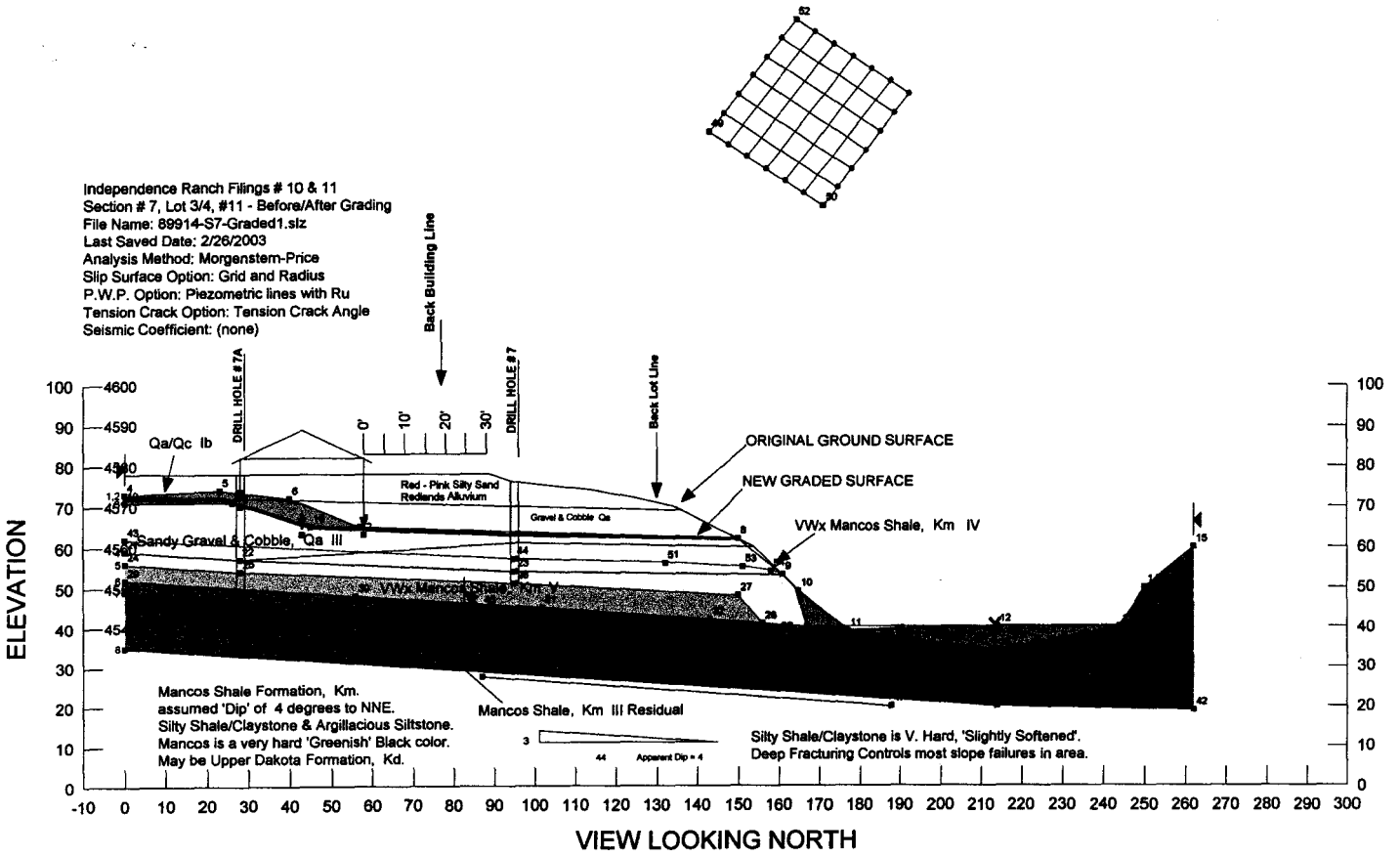
Soil 3
Sandy Gravel & Cobble, Qa
Soil Model Mohr-Coulomb
Unit Weight 140
Cohesion 10
Phi 30
Unit Wt. above WT 130
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 1
Ru 0
Pore-Air Pressure 0

Soil 4
VWx Mancos Shale, Km IV
Soil Model Shear/Normal Fn.
Unit Weight 139
Shear/Normal Fn. # 4
Unit Wt. above WT 132
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 1
Ru 0
Pore-Air Pressure 0

Soil 5
SlWx Mancos Shale, Km Residual
Soil Model Mohr-Coulomb
Unit Weight 139
Cohesion 0
Phi 18.8
Unit Wt. above WT 132
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 1
Ru 0
Pore-Air Pressure 0

Soil 6
SlWx Sh & Sltst, Km
Soil Model Shear/Normal Fn.
Unit Weight 142
Shear/Normal Fn. # 3
Unit Wt. above WT 122
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 1
Ru 0
Pore-Air Pressure 0

Soil 7
Bedrock
Soil Model Bedrock
Piezometric Line # 1
Ru 0
Pore-Air Pressure 0



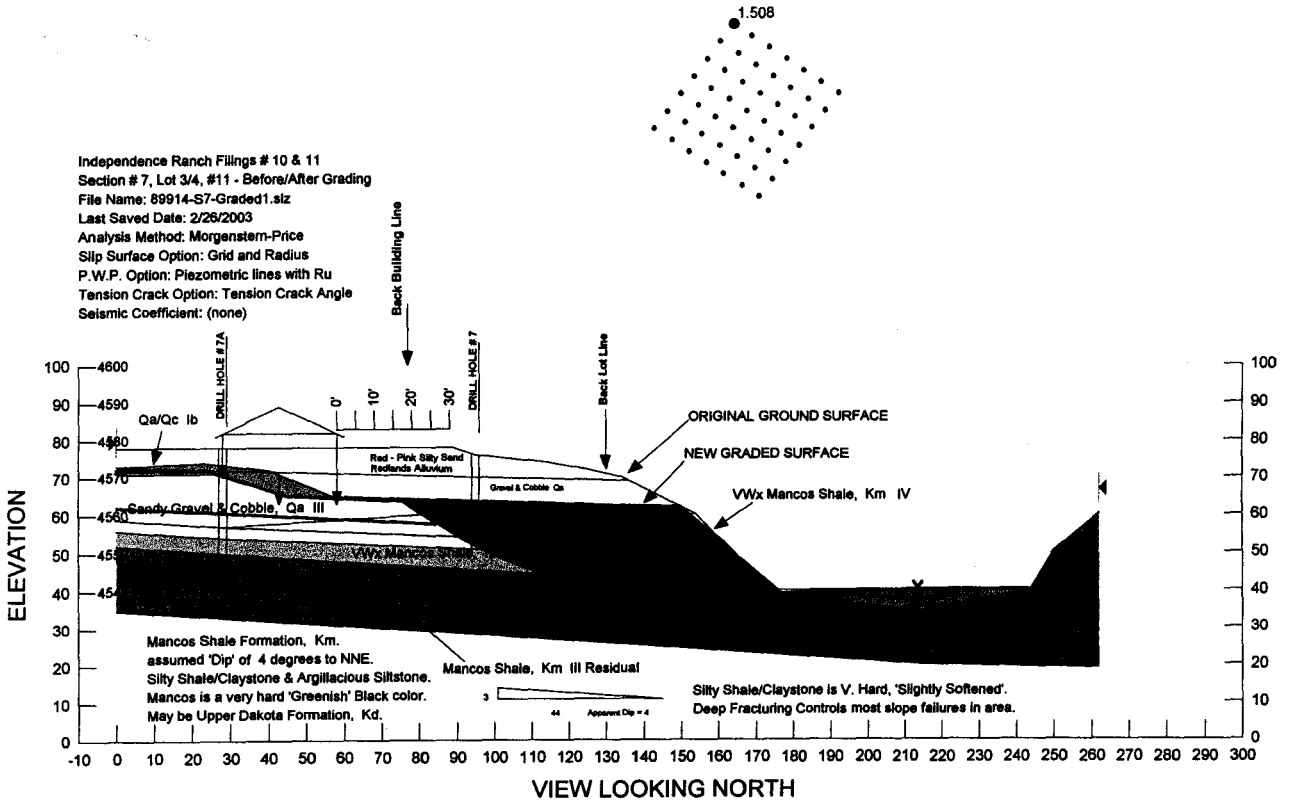
This Study is Along Section S7, Overlooking the Deep Gully

The Site has been Developed, The Site Grading has Removed Most of the Alluvial Sands and Gravels.
The Structure has been Constructed as a 'Walkout Basement and the Landscaping is irrigated.
The Upper Water Table is Elevated to within 3 feet of the Backyard Surface and Seepage is Occurring at the Slope.
Building Loads are Modeled at 1500 plf. For the Interior and 2000 plf for the Exterior.
Fill is Placed at the Building Area but, Not Toward the Slope Edge..

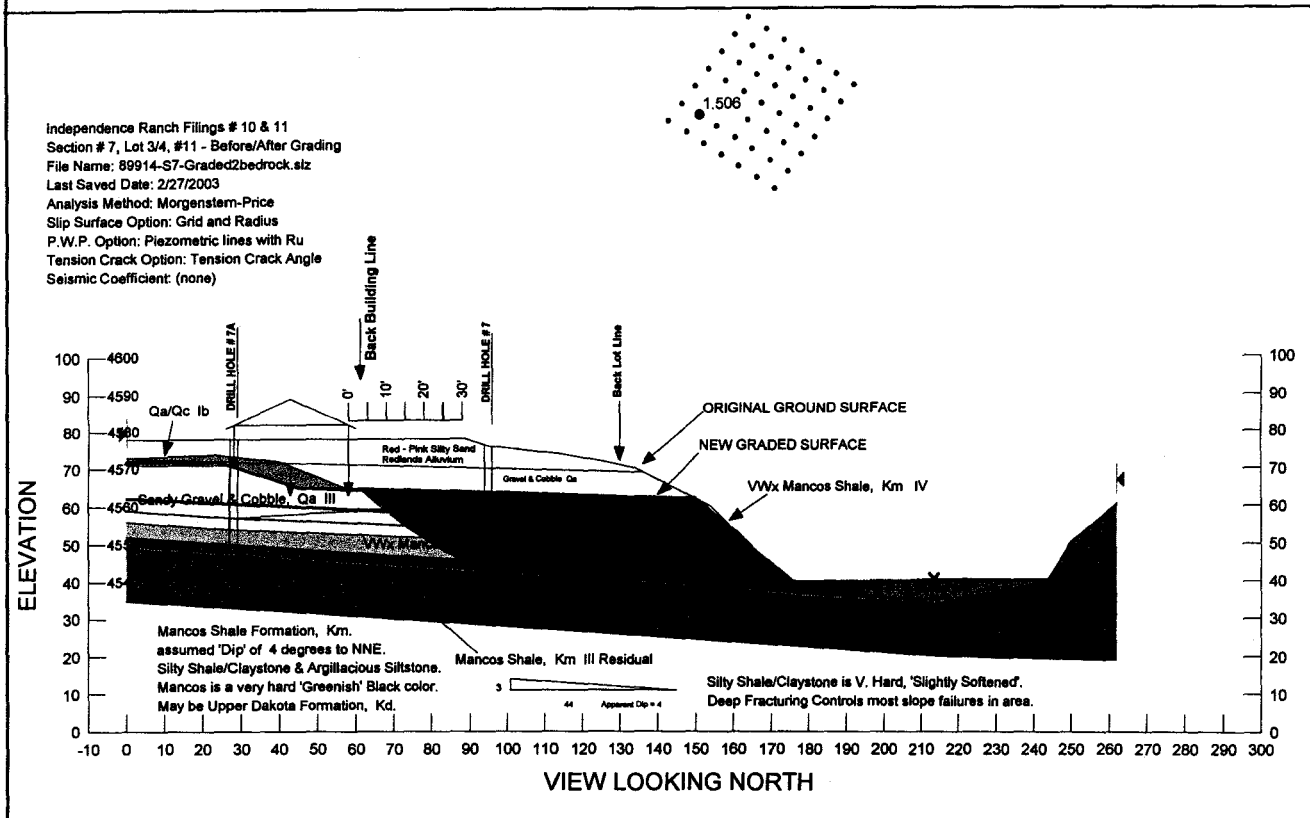
The Building/Setback is over 64' From the Back Lot Line & over 70' From the NEW Crest' of the Slope.
The Building Setback is Slightly More than the 3:1 (hor : vert) Limit of the IBC, Chapter 18.

The Very Weathered Mancos Shale (VWx) IV, is the Former and Existing Erosional Surfaces and is considered to be 'Fully Softened', for this analysis and includes the slope face.
The Weathered Mancos Shale (Vwx) V, is considered to be 'Softened', for this analysis.
The Mancos Shale (Vwx) V, Residual Strength is considered to be 'Fully Softened', for this analysis and represents the anticipated Failure Plane..
The Slightly Weathered Shale & Siltstone Strata are considered to be 'Slightly Softened', for this analysis.

Slope stability calculations were performed on the existing slopes overlooking the Colorado River and the Deeper Gullies. The stability analysis addressed portions of the individual slopes and the 'global' condition of the entire slope height. The analysis was performed using the PC software SLOPE/W, Version 5.11, Geo-Slope International LTD, Calgary, Alberta, Canada. The Limit Equilibrium Theory for the factor of safety, incorporating the Morgenstern-Price Method which uses both Moment and Force Equilibrium Theory, generally considered to be a relatively rigorous analysis.



Very Probable Failure Mode **Computed S.F. = 1.508**



Very Probable Failure Mode **Computed S.F. = 1.506**

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Figure II-7

INDEPENDENCE RANCH Sub. Fil. # 10 & 11
GJLD # 89914-GJ, March 18, 2003

STUDY SECTION S7 Building Lots 4 & 5, Filing 11

All Soils
Soil 1
Qa/Qc Ib
Soil Model Mohr-Coulomb
Unit Weight 102
Cohesion 0
Phi 16
Piezometric Line # 2
Ru 0
Pore-Air Pressure 0

Soil 2
Silty Sand, Qra I
Soil Model Mohr-Coulomb
Unit Weight 124
Cohesion 19
Phi 21.3
Unit Wt. above WT 111
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 2
Ru 0
Pore-Air Pressure 0

Soil 3
Sandy Gravel & Cobble, Qa III
Soil Model Mohr-Coulomb
Unit Weight 140
Cohesion 36
Phi 23.2
Unit Wt. above WT 130
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 2
Ru 0
Pore-Air Pressure 0

Soil 4
VWx Mancos Shale, Km IV
Soil Model Mohr-Coulomb
Unit Weight 142
Cohesion 0
Phi 18.8
Unit Wt. above WT 132
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 2
Ru 0
Pore-Air Pressure 0

Soil 5
VWx Mancos Shale, Km VI
Soil Model Mohr-Coulomb
Unit Weight 139
Cohesion 0
Phi 26.6
Unit Wt. above WT 132
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 2
Ru 0
Pore-Air Pressure 0

Soil 6
Mancos Shale, Km V Residual
Soil Model Mohr-Coulomb
Unit Weight 139
Cohesion 0
Phi 18.8
Unit Wt. above WT 132
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 2
Ru 0
Pore-Air Pressure 0

Soil 7
SlWx Sh & Sltst, Km V
Soil Model Mohr-Coulomb
Unit Weight 142
Cohesion 0
Phi 19.4
Unit Wt. above WT 122
Phi B 0
Anisotropic Fn. 0
Piezometric Line # 0
Ru 0
Pore-Air Pressure 0

Soil 8
Bedrock
Soil Model Bedrock
Piezometric Line # 0
Ru 0
Pore-Air Pressure 0