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Moab Local Green Party, Living Rivers, Julianne Fitzgerald, Natalie McDowell v. City of Moab, City Planning Commission, City of Moab Board of Adjustment : Reply Brief of Appellants

Utah Court of Appeals

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IN THE UTAH COURT OF APPEALS

<p>MOAB LOCAL GREEN PARTY; LIVING RIVERS; JULIANNE FITZGERALD AND NATALIE MCDOWELL,</p> <p>Petitioners/Appellants,</p> <p>v.</p> <p>CITY OF MOAB; CITY PLANNING COMMISSION and the CITY OF MOAB BOARD OF ADJUSTMENT,</p> <p>Respondents/Appellees</p> <p>MOAB LAND, LB</p> <p>Intervenor/Appellee.</p>	<p>Utah Court of Appeals No. 20100931</p> <p>District Court No. 080700176</p>
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REPLY BRIEF OF APPELLANTS

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Appeal from the Judgment and Order of the Seventh Judicial District, the  
Honorable Lyle Anderson, Presiding.

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## ARGUMENT

### **I. Introduction**

The coalition of Moab based citizen groups and citizens collectively “Moab Local” brought this appeal challenging the approval of the LBR preliminary MPD based on the relatively simple principle that it is incumbent upon governmental entities to follow their own laws. The City of Moab and the intervenor applicant, Moab Land LB, “Moab” have made three primary arguments. First, they argue that the standard of review is so deferential to the Board of Adjustment “board” decision that this Court has very little discretion in its review of the appeal at hand. Secondly, they argue that the record does in fact demonstrate that all applicable ordinances were met. Finally, they argue that, even if some ordinances were violated in a minor way, such violations are inconsequential since Moab Local has failed to demonstrate any prejudice.

Moab's analysis of the standard of review applicable to the case is incomplete since it fails to recognize that the level of deference is based on whether the decision in dispute is legislative or administrative. In Utah where the land use decision making body acts in its legislative capacity, its decisions will be reviewed under the “reasonably debatable” standard. If the body is acting administratively, its determinations are reviewed under the substantial evidence standard, and are therefore accorded less deference by the court. Because the decision approving the LBR MPD was administrative, the substantial evidence standard applies, and the decision is reviewed

less deferentially.

The city of Moab enacted a set of ordinances for MPDs that require a relatively specific set of procedural and substantive requirements that an applicant must meet before an MPD can be preliminarily approved. Specific criteria relating to grading, drainage, natural and historic features, trails, and other requirements all must be met before an MPD can be approved. Prior to the board rendering its decision, specific reports and plans must be developed so that the board can ascertain whether the requirements have been met. For the board's decision to be upheld, these reports, plans, and other sources of information must be considered by the board and must constitute substantial evidence that each of the specific requirements set forth in the ordinances has been satisfied. In this case there is insufficient evidence in the record to support a conclusion that all of the requirements have been met. For some requirements, notably those requiring that covenants, codes, and restrictions be prepared, there is no evidence that the explicit requirements of the ordinances have been satisfied.

Lastly, in the context of the *Springville Citizens* case, Moab alleges that this action raises no case or controversy because Moab Local has not been prejudiced by any failure of the board to comply with Moab's ordinance. Moab's reliance on this case is misplaced, since the core holding of the case was that municipalities and county governments are not free to disregard their own ordinances and cannot change the rules halfway through the game. Nevertheless, the record amply demonstrates that the actions of the board threatened substantial interests of Moab Local, particularly those related to runoff and

drainage and natural feature problems created by the development.

## II. The Board's Decision Should Be Accorded Limited Deference

As recognized by all parties in this case the Court is limited to facts that are contained in the record. Utah Code Ann. §10-9a-801(8)(a). Additionally, all parties agree that the court's review is based on a determination of whether the decision at hand is arbitrary, capricious, or illegal and is supported by substantial evidence. Utah Code Ann. §10-9a-801(3)(c). However, the parties disagree on the level of deference granted to a Board of Adjustment or “board” decision.

Moab Land cites *Carrier v. Salt Lake County* and asserts that land use ordinances are reviewed for correctness, but afford some level of non-binding deference to the land use authority. 104 P. 3d 1208 ¶28 (Utah 2004)<sup>1</sup>; Moab Land Br. at 14. *Carrier* also explained that land use authorities are not agencies and are not to be accorded the same level of deference as agencies.

[L]ocal commissions and boards do not possess the same degree of professional and technical expertise as their state agency counterparts, cf. *Isis Dev., LLC v. Town of Wells*, 2003 ME 149, ¶ 3 n. 4, 836 A. 2d 1285 (noting that unlike state agencies' interpretations of state statutes or regulations, which are afforded broad deference, local volunteer boards' interpretations of zoning ordinances are reviewed de novo), and it would be inappropriate to subordinate the traditional role

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<sup>1</sup> Citing *Redelsperger v. City of Avondale*, 207 Ariz. 430, 87 P.3d 843, 848 (Ct. App. 2004). (“Although the City's interpretation of its [z]oning [o]rdinance should be accorded some weight, it is not binding on this court.”); *City of New Hampton v. Blayne-Martin Corp.*, 594 N.W.2d 40, 44 (Iowa 1999) (“Although an agency is entitled to some deference in the interpretation of rules and statutes it administers, final construction and interpretation of pertinent law is always a question of law for this court.”); *Clear Channel Outdoor Adver., Inc. v. City of St. Paul*, 675 N.W.2d 343, 347-48 (Minn. Ct. App. 2004) (acknowledging “the general deference given to a municipal interpretation” but nevertheless reviewing municipal interpretations of local zoning ordinances de novo).



of the courts in interpreting legislation to commissions and boards who are concededly comprised of "laymen."

Id. ¶26. Moreover, Moab fails to recognize that the type of land use decision made, either Administrative or Legislative, is determinative of the Court's scope of review. Decisions cited by Moab, notably *Patterson*<sup>2</sup> and *Springville Citizens*<sup>3</sup>, fail to make this distinction, which is critical to this Court's standard of review analysis in the present case. The *Bradley v. Payson* case distinguished land use cases as either legislative or administrative, and it is this dynamic that is dispositive regarding the level of deference given to a land use authority. 2003 UT App. 16, ¶13. In earlier cases such as *Springville Citizens* the issue of whether the land use body was acting in its administrative or legislative capacity was never discussed. Id. At ¶21.

Although the legislative vs. administrative dynamic was never expressly discussed in *Springville Citizens*, a different case *Harmon City, Inc. v. Draper City*, interpreted *Springville Citizens* in a way that still differentiated between legislative and administrative proceedings. Id. At ¶23 FN2. Because the decision in *Springville Citizens* was an administrative decision the city's discretion was expressly limited. Id. *Springville Citizens* was significant because as an administrative proceeding the *significant evidence standard* was utilized, and contrasted with the legislative decision in *Harmon City*, which was reviewed under the *reasonably debatable standard*.<sup>4</sup> Id.

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<sup>2</sup> *Patterson v. Utah County Bd. of Adjustment*, 893 P.2d 602, 604 (Utah Ct.App.1995).

<sup>3</sup> *Springville Citizens for a Better Community, v. City of Springville*, 979 P.2d 332 (Utah 1999).

<sup>4</sup> This standard was described in *Harmon City*, "So long as it is reasonably debatable that it is in the interest of the general welfare, this Court will uphold the city's zoning

Whether the decision is administrative or legislative, the standard of review is always based on whether a decision is arbitrary and capricious. See *Id.* At ¶18. *Bradley*, is significant because it elucidated the difference in standard of review between legislative and administrative decisions so that it is now clear that administrative decisions are viewed less deferentially under the substantial evidence standard, and legislative proceedings are reviewed deferentially under the reasonable debatable standard. *Id.* ¶14-¶23

Because the decision to approve the LBR MPD was administrative in nature the Court's review, under the arbitrary and capricious standard, is less deferential based on substantial evidence in the record.

Lastly, in terms of the district court's discussion of standard of review and whether substantial compliance formed the basis of the court's review Moab City asserts this was taken out of context and it only relates to challenges not before this court. *Moab City Br.* At 10. The cited portion of the district court order that states that the city substantially complied with the ordinances applies to the entire decision since it states in that same section that "a common thread which ran through petitioners arguments...". R. 420.

### **III. The Required Significant Features Plan was never Prepared and Significant Features were not Accommodated for**

Moab has violated Moab City Code section 17.65.100(A) in two ways. First, it failed to prepare a Significant Features Plan. Moab contends that it was not obligated to prepare such a plan because, it claims, there are no cultural or historically significant decision." *Harmon City, Inc. v. Draper City*, 2000 UT App. 31, ¶5.

features within the proposed development. Moab Land Br. At 17. However, the ordinance is clear that preparation of the plan is mandatory. Furthermore, the Significant Features Plan must describe natural features as well as those that are cultural and/or historic.

Second, it failed to determine whether historic, cultural, or archaeological features were accommodated and preserved. Moab contends that there are no cultural or historically significant features within the proposed development. Moab Land Br. At 17. While it admits that the Lionsback sandstone fin is historically significant, it dismisses this fact as insignificant since it is outside the planned development. The Lionsback sandstone fin appears on the "site inventory" map, and as a historically significant site, should have been included in a Significant Features Plan. DEF 1511. Moreover, the preparation of this plan is not contingent on the presence of a culturally significant feature within the boundaries of an arbitrarily designated development boundary as Moab suggests. "A complete preliminary development plan application shall include the following components A. Significant Features Plan....". Moab, Utah, City Code §17.65.100(A). The use of the word "shall" makes it clear that there is no discretion in terms of this plan's preparation. The word "shall" in an ordinance is "usually presumed mandatory and has been interpreted as such previously in this and other jurisdictions." *Pugh v. Draper City*, 2005 UT 12, ¶13, 114 P.3d 546 (quotations and citation omitted); see also *Landes v. Capital City Bank*, 795 P.2d 1127, 1131 (Utah 1990) (interpreting "shall be joined" in joinder rule as mandatory).

Additionally, although Moab points to the conceptual plan site assessment as proof that there are no relevant historically or culturally significant features it cannot be considered substantial evidence in support of the board's determinations regarding the presence of culturally or historically significant features. DEF 873-883; Moab City Br. At 11; Moab Land Br. At 16. The report itself is explicit that its purpose was to reduce potential liability<sup>5</sup> caused by hazardous waste, presumably under the federal Superfund law, CERCLA, 42 U.S.C. §9601 et seq., and its contents are consistent only with this limited purpose. It should come as no surprise that the report failed to uncover historically significant features, including the Lionsback, since the report was never designed to investigate such features. The report plainly states that “[t]he purpose of this investigation is to identify recognized environmental conditions that may pose a risk to health”. DEF 873. This report plainly provided no rational basis for any conclusion as to whether “the site plan accommodates and preserves any features of historic, cultural, or archaeological value”. Moab, Utah, City Code §17.65.030(A)(6). Because the presence of such resources was never even investigated, the board's determination that the requirements of the ordinance were satisfied was not based on the Significant Features Plan that the ordinances requires as the basis for such a determination, and had no other

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<sup>5</sup> Assessing hazardous waste liability is clearly the purpose of the report. This is apparent not only from its substantive content but its statement that “[t]his investigation and report is site specific and prepared for the exclusive use by Michael Badger and Michael Lawler only and is valid for 30 days form the date of issue. Use by any other party is unauthorized without written consent of Buckhorn Geotech, Inc. This investigation is intended to reduce potential uncertainty, regarding environmental conditions.....” DEF 873.

rational basis in the record. The board's determination that the ordinance's requirements were satisfied therefore was not supported by the required record or any substantial evidence, and its approval of the site plan was arbitrary and capricious and contrary to law.

#### **IV. The Required Trails, Traffic, and Circulation Plan was not Prepared**

The Traffic, Trails, and Circulation planning for the approved development, governed by Moab, Utah, City Code §17.65.100(C), is another aspect of the record demonstrating that the requirements of city ordinances were not satisfied. With regards to traffic circulation, Moab contends the map on DEF1487-88 satisfies its obligations under the ordinance. Moab Land Br. At 18. Yet, this map does nothing more than show the bare location of the roads in the development; there is no indication of any sort as to how traffic will move throughout the proposed development or the factors affecting circulation. Certain areas on these maps have dotted lines that seem to indicate that they could be roads, but it is unclear what the direction or circulation of vehicular traffic will be in these areas. In short, there is no evidence in the record that the requirement for traffic circulation planning was met.

In support of its contention that these requirements were met Moab Land points to the Geotech Report section on pavement. DEF1319-1322; Br at 18. The report explains what type of pavement would be utilized to support the transportation needs within the development. Id. Although this report appears to cover the design requirements for motorized roads the record is incomplete since there is no indication of the location and

the design features of non motorized streets, trails, and parking areas. Moab, Utah, City Code §17.65.100(C). Notably, the record does not discuss trail design, since neither individual trails nor the design specifications of those trails are included in the record. Furthermore, it was conceded during the board hearing that trail design decisions would be deferred to a later time, and that the reduced versions of the maps do not have the trails indicated. DEF 462; DEF480-481. The map referenced by Moab LB on DEF 1374 is said to indicate all trails, but these markings are frequently indiscernible from the topographical lines. Moab LB Br. At 18. At best, the map can be seen representing the location of the Hell's Revenge trail, while completely overlooking the Slick Rock Trail or links to other off-site trails, trails that connect to Moab City, and proposed trails as required under the rule. Op. Br. At 34-35; §17.65.100(C). No other document identifies trail design features also required under the rule. Id.

In short, development proponents have unquestionably failed in their duty to prepare a Traffic, Trails, and Circulation Plan as required in the ordinances. The ordinance's insistence that such a plan be prepared is made explicit by the use of the word “shall”. The Board's conclusion that this requirement was satisfied is therefore arbitrary and capricious.

#### **V. The Relevant Standards for Grading and Drainage have not been Addressed**

Moab alleges a voluminous record, a 110 page report, that it says addresses the requirements of the grading and drainage ordinance. Moab Land Br. At 20. However “[t]o determine whether deference is warranted, we look to the sufficiency of the

evidence, not the size of the record”. *The Lands Council v. McNair*, 537 F.3d 981, 995 (9<sup>th</sup> Cir. 2008). Aside from this they explain that on the issue of the timing of proposed control measures before and after construction the ordinance is “clear”. Moab LB Br at 20 fn 4. While it appears they intended to make the point that the plans are clear there is no explanation with respect to the timing of these plans. Mitigation measures such as phased development and landscaping efforts were proposed to limit runoff, but when such measures would be implemented, either before and/or after construction, was never discussed. Op. Br. At 37.

Additionally, Moab Land LB inaccurately cites to the record in a way that is materially misleading. It cites the following allegedly from the Conceptual Drainage Plan:

“Under 30% of the entire ownership will be developed and of that area a smaller percentage of the individual sites will be impervious. The Moab City Engineer directed the development team not to have storm water detention as part of the development. The 10 year and 100 year design storms *were utilized* for the preliminary drainage design. The 10 year design storm passes through all proposed culvert and drainage facilities and the 100 year storm runoff area does not have a harmful effect on the development or Sands Flat Road. The historic drainage patterns (swales) will be used west of San Flats Road and at this time it does not appear that there will be grade changes on Sand Flats Road to accommodate concerns”. Moab Land LB Br. At 21.

What this passage actually states is quite different.

“Under 30% of the entire ownership will be developed and of that area a smaller percentage of the individual sites will be impervious which is why the Moab City Engineer directed the development team not to have storm water detention as part of this development. The 10 year and 100 year design storms *will be utilized* for the final design. ***It is our plan to confirm that the*** 10 year design storm passes

through all proposed culverts and drainage facilities and that the 100 year storm runoff does not have a harmful effect on the development of Sand Flats Road. This historic drainage patterns (swales) will be used west of Sand Flats Road and at this time it does not appear that there will be grade changes on Sand Flats to accommodate *drainage* concerns”. DEF 941 (emphasis added).

The highlighted differences between the actual relevant passage (second provision) and the one cited by Moab Land (first provision) makes it clear that the report was not only cited inaccurately, but also was cited in a way that radically changes the primary point as expressed in this portion of the plan. Moab Land LB incorrectly cites to the Conceptual Drainage Report, and mistakenly states that design plans have been confirmed, when the report makes it clear that they would not be confirmed until some point in the future. Furthermore, it is unclear whether the studies that were projected to be done on 10 year design storms were actually ever completed.

Moab Land LB states that Petitioners failed to provide authority that they failed to meet the relevant standard for preventing increased runoff. Moab Land LB Br. At 21. As Moab Local has set forth, the rules require that there be no net increase in off-site stormwater discharge and no net increase in base flood discharge depth, as defined in the city's flood damage prevention ordinance. Moab, Utah City Code §17.65.100(E). As both parties concede, the record states “developed flows will not have a significant impact on existing drainage”. R. 1202. However, this conclusion plainly does not address the relevant standard: a conclusion that there will be no “significant impact” is not a conclusion that there will be no net increase in off site stormwater and no net increase in base flood discharge. The Board's conclusion that this requirement of the



ordinances was satisfied is therefore arbitrary and capricious.

Moab asserts that the requirements for identifying “existing topography including elevations, and the clearly delineated location and depth of all proposed fills and cuts of finished earth surfaces, as well as any mapped floodways or FC-1 zoned areas” is satisfied by the documents at DEF 1495-1497 and/or DEF 1490-1491. Moab Land Br. At 22; Moab City at 15. The “preliminary street plan” on pages DEF 1490-91 displays parking areas, proposed street features, a “swale section”, and other similar features. The other map on DEF 1495 is a Preliminary Drainage Plan that displays culverts, storm drains, and other similar features, but does not indicate topography, elevations, and the clearly delineated location and depth of proposed fills and cuts.

Moab Land LB also misinterprets Moab Local's argument stating that “petitioners do not suggest that LB Moab failed to submit information in support of its grading and drainage plan requirements, rather their argument is that they simply do not agree with the methods and information presented by LB Moab.” Br. At 22. Moab Local's contention was that the plan itself was not properly presented as mandated by the ordinance through a Grading and Drainage Report. Furthermore, the contents of record that Moab alleges relate to this issue do not contain much of the information that the ordinance requires. The Board therefore lacked any substantial evidence supporting its determination that these requirements were satisfied.

## **VI. Required Reports were never Prepared and Landscaping was Improperly Evaluated**

On landscaping Moab Land asserts that Moab Local has unnecessarily “nitpicked” the record. Br. At 23. However, it becomes clear that Moab attempted to comply with ordinances through evaluation of landscaping based on a typical landscape area. Id. The ordinance is explicit that the landscape plan shall show all existing and proposed landscaping, planting details, and irrigation including information such as the total number of existing trees on-site, the trees to be removed.....” Moab, Utah, City Code § 17.65.100(F)(emphasis added). Importantly, the ordinance does not permit an applicant to select a “typical area” from which to evaluate landscaping.

Landscape methods and planting plan descriptions, required by Moab, Utah, City Code §17.65.100(F) are said to be found on pages DEF 1516-1529. Moab City Br. At 16. However, these pages do not include the required information. A “Planting Plan, Water Zone, and Lighting Notes” document includes dust control and erosion measures, open space guidelines for transitional and private areas, information on weeds, irrigation and lighting guidelines, revegetation guidelines, a landscape zone diagram, and path lighting. There is also a map on DEF 1529 that appears to depict the existence of various plants or trees throughout the development but it entirely lacks the details essential to setting forth landscape methods and planting plans. Moab Br. At 16. It does not include required information such as the total number of trees on site, those trees to be removed, or a plant list that indicates plant quantity, spacing, size and root type. Moab, Utah, City Code §17.65.100(F).

## **VII. Required Components of the Preliminary MPD were never Prepared**

To justify its reliance on a deficient record, Moab relies on Moab, Utah, City Code §17.65.100 which states that “components of this submittal may be combined into one or more site plans or reports provided they are clear, legible and successfully demonstrate their purpose”. Moab City Br. at 16. The Ordinance clearly states that “a complete preliminary development plan application shall include the following components:.....”. Id. The components shall include a “Significant Features Plan”, an “Open Space Plan”, a “Traffic, Trails, and Circulation Plan, etc. Id. The court need look no further than the plain language of the ordinance that mandates the submission of these various reports. “Only if the language of a statute is ambiguous do we resort to other modes of construction.” *O’Keefe v. Utah State Ret. Bd.*, 956 P.2d 279, 281 (Utah 1998). In this case the ordinance is clear in terms of which reports must be prepared. It is true that once these reports are completed they can be combined into various site plans or reports but each component and plan must be prepared as directed. Furthermore, if they are combined each component must be wholly combined meaning that Moab cannot claim that some of the elements of the Grading and Drainage Plan are in one document and other elements are in another. Regardless of whether the components are combined each component has to be complete.

It is reasonable and good policy that the ordinance was drafted to require the submission of various reports for each development criteria. It is only in this way that the public or reviewing bodies can easily view the details of proposed developments and determine if various requirements have been followed. The alternative is the existing

situation where others must resort to inspecting many different parts of a 1500+ page record to surmise whether the city's laws have been met.

### **VIII. Covenant, Codes, and Restrictions are Required at the Preliminary Stage and Were Never Prepared**

Moab ordinances clearly state that “[a] complete preliminary development plan application shall include..... Covenants, Codes, and Restrictions” (CC&Rs) Moab, Utah, City Code § 17.65.100(K)(emphasis added) yet these were never submitted. Moab appears to assert that it is excused from this requirement and that it is sufficient for the CC&Rs to be completed before final approval. Moab Land Br. At 24; Moab City Br. at 16. It is also readily apparent that the Preliminary Guidelines that Moab argues constitute the CC&Rs are not the CC&Rs. Apart from the title of the document itself, it is clear that these do not constitute the CC&Rs because they lack the required enforcement provisions that CC&Rs would have, and the guidelines itself state that the CC&Rs is a different document. DEF730. (“[i]n addition to these guidelines, each owner must comply with the covenants, conditions, and restrictions contained in the Declaration.....”)

Finally, on the issue of subdivision ordinances Moab City remarks that only the MPD ordinances apply to the process based on the Annexation Agreement. DEF774-776; Moab City Br. At 18. This agreement states that the property will be developed based on “applicable laws and regulations”. The agreement also states that subdivision rules were to apply. DEF779. Moab City's argument that the SAR and MPD ordinances are to be used in unison does nothing to contradict Moab Local's point that certain rules under the

subdivision chapter cannot also apply. Nothing within the MPD or SAR ordinances state otherwise or specifically mandate that the subdivision rules do not apply. In other words the issue is not whether one or the other applies, but in this case there is no reason why both chapters should not apply.

#### **IX. Moab must Abide by its Own Ordinances and Moab Local has Shown Prejudice**

Moab concludes its argument by admitting that even if there has been minor mistakes in the MPD or application package at issue that these violations of the ordinances are inconsequential since Moab Local would be unable to show prejudice under *Springville Citizens*. Moab Land Br. At 27; 1999 UT 25, ¶31. *Springville Citizens* core holding is that governmental entities must follow their own rules. Moab is “not entitled to disregard its mandatory ordinances” and is “bound by the terms and standards of applicable zoning ordinances.” *Springville Citizens*, 1999 UT 25 at ¶30; ([t]he City cannot “change the rules halfway through the game.”) *Brendle v. City of Draper*, 937 P.2d 1044, 1048 (Utah Ct. App. 1997); *Id.*

Even so, prejudice is clear in this case because if Moab had followed the applicable ordinances the preliminary MPD for LBR could not have been approved. Prejudice also exists on the issue of cultural and natural resources where if there had been a survey of archaeological and cultural resources it could be determined if the development would impact such resources. At this point it is simply unknown if the development affects such resources since it was never determined, as required, to what extent they exist. There are other examples and reasons why Moab Local has been

prejudiced, but this question is only to be resolved on remand. *Springville Citizens*, 1999 UT ¶32. (after finding that the ordinances had been violated the court remanded the PUD to determine the issue of prejudice).

Moreover, the City Council and the government in general is entrusted to follow their laws for the benefit of the public. When the government disregards local laws the action by local citizens becomes necessary to counteract “*willful disregard* of its own ordinances and procedures” and “serves the important public policy of ‘ensur[ing] that [the] County was governed by rule of law, not of man.’” *Culbertson v. Board of County Commissioners*, 2008 UT App 22, ¶¶12 and 13, 177 P.3d 621. Although this statement arose in the context of attorney fees under the private attorney general rule, the *Culbertson* case recognized that courts in other jurisdictions have found such a pursuit is important to vindicate important public policies. See, e.g., *Woodland Hills Residents Assn., Inc. v. City Council*, 593 P. 2d 200, 23 Cal.3d 917 (1979)(recognizing that “the public always has a significant interest in seeing that legal strictures are properly enforced and thus, in a real sense, the public always derives a ‘benefit’ when illegal private or public conduct is rectified”). Simply stated, good government can only exist when local governmental entities follow their own duly enacted mandates.

Finally both parties have stated that this appeal “borders on frivolous” and therefore warrants that attorney fees be awarded. However, this is the second appeal after the board appeal to district court and this is the first request for attorney fees based on an alleged frivolous appeal. At the district court stage all parties agreed to pay their own

costs. R. 424. It is unclear how virtually the same appeal suddenly became frivolous, and Moab provides no explanation on this point. "[A] frivolous appeal [is] one without reasonable legal or factual basis." *Maughan v. Maughan*, 770 P.2d 156, 162 (Utah Ct. App. 1989). However, "[t]he 'sanction' for bringing a frivolous appeal is applied only in egregious cases." *Id.* Moab has failed to explain how Moab Local's appeal "borders on" frivolous or how the appeal lacks a reasonable grounding in law or fact<sup>6</sup>.

Such claims most often do not result in a finding of frivolousness, and even if they do fees are not frequently awarded. *Frederick and Dorothy Westling Family Trust v. Westling*, 2010 UT App 291, 242 P.3d 805 (Utah App. 2010); *Espinoza v. Gold Cross Services, Inc.*, 2010 UT App 151, 234 P.3d 156 (Utah App. 2010); *Porco v. Porco*, 752 P.2d 365, 369 (Utah Ct.App. 1988); *Smith v. Security Investment Ltd.*, 2009 UT App 355, 223 P.3d 451 (Utah App. 2009); *Wasatch County v. Tax Com'n*, 2009 UT App 221, 217 P.3d 270 (Utah App. 2009); (A very high standard "must be required or we will find ourselves in a 'loser pay' situation.") *O'Brien v. Rush*, 744 P.2d 306, 310 (Utah Ct. App. 1987).

## CONCLUSION

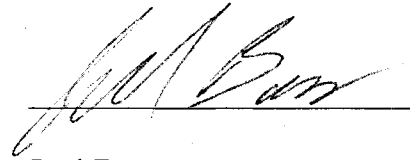
Moab Local has demonstrated that a number of Moab City ordinances have been

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<sup>6</sup> Moab has not seriously made its case for fees having included the request in passing and in the last sentence of their brief without any justification or basis as to how Moab Local's case is frivolous. Moab Local recognized that Utah sets a relatively high bar for such sanctions, and therefore does not request fees in this matter. Still Moab Local suggests that Moab Land's protests should be viewed in the context of the "facts" that it has put forward that lack a reasonable basis or are even plainly inaccurate. This includes the misquoting of the Conceptual Drainage Report. Moab Land in fact misquoted the same part of the record both at the district court and appellate level. R. 406.

violated, and that prior approval of the LBR MPD was plainly arbitrary, capricious, and contrary to law, and therefore warrants a remand.

DATED this 22<sup>nd</sup> day of June 2011

A handwritten signature in dark ink, appearing to read 'Joel Ban', is written over a horizontal line.

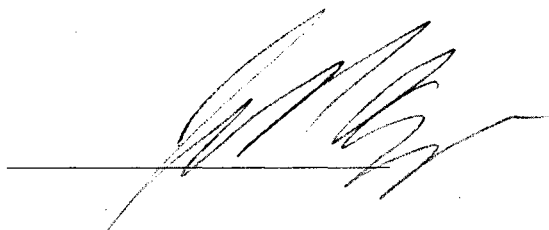
Joel Ban  
Counsel for Appellants/Petitioners



### CERTIFICATE OF SERVICE

I hereby certify that I caused two true and correct copies of the foregoing to be served by the method indicated below this 22<sup>nd</sup> day of June, 2011, to the following:

<input type="checkbox"/> HAND DELIVERY <input checked="" type="checkbox"/> U.S. MAIL <input type="checkbox"/> OVERNIGHT MAIL <input type="checkbox"/> FAX TRANSMISSION <input type="checkbox"/> E-MAIL TRANSMISSION		Jody K Burnett Williams & Hunt Attorney for LB Moab Land Company, LLC 257 E. 200 S. Ste. 500 PO Box 45678 SLC, Ut. 84145-5678
<input type="checkbox"/> HAND DELIVERY <input checked="" type="checkbox"/> U.S. MAIL <input type="checkbox"/> OVERNIGHT MAIL <input type="checkbox"/> FAX TRANSMISSION <input type="checkbox"/> E-MAIL TRANSMISSION		Christopher G. McAnany Attorney for Moab City Dufford, Waldeck, Milburn & Krohn, LLP 744 Horizon Court, Ste. 300 Grand Junction, Co. 81506

A handwritten signature in black ink, appearing to be "J. K. Burnett", is written over a horizontal line.

# ADDENDUM

1 DEVELOPER: Traffic and trails, we have the  
2 engineering drawings -

3 MR. SPEAKER (?): Anything that you're showing not  
4 something that was submitted into the record previously?

5 DEVELOPER: No. These the original drawings I've  
6 been showing for every meeting.

7 MR. SPEAKER (?): And submitted (inaudible)?

8 DEVELOPER 2: Right, and when architects do things,  
9 it's this size drawings. It's not the ones you can provide  
10 for the (inaudible) people to carry around. This is the size  
11 drawings that we go by and they're scaled while the ones in  
12 the book may not be scaled. So this represents all the  
13 traffic, all the streets, the grading for all the streets and  
14 actually I don't know on this drawing but we've actually  
15 given them names. Names will probably show up on another  
16 drawing. This shows the (inaudible).

17 (inaudible conversation)

18 DEVELOPER 2: Now I have to admit that one that  
19 reduced in that - the reduced set did not have all the trails  
20 on it.

21 CHAIRPERSON: We notice that there's a very faint  
22 blue line and I can't tell, are those internal trails?

23 DEVELOPER 2: No they're some of the water  
24 interests we have.

25 (inaudible conversations)

1 CHAIRPERSON: I understand that.

2 DEVELOPER: But we have done everything possible in  
3 our design guidelines to promote the pueblo feel and that  
4 buildings have to have three distinct masses which is very  
5 much a characteristic of pueblos so breaks up the building  
6 and it has a wall can only be, I can't remember, 15 feet long  
7 and then it has to have a jog of two feet and the garage, the  
8 face of the garage, for example, if you have a 2-car garage,  
9 you'll see in these sketches that they have to be offset.  
10 You can't have a 2-car garage door, it has to be single and  
11 it can't be on one face. It has to be offset by two feet.  
12 So it's trying to break up those masses in this form.

13 CHAIRPERSON: Okay. Can you talk to us about  
14 whether there's any de-emphasis on automobile travel within  
15 the development? We talked about that a little bit.

16 DEVELOPER 2: We did and the idea is you don't have  
17 to get in a car to go to the hotel, you get onto a path, a  
18 trail to go to the hotel.

19 MR. SPEAKER (?): Are these trails gravel, paved,  
20 dirt?

21 DEVELOPER: We've been trying to figure that out  
22 exactly. We've been looking at some of the natural paving,  
23 in other words, a concrete with a mix sand in it so it looks  
24 like it's the same color as the sand around it. We've been  
25 looking at various things. That will have to be submitted in

1 our final plan.

2 CHAIRPERSON: I think that you've addressed the  
3 streets and parking areas and other automobile infrastructure  
4 (inaudible) minimize location of the garages and access to  
5 them. It appears that the buildings are as clustered  
6 together as they can be. Does anyone have anything to add to  
7 that or...

8 DEVELOPER 2: Clustering is basically when you take  
9 all of this other space and then you put the units in here.  
10 The size of the lots are really structured with the size of  
11 the units. So we're not giving people a big lot. The lots  
12 are very small, you will be able to build the type of units  
13 that we're talking about but you're not going to be able to  
14 build anything beyond that. So it's basically the size of  
15 the lot is forcing the buildings to be a certain size.

16 CHAIRPERSON: Trail access from developments to  
17 nearby scenic recreational areas. Is that -

18 DEVELOPER: We have been talking to the mixed  
19 trails groups and we're trying to work out a bridge across  
20 Millcreek down here and we've walked the trail that comes up  
21 and attaches to this and we've also provided access down here  
22 and along here to hopefully a future trail and we've also  
23 widened Lion's Back, we're widening Sand (inaudible) Road to  
24 help accommodate bikes and things like that. We're very  
25 conscious of that.

9) Please contact the Committee Design Review Administrator (???) for the most current information or any clarification regarding these Guidelines and to schedule meetings required by the Guidelines with Committee members.

**B. Other Development Regulations**

1) While these design guidelines constitute the primary tool for controlling the development of Lionsback Resort, other material must also be considered during the design process. In addition to these Guidelines, each owner must comply with the covenants, conditions and restrictions contained in the Declaration, and with all applicable City of Moab land use and development regulations. Each of these documents establishes regulations that apply to the development of Lionsback Resort. In some cases, there will be conflicting provisions within two or more of these control documents. In the event of such conflict, the most restrictive provision shall apply.

**C. Professional Design Team**

1) A high quality development team is required to create a harmonious resort community within the size limitations and fragile high desert climate at Lionsback Resort. It is crucial that only qualified designers, engineers, and contractors participate. This is essential to protect the community member's investment in Lionsback Resort. The development team unless waived by the Committee is to consist of:

- a. Only Registered Architects shall be permitted to design buildings in Lionsback Resort.
- b. Only Registered Soils Engineer shall prepare soils report.
- c. Only Registered Structural Engineer shall prepare structural drawings.
- d. Only Landscape Architects/Designers and Contractors experienced in designing in desert environments will be permitted to design and install landscape improvements.
- e. All general Contractors must be approved in accordance with the provisions of the Construction Regulations prior to working in Lionsback Resort.

**D. The Design Review Process**

1) The Design Review and Approval Process provides strategic checkpoints designed to minimize time and money spent on residential and commercial designs that do not comply with the Guidelines, or are not compatible with the overall philosophy of Lionsback Resort. Each Owner is responsible for complying with the Guidelines and all other applicable provisions of the Lionsback Community Documents, as well as rules and regulations of any governmental authority, in order to bring the design review process to a speedy and satisfactory conclusion.

2) The Committee conducts project reviews during regular scheduled meetings or at such other times deemed appropriate. Owners, Architects, and Builders shall have the right to attend any Design Review meeting and shall do so if specifically requested to do so by the Committee. Owners, Architects, Designers and Builders should contact the Design Review Coordinator to determine submittal deadlines for approaching Design Review meetings. Any responses to issues contained in the Committee's notice following review of submittals should be addressed to the Committee in writing.

3) In general, the Design Review and Inspection Process are comprised of the following critical phases:

- a. On-Site Pre-Design Meeting
- b. Preliminary Plan Submittal & Review

**PHASE 1 – PRELIMINARY SITE ASSESSEMENT  
SITLA PROPERTY SAND FLATS ROAD  
GRAND COUNTY, UTAH  
May 1, 2006**

### **Method and Purpose**

This site investigation and report has been prepared in accordance with the "Standard Practice Environmental Site Assessments: Phase I Environmental Site Process" as outlined by ASTM E-1527. The purpose of this investigation is to identify recognized environmental conditions that may pose a threat to health. The identification of these conditions is made through review of existing documentation, on-site observation (April 25, 2006) and discussion with past owners, neighbors and/or agency personnel.

This investigation and report is site specific and prepared for the exclusive use by Michael Badger and Michael Lawler only and is valid for 30 days from the date of issue. Use by any other party is unauthorized without written consent of Buckhorn Geotech, Inc. This investigation is intended to reduce potential uncertainty, regarding environmental conditions, to the extent feasible using customary practices and data available at the time of the investigation but cannot wholly eliminate uncertainty.

### **Site Description**

The subject property is owned by the State of Utah School and Institutional Trust Lands Administration (SITLA) and is on Sand Flats Road, in an unincorporated part of Grand County, Utah. The property is located in Section 6, Township 26 South, Range 22 East, Salt Lake Base and Meridian as shown on the attached location map. The north portion of the property is abutted on the west, north and east by the Sand Flats Recreation Area administered by the Bureau of Land Management (BLM) and Grand County as a fee area for recreational activities. The southern portion of the property is abutted by residential use, vacant land, and public property in use for the County landfill.

The property on the west side of Sand Flats Road is in use as a campground facility and has an on-site water well and fully contained chemical toilets and no sanitary waste facility. There are numerous primitive roads and trails crossing the campground area. There is overhead power on the west side of the road that services the campground and also crossing the property on the east side of the road. There is a communications tower on the ridge at the south end of the property. There is public land access through the property. The property on the east side of Sand Flats Road is vacant and has a walking

trail that appears to be open to the public. There is a drainage culvert under Sand Flats Road allowing runoff from the west to continue southeast in a natural drainage.

## **Physical Setting**

The site is located above the east side of the City of Moab at an elevation ranging from approximately 4440 feet (above mean sea level) at the southeast corner of the property to an elevation of approximately 4600 feet (above mean sea level) on ridgelines. This area is considered part of the high desert of the Colorado Plateau. On the west side of Sand Flats Road two ridges are dominant, one runs northwest to southeast along the southwest property lines, and the other, also running northwest to southeast, is across the northeast corner of the property. There is a wide valley in between these two ridge lines that slopes to the southeast and continues as a natural drainage on the east side of Sand Flats Road, draining to Mill Creek approximately 1 mile to the southeast. The ridge lines are Navajo Sandstone and the valley is sand with low desert type vegetation, overlying sandstone. There are numerous rock features and small natural drainage paths across the property. The data base search conducted for this report notes the site to be outside any regulatory 100-year flood plain.

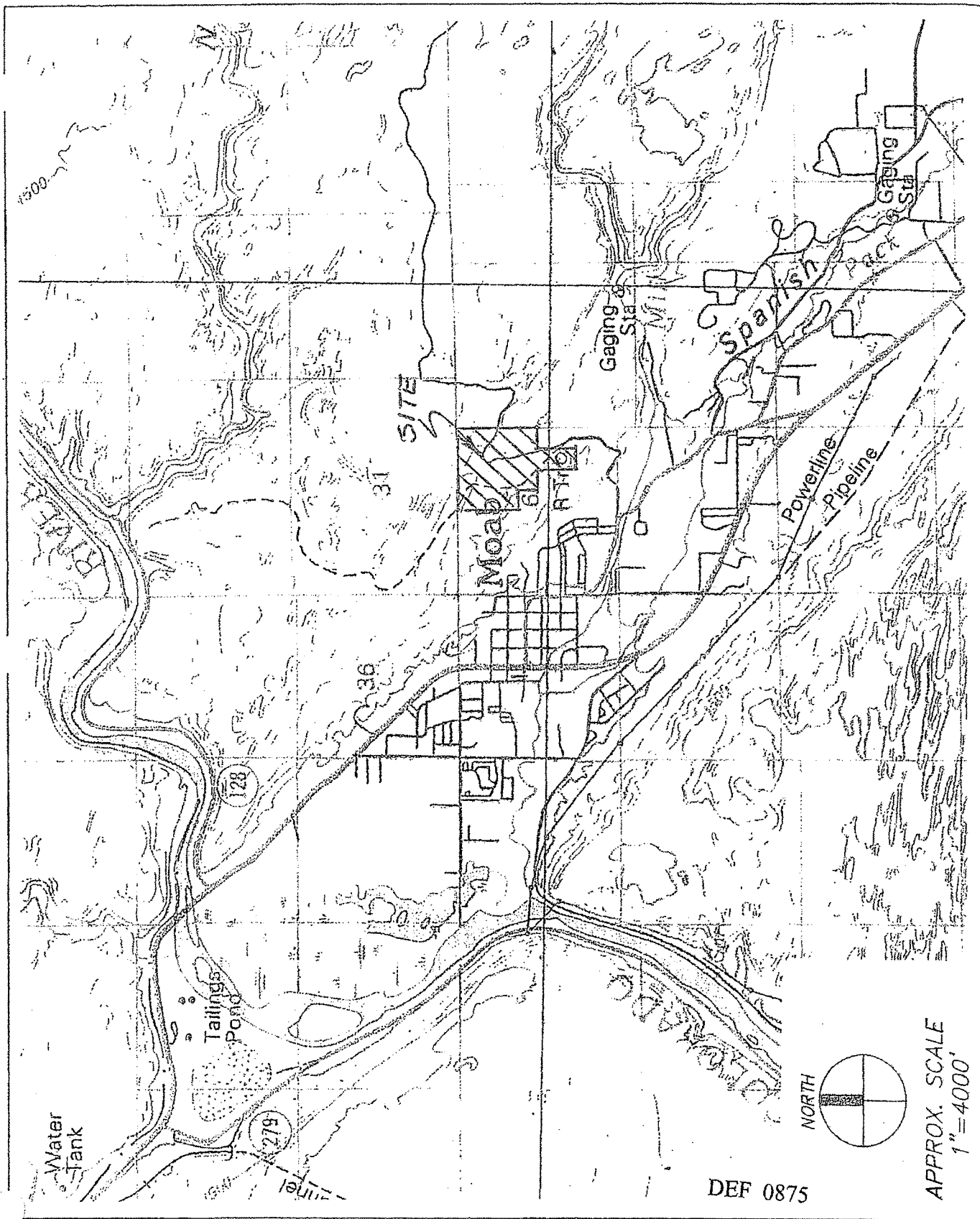
## **Historic Landuse and Ownership**

From discussions with Mike Hill on site on April 25, 2006, Mr. Hill has operated the recreational campground on the west side of Sand Flats Road for close to 20-years. This is a "primitive" campground with no electrical, water or sewer hook-ups for campers. There are fully contained chemical toilets and dumpsters available, shower facilities were added more recently (Title Report shows the well in 2001).

From discussions with Brian Torgerson, Resource Specialist for SITLA, the property has been owned by the State of Utah for over 50-years and has been leased for campground use for approximately 20-years. Prior to use for a campground the property may have been leased for livestock grazing or was vacant. No record search of ownership was completed due to the extensive period of ownership by the current owner as reported by local agencies. Mr. Torgerson contacted the Minerals Department of SITLA and determined that although a lease for Oils, Gas and Hydrocarbons was granted to a second part, no investigation related to this lease has been conducted on the property.

Dan Stenta, City Engineer for City of Moab, noted that there had been a communications tower on site for a long time that was replaced around 2002 or 2003. The tower appears on a USGS map dated 1983.





DRAWING NUMBER  1  OF 1	PROJ. NO.	06-132 ENV
	DESIGNER	JDK
	DRAFTER	JDK
	DATE	5/01/06

# LIONSBACK PROPERTY LOCATION MAP

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Machine-generated OCR, may contain errors.



Civil, Structural & Geotechnical Engineering  
222 South Park Ave. Montrose, Colorado 81401  
970-249-8828 Fax. No. 970-249-0945

## Site Observations

### West side of Sand Flats Road:

- The west part of the property was observed to have an active campground in operation with designated primitive sites (no-hookups). Roads had no imported surfacing and were native rock and sand. Fire pits were designated at each site.
- The campground facility has an office located at the access point with several out buildings clustered around the office. The campground operator noted that all buildings were temporary and on skids and examination of these buildings was not included in the scope of this report. The campground operator noted the well site located near the office. One of the buildings was observed to hold showers and one held storage of dry goods, gasoline containers and other fluids pertinent to small vehicle maintenance and campground maintenance. A propane tank was noted near the office facility.
- An engine and vehicle battery was observed, apparently in use for a log splitter.
- Fully contained chemical toilets and roll-off trash dumpsters were observed clustered through out the campground.
- The shower waste was observed to go to a storage tank that is labeled "grey water not for drinking" it was not apparent where or if excess waste water is discharged.
- There is a pole mounted transformer near the office that was noted to have a "NON PCB" sticker visible.
- Small amounts of trash were observed on the surface in areas around the campground.
- A water storage tank was observed toward the west end of the campground.
- There are areas that have been fenced off and/or posted evidently to restrict off-road vehicles.
- The site for the communications tower to the south of the campground was not accessed.
- There are areas of the campground that have been treated for soil stabilization with rock retaining walls and other measures including bags (labeled rice) used like sand-bags.
- Small amounts of trash were observed partially buried in the designated fire pits.

- A natural drainage was observed at the low area on the west side of Sand Flats Road with a drainage culvert discharging to the east side of the road.

East side of Sand Flats Road:

- No buildings or development are apparent on the property on the east side of Sand Flats road.
- There is a pull-out from the road that allows for parking adjacent to a trail that runs south east on the property.
- The natural drainage from the culvert observed at Sand Flats Road continues south easterly.
- Minor surface trash and several abandoned vehicle tires were observed.
- There is an area of trash accumulated on the property that is below a road pull-out on Sand Flats Road adjacent to the entrance station to Sand Flats Recreation Area. Random items were observed including the case for a television, the shell of a household oven, several items that appeared to be fuel filters, pieces of a vehicle and other items.

DEF 0877

## EPA Regulated Facilities

A database search for State and EPA Regulated Facilities was conducted by Environmental Data Resources (EDR) for the subject property and adjacent properties within the ASTM E 1527-00 search radius (plus ½ mile due to size of site) on April 18, 2006. This database includes facilities with the following documented environmental conditions:

- Permitted discharge to waters
- Report of toxic release
- Hazardous waste handler
- Active or Archived Superfund Report
- Reported Air Release
- 

The property was not identified as any of the listed regulated facilities. Two sites were found within the ASTM E 1527-00 search radius plus ½ mile.

- An archived CERCLIS site identified as the "Ore Buying Station" was noted at 158 N 400 E, Moab, Utah and is approximately ¾ miles southwest and down gradient from the subject property.
- A solid waste facility/landfill site was noted on Sand Flats Road approximately ¾ miles south and down gradient from the subject property.

No other superfund or hazardous waste sites or other regulated facilities were found within an approximate one mile radius of the property.

Superfund Sites: The Superfund query retrieves data from the CERCLIS database, a query on archived sites was also performed. One site was found and as noted above is an archived site identified as the "Ore Buying Station". This site was identified in 1980 and archived in 1990 with a finding of "No Further Remedial Action Planned (NFRAP)". As stated above, this site is approximately ¾ miles southwest of the site and downgradient at an elevation of approximately 4000 feet.

Hazardous Waste RCRIS database: The Hazardous Waste query retrieves data from the RCRIS database which lists hazardous waste handlers. No sites were listed within the radius search.

## State Regulated Storage Tanks

The database for State regulated storage tanks was reviewed for facilities within one mile of the property. The database includes underground storage tanks (UST's) "in use" and "out of use", closed and active leaking underground storage tanks (LUST's), above ground storage tanks (AST's) "in use" and "closed". No listing was found for the subject property and no sites were found within the search radius. Please note that tanks for agricultural use may not be listed on the database.

### Orphan Sites

Orphan sites are sites found in the database search which do not have an address that allows for the search to determine distance from the property. The addresses for these sites were reviewed and they were determined to be along Highway 191, Highway 160 or in the developed area of the City of Moab and not within 1 mile of the property.

### **Utilities**

Overhead utilities were observed along Sand Flats Road and crossing the easterly part of the property. The pole mounted transformer near the campground entrance was noted to have a sticker stating "PCB Free". The campground site is serviced by an on-site water well and there is no sewage system. The campground has a propane tank.

### **Wells**

The database search conducted by Environmental Data Resources (EDR) for the subject property included review of permitted wells within 1 mile of the subject property. The database returned 69 well permit applications within the 1 mile radius which included denied and expired well permits along with monitoring wells and in use wells. There was one well permit within approximately one quarter mile, which is the on-site well at the campground owned by SITLA. No wells were found between  $\frac{1}{4}$  and  $\frac{1}{2}$  mile, the remainder of the wells are generally clustered in and around the City of Moab between  $\frac{1}{2}$  and 1 mile from the property. Seven of the wells listed were from the Federal United States Geological Survey (USGS) data base and may be monitoring wells. Well use is primarily noted as irrigation with a few permits noting domestic and other use.

### **Landfills**

The City of Moab landfill is located immediately to the southeast of the southerly property line. No other landfills exist within one mile of the property. Ms. Mary von Kuch, Realty Specialist with the Bureau of Land Management (BLM) in Moab for 20-years, noted that the BLM had sold land adjacent to the landfill and the new Owner found areas of buried trash on that land that was outside the permitted landfill area. This is a potential concern for areas along the south of the property. Mr. John Adamson with the Southeast Utah Health Department noted that the original landfill management included Grand County and the landfill was a receptor of municipal waste with little regulation and any type of waste may be present. Currently the landfill only accepts construction debris and waste tires for recycling with municipal waste is taken to the Grand County landfill north of town.

## Personal Contacts

Mr. Mike Hill: Manager of the campground on the property for 18-years, Mr. Hill provided general information regarding past use and activities on the site.

Ms. Maggie Wyatt: Manager of the BLM Field Office in Moab for 7-years, has no knowledge of potential environmental concerns related to the property. Ms. Wyatt noted that the water in Mill Creek is classified as impaired for fisheries but that may be due to warm temperatures. Ms. Wyatt noted that the campground area used to be a problem due to lack of management and this has been mitigated by fencing of areas to prevent access, regular trash pick-up and policing.

Ms. Mary von Koch: Realty Specialist with BLM Field Office in Moab for 20-years, has no knowledge of environmental concerns related to the property. Ms. Koch noted two potential concerns in the area; buried trash was found on another property adjacent to the landfill site outside of the permitted landfill area, and there is a shooting range on property south of the landfill that may have potential environmental concerns.

Mr. Brian Torgerson: Resource Specialist with SITLA, has no knowledge of potential environmental concerns related to the property. Provided information regarding past use of the property. Mr. Torgerson also verified that no oil, gas or hydrocarbon activities had taken place at the site and provided the name of the lease holder for the communications tower which is Royce's Electronics in Moab, Utah.

Dan Stenta: City Engineer for City of Moab, provided general information.

Mr. John Adamson: Southeast Utah Health Department, noted historically the landfill adjacent to property was not regulated and types of waste materials are unknown. Mr. Adamson had no knowledge of environmental concerns on the subject property. Mr. Adamson noted there is a grey water rule in Utah that allows for the shower water to be discharged above ground provided it is settled in a tank prior to discharge.

## Reference Documents:

- Title Report by South Eastern Utah Title Company received 4/28/06.
- USGS topographic maps.
- Sand Flats Recreation Area Visitors Guide
- Environmental Data Resources data search report April 18, 2006.
- Geotechnical investigation by Buckhorn Geotech April 2006.

DEF 0880



## Summary and Conclusions

From on-site observations of the property (conducted on April 25, 2006) and from review of available documents and personal contacts described in this report, there is no apparent potential for environmental contamination at the property. The only apparent potential for environmental concerns would be related to the stored maintenance chemicals for the campground, the dumping of trash on the east side of the property below the pull-out on Sand Flats Road, and potential environmental concerns related to the adjacent landfill. These potential concerns are summarized as follows:

- There was no surface staining or other evidence observed to indicate maintenance chemicals has been disposed of improperly on site, all such chemicals were stored in a storage shed with a wood floor and no spillage was observed.
- The trash observed on the east part of the property was not spread over a large area and appeared to be on the surface only.
- The potential concerns related to the landfill would include potential historic disposal of hazardous waste in an unregulated landfill and potential disposal of waste outside of the permitted landfill area. The landfill site is generally down gradient of the property which will minimize risk to the property.

The Southeast Utah Health Department Officer, Mr. John Adamson stated there are no known environmental concerns at the property.

This report was based on the guidelines presented the "*Standard Practice Environmental Site Assessments: Phase I Environmental Site Process*" as outlined by ASTM E 1527. No testing of air, water or soil was performed as part of the Phase 1 Environmental Assessment.

## Acronyms/Abbreviations

ASTM	American Society for Testing and Materials
BLM	United States Bureau of Land Management
USFS	United States Forest Service
EPA	United States Environmental Protection Agency
NPL	National Priority List
PUD	Planned Unit Development
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
RCRIS	Resource Conservation and Recovery Information System
UST	Underground Storage Tank
LUST	Leaking Underground Storage Tank
AST	Above Ground Storage Tank



## **APPENDIX**

### **Site Photos Reference Data**

DEF 0883

## *Lionsback Resort- Conceptual Drainage Report*

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### V. SUMMARY

This report only analyze the historic (existing) drainage patterns and the final drainage report will have the complete calculations to demonstrate that the development will be able to convey the 10 and 100- year design storms. The rational method was used to analyze the historic basins and will be used to analyze the proposed basins. Under 30% of the entire ownership will be developed and of that area a smaller percentage of the individual sites will be impervious which is why the Moab City Engineer directed the development team not to have storm water detention as part of this development.

The 10-year and 100-year design storms will be utilized for the final design. It is our plan to confirm that the 10-year design storm passes through all proposed culverts and drainage facilities and that the 100-year storm runoff does not have a harmful effect on the development or Sand Flats Road. The historic drainage patterns (swales) will be used west of San Flats Road and at this time it does not appear that there will be grade changes on Sand Flats Road to accommodate drainage concerns.

All drainage design calculations will be included in the final drainage study and submitted to the City of Moab for review.

### VI. REFERENCES

1. Moab City Design Standards and Public Improvement Specifications, Moab City Corporation, Moab Utah September 1999.
2. Urban Storm Drainage Criteria Manual Volumes 1,2, and 3, Urban Drainage and Flood Control District, June 2001 and September 1992
3. Portion of Moab City Stormwater Master Plan, as provided by City of Moab Engineer, dated 1999
4. Moab Utah City Code, as shown on City of Moab Website 2007 (<http://ordlink.com/codes/moab/index.htm>).
5. Civil Engineering Reference Manual, Sixth Edition, Michael R. Lindeburg, P.E. 1997

## *Lionsback Resort - Preliminary Drainage Report*

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$Q = CiA$  where  $Q$  = flow rate;  $C$  = runoff coefficient for the specific design storm;  $A$  = area of drainage basin.

No routing was utilized or will be utilized as part of the final design. Drainage basins were added directly together as this is the most conservative method when analyzing the culverts along Sand Flats Road and within the project.

### **IV. DRAINAGE FACILITY ANALYSIS**

All of the proposed drainage basins were determined and flow rates calculated as part of this report. The culverts were all checked and sized as part of this report and all the worksheet calculations are included in the appendix section of this report. No routing was used and the basins were added together at each of the culvert or inlet locations. There were two places where inlets are proposed and these pipes were sized. Near the hotel site storm drains were required to convey the flow and preliminary calculations are included in the appendix section of this report. Hydraulic grade lines and energy grade line will need to be checked as part of the final design for any storm drains proposed. The hydraulic head for each culvert was checked as part of this report, but fine grading around each culvert entrance will need to be coordinated with the required water surface elevation as part of the final design.

The proposed street section calls for a constant slope to a mountable curb and gutter. This section will convey the 100-year storm event to localized low points where proposed culverts will be placed to convey the runoff downstream. The mountable curb will be lowered to allow for all drainage to pass from the street to the culvert. Final street sections must be checked again as part of the grading plans and final drainage reports for each phase of the project. A typical section was checked as part of the preliminary design.

Over 70 percent of the existing site will remain open space and will not be disturbed as part of this development. Of the portion that will be developed much of the individual building sites will have yards, therefore not the entire 30% will be impervious surface. By comparing the Conceptual Drainage Report, which focused on the historic runoff rates, to the developed runoff rates, it appears that the developed flows will not have a significant impact on the existing drainage. After a discussion with Mr. Dan Stena, Moab City Engineer, and a rough analysis of the percentage of the entire site that is being developed, and due to his concerns of keeping existing flows in downstream drainage ways, we were directed not to have any onsite detention.

Small settlement basins are proposed at the inlet of all culverts under the roadways. This basin will help lower the sediment transport downstream during initial and minor storm events. A typical swale transition at the culvert inlet is included in the appendix section of this report.

As part of the final drainage report(s) all culverts will be rechecked and all sedimentation basins final grading will be included with any construction documents.

### **V. SUMMARY**

This report analyzed the developed (proposed) drainage patterns for the entire development. Final drainage report(s) will have to be completed with the construction plans for each phase.

### Excavation and Shoring

1. Temporary excavations should be in accordance with Occupational Safety and Health Administration (OSHA) regulations and with worker safety in mind. If slopes cannot be laid back in accordance with OSHA regulations, an engineered excavation stabilization plan is required.
2. We anticipate that the excavation of the site soils and weak sandstone can be accomplished by conventional excavating equipment. Removal of more competent sandstone may require the use of a pneumatic or hydraulic hammer.

### Pavement Section Design

We understand that preliminary pavement sections designs are desired for conceptual planning. The preliminary pavement sections are discussed below.

Daily traffic volumes have been estimated based on the density of development proposed and a 20-year pavement life. Two methods were used to estimate the traffic loading, with the first method based upon Colorado Department of Transportation (CDOT) correlations for residential and commercial developments (*CDOT Pavement Design Manual, 2005*), and the second method utilizing estimations of traffic based upon Institute of Transportation Engineer's trip generations and estimated construction traffic. The traffic volumes using the second method account for construction traffic and a phased build-out, as well as yearly volume growth. Traffic loads were calculated based on the second method for the east, north and south accesses separately, then a combined north and south access (for a more conservative pavement section). The estimated total traffic that the development will generate under each of these scenarios were correlated to an 18-kip Equivalent Single Axle Load (ESAL) for arterial road design purposes. Calculations for these correlations are appended to this report.

From CDOT, a lane factor of 0.60 was used since all proposed roads for the Lionsback Village development will be two-lane roads with one lane in each direction.

Based upon a combination of these estimations, residential traffic loadings from 37,000 to 570,000 18-kip ESALs for the access roads were analyzed. This analysis provides a quick comparison of pavement sections, load carrying capacity, and performance.

Individual laboratory testing results on the soil samples obtained from the investigation are presented above in the *Subsurface Conditions* section and appended to this report as individual laboratory test results. For the purposes of this analysis, a California Bearing Ratio (CBR) value of 19 was used for the reddish-yellow silty fine sand (SM) and a Resilient Modulus ( $M_R$ ) of 50,000 psi was used as a default value for the fresh to slightly weathered, very weak, light brown, fine-grained and thinly-bedded sandstone. The CBR for the silty fine sand was correlated to a  $M_R$  of 21,500 psi using a procedure provided in the *Pavement Design Manual*.

The design parameters provided below were used in the analysis of the pavement sections, and are derived from the CDOT *Pavement Design Manual*, Utah Department of Transportation's *Pavement Management and Pavement Design Manual* (UDOT, 1998), and the Colorado Asphalt Pavement Association's (CAPA) *Guidelines for the Design and Use of Asphalt Pavements for Colorado Roadways*. Note that in the absence of drainage design data, the default drainage coefficient is 1.0. A reliability of 75% has been assumed for this project, given the nature of the roads (relatively low volume rural roads but high demand performance). Consistent with UDOT requirements, a serviceability loss of 2.5 psi has been used. Typical strength coefficients have been used for calculating the strength of the final sections. The treated subgrade coefficient assumes a minimum 7-day unconfined compressive strength of 300 psi.

Table 5. Subgrade Characteristics

Parameter	SILTY SAND (SM)	SANDSTONE
Resilient Modulus (psi)	21,500	500,000
Drainage coefficient	1.0	1.0
Reliability (%)	75	75
Serviceability Loss (psi)	2.0	2.0
Strength coefficients:		
HMA	0.40	0.40
ABC	0.10	0.10
Subbase	0.08	0.08
Treated Subgrade	0.13	N/A

For construction and long-term performance reasons, UDOT recommends that the following minima are prescribed: 2.5 inches of hot-mix asphalt; 4 inches of aggregate base course; and 6 inches of granular borrow (subbase, where used). However, "best practices" considers 3.0 inches of asphalt as an industry standard for roads that do not enjoy the routine maintenance provided by UDOT. Our design, therefore, is based on a 3-inch asphalt thickness.

The pavement sections presented suggest that where sandstone is encountered as the subgrade, the pavement section has sufficient strength with just the asphalt surfacing on the rock; however, it is recommended to place a minimum 4-inch layer of angular (crushed rock) roadbase on the sandstone to form a leveling course. It is also recommended that the bedrock surface be roughened to provide some bond between the roadbase and bedrock.

Based upon the results of our geotechnical investigation and analyses, it is recommended that where possible the road sections bear directly upon competent sandstone. We recommend against using the silty sand as a subgrade unless the subgrade is treated a minimum of one foot below the pavement section, and preferably full depth to the sandstone contact. In our opinion, the best base and subgrade treatment for the silty sand encountered in our investigation is either Portland cement or Type "C" flyash, blended, moisture conditioned, placed, and compacted in accordance with project specifications.

The base and subbase courses should have sufficient width to fully extend beneath areas of shoulders or curb and gutter, where used. Construction of the roadway prism should promote

drainage away from the prism and subgrade. Borrow ditches and culverts should be provided and, where needed, lateral and/or crossdrains should be installed to keep water away from the roadways. Because of the erosive nature of the native silty sand, measures should be provided to minimize soil loss adjacent to the road prism from drainage concentration, such as riprap at discharge points and the use of vegetation and/or other erosion control measures in drainages.

Table 6. Preliminary Pavement Section Design

18K ESAL <sub>20</sub>	M <sub>R</sub> <sup>1</sup>	Req'd SN <sup>2</sup>	Thicknesses				SN <sup>3</sup>	Subgrade	Application
			Asphalt (in.)	Base (in.)	Subbase (in.)	Treated Subgrade (in.)			
Any	500000	0.78	3	0	0	0	1.2	sandstone	All roads
37,000	21500	1.14	3	0	0	0	1.2	SM	East Road
285,000	21500	1.66	3	5	0	0	1.7	SM	North Access
570,000	21500	1.87	3	0	0	12	2.76	SM	South Access

1. M<sub>R</sub> = Subgrade Resilient Modulus, calculated from CBR or R-value

2. Req'd SN = required structural number (measure of required structural strength of pavement section)

3. SN = structural number, as calculated from the pavement section

## References

- Black, B.D., Hecker, S., Hylland, M.D., Christenson, G.E., and McDonald, G.N., 2003. *Quaternary Fault and Fold Database and Map of Utah*, Map 193DM, Utah Geological Survey, 2003.
- Doelling, H.H., Ross, M.L., and Mulvey, W.E., 2002. *Geologic Map of the Moab 7.5' Quadrangle, Grand County, Utah*, Utah Geological Survey, 2002.
- Hylland and Mulvey, 2003. *Geologic Hazards of Moab-Spanish Valley, Grand County, Utah*, Special Study 107, Utah Geological Survey, 2003.

## Closing Considerations

This report has been prepared in a manner consistent with local standards of professional geotechnical engineering practice. Investigation of the site for environmental contaminants was not part of our scope of services performed at this site. The classification of soils and interpretation of subsurface stratigraphy is based on our training and years of experience, but is necessarily based on limited subsurface observation and testing. As such, inferred ground conditions cannot be guaranteed to be exact. No other warranty, Express or Implied, is made.

If the proposed construction changes from what we have described in this report, we should be notified to reevaluate our recommendations. Also, if during excavation, soil and groundwater conditions are discovered that vary from these discussed herein, construction should be stopped



until the situation has been assessed by a representative of Buckhorn Geotech. Construction should be resumed only when remedies or design adjustments, as necessary, have been prescribed.

### Additional Services

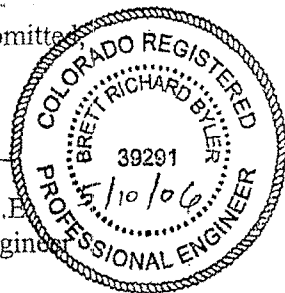
Buckhorn Geotech is a full-service engineering firm providing foundation, on-site wastewater system, site drainage, structural, and retaining structure design services, as well as surveying, construction materials testing, and inspections. Please visit [www.buckhorngeo.com](http://www.buckhorngeo.com) for a full description of our services.

Thank you for the opportunity to perform this soil investigation for you. If you require any of these services or have any questions regarding this report, please do not hesitate to contact us.

Respectfully Submitted  
May 10, 2006

*B. R. Byler*

Brett R. Byler, P.E.  
Geotechnical Engineer



Reviewed by:

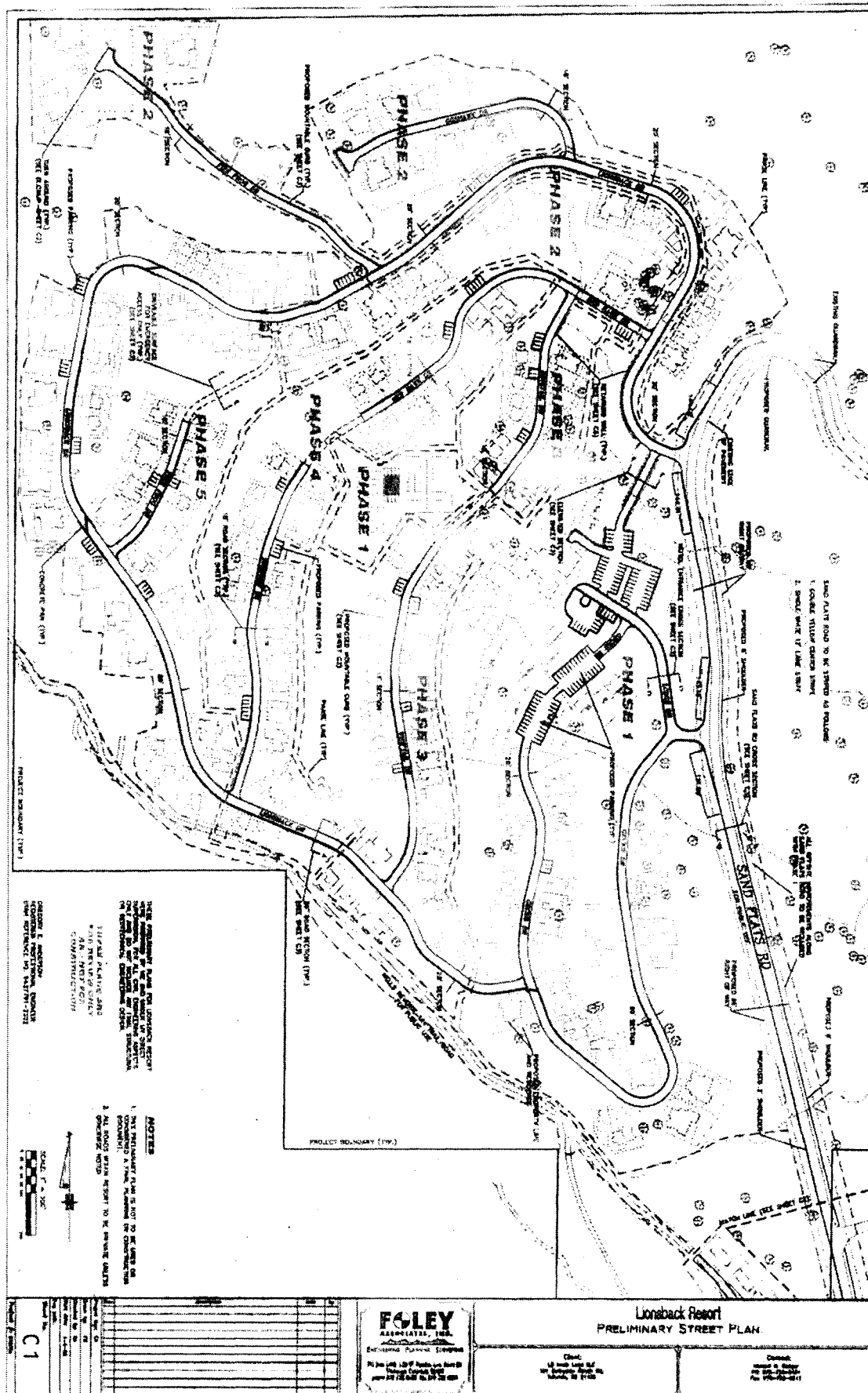
*Thomas E. Griepentrog*

Thomas E. Griepentrog, P.E., P.G.  
Principal

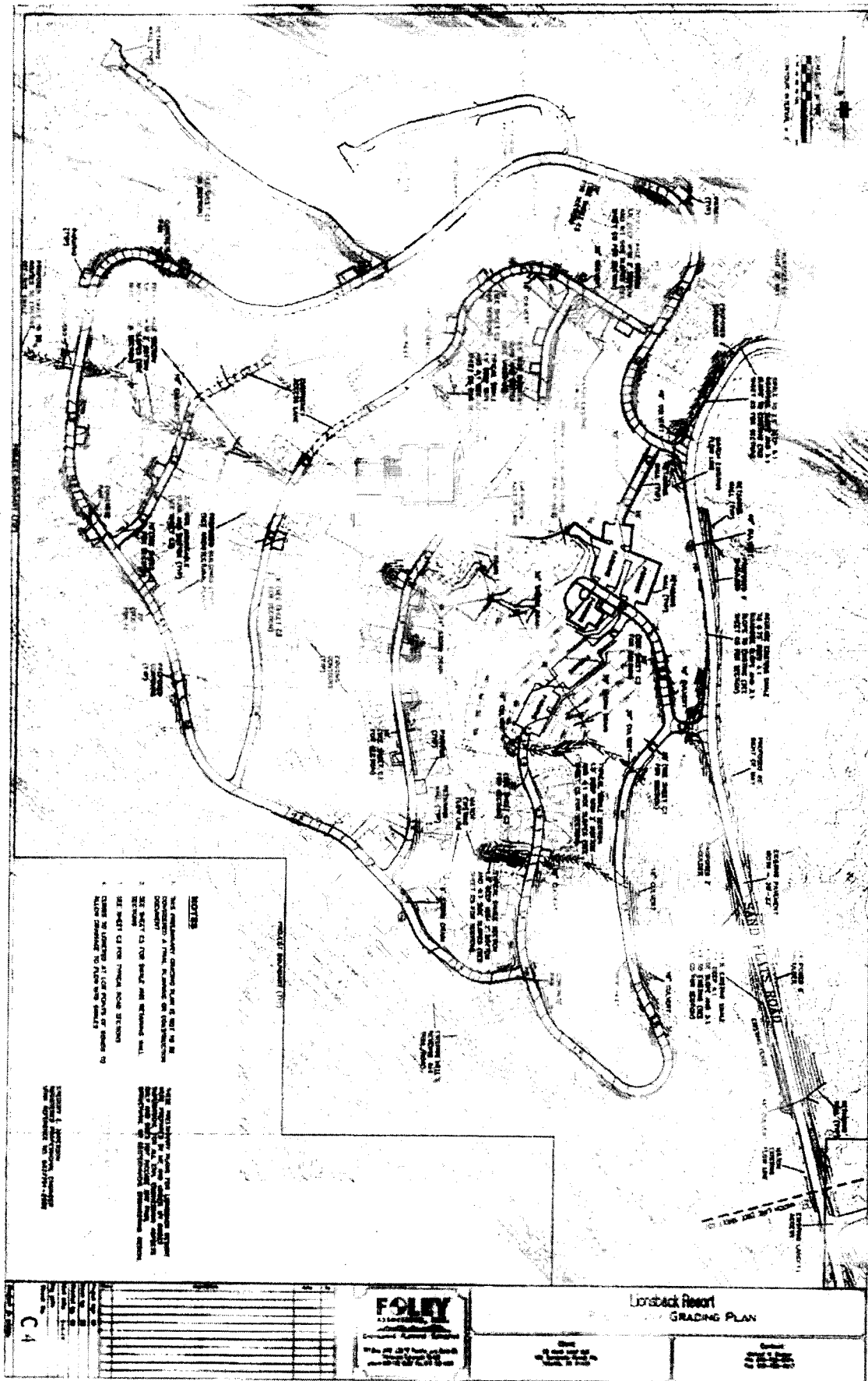
Enclosures: Vicinity Map, Site Plan, Borehole and Test Pit Logs, Atterberg Limits and Sieve Analysis results, Corrosivity Series results, Proctor results, California Bearing Ratio results

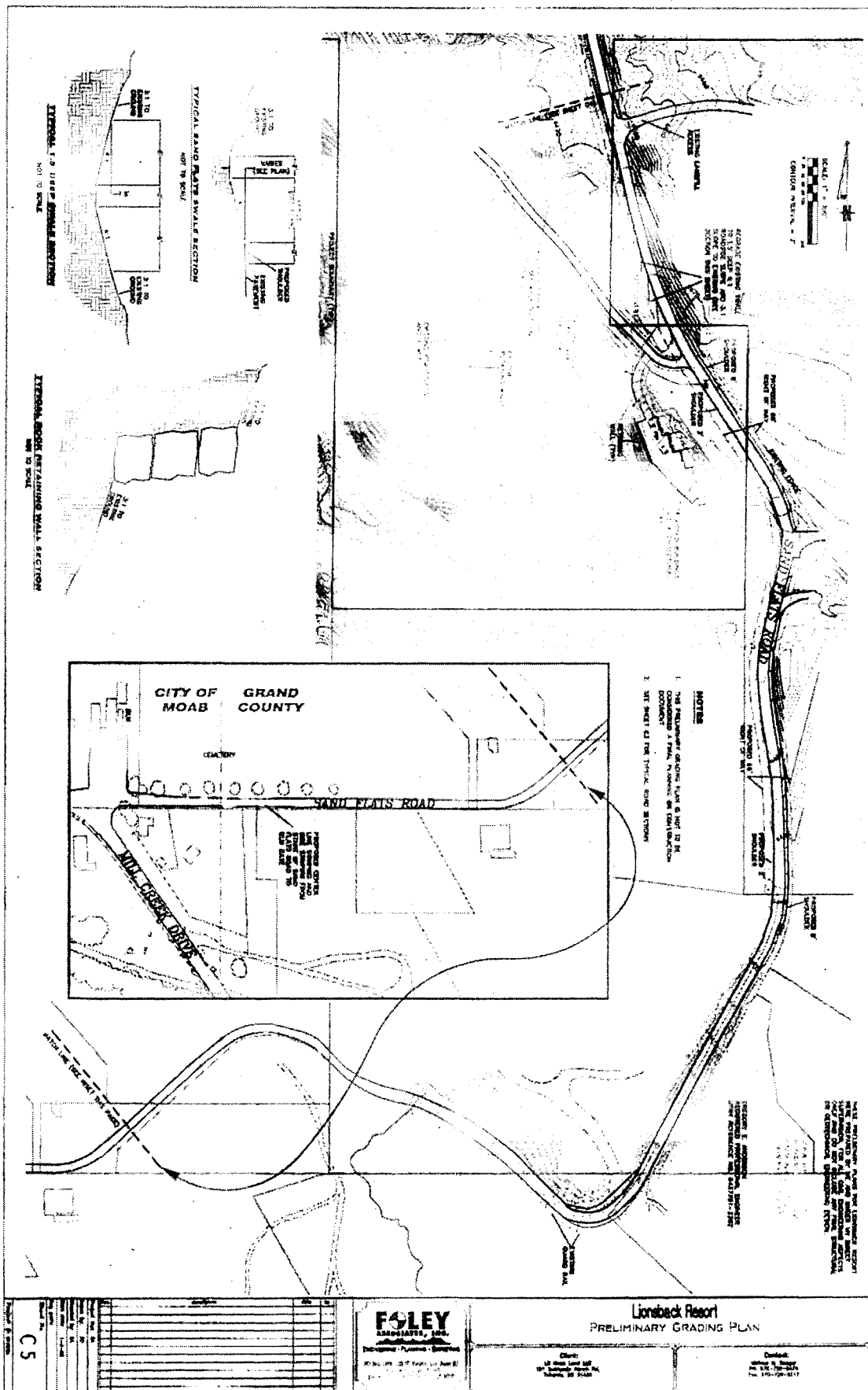






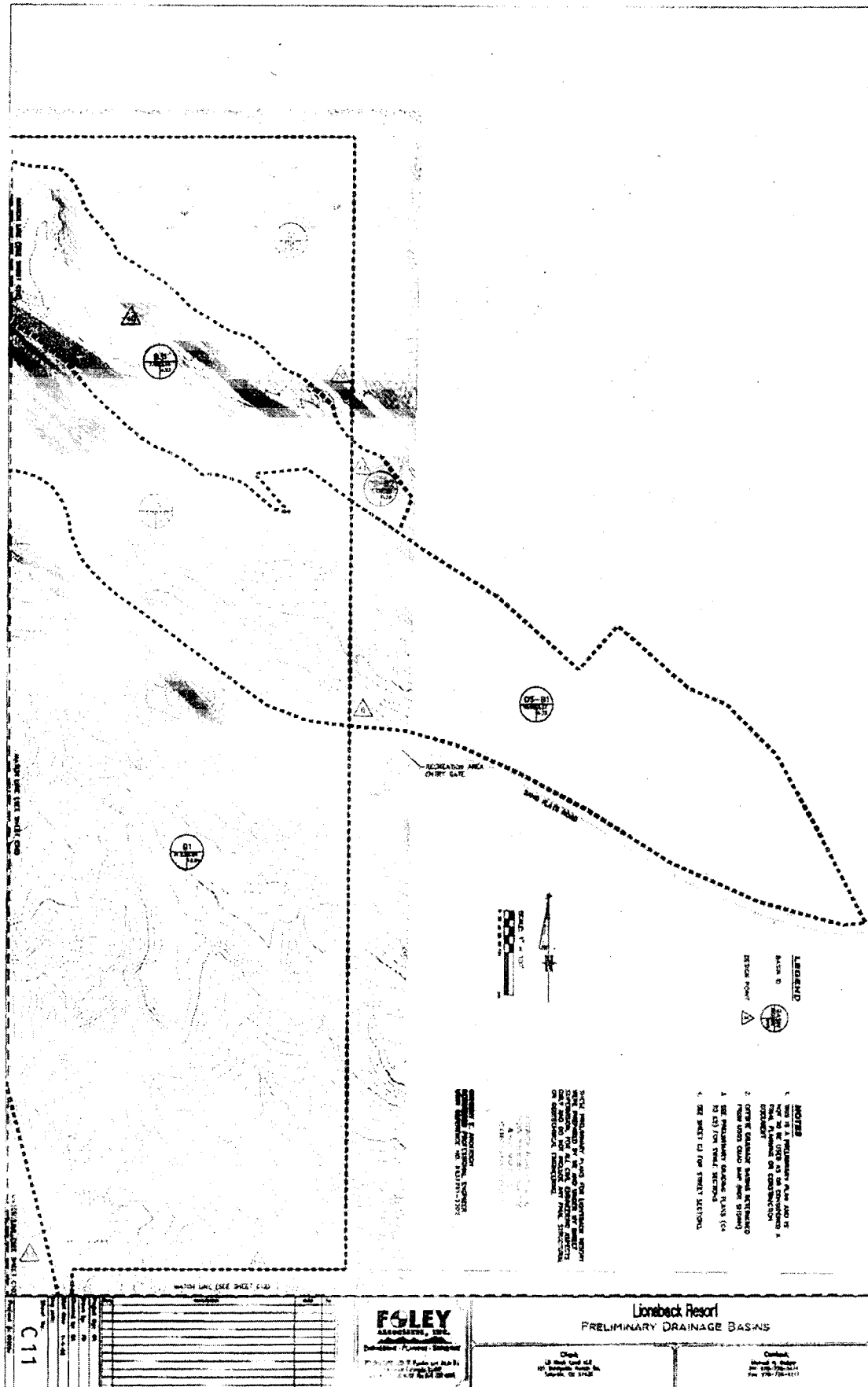










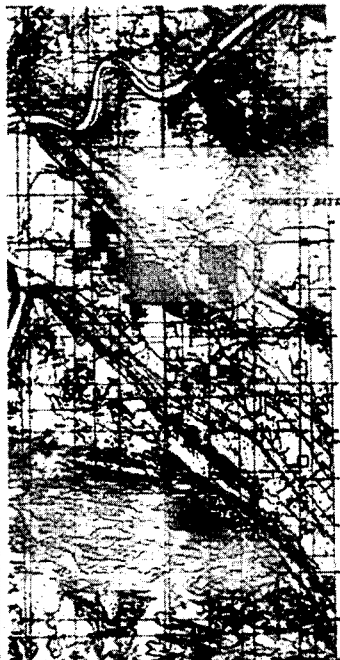




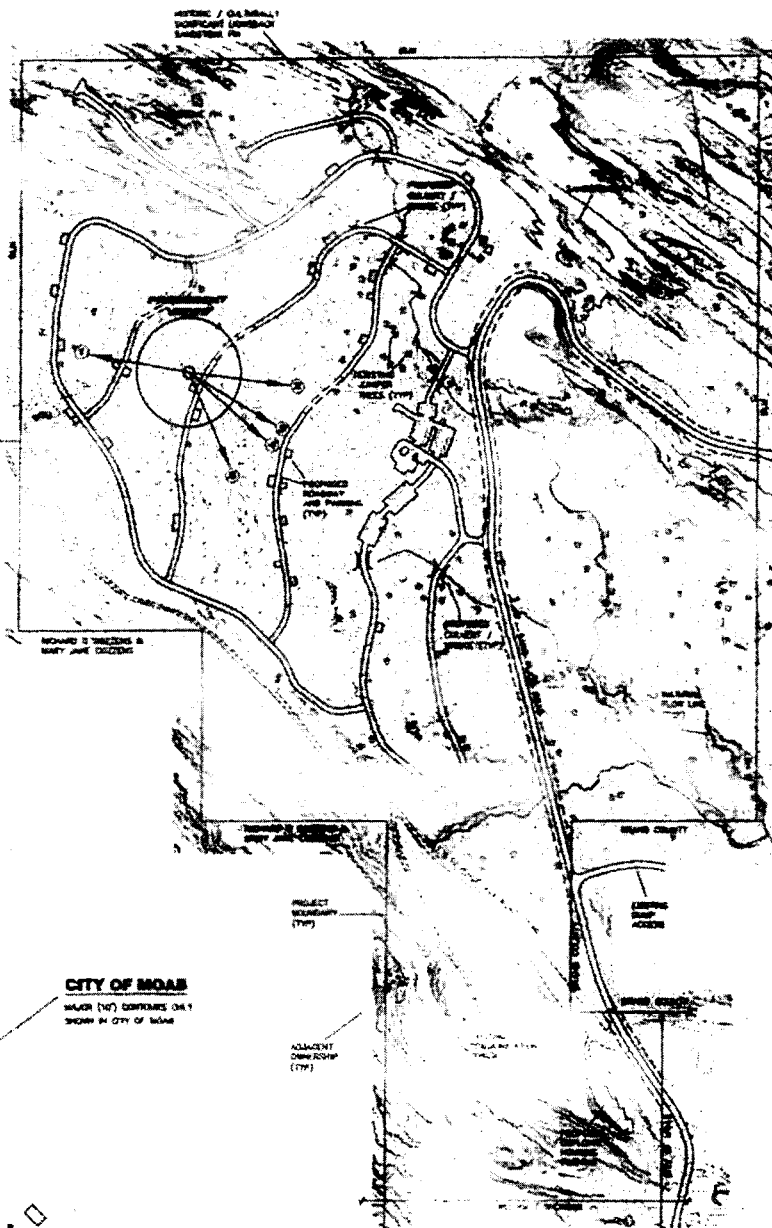
# LIONSBACK RESORT SITE INVENTORY / VICINITY MAP

## VICINITY MAP

NOT TO SCALE



## SITE INVENTORY

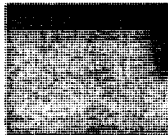


## PROMINENT VIEWS

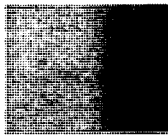
### ① COLORADO RIVER



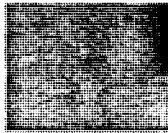
### ② LA SAL GROUP (NORTH)



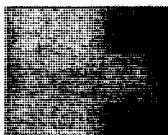
### ③ LA SAL GROUP (MIDDLE)



### ④ LA SAL GROUP (SOUTH)



### ⑤ SPANISH VALLEY



CITY OF MOAB  
BLVD (W) CONTAINS OR 1  
SEMI IN CITY OF MOAB

PROJECT  
BOUNDARY  
(TYP)

ADJACENT  
OWNERSHIP  
(TYP)

NOTE  
THIS IS A CONCEPTUAL PLAN AND IS NOT  
TO BE USED OR CONSIDERED A FINAL  
PLANNING OR CONSTRUCTION DOCUMENT

THIS PLAN HAS BEEN  
REDUCED TO 1/8 X 1/7  
HALF SCALE

SCALE: 1" = 200'  
CONTINUE SHEET 2

NO.	DESCRIPTION	DATE	BY	CHKD.
1				

**FOLEY**  
PLANNING & ENGINEERING

1000 E. 10th St. Suite 100  
Moab, Utah 84254  
407-854-1111

Lionsback Resort  
PRELIMINARY SITE INVENTORY AND VICINITY MAP

Client  
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Moab, Utah 84254  
407-854-1111

Contract  
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## GENERAL LANDSCAPE GUIDELINES

The following notes are intended to be guidelines for design and installation of landscape in the Lions Back Resort. These guidelines are intended to ensure the landscaped areas work together to create a healthy and functioning plant system built environment of the Resort.

The overall intent of the landscaping in the Lions Back Resort is to revegetate damaged areas with plants native to the area, and accent the recreation and living spaces in a manner that blends into the Resort's surroundings.

## CRYPTOBOTIC CRUST PRESERVATION AND SEEDING

The unique crusts that cover undisturbed areas of the desert around Moab are not only beautiful, but serve the purpose of fixing nitrogen from the atmosphere making it available to plants. These microbotic crusts also reduce both wind and water erosion with their extreme micro-topography and threadlike bacteria, fungus and lichens that lock the sand together. For these reasons these crusts will be protected at LionsBack Resort. Where it is impossible to maintain the crusts through the construction process will be harvested and re-seeded elsewhere.



## biological soil crusts

Images from the web page [www.sollarus.org](http://www.sollarus.org). A good source of information about microbiotic crusts and their role in the desert.

Areas with microbiotic crusts present will be identified and mapped prior to construction of any kind. In areas that will be disturbed by construction activities the crusts will be scraped off the site prior to any site disturbance. The top 1 to 1.5 inches of soil may be removed when the soil is dry with equipment or by hand (depending on the size of the area). This soil will be stockpiled in an area identified by the owner, and kept covered and dry until it is needed.

Prepared by:  
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## WILDLAND SCAPES, LLC

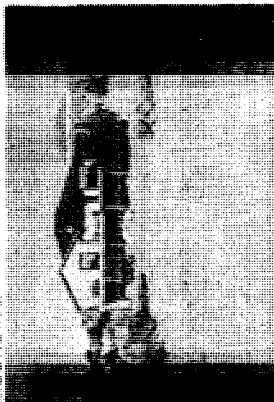
The collected crust soils contain spores and seeds for the components in the crusts found in undisturbed areas of the desert. After final grading is complete, specified areas will be seeded with the crust inoculants to assist in regenerating crusts rapidly.

## DUST CONTROL AND EROSION CONTROL MEASURES

Wind and water erosion will be an issue to address in the landscaping at Lions Back Resort until the landscape is established and construction disturbance ends. The following erosion control measures are recommended: mounding, wattles on contour or installed as check dams, gabion structures, and rock check dams.

Straw and coconut matting is not an approved method of erosion control or seed establishment.

## LANDSCAPING



An effective method for controlling dust and wind erosion is to create mounds break the wind flow at the soil surface, preventing it from moving sand around. Plantings on and around these mounds further break the wind flow and eventually fully stabilize the soils in the area. Mounds should be arranged and shaped to mimic natural mounding in the desert, and may be sculpted to define spaces and protect specific areas from wind blown dusts.

Utilities access to a home in Moab mounded prior to revegetation.  
Dust blowing into lower floor door and patio immediately reduced.

All landscaped areas without other wind blocking (such as walls and large rocks), or not slated for intensive groundcover treatments, will be sculpted with mounds prior to planting. Any lawn or the groundcovers from being buried in sand.

There may be areas where mounding will not adequately arrest wind or water erosion. In these situations other erosion control methods including wattle installations in washes and severe cut slopes gabions, or natural rock check dams may be appropriate. All erosion control measures will be chosen to minimize visual impacts of the installation, and will emphasize methods that encourage plant growth. Large areas of straw matting will not be used for erosion control or revegetation at LionsBack Resort.

#### WATTLES

Wattles may be used in the event a cut or fill slope cannot be otherwise graded to prevent wind and water erosion. Wattles are cigar shaped bundles of brush cuttings tied together and staked with ends overlapping into a shallow trench dug on contour of a slope. The brush to construct the wattles can be of any species - invasive trees such as tamarisk and olive make great wattles.

Wattles can be used to arrest both wind and water erosion on large open cut or fill slopes. They will rot over time, and therefore must be coupled with seeding and other methods to encourage plants to establish themselves on the slope. Straw and coconut fiber wattles may be purchased. However, making them from brush that would otherwise be burned or hauled to the dump is a more sustainable method for constructing these wattles.



The brush wattles also are more effective at creating check dams allowing water to flow down slopes without creating gullies. Moab tests installing wattles on a slope in Mill Creek Canyon to stabilize a slope destabilized by off road vehicle use.

Wattles initially are very visible, but instantly stabilize slopes from wind and water erosion. The wattle material will rot over time as the native vegetation establishes itself on the slope. Within three years the slope will be filled with native vegetation and the wattle structure mostly invisible.

#### GABIONS

Gabions are appropriate to stabilize wash bottoms or sides where large boulders cannot be used. Gabions are large baskets made of wire (much like chainlink fence) that are filled with smaller rocks such as river cobble. Enclosing smaller rocks into a basket makes the entire basket act like a large rock. Gabions have the benefit of being permeable, which means that they can allow water to pass through them, dissipating some of the energy that might erode a wash bottom or side.

Gabion systems, while relatively easy to construct, are labor intensive and should be designed by an engineer. These are permanent stabilization structures, however they can be installed with shrubs and trees planted into them, and faced with cut or natural red rock to blend into their surroundings. Planted gabions faced with red rock will eventually blend into the landscape.

#### CHECK DAMS

Check dams can be small (less than 6 inches) or large (over 3 feet built with gabions or large boulders) structures built into washes or gullies to slow the water flow and prevent further erosion. Wattles may also be used to create check dams where the check dam is only needed temporarily. Smaller erosion control check dams can be built with small rocks (less than 200 pounds) in response to water erosion as it occurs. Larger structures should be designed by an engineer in waterways where it is essential for water flow to be contained.



check dams with small rocks to stabilize active gullies in Mill Creek Canyon. Wattles and woven brush

Hay and straw bales will not be used as check dams. Any temporary erosion control check dams or silt traps will be made with silt fencing. Hay and straw bales, unless composed of native grasses, will introduce weed species to the site.

## OPEN SPACE GUIDELINES

The Open Space Guidelines apply to the open spaces between buildings and roadways in the LionsBack. Vegetation planted in the open space will be predominantly native species, not block views or create unneeded separations of space. Trees will be 25 feet or less in height, and will provide maximum shade along intersections and in access

through revegetated landscape.

Taller shade trees may be grouped in locations including gathering locations, in general, however, most of the trees in the open space will be low growing and positioned to not interfere with views into and out of the area.

Open space areas and any disturbed landscapes will be at minimum revegetated with native plants. Revegetation may be done with or without supplemental irrigation, and may include planting, seeding, or both. Plants may be large pinyons and yuccas, or may be trans-planted from other areas of the LionsBack Resort where plants will be damaged by construction activities. Any revegetation requiring supplemental water will eventually have the irrigation system removed and will be sustainable with natural rainfall. Plants for revegetation are included in the open space approved plant list.



to all of  
and paths  
Resort.  
space will  
and will  
generally  
be located  
pathway  
roadways.

Pathway

at some  
places in the open space. In

the open space will be low growing and positioned to not interfere

## TRANSITIONAL SPACES

spaces are private landscaped areas from the common open spaces. These with the open spaces, but may have needs than the open spaces. Trees feet tall are not allowed in the areas.

FRONT YARDS



Transitional  
that are visible  
areas will blend  
higher water  
greater than 25  
transitional

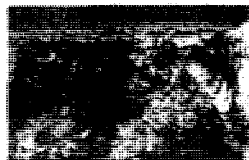
Front yard spaces are those spaces that face the pathway system and open spaces. These private areas will be planted in a manner that blends with the open space areas. The approved plants for these areas are broader than the Open Space list, but the list is limited to regionally native grasses, forbs and shrubs, and low trees.

## ALLEYS

The access roads to the homes in Lions Back Resort are considered to be alleys. This terminology refers to the function of the roadway as opposed to the appearance of the roadway. The streets will be narrow with the buildings located close to the roadway and the homes will not "face" them. These backyards will be landscaped with low trees (25 feet tall or less) and other shrubs, wildflowers and grasses. Landscapes facing alleys should be low maintenance and use little supplemental water.

## PRIVATE LANDSCAPE GUIDELINES

Private landscape areas are those areas that are hidden from the open spaces by walls, boulders, landforms or other features. There are minimal limitations on plantings in these areas as long as they are not visible from the open spaces.



There will be no lawns or other high water using groundcover (e.g. yarrow or thyme lawns, or large areas of vinca) areas greater than 400 sq feet in the private areas. All landscapes should be as low water as is possible. Trees that will reach a height greater than 20 feet are not allowed in the private landscape areas. Shade can be constructed, or created using smaller stature trees and large shrubs.

Japanese maple with liriodie,  
Oregon grape and a juniper  
snag in a courtyard space.

As in the open and transitional spaces, none of the plants on the prohibited list shall be used at plant list identifying non-native landscaping well in the Moab area with some extra care is these landscaping guidelines. This list is not definitive list. However, due to the extreme alkaline soils in the Moab area care should be choosing plants to minimize long term needs.



any time. A  
plants that do  
included in  
intended as a  
heat and  
taken in  
maintenance

Courtyard space  
with water  
feature Japanese maples, and patio space.

## HOTEL AREA

The hotel  
area will be  
informally  
planted to





blend into the surrounding desert, but will also highlight and accent activity areas. This area is the only open space that may have non native plants dominating it. The area around the hotel will be planted to blend with the surroundings, but also accent the high use and recreational areas. This area will be treated more like private area landscapes.

An outdoor living space that blends into the desert environment much like the active landscape areas may at Lonsback Resort.

#### ACTIVE RECREATION AREAS

Active recreation areas throughout the Lions will be characterized by large shade trees, and as needed to accent and enhance the site. There common low water lawn area, and other planting beds associated with these active areas. Plant choices for these areas will help with the surrounding desert, and provide shade of activity areas. Pathways will lead between active recreation areas.



Back Resort other plantings will be a small cultivated recreation them blend homes and Pathway example

#### LIONS BACK RESORT ENTRANCE

The entrance off Sand Flats Road will be highlighted with some low water plantings similar to the plantings found near the hotel in lower water use areas. This entrance scape will be small and will blend in with the surrounding native plant community.

#### TREES and SHADE

Large trees (over 25 feet tall) will be planted minimally and only in gathering areas, parking areas, and active recreation areas. Most trees will be less than 25' at full height, and will be planted in groups to minimize their impact on the landscape. Trees will be planted where they will generate the most useable shade for parking or pedestrian areas. This means trees will be mostly located to the south and/or west of large paved areas and walkways.

Trees for parking and larger gathering areas and active recreational areas:

- Common Hackberry
- Chinese Pistache
- Collonwood - Male variety only

Trees for paths and localized shade

- Arizona Ash
- Neddeal Hackberry
- Gambel Oak

All tree plantings will be mixed for summer and fall foliage color complements. Other trees found on the approved plant lists may be used, however the trees listed above will be the primary trees used in the landscape.

#### A Few Words About Weeds

The simplest definition of a weed is "a plant out of place." In a vegetable garden, weeds are easy to identify and their impact on the productivity of the garden is obvious. Weed species in the larger landscape have a similar impact and are equally difficult to remove. Familiar range weeds include

russian thistle, cheat grass, tamarisk, russian olive, purple loosestrife, dalmatian toadflax and knapweed. Some of these plants have beautiful flowers and are sold as landscaping plants in some areas.

In the larger landscape, these weeds are plants that people inadvertently (in the case of russian thistle), or intentionally (in the case of tamarisk or russian olive) brought to the Western United States. Some of these plants "escaped" from human-inhabited areas into surrounding areas. Cattle, horses, trains, boats, and wagons all served as initial carriers for these "invaders." Today, mountain bikes, camping equipment, and off-road vehicles are spreading these invasive exotic plants faster than ever.

Noxious weeds are those that are particularly tenacious and do not eventually stabilize within the native plant mosaic. Plants such as these have become so commonplace that many of us cannot recall living without them and accept them as "belonging." Oregon Bureau of Land Management (BLM) weed specialist Jerry Asher estimates that each day in the US noxious weeds are spreading over approximately 7 square miles of public lands (an area roughly twice the size of the incorporated parts of the City of Moab). That comes to 25,000 square miles in a year!

The ability of noxious weeds to out-compete native species is hardly a "natural" occurrence, or an example of "nature doing its thing." Most noxious weed species have been introduced by people for ornamental plantings, erosion control, food, or by accident.

The prohibited plant list identifies those plants that are known to be invasive in the desert and riparian areas around Moab. This list may change from time to time as plants are found to be invasive. It is the intent of the Lonsback Resort to ensure that no plantings at the Resort will escape into the surrounding desert and riparian areas.



Russian olive taking over the understory of cottonwoods in Mill Creek, and knapweed under cottonwoods at a nearby ranch.

## INSTALLATION SUGGESTIONS

Suggestion at this time is to plant open space areas as they are developed and specify mass plantings of evergreen and flowering plants in these zones, interspersed with grasses and other plants. These areas should be designed to allow the plants to be installed where they make the most sense, and minimize design time spent surveying plant locations. A quantity and species list will be provided on the final plan for each open space area to account for site variability in slope aspect and exposure, and to suggest groupings of plants that do well together (for instance, group cherry sage and desert sage with tufted evening primrose and mules ears).

If a design/build contract for installation was let, that could work well, or assign the plantings to be reviewed by the landscape designer at installation.



Single leaf ash, Mormon tea, fenders, sundrops, and junipers are all available for landscaping and revegetation work.

## PLANT AVAILABILITY AND SOURCES

All the plants on the plant lists can be obtained locally in Moab. Some of these species, while available are not available in sufficient quantities to allow for large areas of planting at the recommended that correct grow orders and let before road or building construction begins. Wildflower Scapes in Moab can grow most all of the species on these lists.

## IRRIGATION GUIDELINES

The landscape at LionsBack Resort will be zoned to minimize water use, and ensure that plants receive the correct amount of water to thrive in our extreme environment. There may be subzones within these larger zones.

In no case will drip irrigation and overhead spraying irrigation be installed on the same valve. All lawn and ground cover areas will be watered separately from shrub and tree plantings. A drip irrigation grid will be considered for all lawn and dense ground cover areas.

## ZONES

### WETTEST zone

Only located around main hotel building area, active recreational areas, and a few outlying oasis spots. These areas will have a permanent drip irrigation system installed, and may be watered up to once every 3 days (deeply) at the hottest time of the year.

The common area lawn areas will be watered separately from all other plantings. It is advised that private areas with lawn or dense ground covers are also isolated from other plantings.

### MEDIUM water use zone

Located along and near the Primary Paths and around and near the Hotel Casillas. These areas will have a permanent drip irrigation system installed, and may be watered up to once every 5 days at the hottest time of year.

### LOW water use zone

Located along the secondary path system and in the open spaces between units. These areas will have a permanent drip irrigation system installed, and may be watered up to once every 10 days at the hottest time of the year.

### LOWEST water use zone

Located in the open areas closest to the natural desert, and in the fringes of the LionsBack Resort. These areas will have no supplemental water. These areas may be temporarily watered to help establish larger trees and shrubs, but all areas will not be permanently on irrigation. There may be areas of this water use throughout the open spaces of the LionsBack Resort.

## TREES

The trees will be watered separately from the landscaping or revegetation areas. This will allow for long deep and infrequent watering as is needed for these trees as they get older and larger. Trees will be watered on a drip system - and may be watered by subterranean irrigation to minimize evaporation and maximize percolation.

## LIGHTING GUIDELINES

The night sky is one of the important features of the living environment at the LionsBack Resort. All efforts will be made to minimize light pollution within and out of the developed areas.

Path lights will be ground mounted, no taller than 6 inches from the ground and will be LED lights (in clusters from THE LED LIGHT, or pods from plasmaled.com). Path lights should be spaced more closely (approximately 20' on alternate sides of the path) on the primary paths, and farther apart (approximately 30 to 40' on alternate sides of the path) on secondary and tertiary paths.

Lights should be slightly downward focused, onto the path, and fitted with silicon diffusers to minimize glare. There will be no uplighting of landscape features or buildings at LionsBack Resort.

These lighting fixtures can also be attached to rocks and snags - and at path junctions or meeting places could be installed at higher elevations.

The pathway lights are intended to mark the path, but not to illuminate the outdoor spaces. The paths will be safe to walk at night, but the outdoor environment and night sky are the essential components of the nighttime outdoor experience.

Lights on buildings and in private landscaping areas will be downward focused. Light will not spill from private area landscapes into the common open areas, or into the night sky. It is the intent of the LionsBack Resort to protect the night sky from light trespass. There are additional restrictions regarding lighting trespass elsewhere in these development guidelines.

## APPENDIX A: REVEGETATION DEFINITIONS AND GUIDELINES

The location of the LionsBack Resort creates a unique opportunity to repair areas heavily impacted by prior human uses. Restoring vegetation, controlling noxious weeds, and stabilizing sandy soils will occur in the development of the LionsBack area.

There are four general restoration philosophies. Each dictates certain acceptable strategies for soil and vegetation disturbance, plant choice and source, and treatment of invasive exotics and weed species.

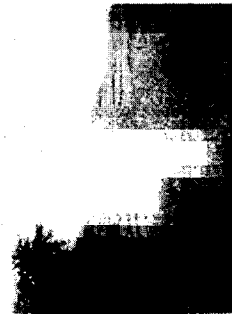
These philosophies are: restoration, natural regeneration, revegetation and wildland landscaping.

Restoration is appropriate in areas where the activity that damaged the land is no longer occurring. Restoration is not an effort to bring an area back to its condition. Rather, it seeks to regain natural functioning structure to stabilize damaged land, in the process healthy habitat. Restoration attempts to mimic natural abundance, and distribution of vegetation on a site. It does putting plants into the ground. Plants used maintain the local natural selections; i.e., all plants are taken from geographic areas and similar landscape types. Structural necessary to stabilize soils and slopes. Invasive exotic removed to the best of our ability. (This requires years of

Natural regeneration is appropriate in weed-infested areas activity that introduced and/or favored the weed is now regeneration works to favor native plants by removing non- and thus is particularly relevant when the primary problem plants. It is also the least invasive method of restoration. principles of natural regeneration are: 1) work outwards healthy native plant systems to damaged areas; 2) make disturbance to the environment, and 3) DO NOT OVER rate of native plant regeneration dictate the rate of weed Natural regeneration reminds us that most likely the land damaged overnight, and it will take at least as long to help

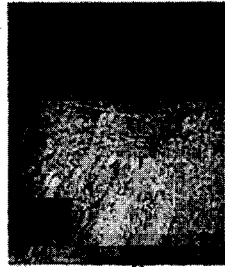
Revegetation is appropriate in residential areas where the heavily used areas, and in backcountry situations. Revegetation projects are designed to replace plants or vegetative cover to repair damage caused by human activities. Revegetation may include weeding, direct seeding, vegetative reproduction, planting seedlings, and/or transplanting mature specimens. Revegetation mimics patterns, abundance, and distribution of plant species, but does not necessarily maintain the genetic trace of plants in the area. It may involve stabilization of slopes and soils, and does address invasive exotic species. As with restoration, the goal of revegetation is to recreate functioning habitat that cannot be easily distinguished from the healthy habitat surrounding it.

Wildland landscaping is most appropriate in residential areas, "front country" campgrounds, and other heavily used areas. It does not necessarily mimic patterns, abundance, or distribution of native plant species, but does replace native plants in denuded areas. Invasive exotic plant species are controlled, but some plants in the project may not be strictly locally collected native species. However, no invasive exotics will be introduced. A wildland landscaped area might even use an irrigation system to help establish vegetation.



Most of these strategies mimic natural patterns in the landscape. The ability to mimic "natural" areas depends on how well we have studied reference areas of relatively "pristine" native plant communities.

The Bradley Method of bush regeneration is the basis for the LionsBack Resort's preferred restoration strategy wherever it is possible to use it. The Bradley Method is a natural regeneration technique pioneered by Joan and Eileen Bradley, two elderly women in Sydney, Australia. They worked to restore native vegetation in urban parks and park land near urban areas and relied on labor-intensive hand-weeding methods, followed by periods of weeding. The Bradley Method's goal is to shift the balance of the plant mosaic from favoring weeds to favoring native plants. In the large damaged areas around Mosb, using this method alone can have process transplanting Bringing providing a more detailed explanation of this strategies easement beto



The Bradley Method (paraphrased from Bringing Back the Bush) The Bradley Method of bush regeneration uses the inherent ability to heal itself to restore native vegetation to a site. The Bradley Method is most applicable when the primary problem is invasive exotic plants or weeds. This may be a part of the overall strategy for a larger revegetation project, or it may be the only strategy used.

The Bradley Method is most effective when there are healthy plant communities adjacent to a project site. It is a way of prioritizing your weeding efforts, and can make the most overwhelming project possible. Remember, these weeds didn't move in overnight; it will most likely take at least as long to remove them as it took them to become established.

### Bradley Method General Plan of Work

1. **Prevent degradation of good areas**  
In "good" areas, weeds are generally scattered in healthy native plant communities. Remove these weeds. Whenever you visit the site, locate and remove any you missed.
2. **Improve the next best areas**  
Begin additional weeding in areas close to healthy native vegetation. Never clear weeds beyond approximately three yards from healthy native plants.
3. **Hold the advantage gained**  
**DO NOT OVER CLEAR.** Weeds will generally continue to germinate and thrive if the area has no native plants. Follow-up weeding around all the native plants will be necessary at least twice a year. When a new wave of weeds germinate, take the time to visit the site and weed around each native plant again to help favor its growth.
4. **Cautiously move into the really bad areas**  
Keep working along the edge being regenerated, making new clearings smaller as weeds become thicker. Always look for the odd native plant in a stand of weeds and concentrate your weeding effort around these plants.

5. **Cautiously move into the worst areas.**  
Do not clear a block of solid weeds until healthy natives border it. It is tempting and satisfying to clear huge areas – but the weeds will simply return if they have no competition from native plants. Many weeds thrive in disturbed soils, so don't forget to minimize damage to the soil.

Because the Bradley Method basic principles and work plan dictate working from areas of healthy plants to infested areas, initially this method can appear very slow. Never weed a larger area than native growth can recolonize. In the worst areas, lots of follow-up weeding for seedlings is necessary to favor natives. An exception is when you are working in a large area completely infested with weeds. If you are helping this area along by planting, you may want to clear weeds first to make your initial work easier. In follow-up maintenance, however, return to the Bradley Method.



#### Strategies to Help the Bradley Method Along:

When areas have been severely damaged by motor vehicles, bicycles, foot traffic or grazing, it is sometimes necessary and acceptable to add seed, move plants in from adjacent areas, plant seedlings grown elsewhere, plant pole plantings or use other vegetative means for propagating plants on the site. On recently disturbed sites, adding plant materials and additional native seeds may help prevent the establishment of large stands of weeds.

Four intervention strategies that help the Bradley Method along are: re-establishing native plants by transplanting plants, planting poles, planting seedlings, and seeding.

##### • Transplants

Moving native plants from adjacent and/or similar sites can be an effective, often inexpensive way to replenish plants in a disturbed area. In order to achieve high success rates, however, it is critical that this work be done by an experienced restoration specialist. The first step is to locate a suitable area for plant removal. To ensure good survival rates, this area needs to be similar to the area being restored; soils, landscape type/location, and species need to be the same. Ideally this area is also going to be cleared for some other reason — to plant crops, build a house or road, etc.

The advantage to transplanting plants from similar and nearby locations into a disturbed site is that the plants will more likely be close to the genetic make-up of the plants that used to occupy the site. This is especially true when plants are taken from locations adjacent to the disturbed site. The disadvantage is the possibility for damaging the area where the plants are harvested. Damage can be minimized by adhering to minimal impact practices, taking time to locate a nearby site slated for clearing, and/or by only removing a small percentage of plants from the designated supply site.



A roadside with transplanted grasses, shrubs and forbs immediately after planting and 12 months later.

It is also important to only move plants that have a reasonable expectation of survival. These include: perennial grasses, snakeweed, sages, saltbush, rabbitbrush, prickly pear cactus, yuccas, and small junipers and pinyon pines. Plants that have a very poor survival rate include: oaks, very large pinyon pines and junipers (especially those growing in rock). In general, with respect to woody species, the smaller the specimen moved, the more likely it is to survive. Survival of 50-70% is considered good, 70-80% very good, and 80-90% or higher excellent. Please note that it is necessary to thoroughly water transplants in at the time of planting. If possible, water the plants in several times during the first year after transplanting. (This can improve survival, but is not absolutely required.)

##### • Pole plantings

In riparian areas, or areas with heavy irrigation possible for a time, it is possible to cut poles (i.e. branches) from standing trees such as willows and cottonwoods, then auger (bore) a hole to the water table, plant the pole in the hole, and it will root. If the hole is augered several feet down, most flash floods will not move the pole planting. This is a particularly useful strategy along stream banks where flash floods will easily remove transplants or potted plants.

##### • Planting seedlings/potted plants/nursery stock

Another way to add plants to a damaged or de-vegetated site is to plant seedlings or nursery-grown plants. There are two slightly different strategies available. The first is to collect seed from the project site or a nearby area, collect cuttings or whole plants, and propagate these in pots. Genetic traces of plants from a specific location can be effectively maintained with this method. This is a particularly useful method when there is time before the project begins to propagate plants. This is also a useful method when a project site is going to be cleared for construction, as plants can be removed and later replaced. (The need for lead time is also a limitation of this method.)

The second strategy involves purchasing commercially grown nursery plants. This is often a very quick and easy way to replace plants. However, there are some limitations. Some native plants, such as greasewood, are not available in nurseries because there is no commercial demand for them. Also, the seeds or cuttings used to propagate plants that are purchased are most likely from more than 100 miles away and have a very different genetic trace from plants found on the project site. Finally, nursery grown plants (unless from a revegetation nursery) are grown in very fertile soil and are often over-watered and -fertilized to enhance the plant size. Most of the soils around Moab are far from fertile, and water is erratic at best, so such plants are at a major disadvantage when planted here.

##### • Replenish seed stock by seeding

In a vegetated area, the soil is full of seeds waiting for the proper conditions to germinate. Often when the soil is disturbed and subsequently eroded the seed stock is also depleted. Replenishing seed stock in the soil is an easy, inexpensive way to help favor native plants in a given area. Seed can be collected from nearby sites, or purchased from seed companies. As with nursery-grown plants, purchased seed is a less complete genetic match than seed collected locally. However, either seed source can be very helpful in favoring native plant growth.

Please note that different seed species need to be sown at slightly different depths for maximum germination. It is also important to ensure the site has been stabilized; any erosion of the soil will also remove the seed.

Seeding is a long-term approach to re-establishing native plants. Seed may sit in the ground for many years before conditions are conducive to germination. Don't expect thousands of seedlings the first year. Seeding proves most successful when accompanied by a weeding schedule in subsequent years.

#### Rules for Working in the Field

Most of these rules have been adapted from the book *Bringing Back the Bush: The Bradley Method of Bush Regeneration*, and most of them are common sense and can be expanded to larger crews and projects than just revegetation projects. However, they can be very easy to forget once you get out into the field, and therefore we recommend reviewing them on a regular basis.

##### 1. Watch your feet!

Careless trampling can cause damage that lasts for years and can be avoided. It can take a while before it is second nature to watch your feet. It is important to not step on native plants (or any plant that you cannot identify). Remember our objective is to help native plants grow. In the Colorado Plateau, it is also important to look out for *cryptogamic* (or *microbiotic*) crusts. This incredible microltopography is easily damaged. It is the beginning of the nitrogen-fixing cycle which makes the soil fertile for native plants. Chances are, there will rarely be any "cryptos" where you are working, but there may be some nearby, hence we recommend taking extreme caution at all times.



First of all, never hurry. Literally watch where you put each foot – and wear soft shoes! Avoid heavy hiking boots, as they do not allow you to feel what you are stepping on.

In addition, be careful on steep slopes. They are very easy to damage and hard to repair.

When weeding off-trail or in a denuded area, spread out, looking for isolated patches of weeds. Also move about no more than necessary. If you're going to wrestle with a weed for a while, make yourself comfortable and stay put.

## 2. Disturb the soil as little as possible.

When weeding, seeding, planting seedlings, or moving plants, disturb the soil as little as you can. Russian thistle and other opportunistic weeds favor recently disturbed soils. If you can leave the thin crust, you are starting the process of favoring native over non-native plants. This concept is closely linked to the natural regeneration principle "do not over clear".

If you have to use a tool, don't use a heavy tool if you can use a light one, and don't use heavy equipment if you can use hand labor. This is the beauty of some of our projects. Even relatively large scarifying projects, or projects where it seems that hand labor is woefully slow, can be accomplished in a surprisingly small amount of time by a large group of enthusiastic workers. We aren't simply "making work" by hiring a large number of people for a few days, this is the preferred method of restoration.

*There is a splendid air of speed and efficiency about machinery and heavy tools but they damage more than weeds. They cut the roots of nearby natives, kill small native seedlings, and destroy the natural structure of the soil. In the long run they cost more in working and waiting time.* (Joan and Eileen Bradley, from Birding Back the Bush)

## 3. When weeding mature plants, do not pile weeds in heaps.

It is preferable to weed when seedlings are small. This is particularly easy with annuals like Russian thistle that generally germinate all at once, or in waves. You can simply leave weeds where you pull them. They will dry up and decompose.

One exception to this is if mature plants are being pulled and the method of coping with the vegetative matter is burning. In this case, do pile the weeds in heaps.

## 4. Remove all species of exotics from areas weeded, but do not over clear.

Pre-site analysis should have identified all the invasive exotics and weeds on the project site. Know each of these plants and weed them all. Favoring one species over others will simply give the ones you do not want a clearer place to grow. Exceptions to this might include cheat grass. Again – do not over clear.

## 5. Work with the weather.

It is ill-advised to work when it is raining hard. Luckily most soils here dry out quickly, but know your soil types and remember that working during or after a heavy rain may cause more harm than good.

## 6. Do not remove any plant you cannot identify.

If you don't know what a plant is – don't pull it up. It's better to be safe than sorry.

This is also applicable when you are transplanting native plants. Only move the plant if you know what it is – and if you know (or suspect) it has a good chance of survival. If you move a weed – you'll spread it. If you aren't sure if a native will transplant well, take note of where you've planted it and how you moved it so that you can return at a later time and check your success rates. Although there is value to a dead plant where there were previously no plants, a live one is better.

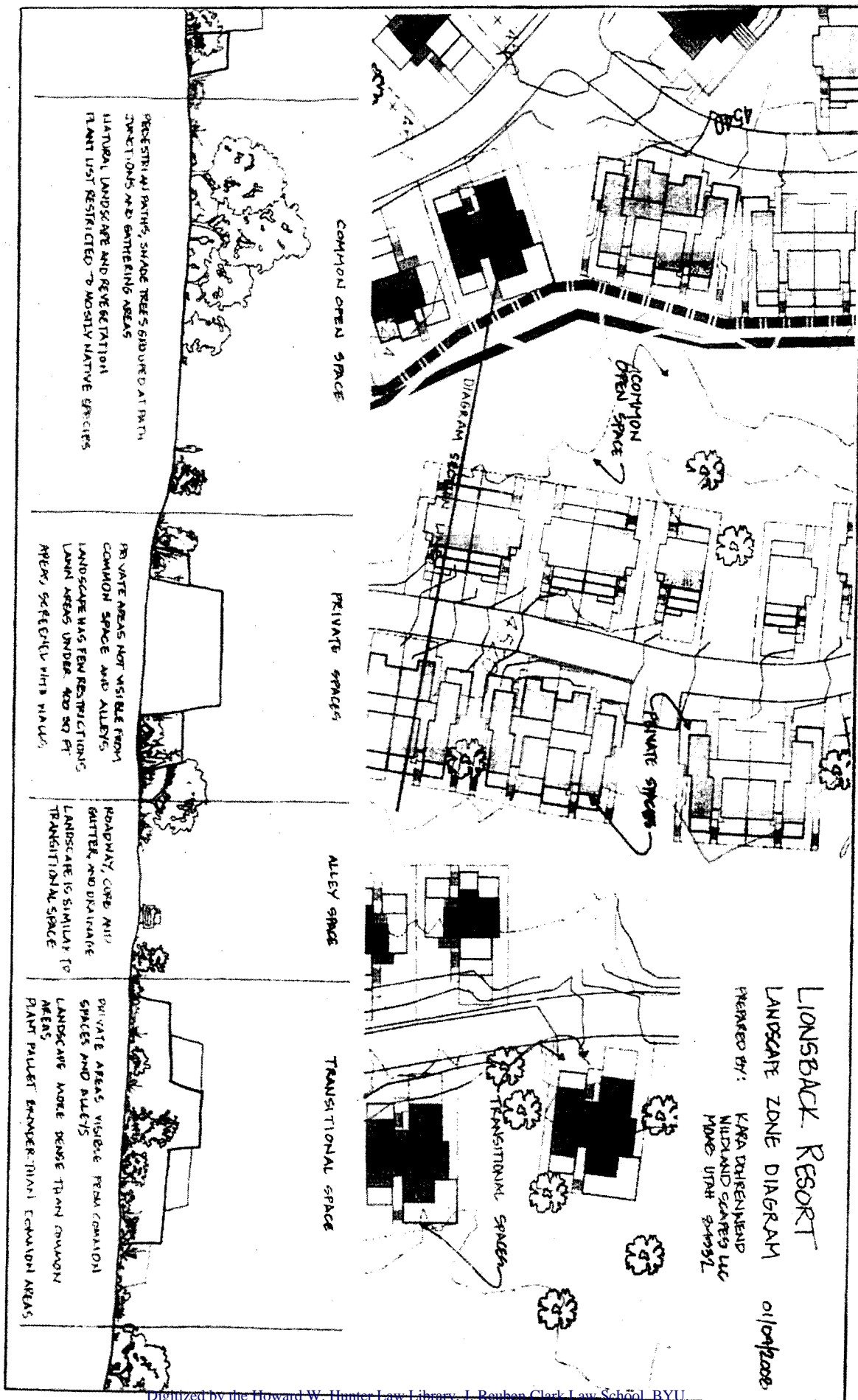
## 7. Weed before the plants go to seed, or remove plants with seeds from the site.

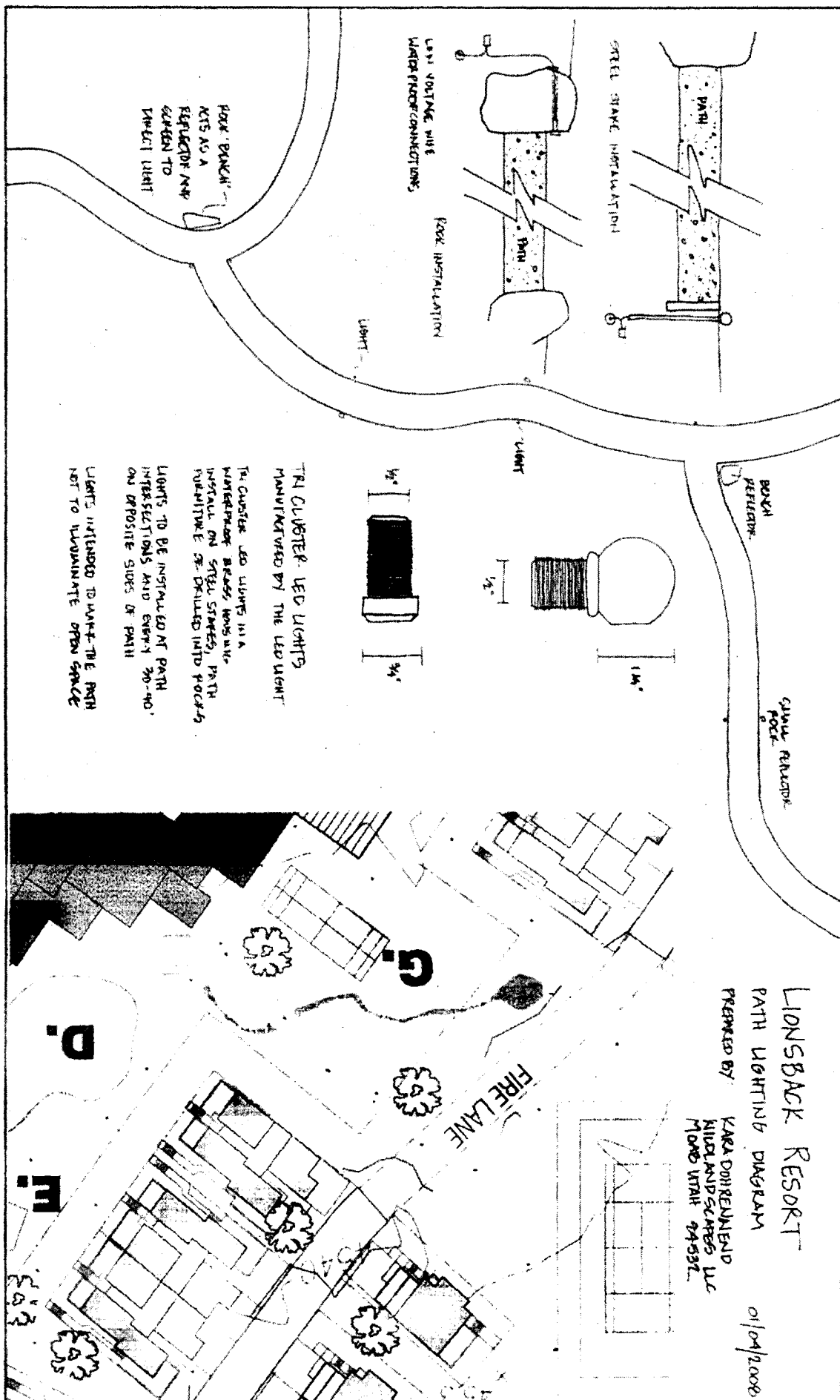
When weeding, this is perhaps the most important rule to follow, and it is crucial in the project-planning phase. It makes the most sense to get a weeding crew out before the plants have gone to seed. If you weed when the plants have already gone to seed, you end up having to remove the plants and seedheads from the site. Weeding is much harder because you have to watch that you do not scatter more seed. (Whenever you are weeding, please take extreme care to remove all seeds from your clothing, shoes, and vehicle if relevant, before leaving the site in order to minimize your chances of spreading weeds to other locations.) When weeding before the plant has gone to seed, you can leave the upturned plant where you pulled it.

## 8. When using on-site materials, collect them with great care.

In the best situations, when working in the field we only need to bring in hand tools and a few materials that cannot be gathered on-site, such as stakes or fencing supplies. It is fruitless to repair one area while destroying another. Take time to find a wash or existing denuded area to access plants and other materials.









PLANTS INTERRUPT WIND FLOW



FINAL GRADE REINFORCED TO REDUCE WIND AND WATER EROSION  
BALANCED CUT AND FILL  
MOBND'S ALLOW WIRES TO REL AND FLOW WITHOUT CREATING GULCHES

## MOBND'S



CLONE SHAPED BRUSH BOUND TIGHTLY  
BOUND WITH BRAIDING WIRE OR TWINE

SURVEY AND STAKE  
CONTOUR'S PRIOR  
TO INSTALLATION

TRUNK MATTL'S INTO  
SLOPE BEHIND STAKES  
STAKE EACH MATTL'S AND  
TRUNK EVERY 3-5'

70-80% OF EACH MATTL'S IS BURIED WITH  
SOIL AND TAMPED

## BRUSH MATTL'S

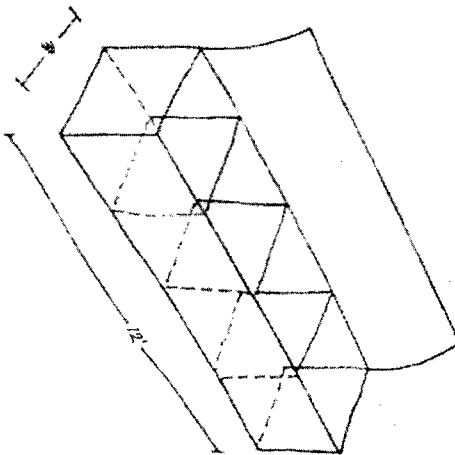
## LIONSBACK RESORT

EROSION CONTROL MEASURES

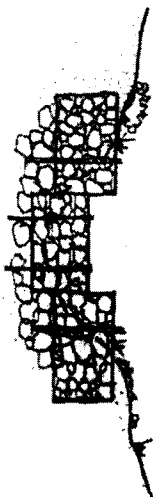
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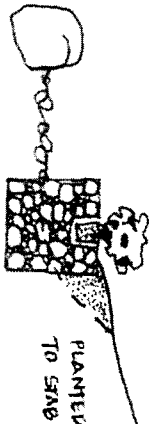
KARA DOHRMANN  
WILLIAM STAPES LLC  
MOORE WIND PROOF



PREFABRICATED WIRE BASKET MEASURES 3' X 3' X 1' 1/2'  
OTHER SIZES MAY BE ORDERED  
CUSTOM GABIONS MAY BE CONSTRUCTED ON SITE  
WITH APPROPRIATE FIELD FACING



GABIONS USED AS A CHECK DAM



PLANTED GABION  
TO STABILIZE A WASH EDGE

## GABIONS

