B-10

PRICE, POSTEL & PARMA LLP

ARTHUR R. GAUDI
JAMES H. HURLEY, JR.
J. TERRY SCHWARTZ
DAVID W. VAN HORNE
PETER D. SLAUGHTER
DOUGLAS D. ROSSI
ERIC P. HVOLBØLL
CRAIG A. PARTON
CLYDE E. WULLBRANDT
KENNETH J. PONTIFEX
CHRISTOPHER E. HASKELL
TIMOTHY E. METZINGER
TODD A. AMSPOKER
PENNY CLEMMONS
MARK S. MANION
MELISSA J. FASSETT
IAN M. FISHER
ANTHONY W. BAGNETTE
SHEREEF MOHARRAM
SAM ZODEH
JENNIFER K. HANRAHAN
KRISTIN M. R. BLABEY
LESLEY E. CUNNINGHAM

COUNSELLORS AT LAW

200 EAST CARRILLO STREET, SUITE 400
SANTA BARBARA, CALIFORNIA
93101-2190

MAILING ADDRESS P. O. BOX 99
SANTA BARBARA, CA 93102-0099

TELEPHONE (805) 962-0011
FACSIMILE (805) 965-3978

OF COUNSEL
GERALD S. THEDE
DANIEL C. DAVID
SUSAN M. BASHAM

RETIRED PARTNERS
JOHN KERR WILSON
TERRY JOHN CONNERY
DAVID K. HUGHES

OUR FILE NUMBER
18769.10

Writer's Direct Dial
(805) 882-9867

CITY OF GOLETA
CALIFORNIA
JUL 18 2006
RECEIVED

July 18, 2006

HAND DELIVERED

Planning and Environmental Services
Attention: Anne Wells
City of Goleta
130 Cremona Drive, Suite B
Goleta, CA 93117

Re: City of Goleta Draft General Plan/Local Coastal Plan Draft EIR
Shelby Family Partnership Property (APN 77-530-19)

Dear Ms. Wells:

We respectfully submit the following comments on the City's Draft General Plan/Local Coastal Plan Draft EIR for your consideration in finalizing the Plan and associated analysis. We represent the interests of the Shelby Family Partnership LLC, owners of agricultural property located at 7400 Cathedral Oaks Road, within the City of Goleta. A site-specific history and additional background on the agricultural viability and suitability of the property is provided below, followed by CEQA-specific comments on the Draft EIR.

The above-referenced property, which is a 15.05 acre (gross) site immediately inside of the City's northern boundary, is adjacent to and includes a segment of Cathedral Oaks Road. Due to setbacks, roads, easements, and buildings, approximately 4.95 acres are unavailable for agricultural production, leaving a hypothetical net tillable area of 10.1 acres. Our clients originally purchased the property when it was zoned for residential development, consistent with development to the west. Without any analysis of agricultural viability, the property was given an AG-II rural agricultural designation by the County of Santa Barbara in the 1993 Goleta Community Plan Update, but was cited in that Plan as one of the various properties appropriate for agriculture for only an interim period. The zoning designation was to be revisited as part of the then anticipated 2003

B.10-1

County General Plan Update. At that time, the parcel was farmed as part of a larger, approximately 25 acre agricultural site.

In the ensuing period, the owner's agricultural operations proved unsuccessful due to soils conditions, the County acquired an approximately 2 acre easement across the southerly portion of the subject parcel for the extension of Cathedral Oaks Road, separating it from the lower 10 acre parcel, and the Glen Annie Golf Course was built surrounding the upper parcel. Construction of the County's Cathedral Oaks Road extension involved significant grading and fill of the site, all which was allowed with the expectation that the property would be returned to its residential zoning and developed for residential use. In the 2004 County report on Urban Agriculture in the Goleta Valley, the property is reported as having already converted to urban development. B.10-1

In response to the City's proposed agricultural land use designation within the Draft General Plan/Local Coastal Plan and Draft EIR, further study has been conducted by a qualified Agricultural Economist on the agricultural viability and suitability of the subject site for potential future agricultural production. A copy of this study is enclosed. The key points from that analysis, and inaccuracies in the Draft EIR which need to be addressed, are as follows:

1. Water – Water was provided by means of a Goleta Water District (GWD) agricultural meter from prior to 1987 to 2000, when avocado orchards were in production on the site. During that time, the orchards experienced reduced yield as the extensive man-made mounding system upon which each tree was planted failed, and the avocado root structures hit the underlying clay hardpan. Following the loss of the orchards, GWD revoked the agricultural meter in 2000. The site has not been in irrigated production, and has lain fallow since.

2. Soils – According to the U.S. Department of Agriculture Soils Conservation Service (now known as the Natural Resources Conservation Service [NRCS]), the 1981 mapping indicates the majority of the property contains Diablo Clay (DaC) soils; DaC soils on slopes of 2% to 9% are considered Class II (prime), if irrigated, but on slopes of 9% to 15% are Class III (non-prime). When a site is not irrigated, as is the case with the Shelby site, it is our understanding that DaC soils of 2% to 9% are designated as Class III (non-prime), and on slopes of 9% to 15% are Class IV (non-prime). B.10-2

The data for the NRCS Soil Survey was primarily derived from aerial photographs, prior surveys and field work; however, the soil was not examined in situ by NRCS, and therefore, compaction, permeability and drainage problems were not considered. The site soils are slowly permeable and difficult to work and can be worked only within a narrow range of moisture content. When the soil is wet, cultivation is not only difficult, but also damages the soil structure. Slopes also were not identified or taken into account in the 1981 Soil Survey map. Accordingly, the northern 2.65 acres of the site, with slopes ranging from 10 to 30 percent, were incorrectly identified as Class II, and due

to slope and lack of irrigation, should be designated as Class IV. The steepest and northernmost 0.58 acres of the site are classified as Ayar Clay (AhF2) soils, which are designated as Class VI. Taking into account the site's topography, and using the 1981 Soil Survey classifications, there are only 6.87 acres of potential Class II tillable soils; however, since the site has not been irrigated since 2000, and the site's agricultural meter designation has been revoked by GWD (see no. 1, above) with no other known sources of water, the 6.87 acres should be designated as Class III soils.

Site-specific soil studies were completed by Fruit Growers Laboratory in 1997 (soon after the avocado orchards crashed due to widespread root rot), and by Geolabs Engineering in 2001. Both reports concluded that the surface soils on the site are significantly more clayey and dense, with poor soils structure and compaction problems than the NRCS Soil Survey map indicates. This type of soil results in poor water percolation and drainage, as well as very difficult tillage conditions due to excessive moisture levels. The underlying subsoils were also shown to be clay hardpan, which is very compact clay soils with poor water percolation. Both reports concluded that the entirety of site soils should be reclassified to non-prime soils to accurately reflect on-the-ground conditions, consistent with the above conclusion.

B.10-2

3. Agricultural Suitability – This is a determination of a site's fitness for agricultural operations based on the natural attributes of the site, including soil, subsoil, tilth, drainage, slope, etc. Due to poor soils, clay hardpan subsoils, slope, and low fertility on the site, the successful cultivation of orchard and row crops is severely constrained and the agricultural suitability of the site low. If required to remedy these conditions, the existing dense topsoil and portions of the underlying hardpan would have to be removed (estimated at 32,000 cy) and replaced with more friable soil (another 32,000 cy), which would require extensive on- and off-site hauling of material using large capacity dump trucks, thus resulting in added truck trips onto area roadways and highways. It is estimated that if using a 10-cy dump truck, total soil moving activities would result in an estimated 6,400 new truck trips, resulting in increased traffic, air quality, and noise impacts beyond that which is analyzed in the Draft EIR. There is also no local source identified for such friable soil, and removal would potentially impact the agricultural viability of the donor parcel. In addition, there is no known recipient site for the clayey soils to be removed, which is a primary reason the County disposed of Cathedral Oaks Road spoil on the Shelby property.

4. Agricultural Viability – This is a determination of whether a parcel will generate sufficient monetary returns to bring and keep it in agricultural production. In the short-term, and at the level of a single producer, a viable agricultural enterprise must yield an economic surplus after taking into account all production costs. The study indicates that there are no agricultural enterprises which would yield a consistent and reasonable return, including orchards, greenhouse agriculture, row

crops, or grazing. Previous agricultural ventures on the site have included "organic" farming, which was not successful.

The Department of Conservation, Division of Land Resource Protection developed the Farmland Mapping and Monitoring Program (FMMP) to document changes in agricultural land in the State. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. (The City supposedly used FMMP data as the basis of its agricultural land use designations.) The FMMP defines Prime Farmland as: "farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. **Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date**" (emphasis added). As indicated by no. 1, above, the site has not been in irrigated use since 2000, and our understanding is that FMMP mapping shows the property as "grazing land," though there is no adjacent land available for such operation. This further supports the study's conclusion that soils on the site do not qualify as prime farmland. B.10-2

Given this site-specific background, the conclusions reached by the Draft EIR are inaccurate and unsubstantiated, and do not reflect the economic impact or feasibility of maintaining a 10.1 acre fallow parcel in agricultural use without the benefit of a viable agricultural enterprise. There are other appropriate agricultural sites located within the City of Goleta that are currently designated by the Draft General Plan/Local Coastal Plan for future residential use that would be better suited for long-term, viable agricultural production. Those parcels should be considered for re-designation to agricultural land use, consistent with Suggested Mitigation MM 3.2-1.

General Comments on the Draft EIR

Project Description. The Project Description has changed as a result of ongoing public comment and City Council directive during the course of the public review period of this Draft EIR. Changes in land use designations, provision of newly defined "overlays," as well as traffic modeling will necessarily need to be addressed and incorporated into the Final EIR. If new, significant impacts or additional feasible mitigation measures are identified, portions of the EIR analysis would likely require re-circulation and associated public review and comment. B.10-3

Economic and Social Effects. A discussion of the economic or social effects of Plan implementation is absent from the Draft EIR, including any indirect or secondary impact resulting from a physical effect discussed in the Draft EIR. For example, the economic and social impact that B.10-4

potential new agricultural development would have on adjacent residential and recreational uses, including potential decreases in land value and increases in nuisance complaints resulting from increased dust and air quality effects, noise, and traffic should be identified and assessed.

According to CEQA Guidelines section 15131(c): "Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment identified in the EIR. If information on these factors is not contained in the EIR, the information must be added to the record in some other manner to allow the agency to consider the factors in reaching a decision on the record." Accordingly, information concerning these effects needs to be added to the record, and we would request that the analysis be made publicly available. B.10-4

Cumulative Analysis. The "plan approach" used to conduct the cumulative analysis within the City boundary appears to be inaccurately applied. Although the plan approach allows for use of projections from a General Plan, the use of such is contingent upon the Plan's adoption or certification. CEQA Guidelines section 15130(b)(1)(B) states that "a summary of projections contained in an **adopted general plan or related planning document**, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact. **Any such planning document shall be referenced and made available to the public at a location specified by the lead agency**" (emphasis added). The City's Draft General Plan/Local Coastal Plan is not an adopted document, and therefore, can not be the only basis on which to assess cumulative impacts associated with Plan implementation. B.10-5

A variety of current applications and known future projects located within the City are not identified within the Draft EIR. The impact of these projects' additional vehicle trips and other environmental effects are potentially understated in the cumulative analysis.

Alternatives Analysis. The discussion of alternatives in Chapter 5 does not develop or analyze any additional, feasible policy-based alternatives that could avoid or reduce potentially significant adverse impacts of the Draft General Plan/Coastal Land Use Plan. The four previous "Planning Alternatives" may have been evaluated to help consider policies to inform the Draft General Plan/Coastal Land Use Plan, but other policies should be explored at this time to reduce or avoid significant impacts identified by the Draft EIR. Such an alternative could include the identification of new flexible policy language intended to reduce inconsistencies amongst land use, housing, noise and/or agricultural policies. B.10-6

One such feasible alternative that should be considered and assessed is the preservation of currently farmed agricultural parcels, as the Draft EIR states that conversion of these parcels to urban uses would be a Class I impact. Preservation of the parcels in current agricultural production, with their successful ongoing operations, prime soil structure, and adequate water source and support facilities would be in keeping with the City's goal of preserving qualified prime farmland and would allow those non-viable parcels identified by the Plan for agricultural use to accommodate the City's need for housing. The policy-based alternative should assess the impacts of implementing new policy that would transfer the housing potential to those sites that are shown to not be viable for agricultural production, while maintaining those parcels throughout the City that are productive and profitable. This policy would avoid or reduce the Class I impact on agriculture and farmland, as well as increase the likelihood that affordable housing will be constructed throughout the City in keeping with current proposed housing policy. **B.10-7**

Secondary or Indirect Impacts. CEQA Guidelines section 15126.2 requires not only consideration and discussion of direct impacts, but of any foreseeable secondary or indirect impacts resulting from implementation of a project or its proposed mitigation measures. Although the Draft EIR states that its discussion focuses on the indirect impacts associated with Plan implementation, as approval and adoption of a Plan has no direct physical effect, the indirect impacts themselves, including changes in land use, traffic and circulation patterns and future buildout will inherently have additional secondary effects. A Program EIR is intended to cover this range of possibilities. This discussion is absent from the Draft EIR. **B.10-8**

Technical Detail. The technical background needed to substantiate conclusions reached throughout the Draft EIR, including air quality analyses, noise contour modeling data including the 2004 RBF Baseline Report for field noise measurements, biological resource evaluations, and economic or social impact analyses are missing from the document. CEQA Guidelines section 15147 states that "appendices to the EIR may be prepared in volumes separate from the basic EIR document, but shall be readily available for public examination...". We previously requested in a letter to the City, submitted June 26, 2006, that these appendices be made available for review. **B.10-9**

Section-specific Comments on the Draft EIR

Section 3.1, Aesthetics and Visual Resources. A Class I impact is identified for development along scenic corridors, although many of the future affordable housing sites and new commercial development within the Old Town Revitalization Area are situated along these corridors. A conflict exists between the housing and visual policies if no new housing can be built without findings of overriding consideration or substantial redesign rendering development economically infeasible. **B.10-10**

It is not clear in this analysis how the key public viewpoints were chosen or applied (it is understood that the local scenic corridors are identified by the Draft General Plan/Local Coastal Plan). Although it is agreed that scenic views are afforded along scenic corridors, as well as certain open spaces, specific and separate vantages from these corridors when traveling are intermittent due to intervening development, topography and vegetation. Figure 3.1-1 appears to identify several locations along the scenic corridor where such views are questionable. In addition, it appears that certain viewpoints were chosen towards or from private lands (e.g., Bishop Ranch). B.10-11

Section 3.2, Agriculture and Farmland. The definition of "agriculture" used in the Draft EIR is incorrect; the CEQA definition of agricultural land should have been used to define baseline conditions and to assess impacts. CEQA Guidelines section 21060.1 defines agricultural land as "prime farmland, farmland of statewide importance, or unique farmland, as defined by the USDA land inventory and monitoring criteria, as modified for California." B.10-12

The discussion within 3.2.1.3 is mislabeled. It should be re-titled Goleta Valley, as it pertains mostly to lands outside the City boundary than to those within the City. A discussion specific to lands within the City boundary should then be provided based on site-specific data, and not areawide assumption. B.10-13

Figure 3.2-1 and Table 3.2-2 incorrectly states the size of Site #2 as 14.8 and 14.1 acres, respectively. The correct acreage is 10.1 (net tillable) acres. B.10-14

Figure 3.2-2 incorrectly identifies Site #2 as Prime Farmland. The FMMP requires the land to have been used for irrigated agricultural production at some time during the four years prior to the Important Farmland Map date. As noted in the background section, above, the site has not been in irrigated production since 2000. The source(s) of this map should also be provided, as information is not provided solely by the City of Goleta. B.10-15

Table 3.2-2 is confusing since it combines Soil Type, as established by the Federal NRCS 1981 Soil Survey Map, and Farmland Classification from what appears to be the State Department of Conservation's FMMP definitions and maps. The definition of "prime soils" vs. "non-prime" soils according to NRCS is based on the soils's Class designation - Class I and II soils are prime, whereas the remaining classes are non-prime. Therefore, the Farmland Classification for Site #2 should either be stated as: "does not qualify" based on the comment above, or if using the same classification system provided by the Soil Type category, Non-Prime (for the non-irrigated Class III DaC soils, Class IV DaD soils, and Class VI AhF2 soils). B.10-16

The discussion of agricultural viability is confusing. The blanket statement that organic farming can be more viable on small parcels is an unsubstantiated claim requiring further discussion and a expert source. The success and profitability of any method of farming is dependent on the attributes of the land; those parcels that can be shown to have continued profitable and successful operations may benefit from organic farming methods, but if a site lacks the proper soils, slopes, etc. than farming operations will not be capable of maintaining production irregardless of method employed.

B.10-17

The type of soil is an attribute of a site's agricultural suitability, not viability. The concepts are distinctly separate, and the analysis in the EIR should more carefully reflect this. The definition of viability at the level of a single producer requires that a crop's yield be in economic surplus after taking into account all production costs, including land preparation, harvesting, marketing and inspection, cash overhead (e.g., property taxes and insurance), and non-cash overhead costs (e.g., land rent, cost of equipment, etc.).

Table 3.2-3 provides incorrect data for Site #2. The agricultural acreage (or net tillable area that is not within easements, previously developed with buildings or subject to City imposed setbacks) is 10.1 acres. The Farmland categories should be changed as discussed under the Table 3.2-2 comment, above. The total "prime" soils acreage should be 0 acres, as the soil types on-site are not considered prime due to lack of irrigation, poor soil structure and water percolation characteristics.

B.10-18

The discussion of impacts and mitigation should consider cases where development on lands within the City could conflict with uses on adjacent or nearby unincorporated lands. Additional mitigation measures should be identified to reduce potential conflicts between incompatible uses, such as agricultural and residential, to avoid increased nuisance complaints.

B.10-19

Suggested Mitigation Measure MM 3.2-1 should be analyzed at a greater level of detail, as it is agreed that the City has other suitable agricultural lands that are currently in production with high value, specialty crops, but which have not been identified for future agricultural use. See also comment on alternatives analysis, above.

B.10-20

Section 3.8, Population and Housing. The Housing Element of the Draft General Plan/Local Coastal Plan identifies a need for farmworker housing on-site for areas zoned for agriculture (Implementation Program 5.G). As many of the sites identified for agricultural use are currently fallow and would need both new infrastructure and housing development to accommodate potential future agricultural operations, the direct and indirect impacts associated with such development

B.10-21

needs to be assessed in the Draft EIR. In addition, the impacts from new population growth associated with increased agricultural operations is currently not assessed. B.10-21

Section 3.10, Land Use and Recreation. The discussion of potential inconsistencies between Draft General Plan/Coastal Land Use Plan policies and other adopted plans and policies is not complete, as it does not address other applicable local, regional, or statewide plans. For example, a discussion of the Clean Air Plan, Congestion Management Plan, Goleta Old Town Revitalization Plan, etc. should be included. B.10-22

Section 3.13, Transportation and Circulation. It is our understanding that an updated forecasting model and associated traffic analysis was completed following the release of the Draft EIR. Assuming new, significant impacts were identified within that model, the analysis contained within the Draft EIR will need to be re-assessed and that portion re-circulated for public review and comment. B.10-23

The recommended major infrastructure improvements/mitigation for overcrossings at Ellwood Station and La Patera are not feasible mitigation and should not be used to forecast future conditions. Their construction would appear to be dependent on the approval of future development and payment of fair-share fees, as well as Caltrans approval and discretionary oversight, as they are not accounted for in a capital improvements program, and realistically may not occur during the life of the Plan. This long-term "goal" defers the reduction of potential significant Class I impacts, and conditions it upon potential future approvals, which may not be granted due to significant traffic impact. B.10-24

Any potential future agricultural production on the Shelby site would result in additional, unaccounted truck and vehicle trips resulting from the need to "create" prime conditions through removal and replacement of poorly drained soils with better suited material, as well as from employees accessing the site during the day. The current baseline conditions do not include any vehicle activity to or from the site resulting from active agricultural production, as the site is fallow. B.10-25

Conclusion

Based on the above comments, we assert that the adequacy of the analysis contained within portions of the Draft EIR are incomplete and, therefore, do not accurately disclose the full impact of Plan implementation.

Thank you for your thoughtful consideration of the comments contained herein.

Very truly yours,

Alison Malkin

Alison K. Malkin, AICP
for PRICE, POSTEL & PARMA LLP

cc: Mr. C. E. Chip Wullbrandt
Dr. Glynne Couvillion

Thank you for your thoughtful consideration of the comments contained herein.

Very truly yours,

Alison Malkin

Alison K. Malkin, AICP
for PRICE, POSTEL & PARMA LLP

cc: Mr. C. E. Chip Wullbrandt
Dr. Glynne Couvillion

Contents

Abstract

This report examines the agricultural suitability and viability of a 15.05 acre (gross) undeveloped parcel in the City of Goleta, located at 7400 Cathedral Oaks Road. The site was originally part of a 25 acre parcel which was divided by Cathedral Oaks road. The southern portion of the parcel has been developed for housing. The northern portion is fallow.

Executive Summary

The report concludes that the Parcel is neither suitable nor viable for agricultural uses under a reasonable range of assumptions and scenarios.

Suitability: The parcel does not have the natural endowments for agricultural uses. Poor soils, clay hardpan, and low fertility are severe constraints to the successful cultivation of orchard, vegetable, and fruit crops.

Viability: Poor economic returns, high price of entry, and small parcel size preclude economically successful dryland, orchard, vine, or vegetable crops. The parcel is similarly too small for a profitable livestock operation. Finally, there would likely be serious conflicts with urban land uses If an intensive agricultural operation were established on the parcel.

Thus, there is no profitable agricultural option for this Parcel. A person intending to raise orchard, vegetable, berry or row crops would not purchase or rent this Parcel because of a negative return on invested capital. There are more fertile, better drained parcels in the vicinity that do not have the limitations and constraints of this parcel: poor soil, conflicts with urban land uses,[1] high irrigation expenses, and high carrying costs for the parcel itself.

[1] *Noise, dust, pesticide drift, farm labor transportation, nighttime operatio ns, etc.*

I. Introduction

This report presents an analysis of the agricultural and economic potential of a 15.05 acre (gross) parcel located at the northernmost urban limit line of the City of Goleta at 7400 Cathedral Oaks Road (hereinafter "Parcel"). The most recent data available to assess the existing and future, potential conditions are incorporated by reference.

Specifically, this report examines whether the parcel is "suitable" or "viable" for agriculture. The determination of a site's suitability is based on the natural attributes of the parcel, including soil, subsoil, tilth, friability, drainage, slope, orientation, climate, etc. as described in greater detail, below. The determination of a site's viability requires an analysis of the expenses and returns from a number of hypothetical agricultural production decisions (e.g., field crops, row crops, orchards, livestock, etc.). An agricultural operation is considered viable if it generates an annual income sufficient to cover all fixed and variable costs (including a return on capital employed and a profit to the owner) associated with bringing into and maintaining the agricultural production.

If suitability is the fitness of the foundation for an agricultural operation, then viability is the profitability of the business built on that foundation.

Part II of the report investigates the parcel's natural agricultural endowments (suitability); Part III estimates the time and expense of creating fertile, well-drained soil on the site. Part IV analyzes its prospects as a profitable agricultural enterprise (viability). A bibliography, reproductions of primary sources cited in the report, and a summary of the author's qualifications follow the body of the report.

II. Agricultural Suitability of the Parcel

The Santa Barbara County Planning and Development Department has established environmental thresholds by which to measure the significance of an agricultural use conversion to another use, which are readily applicable to the assessment of the Parcel (see Appendix 3 for details). The County's Environmental Thresholds and Guidelines Manual (county Manual) characterizes agricultural suitability and viability as part of a weighted point system, but does not strongly differentiate between the two concepts. The County Manual discusses suitability in its introduction to the weighted point system as follows:[2,3]

> The initial study screening looks at the value of a site's agricultural suitability and productivity, to determine whether the project's impact on loss or impairment of agricultural resources would be a potentially significant impact. These are guidelines, to be used with flexibility in application to specific sites, taking into account specific circumstances and specific agricultural uses.
>
> The weighted point system is utilized to assign relative values to particular characteristics of a site's agricultural productivity (e.g. soil type, water supply, etc.).

The suitability of a site is therefore, a determination of how well agricultural crops will grow on the parcel, such as vigorous or stunted, high- or low-yielding, healthy or prone to insects, fungi, weeds, etc.

Agricultural suitability is determined by parcel size, slope, orientation, soil characteristics, drainage, water availability, and other site-specific conditions which support or impede the parcel's ability

2 See Appendix 3 of this Report for the application of the County weighting system to the Parcel.

3 Santa Barbara County *Environmental Thresholds and Guidelines Manual*, p. 13.

to grow and sustain an agricultural crop. The site-specific conditions for the Parcel are described, below.

A. Parcel Size

The Parcel is 15.05 acres (gross), and 10.1 acres (net) as approximately 4.95 acres are unavailable for agricultural production or development due to setbacks, roads, easements, and buildings.[4]

B. Slope

The Parcel slopes gradually in the southern portion of the site and is noticeably steeper to the north. According to the Penfield & Smith Survey of the Parcel, slopes range from 5 to 9 percent at the southern 7.45 acres of the parcel and greater than 9 percent at the northern 2.07 acres of the parcel. See Appendix 1 for an illustration of the site's topography.

C. Orientation

The Parcel is tilted with a southern orientation, which is advantageous to the cultivation of sun-loving plants.

D. Soils

Soils information for the Parcel is derived from the following: 1981 U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS) Soil Survey for the southern portion of Santa Barbara County[5]; USDA Soils Classification System, as applied to the soils on site; soil survey performed by Fruit Growers Laboratory, Inc.[6]; response to the Fruit Growers Laboratory report by the National Resources Conservation Service (NRCS)[7]; Geolabs Engineering Report of soils on the Parcel[8]; soils analysis performed by AG RX[9]; and soil quality characteristics extrapolated from recent production experience[10]. The Parcel as reflected on the 1981 USDA soils map is shown in Appendix 2. Relevant data for each listed report or survey is summarized below.

1981 USDA, SCS Soil Survey

The soils of the southern portion of Santa Barbara County were classified and described in a USDA Soil Survey published in 1981. The data for the survey was primarily estimated from aerial photographs, with additional information gath-

4 See Penfield & Smith Survey, February 2000, and Appendix 1.

5 *Soil Survey.*

6 *Fruit Growers Laboratory, Inc., Lab No. SP 702250, Prepared for Price, Postel & Parma, 4/3/97.*

7 *Memo from Ken Oster, Area Soil Scientist, USDA-NRCS, to John Bechotold, District Conservationist, USDA-NRCS, 5/9/97. See Appendix 5.*

8 *Geolabs-Westlake Village, 2001 Engineering Report.*

9 *AG RX Soil Sampling results, 3/13/97, summarized in a letter from AG RX to Ms. Kathy Stettler, Public Works Department, Santa Barbara County.*

10 *Calavo Production Report for Mr. Glenne Couvillion, data reproduced in Table 1.*

ered from prior surveys, and field work.[11] There is no indication that the Parcel was examined extensively in situ. Generally, soil surveys are used for gathering preliminary information of soil suitability in order to evaluate a given parcel for agricultural uses, recreational uses, and development.

The soils on the Parcel are designated as part of the Diablo series soils[12], described as:

> *...well drained soils on low hills within 3 miles of the coast. The Soils are formed in soft shale and mudstone. Slope ranges from 2 to 50 percent. Elevation is 50 to 700 feet. Vegetation is annual grasses, forbs, and scattered oaks. Average annual precipitation is 16 to 20 inches, the mean annual air temperature is 60° to 62° F., and the frost free season is 300 to 330 days.*
>
> *A representative profile of surface layer is very dark gray clay about 37 inches thick. The next layer is mixed very dark gray and light yellowish brown clay about 13 inches thick. The substratum is light yellowish brown mudstone to a depth of 60 inches and more. Reaction is neutral in the upper part of the surface layer and moderately alkaline below.*
>
> *Permeability is slow. High shrink-swell potential is a severe limitation for urban development.*
>
> *These soils are used for orchards, range, and urban development.*[13]

DaC soils are characterized as follows.

> *This gentle sloping to moderately sloping soil is on low terrace-like hills. It has the soil profile as representative of the series. Included in mapping are areas of Ayer, Zaca, Milpitas, and Positas soils. Runoff is medium, and the hazard of erosion is slight. Available water capacity is 6 to 11.5 inches, and effective rooting depth is 45 to 60 inches.*
>
> *This soil is used for range, lemons, and urban development. Capability unit is IIe-5 (19,15); Clayey range site.*

The Soil *Survey* uses capability units as a general designation indicating the suitability of a particular soil for most kind of field crops. The capability units are ranked according to a "class" system, described as:

a. *Class I soils have few limitations that restrict their use.*
b. *Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.*
c. *Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices or both.*
d. *Classes IV to VIII have a variety of severe limitations that make cultivation difficult or impossible.*

---

11 *Soil Survey.*

12 *With the exception of a very small area in the eastern edge of the parcel designated as DaD and a very small area at the top of the parcel designated AhF2, the entire parcel is designated Diablo clay (DaC), 2 to 9 percent slopes, which is a subset of the Diablo series.*

13 *All Soil Survey quotes are taken from the Soil Survey sections reproduced in Appendices 6 and 7.*

Furthermore, the Diablo series is designated Class IIe-5, defined as:

> *Diablo clay, 2 to 9 percent slopes, the only soil in this unit. This well drained soil is on terrace-like positions within one or two miles of the coastline.*
>
> *This soil is slowly permeable and dries out slowly. It develops wide cracks when dry. Available water capacity is 6 to 11.5 inches, and effective rooting depth is 45 to 60 inches. Runoff is medium and the hazard of erosion is slight. This soil is used for range, lemons, avocados, and urban development. Winter harvest is difficult because the soil dries slowly. It is poorly suited to avocados as the hazard of root rot is high.*

The Soil *Survey*'s mapping of the Parcel did not differentiate between the gently sloped lower area and the more steeply sloped upper area of the site. The northern 2.65 acres of the property[14], with slopes ranging from 10 to 30 percent, should be designated as Diablo silty clay (DaD), which is another subcategory of the Diablo series appropriate for lands with slopes greater than 9 percent, but less than 15 percent. These soils are characterized as follows.

> *This rolling soil is on low hills and broad ridgetops. It has the profile described as representative of the series. Included in mapping are small areas of Ayar, Zaca, Milpitas, and Positas soils.*
>
> *Runoff is medium, and the hazard of erosion is moderate. Available water capacity is about 6 to 11.5 inches.*
>
> *This soil is used for range, lemons, and urban development. Capability unit IIIe-5 (19, 15); Clayey; range site[15].*
>
> *Capability Unit IIIe-5 (author's comment: designation of soils on the upper half of the Parcel given its measured slope), is generally slowly permeable and dries out slowly. They are generally suited for range, dryland hay, and pasture. Orchard crops are problematic: Avocados tend to suffer from root rot; and lemons struggle in chlorotic given the soils lime content.*
>
> *Tillage is problematic. All tillage needs to be done at the proper moisture content to avoid puddling, destroying the soil structure, and to avoid forming large, hard clods.*

Because soil capability should be determined using the most accurate on-site data, in order to account for the slopes on the upper 2.65 acres of the Parcel, these soils should be designated as Class III, based on the 1981 Soil Survey definitions. The 0.58 acres of AhF2 soils at the northernmost end of the parcel are designated as Class VI soils.

1997 Fruit Growers Laboratory Report

In 1997, the Parcel owner commissioned a soil survey[16] to determine if the soils

[14] *With the exception of the small area of AhF2 soils at the north end of the parcel.*
[15] *Defined as non-prime soils.*
[16] *See Appendix 4.*

on-site may be classified as Prime Farmland.[17] According to the Department of Conservation, Division of Land Resource Protection, Prime Farmland is defined as:

> *Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.*

Six, 60-inch deep trenches were dug on the northern half of the property, and soil cores analyzed for agricultural suitability.

The report characterized the Parcel soils in three layers (horizons), which are summarized below:

A. *Surface Soils: Mostly 12 to 24 inches thick, dark clay to clay loam soils with good organic matter content; very slow water infiltration with impaired drainage; relatively shallow and overlay very compact (dense) subsoils*
B. *Horizon soils: Very poorly developed; vary in thickness from 18 to 48 inches; clay soil having very compact layers with generally poor soil structure with results in poor water percolation*
C. *Horizon soils: At a depth varying anywhere from 36-60 inches; consists mostly of very compact clay soils*

The report concludes:

> *After reviewing the soils physical and chemical data, I do not believe that these soils are considered prime agricultural soils. Water percolation or drainage is restricted in most of the profiles due to heavy soil texture, with poor soil structure and compaction problems. This in-depth soil survey has provided useful information as to the severity of water-logging potential and restricted soil drainage. For this reason, this places most of these soils in the Capability Class III category, the Storie Index is somewhere between 10-20 percent (with or without irrigation) according to the Soil Conservation Service classification and should place these soils in Capability Classes III, IV, and V. It is our opinion that these are mostly Class III and IV soils having severe limitations that reduce the choice of plants. These soils also require very careful management and the other characteristics that limit their use for agriculture.*
>
> *Three of the six samples tested positive for avocado root rot. This is confirmation that root rot is present and causing considerable problems at this time. These soils (with limited drainage and high water holding capacity) have physical properties that are conductive to the growth of many soil borne plant pathogens, specifically phytophthora and pythinum species. These disease organisms affect many crops. Soils such as these frequently require the sue of soil fumigants to control phytophtora and pythium which are not compatible with residential uses. The adjacent school should be of major concern in this regard as well as for other pesticide use that may be needed to crop this site.*
>
> *Tillage in these soils is very difficult and should only be performed when the soils have acceptable moisture levels. If the soils are tilled or harvested when they are*

[17] *Or USDA, SCS Classes I or II.*

overly wet, soil compaction and plowpan layers will likely result increasing pre-existing problems. In order to avoid soil compaction problems, crops should be grown only in the late spring through the fall period.

The above mentioned limitations or constraints limit these soils to the growing of dryland grains or forage as rangeland. These soils are not suitable for growing tree crops because of compact, overly saturated subsoil conditions. These soils are even somewhat poorly suited for pasture or rangeland because increased soil compaction will result.

Although the conclusions of the Fruit Growers Laboratory Report further support re-designation of the Parcel's soils to Class III, it was critiqued by the local office of the Natural Resources Conservation Service (NRCS)[18] on the basis that the Laboratory had used a different protocol to determine soil drainage. As a result, the NRCS determined that the Parcel's soils should remain Class II. In its critique of the Fruit Growers Laboratory Report, the NRCS ignored the Class VI soils at the top of the parcel (AhF2) and the slope of the parcel which renders much of the soil as Class III.

The Storie Index

The Storie Index referred to in the Fruit Growers Laboratory Report has long been used to rank California soils for their agricultural potential.[19] The Soil Classification System attempts to determine the overall soil potential by determining which given range of slope, tilth, drainage, etc., the soil best satisfies. When a parcel's overall characteristics clearly satisfy the criteria for Class II, but the slope is characteristic of Class III, the soil's class determination becomes less certain, as does the distinction of whether the soil meets the definition of Prime Farmland or other soils. The Storie Index arrives at a soil score by multiplying together a number of individually measured factors (e.g., tilth, slope, drainage, alkalinity, porosity, etc.). This methodology accounts for multiple factors, including good and poor, in determining the overall score. This multivariate approach is well suited to evaluate a soil with great alluvial fertility with a moderately steep slope versus a soil with a high clay content and a flat slope, which may otherwise arrive at the same soil class distinction under other methodologies.

Because of the manner in which the Storie Index gives appropriate weight to the many non-correlating features of a given parcel, it is considered a more robust and accurate rating measure than the Soil Classification System.

The Storie Index for the Parcel, as determined by the Fruit Growers Laboratory, is between 10 and 20 percent. This is a "Very Poor" rating and describes soils suitable only for rangeland.

2001 Geolabs Engineering Report for the Parcel

As part of a Land Use Permit Application to Santa Barbara County, Geolabs pre-

[18] *Relevent portions reproduced in Appendix 5.*

[19] See Appendix 4 and 8.

pared an engineering report[20] to document the soil characteristics of the Parcel. The report's findings, coupled with documentation of crop production for the past few years, demonstrate that the Parcel has significant constraints to agricultural production, as described in greater detail, below.

The analysis found that soils from six locations on the Parcel (north-east quadrant) satisfied the compaction requirements of the Uniform Building Code.[21] The soil used for fill in the compaction test were removed from surface soils, or were obtained from spoil fills nearby. These soils are described in the report as (sic) Black Brown Silty CLAY and Medium Brown Silty CLAY.[22] Specifically, the report states:

> *This engineering examination of the surface soils of the top layers of the northern portion of the site indicates that the soils are significantly more clayey than the more cursory examination used in preparing the soil survey.*

Avocado Production Data

Avocado production data for the Parcel has been maintained by Calavo, one of two major avocado-harvesting and marketing enterprises serving Santa Barbara County. Production, in pounds (gross) and pounds per acre, is shown in Table 1. For the approximately 10 year period from 1987 to 1996, avocados were produced on the entire 25 acres (gross). For the period from 1996 to 2000, avocados were only produced on the northern 15.05 acre (gross) parcel.[23]

Table 2 (following) shows typical avocado yields for orchards in the south central coastal region, which are used by USDA extension economists in calculating the costs and returns of avocado orchards under favorable conditions.[24]

Table 1. Annual Avocado Production

Years	Pounds	Pounds per Acre
87-88	93,392	4,915
88-89	105,854	5,881
89-90	69,550	3,864
90-91	108,911	6,051
91-92	60,330	3,352
92-93	221,662	12,314
93-94	76,098	4,228
94-95	92,154	5,120

20 *Geolabs-Westlake Village, 2001 Engineering Report*

21 *Engineering Report.*

22 *Engineering Report.*

23 *In order to calculate yield in lbs. per acre, the 25 acre parcel is taken as 19 acres tillable, and the 15.05 acre parcel is taken as 10 acres tillable. See Appendix 1 for an illustration of gross and net available agricultural land. Because of the difference between a crop year and a calendar year, some annual yields are overstated (e.g., 93-94); and some are understated (e.g., 96-97). The overall downward trend in production/acre is still clear.*

24 *Avocado Production Costs*

Table 1. Annual Avocado Production		
Years	Pounds	Pounds per Acre
95-96	31,250	1,736
96-97**	1,480	148
97-98	17,203	1,720
98-99	7,606	761
99-00	385	39
00-01	3,047	305
01-02	0	0
03-04	0	0
04-05	0	0

**Parcel size falls from 25 to 15 acres (gross).

Table 2. Typical Yield Assumptions for Avocados in Ventura and Santa Barbara Counties	
Year after Establishment	Yield (Pounds per acre)
3	500
4	2,000
5	4,000
6	6,000
7+	7,500

A comparison of orchard yields at the Parcel (Table 1) and the average yields from a typical orchard (Table 2) result in the following two significant conclusions about the Parcel's suitability for orchard production:

1. The Parcel's yields from 1987 to 1996 reflect total production of the entire, 25 acre site. These higher yields were due to the owner's construction of a fertile and well-drained mound upon which each tree in the orchard was planted. The extensive mounding system was designed to mitigate the clay subsoil which prevented both sufficient drainage and adequate root penetration. When avocados have adequate root penetration on well-drained soils, they are also more resistant to root rot.

2. When the mound system failed in 1995-1996 and the avocado roots hit the hardpan clay subsoil, the orchard crashed . The Parcel's suitability for avocados (or any other crop with an extensive root system) is seriously compromised by the soil on site. At this time, the only surviving avocado trees are located on the far northern end of the Parcel, where relatively steep slopes allow some drainage for the shallow root layer. However, these trees do not provide a significant yield.

E. Santa Barbara County Thresholds of Significance[25]

To evaluate agricultural parcels, the County uses a number of criteria during a preliminary screening of a project's agricultural impacts, which influence the parcel's agricultural significance. A weighted point system is utilized to assign relative values to particular characteristics of a site's agricultural productivity (e.g. soil type, water supply, etc.). The resulting score is then used by the County as a means to assess the impact of maintaining or converting agricultural lands. The score which strongly suggests the necessity of further study is at least 60 out of a possible 97 total points. The Parcel's score is between 33 and 49, which indicates that conversion to other uses is less than significant.

F. Agricultural Suitability Conclusion

The parcel is not well-suited for agriculture based on each of the four main sources of information about its characteristics: (a) USDA, SCS soils mapping and analysis26; (b) the Fruit Growers Laboratory Report; (c) the Geolabs Engineering Report; (d) historic orchard production data, and (e) County Threshold Criteria for determining the significance of the conversion of agricultural lands to other uses. A majority of the analyses conclude that the Parcel does not qualify as Prime Farmland.

[25] *See Appendix 3 for discussion of County criteria applied to the parcel.*

[26] *Updated with accurate topographic information.*

III. Soil Engineering: Making the Land Fertile, Friable, and Well-Drained

Given the results of the USDA, SCS Soil Survey, the Geolabs Engineering Report, and the history of failed orchard production on the Parcel, the level of field work necessary to remedy the poor soil conditions can be estimated. The following example illustrates the type of effort that would be required to improve 10 acres of the Parcel to the condition of Class I or II soil, which is considered Prime Farmland.

The improvement begins with a bulldozer pulling a subsoil plow to a 6-foot depth, furrowing every 8 feet in both directions. This results in approximately 21 miles of furrow, which at 0.25 miles per hour would require about 100 man hours to complete, and results in a partial mix of the first six feet of soil. A more thorough mix would require another cross-hatch plowing operation at a 45 degree angle to the first furrow. This would likely occur more quickly than the first plowing effort, and could result in about 160 hours to complete the entire operation.

Because of the Parcel's soil composition which is largely clay, even when mixed the top two feet of soil should be removed and replaced with topsoil to provide a favorable growing medium. This would involve removing 20 acre-feet or 32,000 cubic yards (cy) of material, and replacing it with a comparable amount of topsoil. Using 10 cy-capacity dump trucks, a total of 3,200 trips each way (one trip to remove the poor soil, and one trip to replace it) would be required, resulting in a total of 6,400 truck trips. If it was feasible for one fully loaded dump truck to leave the parcel every 15 minutes, consecutively, it would take approximately 4 truck trips per hour, or 1,600 hours (over 9.5 weeks around the clock, or about 20 weeks without nighttime trips) to complete the job. At $15 per yard for new soil and $10 per yard for overburden, the soil replacement portion of the project would cost $800,000 plus hauling fees.

Finally, the soil would have to be worked appropriately prior to planting a first crop. This includes the typical preparation required prior to planting most row crops or establishing an orchard (e.g., disking, dragging, rototilling, harrowing, etc.).

As shown, this is not economically feasible, and would result in significant dust, traffic, and noise impacts in the project vicinity.

IV. Agricultural Viability of the Parcel

Agricultural viability is a determination of whether the parcel will generate sufficient monetary returns to bring it into production and keep it in production.

Viable crops depend on a number of factors, many of which are beyond the control of any single producer.

In the short-term, and at the level of a single producer, a viable agricultural enterprise must yield an economic surplus after taking into account all production costs. The various factors that influence the viability of a site are discussed below.

A. Permitted Uses on Parcel

Land use in the City of Goleta is currently regulated (on an interim basis) by the Santa Barbara County Comprehensive Plan and the Goleta Community Plan, as well as the City's Zoning Ordinance. The City is in the process of adopting a new General Plan/ Local Coastal Plan, which will be followed by preparation and adoption of a new City Zoning Ordinance.

The Parcel is designated as Agriculture II (AG-II) by the current zoning ordinance. AG-II presently allows the following uses without a major or minor conditional use permit:

Sec. 35-217.3. Permitted Uses. (Amended by Ord. 4379, 11/16/99)

1. All types of agriculture, including commercial raising of animals...

2. Sale of agricultural products ...

3. Commercial boarding of animals and riding stables.

4. Animal hospitals.

5. One single family dwelling unit per legal lot. Such dwelling may be a mobile home...

6. One guest house or artist studio per legal lot (General Regulations) and accessory to the primary residential use located on the same lot.

7. Greenhouses provided that for any greenhouse development including related structures (E.g., packing sheds) of 20,000 square feet or more, and all additions which when added to existing development total 20,000 square feet or more, a development plan shall be submitted, processed, and approved ...

8. Excavation or quarrying of building or construction materials, including diatomaceous earth, in total amounts of less than 1,000 cubic yards in one or more locations or parcels under the control of one operator that do not exceed a total of one acre. ...

10. On lands under Williamson Act (Agricultural Preserve) contract, which are not subject to a recorded notice of non-renewal, or on lands otherwise enforceably restricted to agricultural use (by an Agricultural Conservation Easement or Open Space Easement), one Residential Agricultural Unit...

11. Onshore oil development, including exploratory and production wells, separation facilities, and pipelines...

12. Wineries...

13. Home occupations ... accessory to a residential use located on the same lot.

14. Special Care Homes..

15. Uses, buildings, and structures accessory and customarily incidental to the above uses.

B. Economic Foundations of Viable Agricultural Investments

Agricultural Production Costs

I. Establishment and Production Practices:

A. Land Preparation
B. Planting
C. Pruning
D. Irrigation
E. Pest Management
F. Weed Management
G. Fertilization
H. Pollination

II. Harvesting, Marketing, and Inspection

A. Picking, Hauling, Cost of Marketing Orders
B. Allowance for Risk (financial, meteorological, agronomic, and market)
C. Interest on Operating Capital (cost of borrowing money or opportunity cost for use of in-house funds).
D. Labor (owner and hired)
E. Equipment Operating Cash Costs (fuel, lubrication, and repairs)

III. Cash Overhead

A. Office Expenses
B. Property Taxes
C. Property Insurance
D. Investment Repairs (repairs and maintenance on irrigation system, equipment, tools, etc.)
E. Interest on Establishment (cost of money spent during establishment years)
F. Other Expenses (liability insurance, crop insurance, soil and leaf analysis, and interest on operating capital (cash overhead)

IV. Non-Cash Overhead Costs

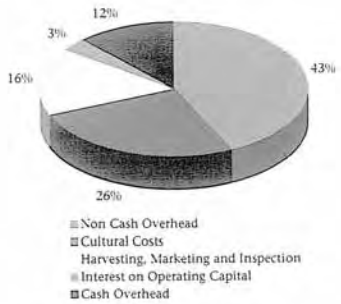
A. Land Rent (cost on borrowing money or opportunity cost for forgoing an alternate use)
B. Ownership Costs of Farm Equipment and Investments (annual payment to owner to

recover the value of all assets used in production at a specific interest rate over the planning period)

C. *Amortized Establishment Costs (this is the accumulated cost of establishment less gross income over the planning period)*

The enterprise's anticipated income cannot be calculated without making reasonable assumptions about the interest rates used for determining items II.C, III.E, and IV. A, B, and C. Typically, interest rates are equivalent to the costs of borrowing money. Current costs of funds for farming is equal to about 7 percent.

For avocados (and most orchard and vegetable crops), the relative importance of the components of production costs are shown in the following pie chart:[27]



The non-cash overhead (rent, amortized establishment costs, and equipment rent) is shown to be as much as all the direct costs of growing, harvesting and marketing the crop. Any analysis of farm profitability which only considers the direct cash costs of annual production on owned land will fail to recognize the non-cash overhead—over two-fifths of the true production costs.

C. Economic Rent, Net Present Value, and Discounted Cash Flow

An agricultural enterprise will be economically feasible for a renter when the rent plus all the time, material, equipment, and labor supplied by the renter are less than the value of the crop sold. If net income is positive after all costs are paid, a lessee can pay rent and use the parcel as a stand-alone agricultural enterprise. Ideally, the market rent is equivalent to the economic surplus the owner would earn if they personally farmed the parcel. Using land rent as a proxy for viability (positive cash flow, sufficient internal rate of return, positive net present value, etc.) has a long history in the economic analysis of land value and farm viability.[28] Land which is simply unsuitable for agriculture would have a negative rental rate since its net agricultural income would be negative and the

[27] *If today's costs were used, the relative importance of the five factors would not have changed significantly.*

[28] *Land Resource Economics*

land owner would have to expend their own income to rent it for farming.

The County's definition of viability in their *Environmental Thresholds and Guidelines Manual* employs rent as a proxy for the discounted value of the positive and negative income produced by an agricultural enterprise. This, in a simplified form, is equivalent to the rent paid to cover all of the cash and non-cash costs itemized above.[29] According to the County Manual:

> *As a general guideline, an agricultural parcel of land should be considered to be viable if it is of sufficient size and capability to support an agricultural enterprise independent of any other parcel. To qualify as agriculturally viable, the area of land in question need only be of sufficient size and/or productive capability to be economically attractive to an agricultural lessee. This productivity standard should take into consideration the cultural practices and leasehold production units in the area, as well as soil type and water availability.*

Agricultural land values are generally based on the fair market rent which can reasonably be charged for the parcel. This valuation ignores proximity to urban areas, development potential, and prospects for hobby farming. If the cost of money[30] is 7 percent, and the going rent for comparable land is $150/acre, then the land is worth $2,143 per acre.[31] For land located far from urban, suburban, or exurban pressures, land prices are reasonably close to the present value of a stream of future rents or net incomes.

D. The Value of the Parcel

The Parcel has a monetary value based on the uses allowed by the current zoning and land use designations (see subsection III.A, above). Presently, it can be used for agricultural production (including livestock) or it can maintain one residence as part of a large estate. In the real estate market of 2006, this Parcel, which abuts a golf course and borders a stream, would sell for approximately $2,500,000. Assuming that interest rates on borrowed capital to purchase the site are approximately 7 percent, the Parcel would need to generate $175,000 annually in net agricultural income (approximately $15,900 per productive acre) to match the attractiveness of selling it to develop into a mini-estate. Given the poor soils and drainage, there is no agricultural activity, with the possible exception of greenhouse cultivation that could earn this level of return.

The economic picture worsens when a discount rate of 12 percent is used. This higher discount rate more accurately captures the risk inherent in an agricultural investment on a similar parcel. In this case, total net income would have to be $300,000 or $27,273 per productive acre.

E. The Net Present Value and Internal Rate of Return of Agricultural Investments

Net Present Value (NPV) or internal rate of return (IRR) are both appropriate methods for evaluating the attractiveness of an agricultural investment. NPV is the discounted value

29 *Environmental Thresholds, p. 14.*

30 *interest rate on borrowed funds.*

31 For parcels with constant present and future net income, and constant discount rates, land value is simply the annual "rent" divided by the discount rate: $V = I/r$.

of a series of future payments wherein both discount rates and income can vary according to reasonable assumptions. IRR is the annual return on an investment which yields a present value of zero. [32]

Table 3, below, illustrates hypothetical farm production costs and returns for a parcel requiring sizable pre-production spending, but producing increased yields as the orchard stock matures. This is a typical avocado operation that reflects lower costs and higher yields than the subject Parcel.

Table 3. Typical Avocado Costs and Returns ($ Per Acre)

Year	Yearly Cost	Yearly Income	Net Income
1	8000	0	-8000
2	1000	500	-5000
3	1000	1000	0
4	1000	3000	2000
5	1000	3000	2000
6	1000	3000	2000
7	1000	3000	2000
8	1000	3000	2000
9	1000	3000	2000
10	1000	3000	2000

Net income stabilizes when gross income reaches $3,000 per acre and costs stabilize at $1,000 per acre. These illustrative costs do not include the substantial expense of creating a mound for each tree, which was done on the Parcel.

A potential owner/grower, when deciding whether to purchase a parcel with this projected stream of income/expenses, would calculate the present value of the investment. This value would need to be positive to cover all cash and non-cash costs. Although a simple addition of cumulative costs and returns yields a positive result of $1,000 per acre, discounting future income and expenses results in a NPV which is negative because future profits are reduced by the discount rate.

Table 4 illustrates the present value of this investment in orchard production over a 10 year period, using various discount rates. Higher interest rates greatly reduce the present value of future income.

[32] E.g., the first few years of an orchard's life yield a loss; succeeding years produce a growing profit; finally, the age of the trees causes profitability to decline. The mathematical formula for NPV is: $NPV = \sum_{t=0}^{N} \frac{C^t}{(1+i)^t} - Initial\ Investment$

where N is the period, t is the number of periods, i is the interest rate and C is the net income (or loss) in a particular period. The Internal Rate of Return is the interest rate at which the Net Present Value equals 0. Since there are many possible uses of capital (or agricultural land), IRR can be used as an initial screen of a potential investment. Investors, when faced with the considerable risk of farm investments, usually require an IRR of 15 to 20 percent before purchasing farmland.

Table 4. Orchard Production Investment with Varying Interest Rates					
Interest or Discount Rate	No Discount	2.5%	5.0%	7.5%	10.0%
Net Present Value	$1000	$(2,535)	$(2,157)	$(3,241)	$(4,089)

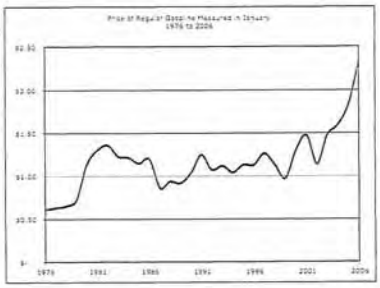
The IRR of this example is 1.33 percent (falling between 0.0% and 2.5%. This is the discount rate that yields a NPV of zero. Because a rational investor would likely have a number of potential investments which yield a significantly higher return, he/she would not get into the orchard business.

Finally, because the land has an approximate value of $2,500,000, there is no feasible way for the productive avocado farm hypothesized above to produce the income needed to generate a positive rate of return on a multi-million dollar investment.[33]

F. General Production Price Trends

Agricultural production requires a variety of purchased inputs. These typically make up 30 to 50 percent of total production costs. For inputs like fuels, fertilizer, and electricity dramatic increases have occurred in the past two years. The following figures graphically depict these increases.[34]

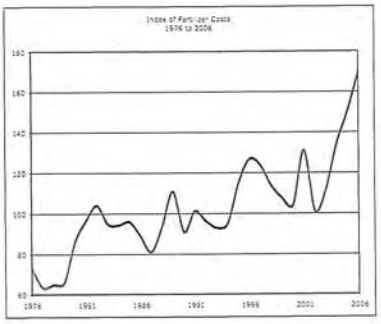
On a farm, gasoline (or diesel) is the primary motive fuel, while electricity is used for irrigation pumping, and fertilizer is used to boost production.



Fertilizer prices, moving proportionately to natural gas, a primary feedstock, have shown a similar increase.

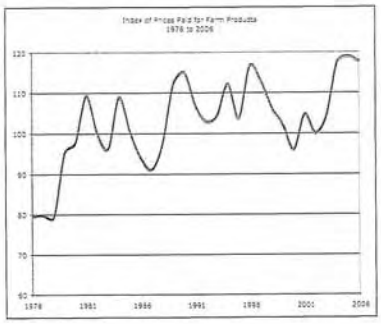
[33] Approximately $27,000 per acre on the study parcel vs. approximately 2,000 on the typical parcel.

[34] The data for gasoline, fertilizer, electricity, and farm products are from the U.S. Bureau of Labor Statistics data series through January 2006.



Finally, the cost of electricity has similarly experienced a significant increase.

Prices paid to agricultural producers have been relatively constant in the recent past, squeezing farm income and hastening the conversion to larger farms with more acres to absorb fixed costs.



G. General Economics of Potential Agricultural Uses for the Parcel

Although the Parcel's value as a residential estate is the criteria against which any agricultural venture must be compared (because current regulations would only permit conversion from agriculture to single-family residential use), the economic prospects of a variety of crops can be compared to determine if the general conclusion of non-viability holds across a variety of agricultural options.

The agricultural profit from any crop or livestock option has to be, at a minimum, the same value as selling the property for estate development and investing the proceeds. If there is no reasonable prospect for agricultural profit, the property can become a large estate with a single, large residence.

Avocado Production

The historic avocado production data shown in Table 1 above demonstrates that avocados are not profitable on this Parcel. Although significant investments in soils management were historically undertaken in an effort to mitigate the Parcel's poor suitability, avocado production eventually ceased due to the need for well-drained, friable soil.

In 1991, it cost $6,521 per acre to establish an avocado orchard on suitable soil. In today's dollars, this expense grows to $7,580.[35] Since the Parcel is extremely susceptible to root rot, and since avocados have failed once on the Parcel as a result of its soils, future avocado production is effectively precluded.

Lemons

Lemons do best on the well-drained soils found in California, Texas, and Florida. Lemon production on poorly drained soils, or soils where areas do not dry after irrigation, is reduced or problematic.

In 1997, the cost for establishing an acre of lemon trees in the South Coastal Region was $4,881 per acre.[36] Using the index of agricultural production costs, today's price would be approximately $5,977, an increase of 25 percent. Organic lemons cost approximately $7,500 per acre to establish.[37] Lemon prices have remained relatively constant over the same period and are facing increasing pressure from imported lemon oil, the major commercial use of the crop.

Lemons would not be a viable use of the Parcel given the anticipated yields, as well as the downward price pressures and growing production costs. Even on relatively favorable soils, new, free-standing lemon orchards are not being established in south Santa Barbara County. Although there are a few hundred acres of lemons in the Goleta Valley, these are older orchards with fully amortized establishment costs and are on more suitable soils. As with avocados, the major constraint is poor drainage due to the underlying clay substrate. No potential, knowledgeable grower would purchase the Parcel to establish a 10-acre lemon orchard.

35 Avocado Establishment and Production Costs
36 *Establishment and Production Costs: Lemons*
37 *Practices and costs for Fresh Market Organic Lemons*

Greenhouse Agriculture

The costs of establishing and operating a greenhouse have risen dramatically in the last 10 years. In the mid 1990's, greenhouses could be constructed for about $5 per square foot (sf). In 2006, construction costs hover around $20 per sf.

The costs to build 7 acres (308,000 sf) of greenhouses today would approach $6,160,000. Given the underlying cost of $2,500,000, the Parcel would have to generate $1,040,000 in annual net income, or $150,000 per greenhouse-acre to be profitable.

Pete Overgaag and Ed VanWingerden, two well known greenhouse business operators in the Carpinteria Valley, have stated that they would not start a new greenhouse business in 2006. High land costs, construction and material costs, and energy and labor costs simply cannot compete with the flowers, fruits and vegetables grown in South America.

In addition, greenhouse agriculture requires extensive day laborer support. Trucking use is heavy, and will likely cause transportation congestion and safety complaints, as experienced in Carpinteria.

Strawberries

In 2004, the cost of producing an acre of strawberries on the Oxnard Plain of Ventura County was approximately $30,000 per acre.[38]

Strawberries require fertile, flat, well-drained soil, such as the deep, flat, alluvial soils where they are currently planted throughout the south coast. Strawberries also require large labor inputs, including migrant labor. Finally, strawberries would require large inputs of fumigants and pesticides unless the soil is prepared to support organic management; these chemical inputs are not suitable for use in an area adjacent to a stream and a large residential development.

Livestock and Poultry

The Parcel is too small to support the profitable raising of large livestock (cow/calf, steer finishing, etc.).

The Parcel, with suitable investment, could support the production of rabbits, hogs, fryer chickens, turkeys and/or egg production, but at a significant loss as a result of a combination of the following factors:

a. Lack of nearby USDA approved and inspected slaughtering, packaging and shipping facilities;
b. High cost of feed with high caloric content;
c. Inability of parcel to produce significant quantities of feed or forage;
d. Unsuitability of parcel for animal waste treatment and/or disposal; and
e Significant dust, odor and noise conflicts contiguous golf course and subdivision.

[38] *Sample Costs to Produce Strawberries*

H. Externalities

Externalities are costs and/or benefits that are not borne by the producer. The classic textbook example of an externality is a business with a dirty smokestack. By not having to pay the cost to mitigate its pollution, the producer is able to impose unpaid costs on society. The producer realizes reduced manufacturing costs, thereby gaining a competitive advantage over similar businesses which are required to mitigate their pollution. The consumer gets a "bargain" since the cost of environmental degradation is not included in the price paid for the product. The public ultimately pays the external costs of the pollution (health problems, acid rain, man-made climate impacts, etc.).

Externalities for the subject Parcel include dust, noise, pesticide drift, night lighting, aerial spraying, and the possible transport of equipment and labor to and from the site. If animals were raised on the property, residential neighbors and commercial businesses (i.e., the nearby golf course) would have to deal with the noise and odor, which accompany animal agriculture.

Despite "Right to Farm" ordinances, urban/rural conflicts are not uncommon. If an owner or renter were to actively farm this Parcel, there would undoubtedly be amenity costs to the neighborhood that would not be compensated. Although it is difficult to impute a dollar value to these costs, they would be reflected in lower neighborhood land valuations and an increase in stress and neighborhood conflict.

I. Agricultural Viability Conclusion

There are no agricultural enterprises which, when undertaken on this Parcel, would yield a consistent return sufficient to cover amortized establishment costs, all cash and non-cash costs, all labor, and provide a reasonable return on the investment (land, water, and equipment). The only apparent option would be to let the land lay fallow since farming losses only aggravate the inability to earn a reasonable return on land valued at $2,500,000 and requiring a net income of approximately $25,000 per acre to break even.

Bibliography

Barlowe, Raleigh. *Land Resource Economics*. 3rd ed. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., (1972).

County of Santa Barbara Environmental Thresholds and Guidelines Manual. Edited by Planning and Development Department. Santa Barbara: Santa Barbara County, Published May 1992, Revised January 1995, October 2001 and October 2002, Replacement pages July 2003.

Daugovish, O., E. Takele, K. M. Klonsky, and R. L. D. Moura. "Sample Costs to Produce Strawberries 2004 South Coast Region." University of California Cooperative Extension (2004).

Fruit Growers Laboratory, Inc. "Soil Survey Double R Ranch." (April 3, 1997).

Klonsky, Karen, L. Tourte, N. Sakovich, C. Ingels, E. Takele, and P. Liningston. "Production Practices and Sample Costs for Fresh Market Organic Lemons: South Coast, 1977." University of California Cooperative Extension, (1997).

Oster, Ken. "Letter to John Bechtold, District Conservationist, USDA-NRCS." (5/9/97):
Storie, "R. E. Handbook of Soil Evaluation." Calif. Agr. Exp. Sta, (1964.)

Storie, R. E. "An Index for Rating Agricultural Value of Soil." Revised in 1937, 1944, and 1953 ed. Calif. Agr. Exp. Sta. Bul. 566, (1933).

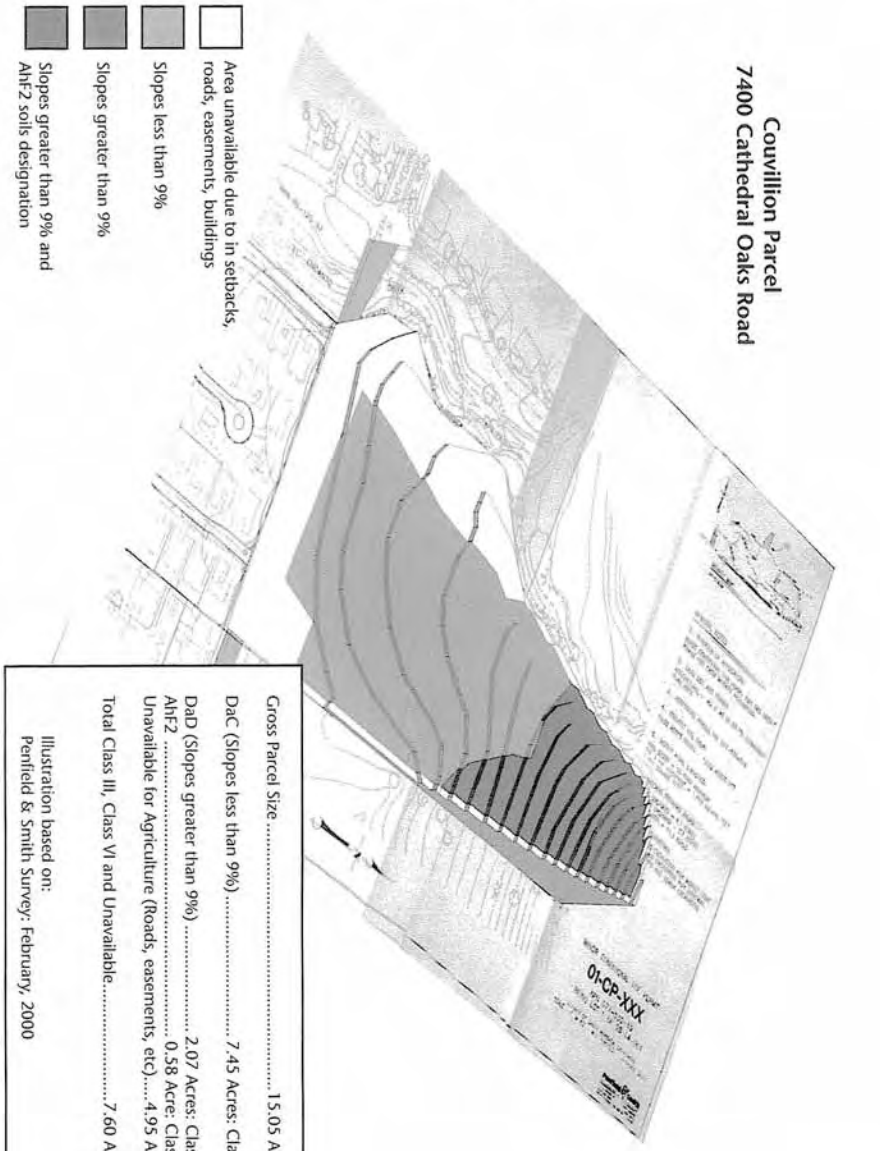
Takele, Etaferahu, B. Faber, and S. Chambers. "Avocado Sample Establishment and Production Costs and Profitability Analysis for Ventura and Santa Barbara Counties." University of California Cooperative Extension and United States Department of Agriculture, (2002).

Takele, E., N. Sakovich, and D. Walton. "Establishment and Production Costs: Lemons, Ventura County, 1997." (1997)

Village Geolabs-Westlake. "Foundation and Soils Engineering, Compacted Fill Report, Trailer Pad, Cathedral Oaks Road, Across From Tract 14,461, Goleta, County of Santa Barbara, California." , (December 12, 2001).

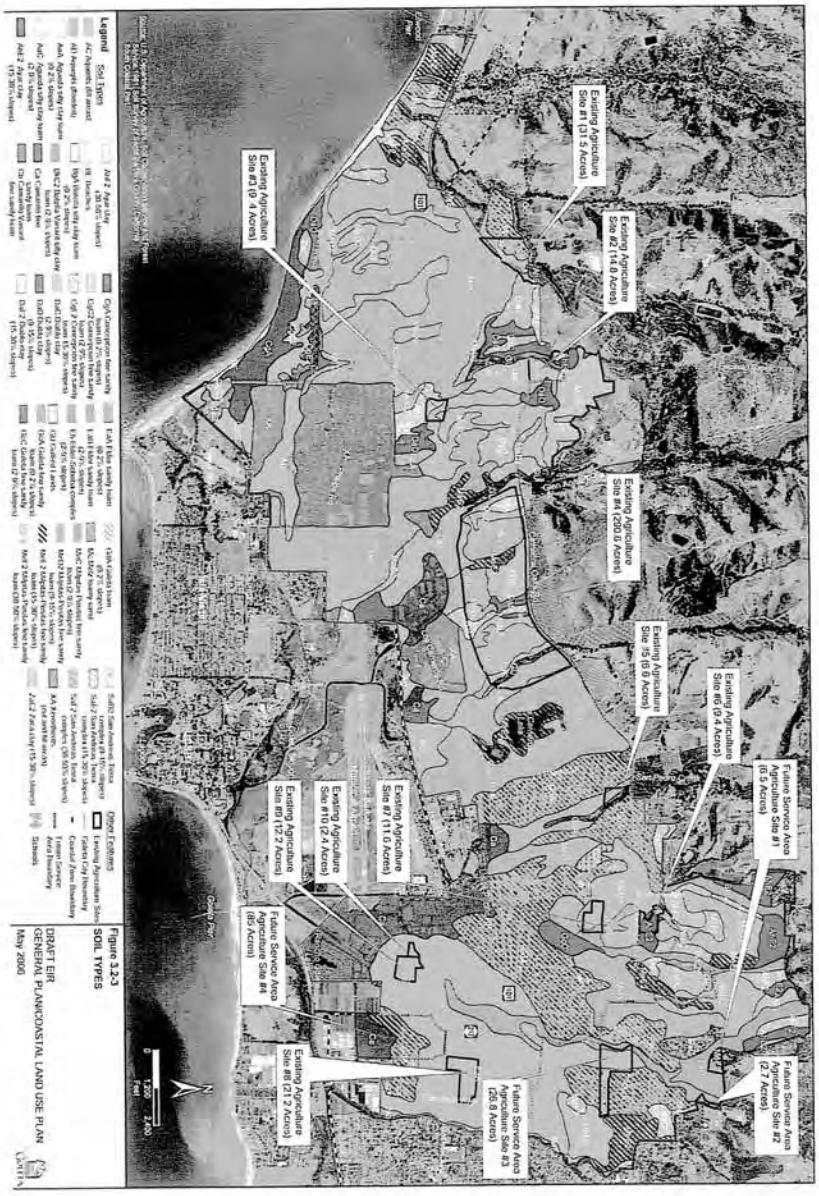
USDA-SCS. *Soil Survey of Santa Barbara County, California South Coastal Part*. USDA-Soil Conservation Service, (1981).

Appendix 1: Available Acreage for Agriculture, Parcel Slopes, and Soil Classes



25 June 2006

Appendix 2: Parcel Soil Types from Goleta DEIR (2006)



Appendix 3: County Agricultural Suitability Threshold Applied to Parcel

Santa Barbara County prepared an Environmental Thresholds and Guidelines Manual to assist in the determination of the level of project review required under the California Environmental Quality Act (CEQA). For agricultural parcels, a number of criteria are evaluated during a preliminary screening of a project's agricultural impacts, which influence the parcel's agricultural significance. A weighted point system is utilized to assign relative values to particular characteristics of a site's agricultural productivity (e.g. soil type, water supply, etc.). The resulting score is then used by the County as a means to assess the impact of maintaining or converting agricultural lands.

The threshold approach is particularly useful because it looks at the parcel as a multi-determined whole, and assesses the effects that multiple factors have on the suitability of a site for long-term agricultural production, rather than a single factor alone. For example, a smaller parcel that is not part of a larger operation will score lower than a smaller parcel that is part of a combined farming operation.

The preceding information in this Report is used to score the Parcel using the County's scoring methodology. Where the reasonable score for a criteria falls within a range, the high and low values of the score are presented. A total score is derived using the sum of upper and lower values for each criteria, which results in a final score ranging from a lower suitability to a higher suitability score.

Santa Barbara County Environmental Thresholds Criteria Applied to Parcel	
Criteria	Score
1. Project Parcel Size: Points Assigned *a. Less than 5 acres 0- 3* *b. 5 acres to less than 10 acres 4- 6* *c. 10 acres to less than 40 acres 7- 8* *d. 40 acres to less than 100 acres 9-10* *e. 100 acres to less than 500 acres 11-12* *f. 500 acres to less than 1000 acres 13-14* *g. 1000 acres or greater 15*	*5*
2. Soil Classification Points Assigned *a. Class I (prime) 14-15* *b. Class II (prime) 11-13* *c. Class III 8-10* *d. Class IV 6- 7* *e. Class V 1- 5* *f. Class VI 1- 5* *g. Class VII 1- 5* *h. Class VIII 0*	*8-11*
3. Water Availability Points Assigned *a. Land has an adequate Water Supply from on/off site sources suitable for crops or grazing. 12-15* *b. Land has water, but may be marginal in quantity or quality suitable for crops or grazing. 8-11* *c. Land does not have developed water supply but an adequate supply is potentially available. 3-7* *d. Land does not have developed water and potential sources are of poor quality/quantity. 0-2*	*3-7*

Santa Barbara County Environmental Thresholds Criteria Applied to Parcel	
Criteria	Score
4. Agricultural Suitability Points Assigned *Crops* *a. Highly suitable for irrigated grain, truck and field, orchard, or vineyard crops. 8-10* *b. Highly suitable for irrigated ornamentals, pasture, alfalfa, or dry farming. 6- 8* *c. Moderately suitable for irrigated crops, orchard, ornamentals or dry farming. 4- 5* *d. Low suitability for irrigated crops, orchard, ornamentals or dry farming. 1- 3* *e. Unsuitable for crop production because of soil capabilities, environmental constraints, etc. 0* *Grazing* *f. Highly suitable for pasture or range. 6-10* *g. Moderately suitable for pasture or range. 3- 5* *h. Low suitability for pasture or range. 1- 2* *i. Unsuitable for pasture or range. 0*	*1-5* *3-5*
5. Existing and Historic Land Use Points Assigned *a. In active agricultural production. 5* *b. In maintained range/pasture. 5* *c. Unmaintained, but productive within last ten years 3-5* *d. Vacant land: fallow or never planted with range of suitabilities of agricultural potential. 1-3* *e. Substantial urban or agricultural industrial development on site. 0*	*1-3*
6. Comprehensive Plan Designation Points Assigned *a. A-II 5* *b. A-I 4* *c. MA 3-4* *d. Existing public/private open space or rec. 3-4* *e. Proposed public/private open space or rec. 3-4* *f. Open lands 3-4* *g. Rural residential 40-100 acres 3-4* *h. Residential Ranchette 5-20 acres 2* *i. Residential 5 acres or less 0* *j. Commercial, Industrial, Community Facility 0*	*5*
7. Adjacent Land Uses Points Applied *a. Surrounded by agricultural operations or open space in a region with adequate support uses. 9-10* *b. Surrounded by agricultural operations or open space in a region without adequate agricultural support uses. 7-8* *c. Partially surrounded by agriculture/open space with some urban uses adjacent, in a region with adequate agricultural support uses. 7-8* *d. Partially surrounded by agriculture/open space with some urban uses adjacent, in a region without adequate agricultural support uses. 3-6* *e. Immediately surrounded by urban uses, no buffers. 0-2*	*7-8*
8. Agricultural Preserve Potential Points Applied *a. Can qualify for prime agricultural preserve by itself, or is in a preserve. 5-7* *b. Can qualify for non-prime agricultural preserve by itself. 2-4* *c. Can qualify for prime agricultural preserve with adjacent parcels. 3-4* *d. Can qualify for non-prime agricultural preserve with adjacent parcels. 1-3* *e. Cannot qualify. 0*	*0*

Santa Barbara County Environmental Thresholds Criteria Applied to Parcel	
Criteria	Score
9. Bonus Points for Combined Farming Operations Points Applied *a. Provides a significant component of a combined farming operation. 5* *b. Provides an important component of a combined farming operation. 3* *c. Provides a small component of a combined farming operation. 1* *d. No combined operation 0*	*0*

The low water availability score reflects the Parcel's loss of its agricultural water meter once avocado production ceased. In March 1, 2001, the Goleta Water District notified the property owner of its determination that water to the property was not being used for agricultural purposes (at least 3 acres in agricultural production) during the preceding year, and so the account was reclassified to a regular urban rate. There is presently a residential meter on the site.

The Parcel's total score ranges between 33 and 49 (giving a range where the scoring becomes subjective). This is significantly less than the score of 60 which the County uses to screen for agricultural suitability.[1] Therefore, Santa Barbara County's methodology ranks the parcel well below the threshold value, which indicates that conversion to another use would be less than significant.

[1] Total possible points = 97.

Appendix 4: Parcel Soil Survey Performed by Fruit Growers Laboratory, Inc.

FRUIT GROWERS LABORATORY, INC.

ANALYTICAL CHEMISTS

April 3, 1997
Lab No. SP 702252

Price, Postel & Parma LLP
c/o C. E. Wullbrandt
200 East Camarillo Street
Santa Barbara, CA 93101-2190

Gentlemen:

RE: SOIL SURVEY - DOUBLE R RANCH

A soil survey was performed on March 30, 1997 for the Double R Ranch property. The parcel is approximately 20 acres in size and is located at the end of Cathedral Oaks Road, west of Glen Annie Road in Goleta, California. The main purpose was to determine whether or not the soils are "Prime Agricultural Soils". Eleven soil survey sites were chosen for examination (Figure 1) A USDA map of the site is also included (Figure 2).

At each site, a 60 inch deep trench was dug with a backhoe. Pictures were taken (Appendix A) and field sheets prepared for each site (Appendix B). A total of 43 soil samples were collected and returned to the laboratory for analyses. A summary soil survey report is provided on pages 1 - 3. Soil analysis reports have been supplied and available as Appendix C.

Soil Physical Characteristics

The physical structure and profile descriptions vary slightly from site to site. The surface soils or A horizon soils are mostly 12 to 24 inches thick, dark clay to clay loam soils with good organic matter content. The surface soils have very slow water infiltration with impaired drainage. The surface soils are relatively shallow and overlay very compact subsoils.

The second horizon or B horizon soils are located between the surface A horizon and the C horizon, are very poorly developed, more closely resemble the C horizon, and vary in thickness from 18 to 48 inches. Most of the soils located in this zone are clay soils having very compact layers with generally poor soil structure which results in poor water percolation.

At a depth varying anywhere from 36-60 inches is the third zone or C horizon, which consists mostly of very compact clay soils. Groundwater was not found to be present in the top five feet of soil. The general direction of flow is from east to west towards the ocean.

1

Corporate Offices & Laboratory
PO Box 272 / 853 Corporation Street
Santa Paula, CA 93061-0272
TEL: 805/659-0910
FAX: 805/525-4172

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: 209/942-0181
FAX: 209/942-0423

Field Office
Visalia, CA
TEL: 209/734-9473
FAX: 209/734-8435
Mobile: 209/737-2399

Appendix 4: Continued

The Double R Ranch soils have two related physical problems: (1) Slow or restricted soil drainage causing an accumulation of salts and sodium, and (2) High water holding capacity with limited pore space which restricts plant growth and limits farm operations.

Soil Chemical Characteristics

The surface (A horizon) soils have low levels of Nitrate-Nitrogen, Phosphorus, Soluble Potassium, Soluble Calcium, Soluble Magnesium and Zinc. The average depth is approximately 12-18 inches. Accumulations of undesirable elements such as sodium, chloride and salts are not a problem in this upper layer. Soil pH levels are generally near neutral.

The (B horizon) subsoils have similar chemical characteristics. They have less organic matter, are more compact, have very slow permeability rates and show higher accumulations of salts and sodium. The sodium adsorption ratio levels are slightly higher in many of these subsoils indicating that the ratio of sodium to calcium and magnesium is such that would indicate a continual degradation of the soil structure and drainage over time. The percolation of clay colloidal particles and sodium into this zone has created the higher water-logging potential in these soils. The pH levels are near neutral.

The majority of the subsurface horizon (C horizon) also have similar chemical characteristics. These soils generally have even slightly higher accumulations of sodium and salts than the horizons above. Soil structure is more compact and drainage more restricted. The pH of these subsoils are near neutral.

Prime Soils Analysis

After reviewing the soils physical and chemical data, I do not believe that these soils are considered prime agricultural soils. Water percolation or drainage is restricted in most of the profiles due to heavy soil texture with poor soil structure and compaction problems. This in-depth soil survey has provided useful information as to the severity of water-logging potential and restricted soil drainage. For this reason, this places most of these soils in the Capability Class III category. The Storie Index is somewhere between 10 - 20 percent (with or without irrigation) according to the Soil Conservation Service classification and would place these soils in Capability Classes III, IV and V. It is our opinion that these are mostly Class III and IV soils having severe limitations that reduce the choice of plants. These soils also require very careful management and have other characteristics that limit their use for agriculture.

2

Appendix 4: Continued

The USDA "Soil Conservation Service" Capability and Storie Index ratings for Prime Soils and Non-Prime Soils are located on pages 4 and 5. On page 6 are descriptions of the criteria used by the Soil Conservation Service for classifying "Prime Agricultural Soils"

Soils - Agricultural Suitability

There are many factors that affect the farmability of this site and many and many factors that influence the agricultural viability of this land

These soils have a severe avocado root rot potential. Six samples were collected on March 31, 1997 and analyzed for avocado root rot (Appendix D). Three of the six samples tested positive for avocado root rot. This is confirmation that root rot is present and causing considerable problems at this time. These soils (with limited drainage and high water holding capacity) have physical properties that are conductive to the growth of many soil borne plant pathogens, specifically phytophthora and pythium species. These disease organisms affect many crops. Soils such as these frequently require the use of soil fumigants to control phytophthora and pythium which are not compatible with residential uses. The adjacent school should be of major concern in this regard as well as for other pesticide use that may be needed to crop this site.

Tillage in these soils is very difficult and should only be performed when the soils have acceptable moisture levels. If the soils are tilled or harvested when they are overly wet, soil compaction and plowpan layers will likely result increasing pre-existing problems. In order to avoid soil compaction problems, crops should be grown only in the late spring through the fall period.

The above mentioned limitations or constraints limit these soils to the growing of dryland grains or forage as rangeland. These soils are not suitable for growing tree crops because of compact, overly saturated subsoil conditions. These soils are even somewhat poorly suited for pasture or rangeland because increased soil compaction will result.

If you have any questions, please call me at (805) 659-0910.

Very truly yours,
FRUIT GROWERS LABORATORY, INC.

Darrell H. Nelson
Agronomist

DHN:md

3

Appendix 4: Continued

FRUIT GROWERS LABORATORY, INC.

ANALYTICAL CHEMISTS

CAPABILITY UNITS

The following lists the capability classes as defined by the U.S.D.A. Soil Survey, Santa Cruz County, California, August, 1990.

CLASS	
Class I	soils have few limitations that restrict their use.
Class II	soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.
Class III	soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.
Class IV	soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
Class V	soils are not likely to erode but have other limitations, impractical to remove, that limit their use.
Class VI	soils have severe limitations that make them generally unsuited to cultivation.
Class VII	soils have severe limitations that make them unsuited for cultivation.
Class VIII	soils and landforms have limitations that preclude their use for commercial crop production.

4

Corporate Offices & Laboratory
PO Box 272 / 853 Corporation Street
Santa Paula, CA 93061-0272
TEL: 805/659-0910
FAX: 805/525-4172

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: 209/942-0181
FAX: 209/942-0423

Field Office
Visalia, CA
TEL: 209/734-9473
FAX: 209/734-8435
Mobile: 209/737-2399

Appendix 4: Continued

FRUIT GROWERS LABORATORY, INC.

ANALYTICAL CHEMISTS

STORIE INDEX

The Storie Index rating indicates by numerical rating the relative degree of suitability, or value, of a soil for general intensive farming (II). The rating is based on soil characteristics only and is obtained by evaluating such factors as depth, texture of the surface layer, density of the subsoil, drainage, alkali content, and relief. Other factors, such as the availability of water for irrigation, climate, and the distance to markets, any one of which might determine the desirability of growing certain plants in a given area, are not considered. The index, therefore, cannot be considered an index for land valuation.

The four general factors considered in the index rating are (A) the characteristics of the soil profile and soil depth, (B) the texture of the surface soil, (C) the slope, and (X) other factors, such as drainage, alkali, and erosion. Each of these four factors is evaluated on the basis of 100 percent. A rating of 100 percent expresses the most favorable, or ideal condition, and lower percentage ratings are given for conditions that are less favorable for crop production.

The index rating for a soil is obtained by multiplying the four factors, A, B, C, and X. Thus, any one factor may dominate or control the final rating. For example, a soil may have an excellent profile justifying a rating of 100 percent for factor A, excellent surface soil conditions justifying 100 percent for factor B, a smooth, nearly level surface justifying 100 percent for factor C, but a high accumulation of salts or alkali that would give a rating of 10 percent for factor X. Multiplying these four ratings gives an index rating of 10 for this soil. The high accumulation of salts would dominate the quality of the soil, render it unproductive for crops, and justify a low index rating of 10.

Soils are placed in grades according to their suitability for general intensive farming as shown by their Storie index ratings. The six grades and their range in index ratings are:

Grade 1----------80 to 100
Grade 2----------60 to 80
Grade 3----------40 to 60
Grade 4----------20 to 40
Grade 5----------10 to 20
Grade 6----------less than 10

Soils in grade 1 are excellent, or well suited to general intensive farming. Grade 2 soils are good and also well suited to farming but are not so desirable as soils in grade 1. Grade 3 soils are fairly well suited, grade 4 soils are poorly suited, and grade 5 soils are very poorly suited. Grade 6 consists of soils and land types that are not suited to farming.

The Storie index rating for each soil is given in the "Guide to Mapping Units" at the back of this survey.

5

Corporate Offices & Laboratory
PO Box 272 / 853 Corporation Street
Santa Paula, CA 93061-0272
TEL: 805-659-0910
FAX: 805-525-4172

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: 209/942-0181
FAX: 209/942-0423

Field Office
Visalia, CA
TEL: 209/734-9473
FAX: 209/734-8435
Mobile: 209/737-2359

Appendix 5: NRCS Critique of Flower Growers Laboratory Report

USDA United States Department of Agriculture
Natural Resources Conservation Service
65 Main Street, Suite 108
Templeton, CA 93465
(805) 434-0215
(805) 434-0284 (FAX)

5

Subject: Evaluation of Soils on Double R Ranch

Date: May 9, 1997

To: John Bechtold
Santa Maria Service Center

Dear John,

I have reviewed the soils reports for the Double R Ranch and completed an on-site investigation. After accounting for the report by Fruit Growers Lab. dated April 3, 1997, the Land Capability Classification and designation as Prime Farmland are correct as reported in our current Field Office Technical Guide and the Soil Survey of Santa Barbara County, California, South Coastal Part. **Land Capability Classification** is IIe-5, irrigated.

The Diablo soil has **clayey textures and slow permeability**. The clayey texture makes the Land Capability Class II at best. (USDA-NRCS, 1992) To be in Land Capability Class III the permeability needs to be very slow.

Mr. Darrell Nelson, reports to me that Fruit Growers Lab. compacts soil samples before measuring permeability in a permeameter. This method for permeability does not meet the criteria from the National Soil Survey Handbook given in the next paragraph. Since it reduces porosity, I expect the Fruit Growers Lab. results will give lower values than through a core of natural soil fabric.

"Measured values apply to saturated hydraulic conductivity, Measurements are made on cores of natural soil fabric. A low head of water is maintained on the saturated core, and the rate of water flow is measured. Saturated hydraulic conductivity is not constant. It changes with various chemical, physical, and biological processes. It is extremely difficult to saturate a soil with water without trapping some air. Entrapped air bubbles may block pore passages. Temperature changes may cause the flowing water to dissolve or release gas and may also cause a change in volume of the gas phase. Other means, such as the Amoozemeter and double ring infiltrometer cores, permit through passage of large pores, hence higher values are derived. Since measurements are difficult to make and are available for relatively few soils, estimates of permeability are based on soil properties... The soil properties that affect permeability are distribution of pore sizes and pore shapes. Since the pore geometry of a soil is not readily observable or measurable, observable properties related to pore geometry are used to make estimates of permeability. These properties are texture, structure, pore size, and density. In some soils, color relates to organic matter and minerology, which in turn has an effect on structure and porosity. Exhibit 618-9 is a guide to estimate permeability from soil properties. (NSSH, 1996)

The Natural Resources Conservation Service, formerly the Soil Conservation Service, is an agency of the United States Department of Agriculture

AN EQUAL OPPORTUNITY EMPLOYER

Appendix 6: Diablo Soil Series

This soil is used for range. Some areas are mined for diatomaceous earth. Capability unit VIe-1(15); Loamy range site.

CkG—Crow Hill silty clay loam, 50 to 75 percent slopes. This very steep soil is on hills and mountains. Drainageways are normally V-shaped and ridgetops are narrow. The profile of this soil is similar to the one described as representative of the series, but depth to shale is typically 6 to 14 inches shallower.

Included with this soil in mapping are small areas of Santa Lucia and Lopez soils and a soil similar to Crow Hill soil that is moderately alkaline throughout.

Runoff is very rapid, and the hazard of water erosion is very high. The hazard of soil blowing is moderate. Available water capacity is 4 to 6 inches. Effective rooting depth is 20 to 28 inches.

This soil is used for range. Some areas are mined for diatomaceous earth. Capability unit VIIe-1(15); Loamy range site.

Diablo Series

The Diablo series consists of well drained soils on low hills within 3 miles of the coast. The soils formed in soft shale and mudstone. Slope ranges from 2 to 50 percent. Elevation is 50 to 700 feet. Vegetation is annual grasses, forbs, and scattered oaks. Average annual precipitation is 16 to 20 inches, the mean annual air temperature is 60° to 62° F., and the frost free season is 300 to 330 days.

In a representative profile the surface layer is very dark gray clay about 37 inches thick. The next layer is mixed very dark gray and light yellowish brown clay about 13 inches thick. The substratum is light yellowish brown mudstone to a depth of 60 inches and more. Reaction is neutral in the upper part of the surface layer and moderately alkaline below.

Permeability is slow. High shrink-swell potential is a severe limitation for urban development.

These soils are used for orchards, range, and urban development.

Representative profile of Diablo clay, 9 to 15 percent slopes, on a site under annual grasses and forbs, used for range, on Corona Del Mar Ranch, approximately ¼ mile east of ranch headquarters, about 20 feet south from Cathedral Oaks Road:

A11—0 to 30 inches; very dark gray (10YR 3/1) clay, black (10YR 2/1) moist; strong very coarse prismatic structure parting to strong medium and coarse subangular blocky; very hard, very firm, very sticky and very plastic; common very fine roots; few very fine interstitial pores; many fine, medium, and coarse intersecting slickensides; neutral; clear wavy boundary.

A12—30 to 37 inches; very dark gray (10YR 3/1) clay, black (10YR 2/1) moist; strong coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine interstitial pores; many small and medium intersecting slickensides; very slightly effervescent with disseminated lime and violently effervescent with medium rounded lime occurring in soft masses; moderately alkaline; clear wavy boundary.

AC—37 to 50 inches; very dark gray (10YR 3/1) clay mixed with light yellowish brown (10YR 6/4), black (10YR 2/1) mixed with dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; very few very fine roots; very few interstitial pores; few small and medium intersecting slickensides; slightly effervescent with disseminated lime and violently effervescent with medium rounded lime in soft masses; moderately alkaline; gradual irregular boundary.

Cr—50 to 72 inches; light yellowish brown (10YR 6/4) marly mudstone, dark yellowish brown (10YR 4/4) moist; massive; very few very fine roots; can be dug with handtools with difficulty.

The A horizon is dark gray to very dark gray that has a hue of 10YR. It has typically prismatic structure parting to medium or coarse subangular blocky, but commonly the upper ½ to 1 inch has granular structure. In most places free lime lies at a depth of 20 to 35 inches. The A horizon is 15 to 40 inches thick. Below the A horizon is a mixture of A and C material caused by soil material of the A horizon falling into deep cracks. The AC horizon has colors of the A horizon with light yellowish brown in a hue of 10YR or olive brown in a hue of 2.5Y in the C horizon. Structure is medium or strong subangular blocky. This horizon contains both disseminated and soft masses of lime. The Cr horizon is typically soft shale or mudstone, and few roots are able to penetrate. In most places, it is light yellowish brown or olive brown.

DaC—Diablo clay, 2 to 9 percent slopes. This gently sloping to moderately sloping soil is on low terrace-like hills. Included in mapping are areas of Ayar, Zaca, Milpitas, and Positas soils.

Runoff is medium, and the hazard of erosion is slight. Available water capacity is 6 to 11.5 inches, and effective rooting depth is 45 to 60 inches.

This soil is used for range, lemons, avocados, and urban development. Capability unit IIe-5(19,15); Clayey range site.

DaD—Diablo clay, 9 to 15 percent slopes. This rolling soil is on low hills and broad ridgetops. It has the profile described as representative of the series. Included in mapping are small areas of Ayar, Zaca, Milpitas, and Positas soils.

Runoff is medium, and the hazard of erosion is moderate. Available water capacity is about 6 to 11.5 inches. Effective rooting depth is 45 to 60 inches.

This soil is used for range, lemons, and urban development. Capability unit IIIe-5(19,15); Clayey range site.

DaE2—Diablo clay, 15 to 30 percent slopes, eroded. This moderately steep soil is on low foothills. It has a profile similar to the one described as representative of the series, but the color of the surface layer is

Appendix 6: Diablo Series Continued

slightly lighter and is typically dark gray. Depth to shale or mudstone is 5 to 10 inches less because of erosion from past cultivation. Included in mapping are small areas of Zaca, Ayar, and Santa Lucia soils and areas of soils that are less than 40 inches thick over mudstone because of erosion.

Runoff is rapid, and the hazard of erosion is high. Available water capacity is 5.5 to 10.5 inches. Effective rooting depth is 40 to 55 inches.

This soil is mainly used for range. Small areas are used for lemons. Capability unit IVe–5(19,15); Clayey range site.

DaF2—Diablo clay, 30 to 50 percent slopes, eroded. This steep soil is on rolling foothills. It has a profile similar to the one described as representative of the series, but colors of the surface layer tend to be slightly lighter, usually dark gray. Depth to shale or mudstone is 5 to 15 inches less due to past cultivation and overgrazing. Included in mapping are small areas of Zaca, Ayar, and Santa Lucia soils and soils that are less than 40 inches thick over bedrock.

Runoff is rapid, and the hazard of erosion is high. Available water capacity is 5.5 to 9.5 inches. Effective rooting depth is 40 to 50 inches. This soil is used for range. Capability unit VIe–1(19,15); Clayey range site.

Dune Land

DU—Dune Land consists of hummocks, mounds, and hills of loose wind-deposited marine sand in scattered areas along the coast of the Pacific Ocean. Elevation ranges from 10 to 100 feet. Most areas are active and shifting. Within the soil are areas that are stabilized by sagebrush and dune grass. The soil material has no profile development and consists of loose sand. This land has no agricultural value but is used for recreation. Shifting dunes need to be stabilized by vegetation to prevent further movement. Capability unit VIIIe–1(19,15).

Elder Series

The Elder series consists of well drained soils on alluvial fans and in narrow valleys. The soils formed in stratified alluvium. Slope ranges from 0 to 9 percent. Elevation is 30 to 400 feet. Vegetation is annual grasses, forbs, and scattered oak trees. Average annual precipitation is 15 to 17 inches, mean annual air temperature is 60° to 62° F., and the frost free season is 310 to 330 days.

In a representative profile the surface layer is dark grayish brown sandy loam about 24 inches thick. The underlying material is stratified dark grayish brown, yellowish brown, brown, and reddish brown loamy sand, sandy loam, fine sandy loam, loam, and silty clay loam to a depth of 60 inches or more. Reaction is neutral in the surface layer and mildly alkaline and moderately alkaline in the underlying material. Free lime lies at a depth of about 38 inches.

Permeability is moderate. Available water capacity is 6 to 9 inches. Effective rooting depth is more than 60 inches.

These soils are used for orchards, field and row crops, and urban development.

Representative profile of Elder sandy loam, 0 to 2 percent slopes, on a formerly cultivated site under weedy cover, about 540 feet west of Craven Lane and 180 feet south of Carpinteria Cemetery, approximately 1.5 miles northwest of Carpinteria:

Ap1—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure, slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine and fine interstitial pores; neutral; abrupt smooth boundary.

Ap2—5 to 11 inches; dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores and common very fine tubular pores; neutral; clear smooth boundary.

A13—11 to 24 inches; dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial and tubular pores; neutral; clear wavy boundary.

C1—24 to 30 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial and tubular pores; mildly alkaline; abrupt wavy boundary.

C2—30 to 38 inches; reddish brown (5YR 4/3) coarse loamy sand with small pockets of fine gravel, dark reddish brown (5YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial and common very fine tubular pores; mildly alkaline; abrupt wavy boundary.

C3ca—38 to 53 inches; alternate colors of reddish brown (10YR 5/3, 5/4) and brown (7.5YR 5/4) layers of loam, sandy loam, fine sandy loam, and loamy sand, dark reddish brown (5YR 3/2, 3/4) and dark brown (7.5YR 3/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic loamy sand layers and hard, friable, sticky and plastic finer layers; few very fine roots; many very fine and fine interstitial and tubular pores; strongly effervescent with disseminated lime and in fine irregular filaments and threads; moderately alkaline; abrupt smooth boundary.

C4ca—53 to 72 inches; mixed colors of dark grayish brown and brown (10YR 4/2, 5/3) and reddish brown (5YR 5/4) silty clay loam with several thin 1 to 2 inch layers of yellowish brown (10YR 5/6) loamy sand, dark brown (10YR 3/3) and dark

Appendix 7: Soil Capability Units

flowers, and limited truck crops. Some areas are used for grazing, and large parts are under urban use.

Land Resource Area 20.—This area is in the Santa Ynez Mountains. It is a long narrow east to west strip from the Ventura County line to about 2 miles west of Gaviota Pass. The area includes brushy, steep to extremely steep, rough and stony mountains. Elevation ranges from about 200 feet to 4,700 feet.

In summer the climate is warm and dry. Coastal fog and low clouds, and marine breezes keep the area cooler than other interior mountains in resource area 20. Rainfall ranges from about 18 to 30 inches most of which falls in winter and in spring. The frost free season is 250 to 300 days.

It is assumed that water for irrigation is not available.

Nearly all of the area consists of Maymen soils or Rock outcrop. It is used for watershed, recreation, and limited scenic building sites.

Management by capability units

Utilization of crop residue, minimum tillage, cover crops, and fertilization are common management practices in this area. Disking or plowing under crop residue provides organic matter and reduces soil loss from erosion. The addition of organic matter to the soil increases fertility, aeration, and moisture penetration, and maintains or improves soil structure. Minimum tillage helps maintain soil structure and reduces compaction. Chemical weed control reduces the amount of tillage needed. All tillage should be done when moisture conditions are such that compaction can be kept to a minimum. Well designed access roads that minimize travel over the soil help in reducing compaction. Cover crops are effective in protecting and improving cropland and orchards during the winter rains. Cover crops utilized as green manure also add organic matter to the soil. Fertilization is generally needed to maintain or increase soil productivity. The kinds and amounts of fertilizers vary according to the crops and soil.

In the following pages, the capability units in this survey area are described and suggestions for their use and management are given. Some soils are in more than one resource area and are in more than one capability unit. Changes of conditions, such as availability of water for irrigation, may change the capability of a mapping unit. The soil series names are mentioned in each capability unit, but this does not mean that all mapping units in the series are in that particular unit. The capability designation for each soil in the survey area is given after each mapping unit description and in the "Guide to Mapping Units". The number of the resource area is added in parenthesis to the class, subclass, and unit designation.

CAPABILITY CLASS I(19)

The soils in this class are very deep and well drained fine sandy loams, loams, and silty clay loams, of Agueda, Ballard, Botella, and Goleta series. They are on fans and in valleys. All of the soils formed in alluvium from mixed sources. Slope ranges from 0 to 2 percent.

Effective rooting depth is more than 60 inches in all the soils. Permeability is moderate or moderately slow, and available water capacity is 7 to 11.5 inches. Runoff is slow to medium, and the hazard of erosion is slight.

These soils are suited to all crops adapted to the area and require only minimum conservation practices. They are used intensively for orchards, urban development, and specialty crops such as strawberries.

These soils can be irrigated by furrows, borders, or sprinklers with little risk of damage from erosion. Rate of water application and length of run vary with soil texture. In leveling, small cuts and fills cause little permanent damage.

Organic matter is rapidly depleted under intense cultivation. It can be supplied by growing a green manure crop and returning all the residue to the soil or by applying barnyard or feedlot manure. Subsoiling is needed periodically to break tillage pans. Intensely cultivated areas require adequate application of fertilizer. Kinds and amounts of fertilizer depend on the crop requirement and soil conditions. Laboratory analysis of soils and plants are usually needed to produce maximum yield. Soil amendments, such as gypsum, are needed occasionally to improve structure and increase water intake.

CAPABILITY UNIT IIe-1(15)

The soils in this unit are very deep and well drained fine sandy loams, clay loams, and silty clay loams of the Agueda, Ballard, Botella, and Goleta series. In places they are shaly. They are on alluvial fans and in small valleys. Slope ranges from 2 to 9 percent.

Permeability is moderate or moderately slow. Available water capacity is 7 to 11.5 inches. Runoff is medium. The hazard of erosion is moderate and is a major concern in management. The lack of irrigation water is also a management concern.

These soils are used for dryfarmed hay and grain, or for range or pasture. Contour farming and leaving stubble on or near the surface help control runoff and erosion. Gully stabilization is needed in eroded areas.

Range management is described under "Clayey Range Site" and "Loamy Range Site."

CAPABILITY UNIT IIe-1(19)

The soils in this unit are very deep, well drained sandy loams, fine sandy loams, clay loams, and silty clay loams of the Agueda, Ballard, Botella, Botella variant, Goleta, and Elder series. They are on alluvial fans and in valleys. Slope ranges from 2 to 9 percent. In some areas the soils are shaly. Permeability is moderate to moderately slow. The available water capacity is 6 to 12 inches.

These soils are suited to and used for all crops adapted to the area. The hazard of erosion is the main limitation. Sheet erosion can be controlled by contour farming, by preserving good soil structure through the use of crop residue or green manure crops, and by not leaving the soil bare during the rainy season.

Irrigation water can be applied by furrows, borders, or sprinklers. The irrigation system needs to provide for control of water and erosion and for disposal of tail water. Deep cuts in Ballard and Botella soils can be avoided because the subsoils are clayey. Deep cuts in other soils cause no permanent damage because the soils are very deep.

Appendix 7: Soil Capability Units (Continued)

CAPABILITY UNIT IIe–5(15)

Diablo clay, 2 to 9 percent slopes, is the only soil in this unit. This well drained soil is on terrace-like positions in the western part of the survey area within one or two miles of the coastline.

This soil is slowly permeable and dries out slowly. It develops wide cracks when dry. Available water capacity is 6 to 11.5 inches, and effective rooting depth is 45 to 60 inches. Runoff is medium, and hazard of erosion is slight. Water for irrigation is not available.

This soil is used for range, dryland hay, and pasture.

This soil is difficult to work and can be worked only within a narrow range of moisture content. If cultivated when dry, it is hard and compact and breaks into clods. When this soil is wet, cultivation is not only difficult but also damages soil structure.

Range management for this soil is described under "Clayey Range Site."

CAPABILITY UNIT IIe–5(19)

Diablo clay, 2 to 9 percent slopes, is the only soil in this unit. This well drained soil is on terrace-like positions within one or two miles of the coastline.

This soil is slowly permeable and dries out slowly. It develops wide cracks when dry. Available water capacity is 6 to 11.5 inches, and effective rooting depth is 45 to 60 inches. Runoff is medium, and the hazard of erosion is slight.

This soil is used for range, lemons, avocados, and urban development. Winter harvest is difficult because the soil dries slowly. It is poorly suited to avocados as the hazard of root rot is high.

Green manure crops improve tilth and build up the supply of organic matter. Deep cuts need to be avoided in leveling because the parent material is undesirable for plant growth.

This soil is difficult to work and can be worked within a narrow range of moisture content. If cultivated when dry, it is hard and compact and breaks into clods. When this soil is wet, cultivation is not only difficult but also damages soil structure.

CAPABILITY UNIT IIe–4(19)

Elder sandy loam, 0 to 2 percent slopes, is the only soil in this unit. It is in valleys adjacent to major streams. Slope is less than 2 percent. Some areas are occasionally overflowed, and channeling and deposition may occur.

Runoff is slow, and the hazard of erosion is slight. Permeability is moderate. Available water capacity is 6 to 9 inches, and effective rooting depth is more than 60 inches.

This soil is suited to all crops adapted to the area. This soil is used for lemons, avocados, row crops, and flowers. Many areas are urban or industrial.

This soil can be irrigated by furrows, borders, or sprinklers. Water needs to be applied with care because the soil is somewhat droughty. Land leveling causes little permanent damage. Protection from overflow is needed in some areas.

Organic matter is rapidly depleted under intense cultivation. It can be supplied by growing a green manure crop and returning all the residue to the soil or by applying barnyard or feedlot manure. Chiseling is needed periodically to break up tillage pans. Intensely cultivated areas require adequate application of fertilizer. Kinds and amounts of fertilizer depend on the crop requirements and soil conditions. Laboratory analysis of soils and plants are generally needed to produce maximum yields.

CAPABILITY UNIT IIe–1(15)

Botella silty clay loam, 0 to 2 percent slopes, is the only soil in this unit. It is in small valleys in the western part of the survey area.

Permeability is moderately slow. Runoff is medium and the hazard of erosion is slight. Available water capacity is 9.5 to 11.5 inches. Effective rooting depth is 60 inches or more. The lack of irrigation water is the limiting factor of this soil.

The soil is used for dryfarm hay and grain and for range or pasture. No special tillage practices are needed for erosion control. Tillage needs to be performed when the soil is not so wet that the structure is destroyed. Crop residues should be returned to the soil to supply organic matter.

Range management is described under "Clayey Range Site."

CAPABILITY UNIT IIIe–1(15)

The soils in this unit are well drained silty clay loams and shaly clay loams of the Agueda, Crow Hill, and Santa Lucia series. Slope ranges from 9 to 15 percent. Agueda soils are more than 60 inches deep, and Crow Hill and Santa Lucia soils are 24 to 40 inches deep to diatomaceous shale.

Runoff is medium, and the hazard of erosion is moderate. Permeability is moderate or moderately slow. The available water capacity is 3.5 to 11 inches.

These soils are suited to small grain or hay. Water for irrigation is not available.

Contour farming and leaving crop residue on the surface help in checking erosion and in supplying organic matter. Gully stabilization is frequently needed to permit safe cultivation on some alluvial fans.

Most previously cultivated Crow Hill areas have been returned to range.

Range management is described under "Loamy Range Site" and "Clayey Range Site."

CAPABILITY UNIT IIIe–1(19)

This unit consists of well drained clay loams, shaly clay loams, and silty clay loams of the Agueda, Botella variant, and Santa Lucia series. Slope ranges from 9 to 15 percent. Agueda and Botella Variant soils are over 60 inches deep to diatomaceous shale.

Runoff is medium, and the hazard of erosion is moderate. Permeability is moderate or moderately slow. Available water capacity is 3.5 to 12 inches, depending upon effective rooting depth.

These soils are suited to close growing crops such as pasture or hay. Orchards, truck crops, or field crops can be grown if erosion can be controlled. Only a small part of this unit is irrigated.

Sprinkler irrigation can be used to avoid deep cuts in levelling. Runoff needs to be controlled so that water does not concentrate and form gullies. Controlling erosion is difficult during winter rains, and cover crops are needed to protect the surface. All tillage should be done across the slope or on the contour.

Appendix 8: Storie Soil-Rating Chart

Storie Soil Index rating=factor A x factor B x factor C x factor X

These factors are used to rate cropland and rangeland.

Factor A -Rating on character of physical profile

I Soils on recent alluvial fans, flood plains, or other secondary deposits having undeveloped profiles 100
- x-shallow phases (on consolidated material), 2 feet deep 50-60
- x-shallow phase (on consolidate material), 3 feet deep 70
- g-extremely gravelly subsoils 80-95
- s-stratified clay subsoils 80-95

II Soils on young alluvial fans, flood plains, or other secondary deposits have slightly developed profiles 95-100
- x-shallow phases (on consolidated material), 2 feet deep 50-60
- x-shallow phases (on consolidated material), 3 feet deep 70
- g-extremely gravelly subsoils 80-95
- s-stratified clay subsoils 80-95

III Soils on older alluvial fans, alluvial plains, or terraces having moderately develop profiles 80-95
- x-shallow phases (on consolidated material), 2 feet deep 40-60
- x-shallow phases (on consolidated material), 3 feet deep 60-70
- g-extremely gravelly subsoils 60-90

IV Soils on older plains or terraces having strongly developed profiles (dense clay subsoils) 40-80

V Soils on older plains or terraces having hardpan subsoil layers: at less than 1 foot 5-20
- at 1 to 2 feet 20-30
- at 2 to 3 feet 30-40
- at 3 to 4 feet 40-50
- at 4 to 6 feet 50-80

VI Soils on older terraces and upland areas having dense clay subsoils resting on moderately consolidated or consolidated material 40-80

VII Soils on upland areas underlain by hard igneous bedrock:
- at less than 1 foot 10-30
- at 1 to 2 feet 30-50
- at 2 to 3 feet 50-70
- at 3 to 4 feet 70-80
- at 4 to 6 feet 80-100
- at more than 6 feet 100

VIII Soils on upland areas underlain by consolidated sedimentary rocks: at less than 1 foot 10-30
- at 1 to 2 feet 30-50
- at 2 to 3 feet 50-70
- at 3 to 4 feet 70-80
- at 4 to 6 feet 80-100
- at more than 6 feet 100

IX Soils on upland areas underlain by softly consolidated material: at less than 1 foot 20-40
- at 1 to 2 feet 40-60
- at 2 to 3 feet 60-80
- at 3 to 4 feet 80-90
- at 4 to 6 feet 90-100
- at more than 6 feet 100

Factor B-Rating on basis of surface texture

Medium textured:
- fine sandy loam 100
- loam 100
- silt loam 100
- sandy loam 95
- silty clay loam, calcareous 95

silty clay loam, noncalcareous	90
clay loam, calcareous	95
clay loam, noncalcareous	85-90
Heavy or fine-textured:	
silty clay, highly calcareous	70-90
silty clay, noncalcareous	60-70
clay, highly calcareous	70-80
clay, noncalcareous	50-70
Light or coarse-textured:	
coarse sandy loam	90
loamy sand	80
very fine sand	80
fine sand	65
sand	60
coarse sand	30-60
Gravelly:	
gravelly fine sandy loam	70-80
gravelly loam	60-80
gravelly silt loam	60-80
gravelly sandy loam	50-70
gravelly clay loam	60-80
gravelly clay	40-70
gravelly sand	20-30
Stony:	
stony fine sandy loam	70-80
stony loam	60-80
stony silt loam	60-80
stony sandy loam	50-70
stony clay loam	60-80
stony clay	40-70
stony sand	10-40

Factor C-Rating on basis of slope

A-Nearly level (0 to 2%)	100
AA-Gently undulating (0 to 2%)	95-100
B-Gently sloping (3 to 8%)	95-100
BB-Undulating (3 to 8%)	85-100
C-Moderately sloping (9-15%)	80-95
CC-Rolling (9 to 15%)	80-95
D-Strongly sloping (16 to 30%)	70-80
DD-Hilly (16 to 30%)	70-80
E-Steep (30 to 45%)	30-50
F-Very steep (45% and over)	5-30

Factor X-Rating of conditions other than those in factors A, B, and C

Drainage:	
well-drained	100
fairly well drained 1/	80-90
moderately waterlogged 2/	40-80
badly waterlogged 3/	10-40
subject to overflow	variable
Alkali: 4/	
alkali-free	100
slightly affected	60-95
moderately affected	30-60
moderately to strongly affected	15-30
strongly affected	5-15

Nutrient (fertility level):	
high	100
fair	95-100
poor	80-95
very poor	60-80
Acidity: according to degree 5/	80-95
Erosion:	
none to slight	100
detrimental deposition	75-95
moderate sheet erosion	80-95
occasional shallow gullies	70-90
moderate sheet erosion with:	
shallow gullies	60-80
deep gullies	10-70
moderate sheet erosion with:	
deep gullies	10-60
severe sheet erosion	50-80
severe sheet erosion with:	
shallow gullies	40-50
deep gullies	10-40
very severe erosion	10-40
moderate wind erosion	80-95
severe wind erosion	30-80
Microrelief:	
smooth	100
channels	60-95
hogwallows	60-95
low hummocks	80-95
high hummocks	20-60
dunes	10-40

Soil Grading

For simplification, six soil grades have been set up in California by combining soils having ranges in index rating as follows:

Grade 1 (excellent): Soils that rate between 80 and 100 percent and which are suitable for a wide range of crops, including alfalfa, orchard, truck, and field crops.

Grade 2 (good): Soils that rate between 60 and 79 percent and which are suitable for most crops Yields are generally good to excellent.

Grade 3 (fair): Soils that rate between 40 to 59 percent and which are generally of fair quality, with less wide range of suitability than grades 1 and 2 Soils in this grade may give good results with certain specialized crops.

Grade 4 (poor): Soils that rate between 20 to 39 percent and which have a narrow range in their agricultural possibilities For example, a few soils in this grade may be good for rice, but not good for many other uses.

Grade 5 (very poor): Soils that rate between 10 and 19 percent are of very limited use except for pasture, because of adverse conditions such as shallowness, roughness, and alkali content.

Grade 6 (nonagricultural): Soils that rate less than 10 percent include, for example, tidelands, riverwash, soils of high alkali content, and steep broken land.

Current terminology:
1/ moderately well drained
2/ somewhat poorly drained
3/ poorly to very poorly drained
4/ salinity/sodicity
5/ pH less than 50

Appendix 9: Parcel History

1970	Parcel zoned residential, similar to surrounding properties. Previous owners receive approval for a 44 unit subdivision from the Santa Barbara County Planning Commission but project is not recorded.
1972	Goleta Water Board halts new development in Goleta by enacting a moratorium on new water lines.
1978	Property is sold to present owner with development plans and residential zoning.
1979	In an effort to revitalize the property, work begins to plant a working avocado orchard. Experimental mounds are used to compensate for severe drainage problems.
1980	County General Plan update converts property from Residential to Agriculture II, allowing intensive agriculture operations.
1980-1992	Owner continues to plant avocados, while residential neighborhoods continue to be developed.
1993	Goleta General Plan maintains Agriculture II zoning. County issues directive to revisit land use designation within ten years.
1994	Glen Annie Golf Course is approved, further complicating parcel's agricultural sustainability. With development surrounding the property, shared farming opportunities, aerial spraying and other agricultural options are out of the question.
1995	Avocado orchard suffers several hardships. Preexisting problems with root rot, poor drainage and soil problems are aggravated by heavy rains, fruit-fly outbreaks, trespassing and vandalism.
1997-2000	Another blow to agricultural viability of the property; County begins Cathedral Oaks road completion project. Owner gives the County an easement through the property and allows excess dirt from road project to be disposed on upper parcel. County returns lower parcel to original residential land use designation and promises to review Agriculture II zoning during the next General Plan update.
1999	Property owner consults with agriculture advisor to determine possible uses for upper parcel based on current zoning, including greenhouses. Lower parcel is sold to Larwin Company. Ranch house, barn and stables relocated to the upper parcel, with extensive landscaping.

Author's Professional Credentials

EDUCATION B.A., with Honors, Stanford University

M.S., University of Minnesota
Major: Agricultural and Applied Economics
Minor: Public Affairs

PROFESSIONAL EXPERIENCE

Legislative Analyst: Minnesota House of Representatives Research Department

Served as professional nonpartisan staff to Agricultural Committee and Regulated Industries Committee.

Prepared oral and written reports, legislation, and amendments for committees and individual legislators. Specialized in the areas of rural development and agricultural policy. Worked closely with Agriculture Department, statewide agricultural organizations, and individual legislators.

Invited presenter at state and national conferences and Continuing Legal Education seminars on agricultural preservation, agricultural taxation, and rural development policy.

Vice President: Northcountry Cooperative Development Fund (NCDF)
President: Northcountry Cooperative Foundation
Chair Northcountry Cooperative Federal Credit Union

NCDF is a cooperative financial intermediary which provides capital to housing, agricultural, commercial and worker cooperatives throughout the Midwest. NCDF also provides technical assistance and support to cooperatives throughout the region. The majority of NCDF's lending supports cooperative housing in urban and rural settings. NCDF has had less than a 0.5% loan loss in 25 years in business... an enviable record not matched by conventional lending institutions.

The Northcountry Cooperative Federal Credit Union provides financial and other resources to NCDF's cooperative members. The credit union's core businesses are mortgage banking and cooperative housing development. It is federally chartered and regulated. Its deposits are guaranteed.

The Cooperative Foundation is a 501(c)(3) which serves as a conduit for grants from private and public sources. Public funders include the USDA, the Minnesota Housing Finance Agency. Private funding sources include foundations, religious orders, and individuals. The Foundation's core business is providing the financing to enable rural mobile home renters to become cooperative owners of their parks.

Director Minnesota Community Energy Program
Minnesota Department of Energy and Economic Development

Directed state-wide program to establish locally developed energy conservation projects in Minnesota communities.

Organized the participation of energy industry representatives, mayors, city council members, county commissioners, local government staff, and citizens in the establishment of Community Energy Councils in over 30 Minnesota cities and counties.

Response to Comment No. B.10-1

The commentator objects to the agriculture land use designation for the Shelby Family Partnership Property (APN 77-530-19). The term agriculture is defined in Section 3.2 of the DEIR, and the Shelby Family Partnership Property clearly meets the criteria established by the definition. CEQA requires that the EIR impact analysis address the impacts caused by the project (buildout of the General Plan) in relation to the existing conditions on the ground, not on land use designation disputes. Therefore, the analysis correctly evaluates the impacts of the proposed plan buildout, including the agriculture designation proposed on the subject property.

Response to Comment No. B.10-2

The commentator has indicated that the land and soil classifications should be reclassified. The EIR relies upon published data and existing land and soil classifications to determine impacts. The discussion of impacts in the EIR relative to the significance criteria is adequate.

Response to Comment No. B.10-3

See response to comment B.4-11.

Response to Comment No. B.10-4

See response to comment B.4-68.

Response to Comment No. B.10-5

See response to comment B.8-3.

Response to Comment No. B.10-6

See responses to comments B.6-31 through 36.

Response to Comment No. B.10-7

The commentator has requested the development of an alternative that would preserve currently farmed agricultural parcels. The City believes that such an alternative would effectively constrain the City's ability to designate land for future development and meet housing objectives, and would therefore not meet the basic criteria for alternatives selection identified in CEQA Guidelines section 15126.6(c), which states:

> The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects.

Response to Comment No. B.10-8

The commentator alleges that a discussion of indirect project effects is missing from the DEIR. Indirect impacts associated with implementation of the GP/CLUP are discussed, as applicable, in the topical sections of the EIR impact analysis, Sections 3.1 through 3.13. For example, Impact 3.8-1 (in DEIR Section 3.8, Population and Housing), states that, "Although population growth would not in itself create physical effects to the environment, it could result in secondary

impacts…" CEQA Section 15126.2 does not require that the discussion of indirect impacts be formatted or presented as a standalone section in the DEIR.

Response to Comment No. B.10-9

See response to comment B.2-3.

Response to Comment No. B.10-10

See response to comment B.4-18.

Response to Comment No. B.10-11

The commentator is unclear how key public viewpoints were chosen or applied, questions the applicability of unnamed viewpoint designations identified in Figure 3.1-1, and suggests that certain viewpoints were chosen towards or from private lands.

Key public viewpoints were chosen by the City based upon topography, vegetation, development, and viewable scenic resources. The movement of motorists may render some views intermittent along scenic corridors, but does not negate their importance as a key public viewpoint. The commentator provides no specific information regarding the location of views considered to be questionable, sufficient to permit a more-detailed response. Regarding public vs. private lands (e.g., Bishop Ranch), northerly views from Cathedral Oaks Road and US-101 encompass the foothills and Santa Ynez Mountains, which are public viewing amenities.

Response to Comment No. B.10-12

The commentator has requested clarification for the definition of "agriculture" in light of the CEQA definition. "Agriculture" land as used in the General Plan and the EIR is based on the existing land use and the proposed land use designations. The EIR does, however, disclose the existing agricultural conditions with respect to the CEQA definition. Page 3.2-1 includes a discussion of the State Farmland Mapping and Monitoring Program classifications (i.e., prime farmland, farmland of statewide importance, and unique farmland); Table 3.2-1 discusses farmland conversion trends using the CEQA definitions; Pages 3.2-5 through 3.2-9 (inclusive of Table 3.2-2) provides an inventory of existing agricultural land with respect to the CEQA farmland categories; Page 3.2-13 discusses the thresholds of significance used in the analysis apply the CEQA definition of agriculture land; and finally, Table 3.2-3 discusses the impacts to "Important Farmland," which meets the definition of farmland under CEQA. Therefore, the EIR adequately discloses impacts to agriculture.

Response to Comment No. B.10-13

The commentator alleges that the discussion is Section 3.2.1.3 is mislabeled. The commentator is correct that the discussion includes background on areas beyond the City of Goleta boundaries. However, this discussion is provided as a matter of context for the agricultural resources within the City of Goleta. The discussion specific to agricultural lands within the City boundary is provided on Pages 3.2-5 through 3.2-9.

Response to Comment No. B.10-14

The commentator has correctly observed that Figure 3.2-1 and Table 3.2-2 are inconsistent regarding the size of Site #2. The figure and table have been corrected to reflect the net acreage of the parcel, or 13.9 acres, as identified in the zoning assessor parcel maps. In any event, the size of the parcel does not alter the EIR evaluation or conclusion.

Response to Comment No. B.10-15

The commentator has requested clarification regarding Table 3.2-2 and prime and nonprime soils. Figure 3.2-2 uses information from the California Department of Conservation FMMP and correctly presents the available information in the EIR. The City of Goleta has not designated the site as prime farmland, but rather presents what is already designated by the state. Understanding the requirements of the FMMP, the site would have been irrigated within the four years prior to its designation as prime farmland.

Response to Comment No. B.10-16

The commentator asserts that Table 3.2-2 is confusing. Although Table 3.2-2 provides information from various sources, it is an appropriate presentation of the information because the farmland classification is related to soil type and current use. The soils identified on Site #2 consist of prime soils (Class II) and nonprime soils (Classes III and VI). However, the farmland classification of prime farmland has been designated by the state FMMP. The City of Goleta has no influence on how the state classifies the site.

Response to Comment No. B.10-17

The commentator has requested clarification in the discussion of agricultural viability. The discussion regarding agricultural viability has been stricken in the FEIR, since it is not relevant to the impact analysis. The impact analysis is based on conversion of existing agricultural lands that are classified as Important Farmland, as designated by the State Department of Conservation Farmland Mapping and Monitoring program. The agriculture threshold under CEQA relates to physical environmental resources rather than economics, which is a factor of viability. This differentiation is in keeping with CEQA's emphasis on physical environmental impacts and not social or economic impacts (State CEQA Guidelines Section 15131). Economics is considered primarily a planning issue and is not addressed in the EIR.

Response to Comment No. B.10-18

The commentator has alleged that the information in Table 3.2-3 is incorrect for Site #2. The Table has been corrected to reflect the net acreage of the parcel, or 13.9 acres, as identified in the zoning assessor parcel maps. The farmland classification information in Table 3.2-3 is correct based upon available information from State sources. Regardless of whether the soil conditions are currently prime, the site is designated as prime farmland by the State FMMP. In any event, neither the size of the parcel nor the soil classification alters the EIR evaluation or conclusion.

Response to Comment No. B.10-19

The commentator has requested that the EIR contain a discussion of conflicts with agricultural uses and adjacent or nearby unincorporated lands. FEIR Impact 3.2-2 has been revised to include this discussion. See response to comment A.7-3.

Response to Comment No. B.10-20

The commentator has requested that Mitigation Measure 3.2-1 be analyzed in more detail than currently contained in the DEIR. The mitigation measure is presented at a sufficient level of detail for this Program EIR. Implementation of this measure would occur on a site-specific basis during future project-level development.

Response to Comment No. B.10-21

The commentator requests analysis of the potential effects from development associated with farmworker housing. Potential infrastructure impacts resulting from the construction of farmworker housing on agricultural sites and the indirect effects from new population growth due to new agricultural operations are too speculative for this program-level analysis because future agricultural operations and the employment generated from these operations are currently unknown. CEQA does not require analysis of impacts that involves speculation about future activities (see CEQA Guidelines Section 15145).

Response to Comment No. B.10-22

The commentator alleges that the "discussion of potential inconsistencies between Draft General Plan/Coastal Land Use Plan policies and other adopted plans and policies is not complete, as it does not address other applicable local, regional, or statewide plans." References to the Clean Air Plan & Congestion Management Plan have been added to Sections 3.3, "Air Quality," and 3.13, "Transportation and Circulation." References to the Goleta Old Town Revitalization Plan have been included in Section 3.10.2.2.

Response to Comment No. B.10-23

The commentator states an understanding that an updated model was completed after the release of the DEIR. The comment is noted; however, analysis in the DEIR was completed using an updated transportation model and associated traffic analysis that reflected all information presented in the Land Use, Transportation, and other GP/CLUP elements. Further updates to the model have been made for analysis in the FEIR, to reflect revisions made in response to public comments on the DEIR. Updates of the traffic modeling did not reveal any new significant impacts, any worsening of previously identified impacts, or any need for new mitigation measures.

Response to Comment No. B.10-24

The commentator states that the recommended freeway crossings at Ellwood Station and La Patera are not feasible and should not be included in future conditions analysis. See "Response to No Funding Analysis Comment" under the response to Comment No. B.4-56.

Response to Comment No. B.10-25

The commentator indicates that potential future agricultural production at the Shelby site would require additional trips for replacement of poor soil at that location. Typical trip generation for land use at this site is reflected in the travel model. The effect of vehicle circulation on soil conditions is more detailed than the Program-level analysis completed for the GP/CLUP. However, these types of trips would be considered at the Project EIR level prior to the time that the improvements would be implemented, if they are proposed.