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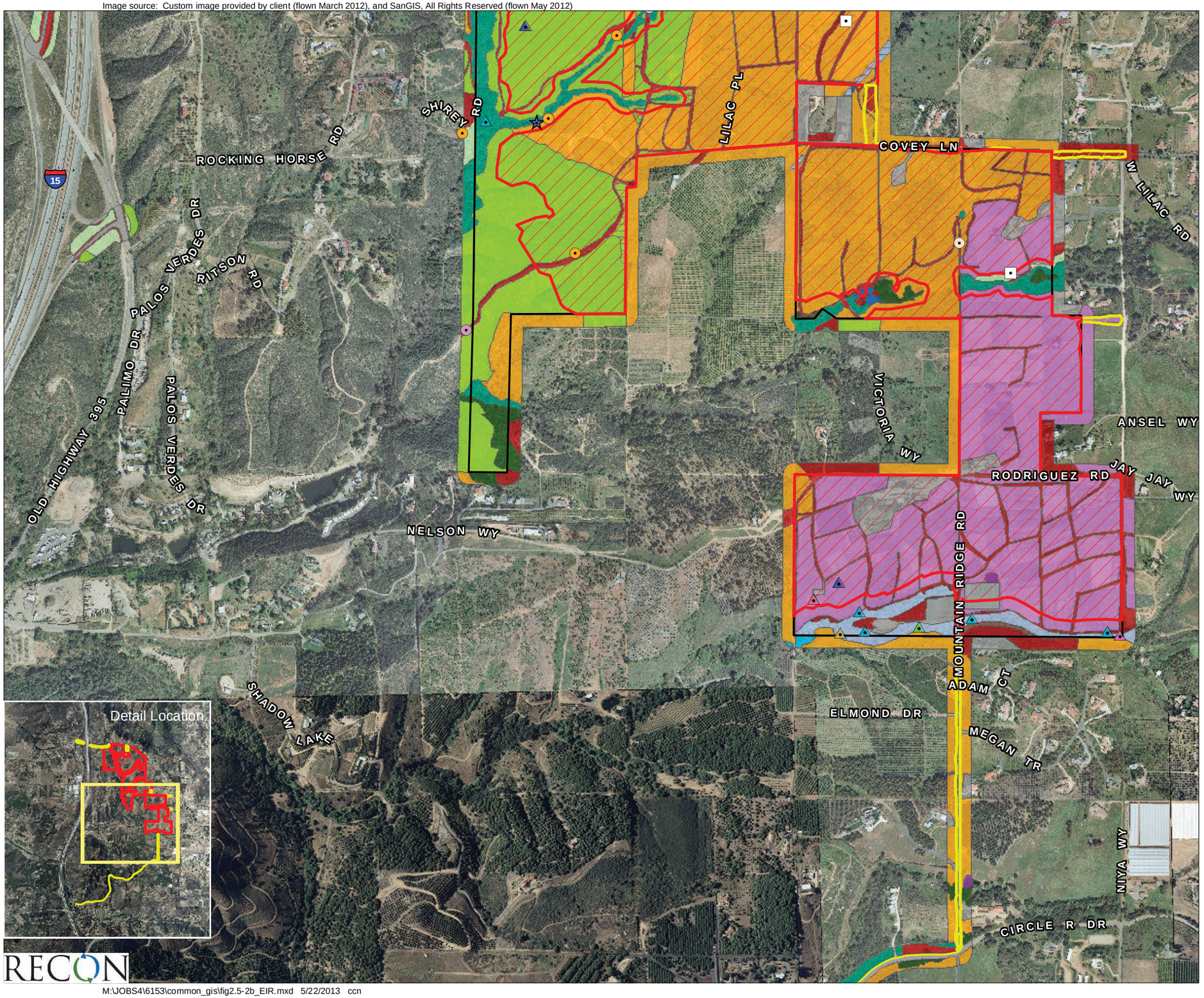

Project Boundary
Project Impacts
Off-site Improvement Areas

Vegetation Communities and Landcover Type

- Coastal Sage Scrub (32520)
- Disturbed Coastal Sage Scrub (32520)
- Coast Live Oak Woodland (71160)
- Coastal/Valley Freshwater Marsh (52410)
- Disturbed Wetland (11200)
- Eucalyptus Woodland (79100)
- Southern Coast Live Oak Riparian Woodland (61310)
- Disturbed Southern Coast Live Oak Riparian Woodland (61310)
- Southern Mixed Chaparral (37120)
- Disturbed Southern Mixed Chaparral (37120)
- Southern Willow Scrub (63320)
- Disturbed Southern Willow Scrub (63320)
- Open Water - Fresh water Agricultue pond (64140)
- Extensive Agriculture - Row Crops
- Orchard (18100)
- Disturbed Habitat (11300)
- Developed (12000)

Sensitive Species Observations

Birds
- Western Bluebird
- Cooper's Hawk
- Yellow-breasted Chat
- Turkey Vulture
- White-tailed Kite
- Yellow Warbler

Reptiles
- Orange-throated Whiptail
- Red Diamond Rattlesnake
- Coast Horned Lizard
- Coastal Western Whiptail

Mammals
- San Diego Blacktailed Jackrabbit

Plants
- Engelmann Oak

0 Feet 800

RECON

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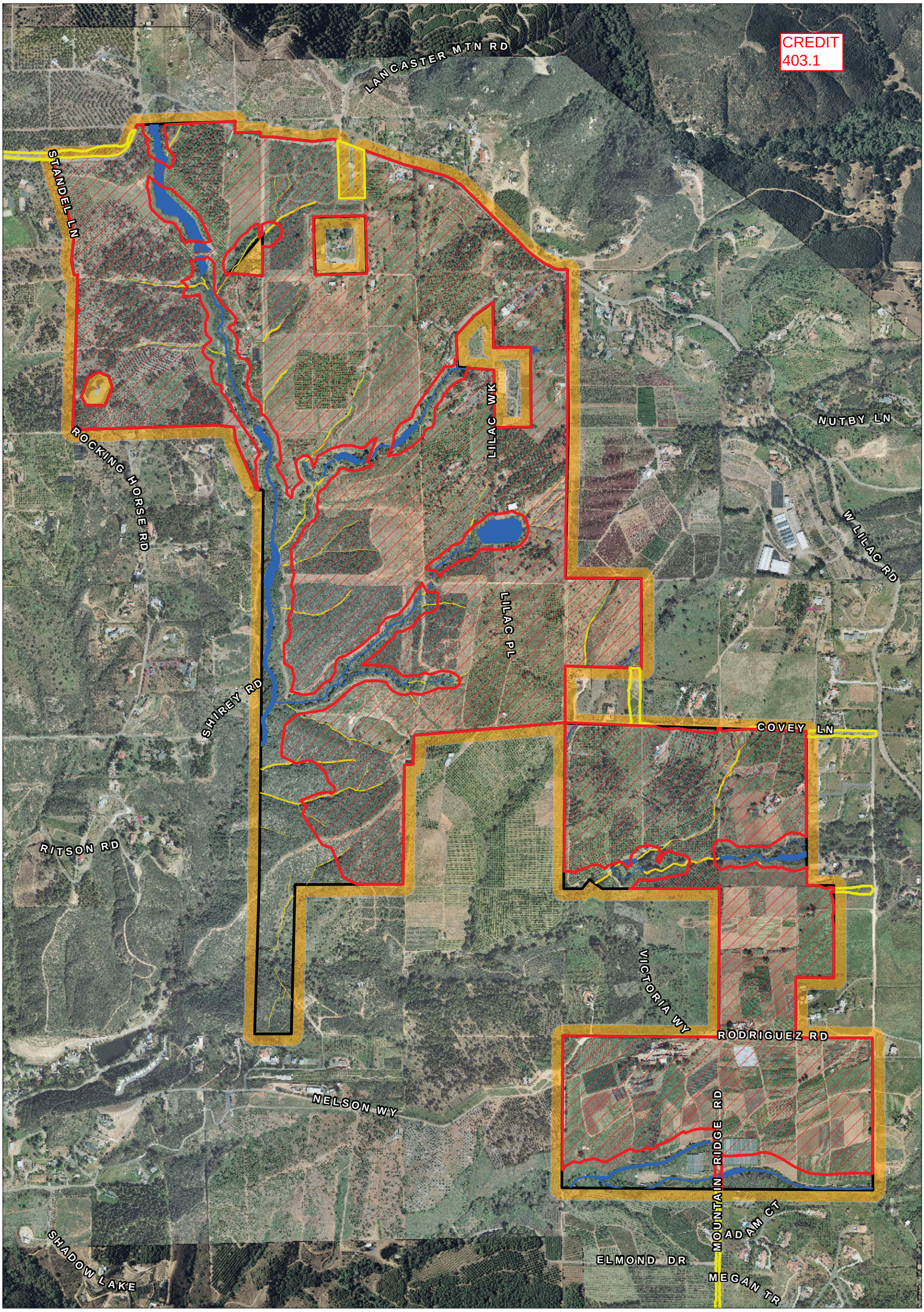
FIGURE 2.5-2b

Vegetation Communities/Land Cover Types and Sensitive Species Locations (Southern Project Area)

Image source: Custom image provided by client (flown March 2012), and SanGIS, All Rights Reserved (flown May 2012)



RECON

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FIGURE 2.5-3a

ACOE Waters of the U.S.

Image source: Custom image provided by client (flown March 2012), and SanGIS, All Rights Reserved (flown May 2012)

CREDIT
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LANCASTER MTN RD
STANDEL LN
ROCKING HORSE RD
SHIREY RD
RITSON RD
LILAC WK
LILAC PL
NUTBY LN
W LILAC RD
COVEY LN
VICTORIA WY
RODRIGUEZ RD
MOUNTAIN RIDGE RD
ADAM CT
MEGAN TR
ELMOND DR
NELSON WY
SHADOW LAKE

0 Feet 800

Project Boundary
100-ft. Survey Area
Project Impacts
Off-site Improvement Areas
Wetland
Streambed

RECON

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FIGURE 2.5-3b
CDFW/RWQCB State Waters

Image source: Custom image provided by client (flown March 2012), and SanGIS, All Rights Reserved (flown May 2012)

CREDIT
403.1

LANCASTER MTN RD
STANDEL LN
ROCKING HORSE RD
SHIREY RD
RITSON RD
LILAC WK
LILAC PL
NUTBY LN
W LILAC RD
COVEY LN
VICTORIA WY
RODRIGUEZ RD
MOUNTAIN RIDGE RD
ADAM CT
ELMOND DR
MEGAN TR
NELSON WY
SHADOW LAKE

0 Feet 800

Project Boundary
100-ft. Survey Area
Project Impacts
Off-site Improvement Areas
County RPO Wetland
County RPO Wetland - Off-site

RECON

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FIGURE 2.5-3c
County of San Diego RPO Wetlands

NGBS Credit:

403.11 Environmentally Sensitive Areas. *Environmentally sensitive areas as follows:*

(1) *Environmentally sensitive areas including steep slopes, prime farmland, critical habitats, and wetlands are avoided as follows:*
(a) < 25 percent of site undeveloped

APPLICANT RESPONSE

Project Site:	608 acres
Biological Openspace:	104.1 acres
Percent undeveloped:	17%

See attached, Specific Plan - Table 1

(2) *Compromised environmentally sensitive areas are mitigated or restored.*

APPLICANT RESPONSE

See attached, Biological Resource Report - Table 8

CREDIT 403.11 (1)

C. Distribution of Land Uses

The following table shows the distribution of the land uses throughout the Community.

Table 1 - Land Use Summary

Land Use	Planning Areas	Net Acreage	Dwelling Units/Square Feet (SF)	Zoning
Single-Family Detached	SFD 1-8	156.9	903	RU
Single-Family Detached - Senior Citizen Community (Age-Restricted Units)	SFS 1-6	76.9	468	RU
Single-Family Attached	SFA 1-3	7.9	164	C34
Group Residential/Care (200 beds)	GR	6.5	N/A	RU
Commercial and Mixed-Use	C1-5 6	17.3	211/ (90,000 sq. ft.)	C34
K-8 School Site	S	12.0	N/A	RU
Institutional Use	I	10	N/A	RU
Public Park	P7	13.5	N/A	RU
Private Parks	P 1-6 and within the Senior Citizen Neighborhood P-8– 11	10.1	N/A	RU
Community Purpose Facility	CPF	2.0	N/A	C34
Biological Open Space	OS	104.1	N/A	RU
Common Areas and Agricultural Open Space	--	20.3	N/A	RU
Manufactured Slopes	--	68.2	N/A	RU
Roads	--	83.3	N/A	RU
Water Reclamation Facility	WR	2.4	N/A	RU
Recycling Facility/Trail Head/Staging Area	RF	0.6	N/A	C34
Detention Basins	DB	7.9	N/A	RU
Wet weather storage	WWS	8.1	N/A	RU
TOTALS		608	1,746	

D. Location and Regional Setting

The Lilac Hills Ranch community is approximately 608 acres, and is located a quarter mile from the Interstate 15 corridor in the unincorporated area of San Diego County with freeway

CREDIT 403.11 (2)

8.0 Summary of Project Impacts and Mitigation

A summary of the proposed direct impacts to habitat/vegetation communities and required mitigation acreages is provided in Table 8. A summary of the proposed mitigation measures for the project is provided in Table 9. Mitigation for impacts to upland natural communities (e.g., coast live oak woodland, coastal sage scrub, southern mixed chaparral) would be achieved through the purchase and conservation of off-site habitat within future PAMA lands. A conceptual Resource Management Plan for the proposed off-site upland mitigation areas has been prepared that contains the criteria for site selection and management guidelines (Attachment 18).

Mitigation for impacts to riparian/wetland habitats would be achieved through a combination of on-site/off-site wetland establishment (creation) and the restoration/enhancement of on-site wetland areas through the removal of non-native invasive plant species within biological open space (Figures 14a,b). Potential on-site wetland mitigation may provide up to 6 acres of creation and 12 acres of restoration/enhancement mitigation. Biological open space areas on-site will be dedicated with each phase of development (Table 10 and Figure 15). Open space dedication is phased to include adjacent open space areas in the phase of development that borders the phase under construction to reduce the chance for inadvertent impacts to occur to the resources in these open space areas. Open space fencing and signage would be implemented upon dedication of the open space area.

Mitigation for upland and wetland habitats would also compensate for the loss of habitats that support special status wildlife species by providing conserved habitat within future PAMA lands that may also support these wildlife species. The on-site biological open space areas and associated buffers would help reduce potential edge effects and provide for the maintenance of local secondary wildlife movement corridors. Enhancement of the habitats in the biological open space areas achieved by the removal of non-native invasive plant species and the establishment of native plant species will also benefit wildlife on-site and local wildlife movement. Implementation of resource management plans for conserved lands on-site and off-site associated with the project mitigation would provide for the preservation and long-term maintenance of these lands.

Mitigation for potential impacts to nesting raptors and other general birds would be achieved through either avoidance of impacts to vegetation during the nesting season, and/or pre-construction surveys and avoidance of identified nests during construction.

Indirect impacts associated with edge effects from development would be mitigated through project design features that reduce the effects of noise, lighting, invasive species, drainage, and access to biological open space areas. Noise impacts would be

TABLE 8
HABITAT/VEGETATION COMMUNITIES, IMPACTS, AND MITIGATION

Habitat/Vegetation Community	Existing (acres)	Impacts (acres)	Off-site[3] Impacts (acres)	Mitigation Ratio	Mitigation Required (acres)	Preserved On-site/ Impact Neutral (acres)	Off-site Mitigation (acres)
Coast live oak woodland	3.6	0.3	0	3:1	1.2	3.3	1.2
Coastal sage scrub	19.6	17.0	0.1	2:1	34.2	2.6	34.2
Disturbed coastal sage scrub	2.9	2.6	0	2:1	5.2	0.3	5.2
Disturbed coastal/valley freshwater marsh	0.6	0.1	0	3:1	0.3	0.5	0.3[1]
Eucalyptus woodland	1.7	1.0	0	None	None	0.7	None
Southern coast live oak riparian woodland	22.5	1.1	0	3:1	3.3	21.4	3.3[1]
Disturbed southern coast live oak woodland	1.9	0.5	0	3:1	1.5	1.4	1.5[1]
Southern mixed chaparral	75.4	49.4	0	0.5:1	24.5	26.0	24.5
Disturbed southern mixed chaparral	6.0	4.9	0	0.5:1	2.4	1.1	2.4
Southern willow riparian woodland	4.7	0.5	0	3:1	1.5	4.2	1.5[1]
Southern willow scrub	6.1	0.3	0	3:1	0.9	5.8	0.9[1]
Disturbed southern willow scrub	0.3	0.3	0	3:1	0.9	0	0.9[1]
Mule fat scrub	0.1	0.1	0	3:1	0.3	0	0.3[1]
Open water – freshwater	0.5	0.5	0	3:1	1.5	0	1.5[1]
Disturbed wetland	0.4	0.1	0	3:1	0.3	0.3	0.3[1]
Extensive agriculture – row crops	90.5	84.585	0	None	None	6.05.5	None
Intensive agriculture – nursery	9.2	6.26.7	0	None	None	3.02.5	None
Vineyard	0.7	0.6	0	None	None	0.1	None
Orchard	291.9	276.4276.8	1.2	None	None	15.51	None
Disturbed habitat	44.0	34.8	2.4	None	None	9.2	None
Developed	25.7	22.8	21.1	None	None	2.9	None
TOTAL	608.3	505.04	24.8		78.0	104.12.7	78.0[2]

[1]A portion of this mitigation acreage may be achieved on-site. Total on-site mitigation acreage not yet determined.
[2]Total off-site mitigation requirement may be lower when on-site mitigation opportunities are fully quantified.
[3]Additional off-site impacts from Rodriquez Road improvements, if required, would result in mitigation requirements of 0.06 acre of coastal live oak woodland, 0.09 acre of southern coastal live oak riparian woodland, 0.04 acre of non-native grassland, and 0.08 acre of coastal sage scrub.

NGBS Credit

403.3 Slope disturbance. *Slope disturbance is minimized by one or more of the following:*

(1) Hydrological/soil stability study for steep slopes is completed and used to guide the design of all buildings on the site.

APPLICANT RESPONSE

Slope Stability is addressed in the following sections of the Geotechnical Report, Dated April 2, 2012, by Advanced Geotechnical Solutions, Inc.

Slope Stability Analysis, Section 5.2.1

Slope Stability and Remediation, Section 6.2

Slope Stability Results, Appendix D

(2) All or a percentage of development on steep slopes is avoided.
(c) greater than 75 percent

APPLICANT RESPONSE

SEE ATTACHED LETTER FROM LANDMARK CONSULTING, DTD 12/1/14

(3) Long-term erosion effects are reduced by the use of terracing, retaining walls, landscaping, and restabilization techniques.

APPLICANT RESPONSE

See table 8 (page 19) "LID and Site Design" of the Major Storm Water Management Plan - Implementing Tentative Map.

Number 6 on Page 20 describes the erosion techniques.

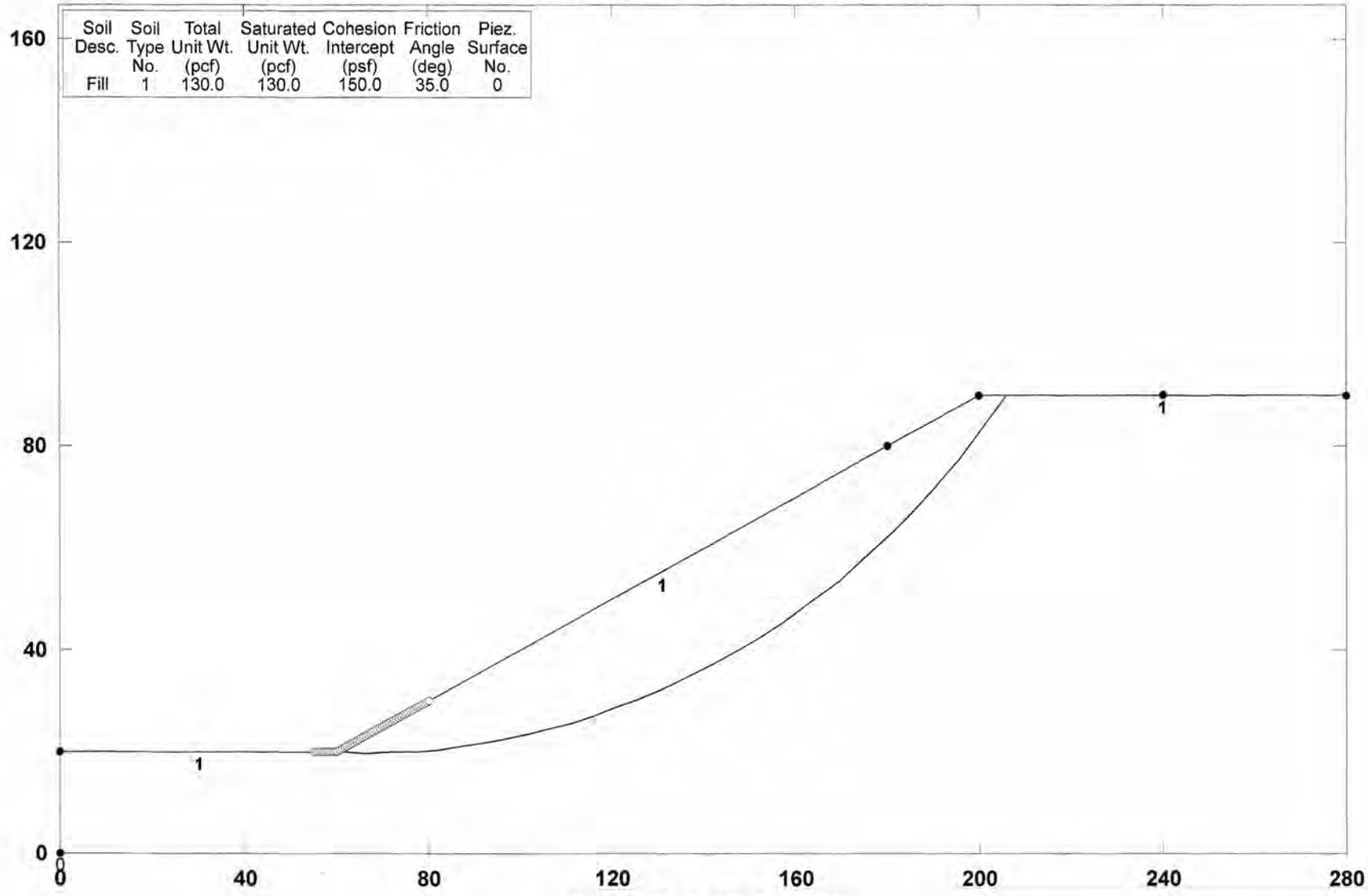
See "Chapter VI. General Maintenance Requirements," Page 86, for Best Management Practices "BMP" Activities.

APPENDIX D

SLOPE STABILITY ANALYSES

P/W 1102-01 2:1 70 foot Fill Slope LHR

c:\gstabl7 data\1109-04 25 ft fill slope.pl2 Run By: ADVANCED GEOTECHNICAL SOLUTIONS 3/30/2012 11:18AM



GSTABL7 v.2 FSmin=1.793

Safety Factors Are Calculated By The Modified Bishop Method

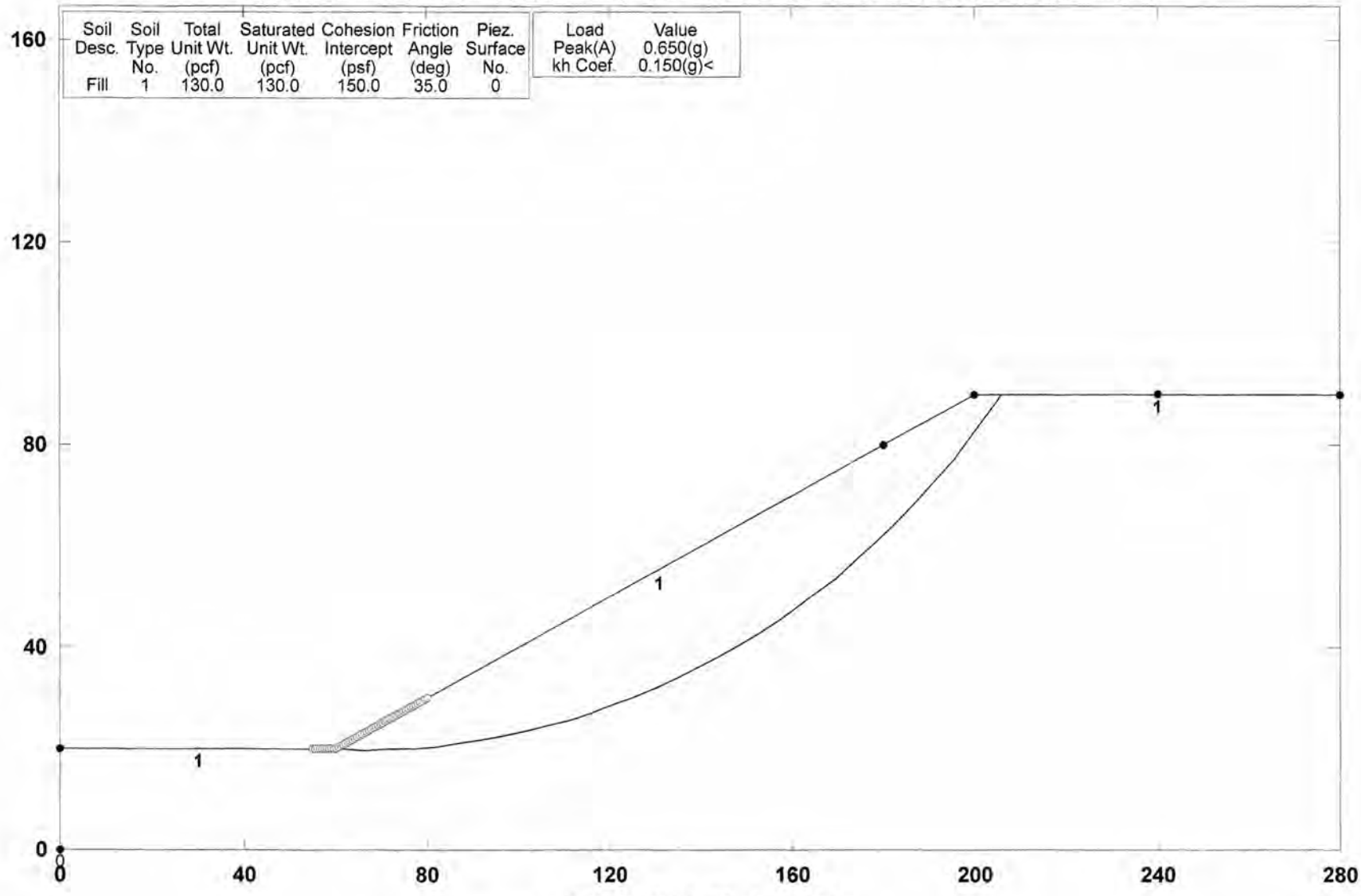
Plate D-1

P/W 1102-01 2:1 70 foot Fill Slope LHR

c:\gstabl7 data\1109-04 25 ft fill slope.pl2 Run By: ADVANCED GEOTECHNICAL SOLUTIONS 3/30/2012 11:18AM

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Fill	1	130.0	130.0	150.0	35.0	0

Load	Value
Peak(A)	0.650(g)
kh Coef.	0.150(g)<

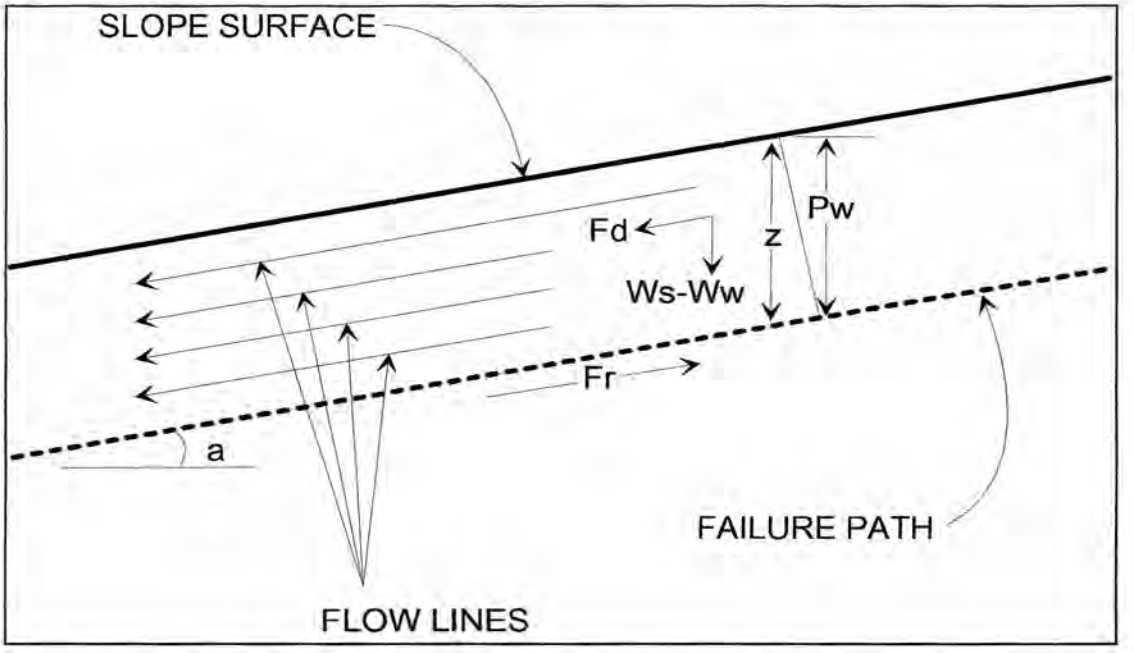


GSTABL7 v.2 FSmin=1.302

Safety Factors Are Calculated By The Modified Bishop Method

Plate D-2

SURFICIAL SLOPE STABILITY



(1) Saturation To Slope Surface
(2) Sufficient Permeability To Establish Water Flow

Pw = Water Pressure Head=(z)(cos^2(a))
Ws = Saturated Soil Unit Weight
Ww = Unit Weight of Water (62.4 lb/cu.ft.)
u = Pore Water Pressure=(Ww)(z)(cos^2(a))
z = Layer Thickness
a = Angle of Slope
phi = Angle of Friction
c = Cohesion
Fd = (0.5)(z)(Ws)(sin(2a))
Fr = (z)(Ws-Ww)(cos^2(a))(tan(phi)) + c
Factor of Safety (FS) = Fr/Fd

Given:

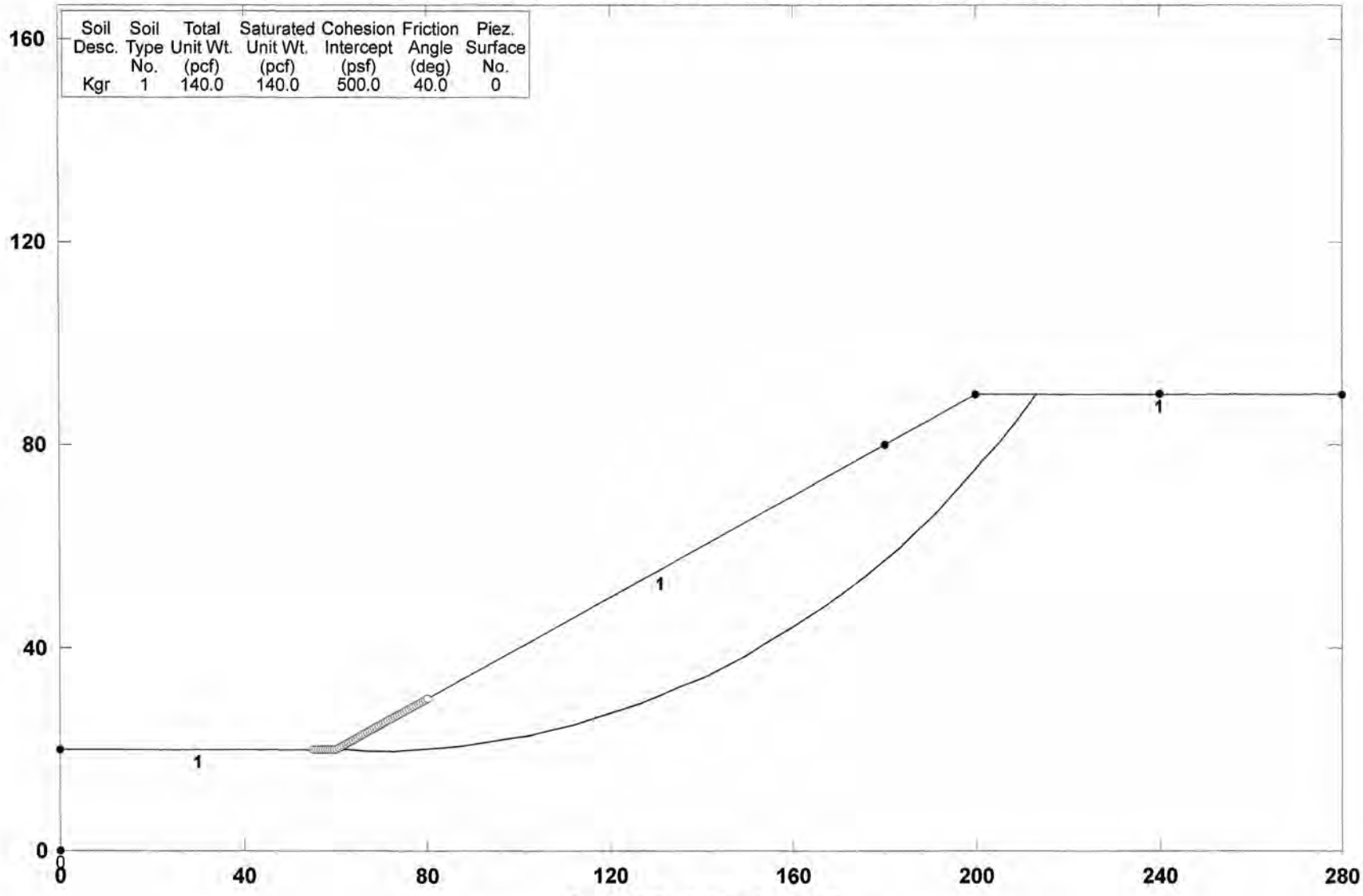
Ws (pcf)	z (ft)	a (degrees)	(radians)	phi (degrees)	(radians)	c (psf)
130	3	26.56505	0.4636476	35	0.6108652	150

Calculations:

Pw	u	Fd	Fr	FS
2.40	149.76	156.00	263.60	**1.69**

P/W 1102-01 2:1 70 foot Cut Slope LHR

c:\gstabl7 data\1109-04 25 ft fill slope.pl2 Run By: ADVANCED GEOTECHNICAL SOLUTIONS 3/30/2012 11:12AM



GSTABL7 v.2 FSmin=2.517

Safety Factors Are Calculated By The Modified Bishop Method

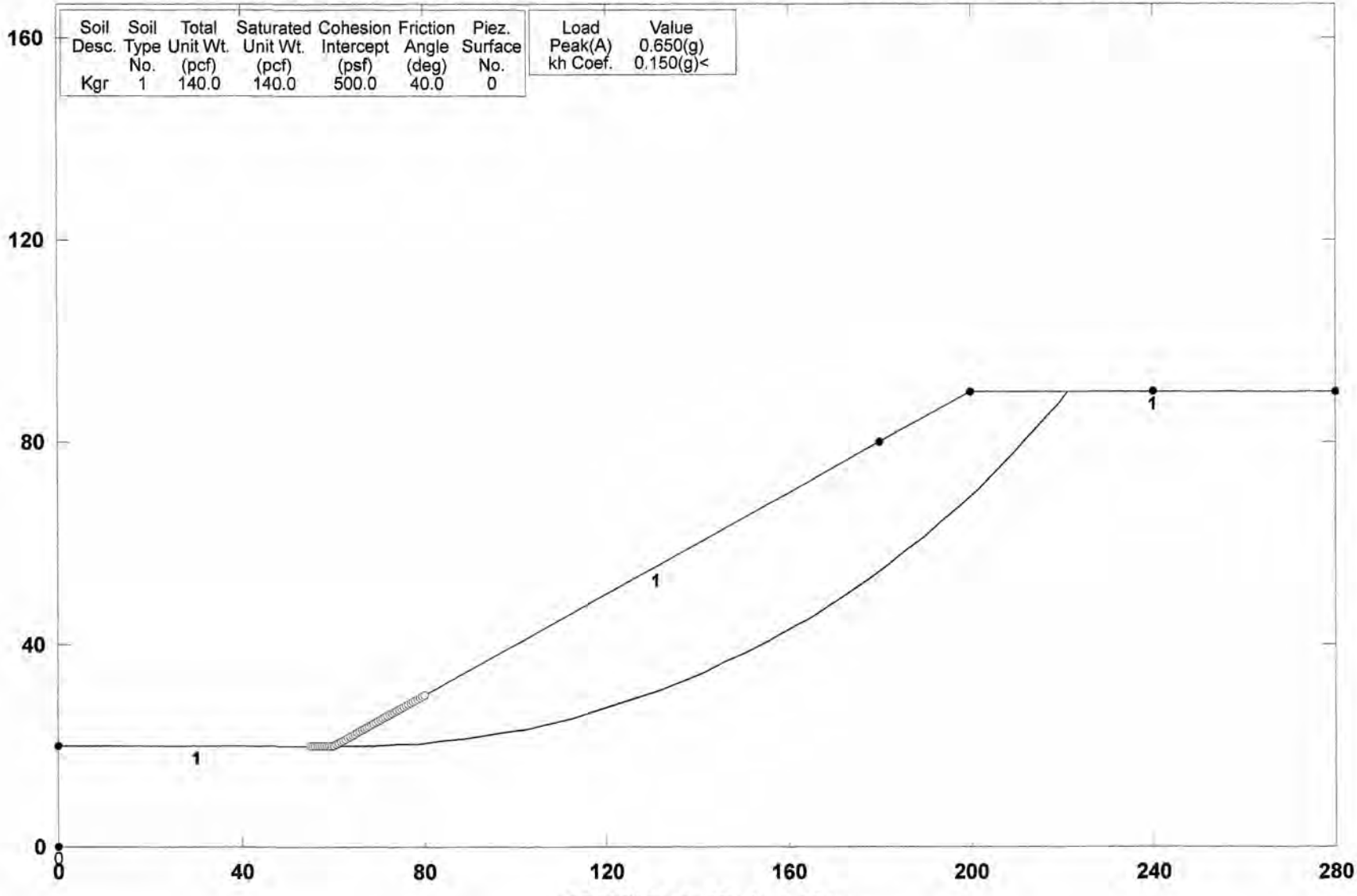
Plate D-4

P/W 1102-01 2:1 70 foot Cut Slope LHR

c:\gstabl7 data\1109-04 25 ft fill slope.pl2 Run By: ADVANCED GEOTECHNICAL SOLUTIONS 3/30/2012 11:16AM

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Kgr	1	140.0	140.0	500.0	40.0	0

Load	Value
Peak(A)	0.650(g)
kh Coef.	0.150(g)<

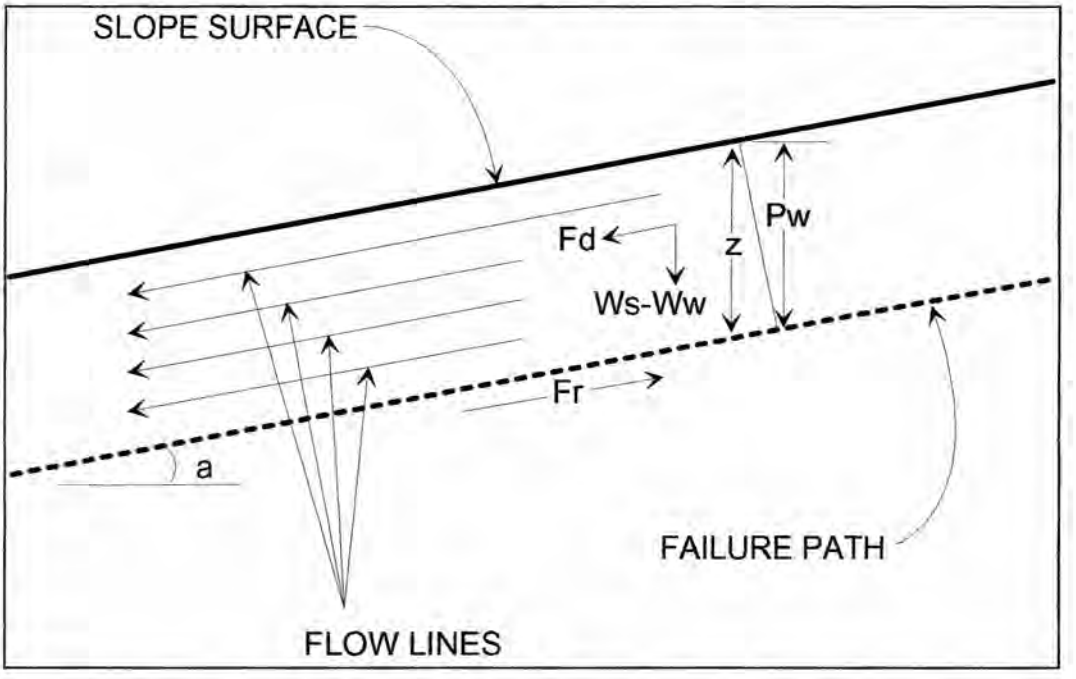


GSTABL7 v.2 FSmin=1.834

Safety Factors Are Calculated By The Modified Bishop Method

Plate D-5

SURFICIAL SLOPE STABILITY



Assume: (1) Saturation To Slope Surface
(2) Sufficient Permeability To Establish Water Flow

Pw = Water Pressure Head=(z)(cos^2(a))
Ws = Saturated Soil Unit Weight
Ww = Unit Weight of Water (62.4 lb/cu.ft.)
u = Pore Water Pressure=(Ww)(z)(cos^2(a))
z = Layer Thickness
a = Angle of Slope
phi = Angle of Friction
c = Cohesion
Fd = (0.5)(z)(Ws)(sin(2a))
Fr = (z)(Ws-Ww)(cos^2(a))(tan(phi)) + c
Factor of Safety (FS) = Fr/Fd

Given:

Ws (pcf)	z (ft)	a (degrees)	(radians)	phi (degrees)	(radians)	c (psf)
140	3	33.690068	0.5880026	35	0.6108652	500

Calculations:

Pw	u	Fd	Fr	FS
2.08	129.60	193.85	612.85	**3.16**

5.1.8. Earthwork Adjustments

The following average earthwork adjustment factors are presented for use in evaluating earthwork quantities. These numbers are considered approximate and should be refined during grading when actual conditions are better defined. Contingencies should be made to adjust the earthwork balance during grading if these numbers are adjusted.

TABLE 5.1.8
EARTHWORK ADJUSTMENTS

Geologic Unit	Approximate Range
Artificial Fill Undocumented (Afu)	8% to 12% Shrink
Topsoil & Alluvium (Qal)	8% to 12% Shrink
Older Alluvium (Qoal)	0% to 5% Bulk
Granitic Bedrock (Kgr) - rippable	10% to 18% Bulk
Granitic Bedrock (Kgr) - non-rippable	18% to 25% Bulk

5.1.9. Pavement Support Characteristics

Compacted fill derived from onsite soils and cuts within the older alluvium and granitic rock is expected to possess good to very good pavement support characteristics. Testing should be completed once subgrade elevations are reached for the onsite roadways. For preliminary planning purposes, AGS has used an R-Value of 40 for the preliminary design of roadway pavement sections.

5.2. Analytical Methods

5.2.1. Slope Stability Analysis

Stability analyses were performed for both static and seismic (pseudo-static) conditions using the GSTABL7 computer program. The Modified Bishop method was used to analyze circular type failures. The critical failure surface determined in the static analysis was used in the pseudo-static analysis. A horizontal destabilizing seismic coefficient (kh) of 0.15g was selected for the site and used in the pseudo-static analyses. Peak shear strengths have been utilized in the pseudo-static analysis.

Surficial stability analyses were conducted using an infinite height slope method assuming seepage parallel to the slope surface.

5.2.2. Pavement Design

Asphalt concrete pavement sections have been designed using the recommendations and methods presented in the Caltrans Highway Design Manual. Portland cement concrete pavement for onsite roads and driveways has been designed in accordance with the recommendations presented in the “Design of Concrete Pavement for City Streets” by the American Concrete Pavement Association.

5.2.3. Bearing Capacity and Lateral Pressure

Ultimate bearing capacity values were obtained using the graphs and formula presented in NAVFAC DM-7.1. Allowable bearing was determined by applying a factor of safety of at least 3 to the ultimate bearing capacity. Static lateral earth pressures were calculated using Rankine methods for active and passive cases.

6.0 GEOTECHNICAL CONCLUSIONS AND RECOMMENDATIONS

Based on the information presented herein and our experience in the vicinity of the subject site, it is AGS's opinion that the proposed development of Lilac Ranch Hills Community is feasible, from a geotechnical point of view, provided that the constraints discussed in this report are addressed in the design and construction of each proposed residential structure. Presented below are issues identified by this study or previous studies as possibly impacting site development. Recommendations to mitigate these issues and geotechnical recommendations for use in planning and design are presented in the following sections of this report.

All grading shall be accomplished under the observation and testing of the project Geotechnical Consultant in accordance with the recommendations contained herein, the current codes practiced by the County of San Diego and this firm's Earthwork Specifications (Appendix E).

6.1. Site Preparation and Removals/Overexcavation

Guidelines to determine the depth of removals are presented below; however, the exact extent of the removals must be determined in the field during grading, when observation and evaluation of the greater detail afforded by those exposures can be performed by the Geotechnical Consultant. In general, removed soils will be suitable for reuse as compacted fill when free of deleterious materials and after moisture conditioning.

Removal of unsuitable soils typically should be established at a 1:1 projection to suitable materials outside the proposed engineered fills. Front cuts should be made no steeper than 1:1, except where constrained by other factors such as property lines and protected structures. Removals should be initiated at approximately twice the distance of the anticipated removal depth, outside the engineered fills. The bottoms of all removal areas should be observed, mapped, and approved by the Geotechnical Consultant prior to fill placement. It is recommended the bottoms of removals be surveyed and documented.

6.1.1. Site Preparation

Existing vegetation, trash, debris, and other deleterious materials should be removed and wasted from the site prior to commencing removal of unsuitable soils and placement of compacted fill materials.

6.1.2. **Topsoil** (no map symbol)

All topsoil should be removed before placement of compacted fill.

exposed, consideration should be given to undercutting the street/utility areas during mass grading to minimize this condition. The undercut should extend at least one foot below the deepest utility. The undercut zone should be replaced with compacted fill in accordance with project standards as outlined herein.

6.1.8. Removals Along Grading Limits and Property Lines

Removals of unsuitable soils will be required prior to fill placement along the project grading limits. A 1:1 projection, from toe of slope or grading limit, outward to competent materials should be established, when possible.

6.2. Slope Stability and Remediation

Proposed maximum slope heights to be created during grading are on the order of 70 feet or less.

6.2.1. Cut Slopes

The highest proposed cut slope is approximately 70 feet at a slope ratio of 2:1 (horizontal: vertical). Based upon the currently available information, we anticipate that proposed cut slopes in Older Alluvium and Granitic Rock will be grossly stable as designed. Calculations supporting AGS's conclusions and recommendations relative to cut slopes are represented in Appendix D (Plates D-1 and D-2).

Cut slopes should be observed by the Geotechnical Consultant during grading. Where cut slopes expose unfavorable geology such as daylighted joints, loose or raveling weathered granitic rock or where boulders may pose a rock fall problem, replacement of the unsuitable portions of the cut with stabilization fill will be recommended.

Terrace and downdrains should be constructed on all cuts slopes in conformance to the San Diego County Grading Ordinance.

6.2.2. Fill Slopes

Fill slopes on the project are designed at 2:1 ratios (horizontal to vertical). The highest anticipated fill slope is approximately 70 feet high. Fill slopes, when properly constructed with onsite materials, are expected to be grossly stable as designed. Stability calculations supporting this conclusion are presented in Appendix D (Plates D-4 and D-5). Fill slopes will be subject to surficial erosion and should be landscaped as quickly as possible.

Keys should be constructed at the toe of all fill slopes "toeing" on existing or cut grade. Fill keys should have a minimum width equal to one-half the height of ascending slope, and not less than 15 feet. Unsuitable soil removals below the toe of proposed fill slopes should extend from the catch point of the design toe outward at a minimum 1:1 projection into approved material to establish the location of the key. Backcuts to establish that removal geometry should be cut no steeper than 1:1 or as recommended by the Geotechnical Consultant.

Terrace and downdrains should be constructed on all cuts slopes in conformance to the San Diego County Grading Ordinance.

6.2.3. Skin Cut and Skin Fill Slopes

A review of the Tract Map did not indicate any significant design skin fill and skin cut conditions, however, skin cut or thin fill sections may be created during grading. For all such conditions, it is recommended that a backcut and keyway be established such that a minimum fill thickness equal to one-half the remaining slope height, and not less than 15 feet, is provided. Where the design cut is insufficient to remove all unsuitable materials, overexcavation and replacement with a stabilization fill will be required, as shown on Grading Detail 6 in Appendix E.

6.2.4. Fill Over Cut Slopes

Fill over cut slopes should be constructed such that the cut portion is excavated first for geologic mapping and stability determination. If deemed stable then a "tilt-back" keyway half the remaining slope height or minimally twenty (20) feet wide should be established. Drains will be required for this condition with the locations determined based upon exposed field conditions.

6.2.5. Surficial Stability

The surficial stability of 2:1 fill and cut slopes, constructed in accordance with the recommendations presented herein, have been analyzed, and the analyses presented in Appendix D (Plates D-3 and D-6, respectively) indicates factors-of-safety in excess of code minimums. When fill and cut slopes are properly constructed and maintained, satisfactory performance can be anticipated although slopes will be subject to erosion, particularly before landscaping is fully established.

6.2.6. Temporary Backcut Stability

During grading operations, temporary backcuts may occur due to grading logistics and during retaining wall construction. Backcuts should be made no steeper than 1:1 (horizontal to vertical) to heights of up to 20 feet, and 1½:1 (horizontal: vertical) for heights greater than 20 feet. Flatter backcuts may be necessary where geologic conditions dictate, and where minimum width dimensions are to be maintained.

In consideration of the inherent instability created by temporary construction of backcuts, it is imperative that grading schedules be coordinated to minimize the unsupported exposure time of these excavations. Once started these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending work days, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed.

6.2.7. Observation During Grading

All temporary slope excavations, including front, side and backcuts, and all cut slopes should be mapped to verify the geologic conditions that were modeled prior to grading.

6.3. Survey Control During Grading

Removal bottoms fill keys, stabilization fill keys, and backdrains should be surveyed prior to final observation and approval by the geotechnical engineer/engineering geologist in order to verify locations and gradients.

6.4. Subsurface Drainage

Canyon subdrains should be constructed within the major drainages which will ultimately be filled as part of the mass grading of the site. Canyon subdrains will range in diameter from 6 to 8 inches in diameter and should be constructed in accordance with Grading Detail 1 and 2, Appendix E. Final determination as to the location and the size of these subdrain systems will be dependent upon the final finished design grades. Accordingly, once more detailed plans become available site specific recommendations will be prepared regarding the size, location and extant of the subdrain system for the project.

Due to the lack of a significant backcuts and the anticipated depth of fill in the toe areas after remedial grading, the need for backdrain systems are not anticipated at the toes of constructed fill slopes or fill over cut slopes. This should be further evaluated during future grading plan reviews and during grading. Backdrains, where required, should be constructed in accordance with Grading Detail 2.

Drains should be installed behind all retaining walls.

6.5. Seepage

Seepage, when encountered during grading, should be evaluated by the Geotechnical Consultant. In general, seepage is not anticipated to adversely affect grading. If seepage is excessive, remedial measures such as horizontal drains or under drains may need to be installed.

6.6. Earthwork Considerations

6.6.1. Compaction Standards

All fills should be compacted at least 90 percent of the maximum dry density as determined by ASTM D1557-09. All loose and or deleterious soils should be removed to expose firm native soils or bedrock. Prior to the placement of fill, the upper 6 to 8 inches should be ripped, moisture conditioned to optimum moisture or slightly above optimum, and compacted to a minimum of 90 percent of the maximum dry density (ASTM D1557-09). Fill should be placed in thin (6 to 8-inch) lifts, moisture conditioned to optimum moisture or slightly above, and compacted to 90 percent of the maximum dry density (ASTM D1557-09) until the desired grade is achieved.

CREDIT
403.3 (2)

LANDMARK
CONSULTING
Planning Engineering Surveying

December 1, 2014

Mr. Jon Rilling
Accretive Investments, Inc.
12275 El Camino Real, Suite 110
San Diego, CA 92130

RE: NGBS Section 403.3, Item 2

Dear Jon:

In response to NGBS Section 403.3, Item 2: Where practical, the proposed roads within the Lilac Hills Ranch development were designed with immense effort to keep with the existing, natural terrain as closely as possible. We would estimate that over 75% of the proposed roads are aligned with the natural topography and reduce the cut and fill by at least 20% over alternative methods providing a similar number of lots. Following the natural terrain allows for minimal cut and fill, minimal overall disturbance, minimal impacts to adjacent wetlands, and maximizes existing view corridors. Long term erosion effects are reduced by the use of terracing, retaining walls, landscaping, and restabilization techniques. Several design iterations were analyzed and the least impactful alternative yielding a comparable number of lots was selected. The project would therefore meet NGBS Criteria 403.3 (2-c).

If you have any particular questions or require additional information, please do not hesitate to call.

Sincerely,

LANDMARK CONSULTING

Mark A. Brencick, P.E., P.L.S.
President

CREDIT
403.3 (3)

Major Stormwater Management Plan
(Major SWMP)
For
LILAC HILLS RANCH-IMPLEMENTING TM
TM – 5572 RPL-3
Valley Center, San Diego County, California

Preparation/Revision Date: 5-3-13

Prepared for:

Accretive Investments, Inc.
12275 El Camino Real, Suite 110
San Diego, Ca 92130

Prepared by:

Landmark Consulting
9555 Genesee Ave. Ste. 200
San Diego, Ca 92121
858-587-8070

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan have been prepared under the direction of the following Registered Civil Engineer and meet the requirements of Regional Water Quality Control Board Order R9-2007-0001 and subsequent amendments.

David Yeh, RCE 62717, Exp 6-30- 14 _____ 5-3-13 _____

Date

STEP 5

LID AND SITE DESIGN STRATEGIES

Each numbered item below is a Low Impact Development (LID) requirement of the WPO. Please check the box(s) under each number that best describes the LID BMP(s) and Site Design Strategies selected for this project.

TABLE 8: LID AND SITE DESIGN

1. Conserve natural Areas, Soils, and Vegetation
☒ Preserve well draining soils (Type A or B)
☒ Preserve Significant Trees
☒ Preserve critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions
☐ Other. Description:
2. Minimize Disturbance to Natural Drainages
☒ Set-back development envelope from drainages
☐ Restrict heavy construction equipment access to planned green/open space areas
☐ Other. Description:
3. Minimize and Disconnect Impervious Surfaces (see 5)
☒ Clustered Lot Design
☐ Items checked in 5?
☐ Other. Description:
4. Minimize Soil Compaction
☒ Restrict heavy construction equipment access to planned green/open space areas
☒ Re-till soils compacted by construction vehicles/equipment
☐ Collect & re-use upper soil layers of development site containing organic Materials
☐ Other. Description:
5. Drain Runoff from Impervious Surfaces to Pervious Areas
LID Street & Road Design
☐ Curb-cuts to landscaping
☐ Rural Swales
☐ Concave Median
☐ Cul-de-sac Landscaping Design
☒ Other. Description: all runoff from streets and roadways are conveyed to proposed detention basins for settling and filtration prior to discharge off-site.
LID Parking Lot Design
☐ Permeable Pavements

	☒ Curb-cuts to landscaping
	☐ Other. Description:
	LID Driveway, Sidewalk, Bike-path Design
	☐ Permeable Pavements
	☒ Pitch pavements toward landscaping
	☐ Other. Description:
	LID Building Design
	☐ Cisterns & Rain Barrels
	☐ Downspout to swale
	☐ Vegetated Roofs
	☐ Other. Description:
	LID Landscaping Design
	☒ Soil Amendments
	☒ Reuse of Native Soils
	☒ Smart Irrigation Systems
	☒ Street Trees
CREDIT 403.3 (3)	☐ Other. Description:
	6. Minimize erosion from slopes
	☒ Disturb existing slopes only when necessary
	☒ Minimize cut and fill areas to reduce slope lengths
	☒ Incorporate retaining walls to reduce steepness of slopes or to shorten slopes
	☒ Provide benches or terraces on high cut and fill slopes to reduce concentration of flows
	☒ Rounding and shaping slopes to reduce concentrated flow
	☒ Collect concentrated flows in stabilized drains and channels
	☐ Other. Description:

VI. General Maintenance Requirements:

BMP CATEGORY (FIRST)	**MAINTENANCE ACTIVITIES**	ANNUAL COST
BIO-FILTERATION AREAS	- CUT VEGETATION IN CHANNEL TO 8" or 6" HEIGHT - RESEED/VEGETATE BARE SPOTS AS NECESSARY - REMOVE SEDIMENT FROM CHANNEL AS NECESSARY - BACKFILL BURROW HOLES AS NECESSARY	$38,500
	TOTAL	**$ 38,500**
MAINTENANCE RESPONSIBILITY	The County should have only minimal concern for ongoing maintenance. The property owners and HOA can naturally be expected to do so as a requirement of taking care of their property.	
BMP CATEGORY (THIRD)	**MAINTENANCE ACTIVITIES**	ANNUAL COST
DETENTION BASIN (1 total)	- CUT VEGETATION IN BASIN TO 8" HEIGHT - RESEED/VEGETATE BARE SPOTS AS NECESSARY - REMOVE SEDIMENT FROM BASIN AS NECESSARY - INSPECT STRUCTURAL INTEGRITY - BACKFILL BURROW HOLES AS NECESSARY	
MAINTENANCE RESPONSIBILITY	The County needs to assure ongoing maintenance is heightened, to the point that the County is willing to take on this responsibility. The master HOA will be primarily responsible for maintenance. A permanent funding mechanism needs to be established. A special assessment district will be established for this project, the assessment will be collected with property tax.	
	TOTAL	**$10,000**
BMP CATEGORY (SECOND)	**MAINTENANCE ACTIVITIES**	ANNUAL COST
FOSSIL FILTER INSERTS	- INSPECT UNIT INTEGRITY - REMOVED ACCUMULATED SEDIMENT AND DIPOSE OF PROPERLY - REPLACE HYDROCARBON BOOM AS NECESSARY	
MAINTENANCE RESPONSIBILITY	The Developer would provide the County with security to substantiate the maintenance agreement; security would remain in place for an interim period of 5 years. The amount of the security would equal the estimated cost of 2 years of maintenance activities. The security can be a Cash Deposit, Letter of Credit or other acceptable to the County. If at any time, owners fail to maintain BMPs and the County must perform any of the maintenance activities, then owners shall pay all of County's costs incurred in performing the maintenance as defined in the maintenance agreement.	
	TOTAL	**$12,000**
	GRAND TOTAL	**$60,500**

NGBS Credit

403.4 Soil disturbance and erosion. *A site Stormwater Pollution Prevention Plan (SWPPP) is developed in accordance with applicable stormwater Construction General Permits. The plan includes one or more of the following:*

(1) Construction activities are scheduled to minimize length of time that soils are exposed.

APPLICANT RESPONSE

See attached County of San Diego Stormwater Construction Requirements, which states:

"Grading and clearing should be phased to reduce the amount and the duration of sediment exposure. If possible schedule grading during the dry season (Mid-April through October), particularly avoiding December through February." Page 3.

(3) Limits of clearing and grading are demarcated in the plan.

APPLICANT RESPONSE

The following site specific development plans show the limits of clearing and grading:

Master Preliminary Grading Plan (Sheets 2 and 3)

Specific Plan (Figure 65)

Further, in the County of San Diego, for any project that requires grading associated with a discretionary permit, as a condition of approval, all environmentally sensitive areas must be identified and protected with a physical barrier prior to construction. On this project, the environmentally sensitive areas define the limits of clearing/grading. Therefore, the limits of clearing will be staked prior to construction so the physical barrier around the environmentally sensitive areas can be installed.

Stormwater Management Requirements For Construction & Grading

County of San Diego *November 2002*

Stormwater Pollution

When rain flows over streets and other surfaces, it picks up pollutants and carries them into the stormwater conveyance ("storm drain") system. The storm drain system is designed to prevent flooding by transporting water away from urban areas. Unfortunately, this water and all the contaminants it contains eventually flow to our streams, lakes, and the ocean where we swim and fish. Once there, polluted runoff can harm wildlife and their habitats. In some cases, it can even cause beach closures or make our fish and shellfish unsafe to eat.

Your Responsibilities

The County of San Diego Watershed Protection Ordinance prohibits the discharge of pollutants to the storm drain system. Simply stated, only rain may legally enter the storm drain. As a construction site owner or operator, you are legally responsible for ensuring that sediment and other construction-related pollutants are properly managed. This means that pollutants from your site may not enter the storm drain system or any receiving water (such as creeks, streams, etc.) either directly or indirectly. You can also be held responsible for discharges or environmental damage caused by your employees or subcontractors.

Contents:

Construction Project Requirements

The County of San Diego has initiated a construction conditioning process to prevent discharges of pollutants from construction sites. Construction activities, such as mass grading, clearing and grubbing, remove vegetation and disrupt the structure of the soil surface. This disruption leaves the soil susceptible to erosion from rainfall, wind or excessive or improper water use. Sediment, from land disturbing activities, is a common component of stormwater. Sediment is a pollutant, and can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth and reproduction. Grading and clearing activities cause rain to runoff a project site at higher velocities than a site with natural vegetation.

(Continued on page 2)

STEP 1. PLANNING AND SCHEDULING

Planning and scheduling should always be a part of your stormwater management plan strategy. Effective planning can greatly reduce the need for other costly and time-consuming solutions. It can also save you considerable time and money. Whenever possible, plan your project to utilize existing topography, drainage patterns, and vegetation. This will significantly reduce the potential for erosion both during and after construction.

Grading and clearing should be phased to reduce the amount and the duration of sediment exposure. If possible schedule grading during the dry season (Mid-April through October), particularly avoiding December through February. Always be aware of forecasted weather conditions prior to any scheduled grading or clearing activities.

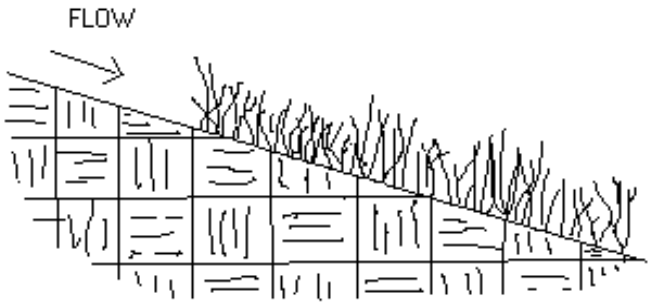
For weather forecasts, contact the National Weather Service at (619) 289-1212 or visit their web page http://www.wrh.noaa.gov/sandiego/index2.html

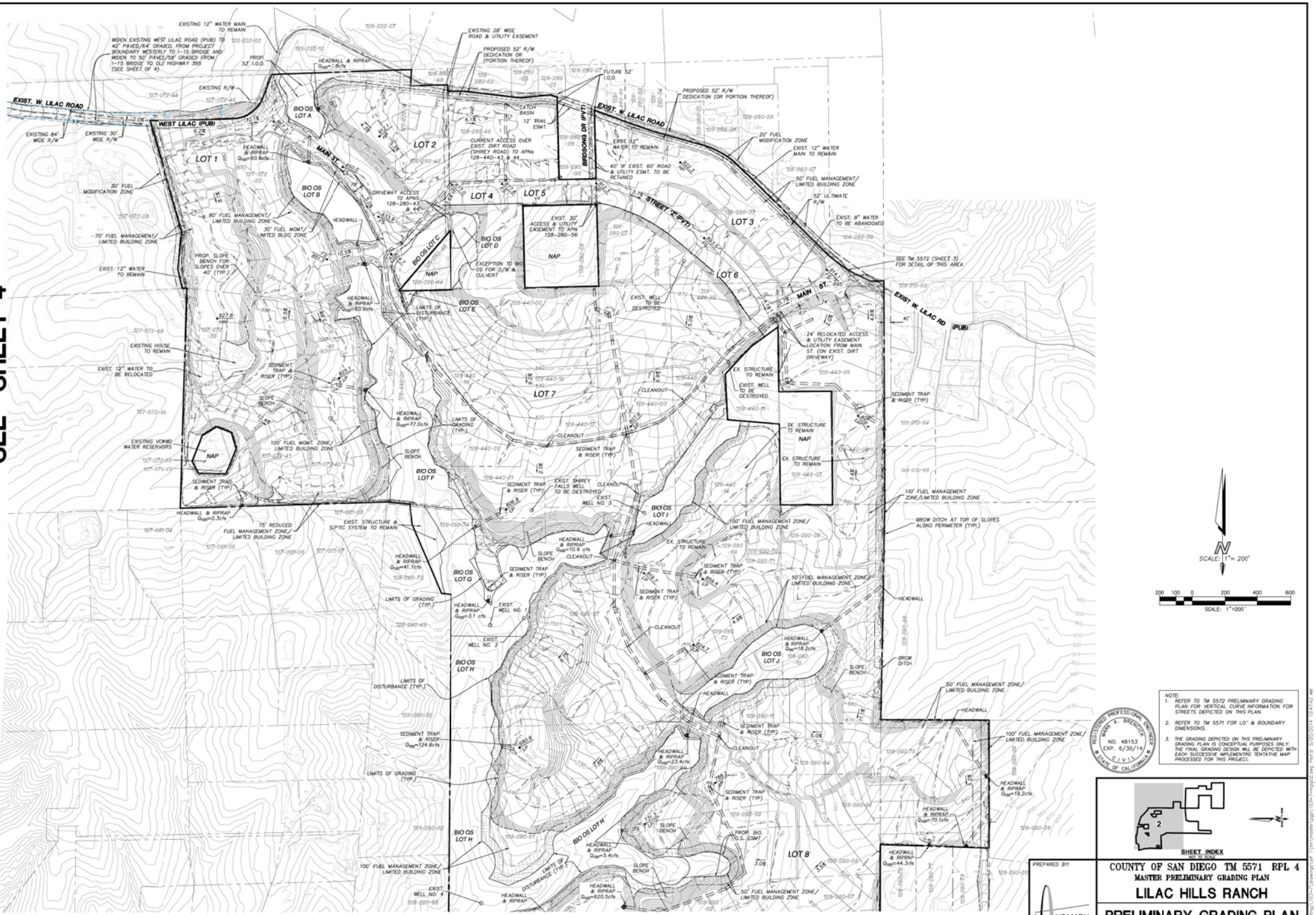
STEP 2. EROSION CONTROL

The County Grading Ordinance requires that slopes be stabilized as soon as they are created to increase their resistance to erosion. When permanent stabilization of slopes or other exposed surfaces is not yet feasible, temporary measures should always be used. A number of practical BMPs are below.

Preservation of Existing Vegetation. Leaving existing vegetation (trees, vines, shrubs, grasses, etc.) in place can minimize the potential for erosion. On a construction site, where extensive land disturbance is necessary, a reasonable BMP would be to not disturb land in sensitive areas that need not be altered for the project to be viable. Designing the site to incorporate particularly unique or desirable existing vegetation into the site-landscaping plan, will not only prevent erosion, it will be aesthetically pleasing.

Seeding and Planting. Seeding of grasses, sodding, planting trees, shrubs, vines and ground cover can provide long-term stabilization of slopes and soils. Permanent seeding and planting contributes to long-term site aesthetics and helps reduce erosion by reducing the velocity of runoff, allowing infiltration, filtering sediments, and by holding soil particles in place.





NOTE:
1. REFER TO TM 5572 PRELIMINARY GRADING PLAN FOR VERTICAL CURVE INFORMATION FOR STREETS DEPICTED ON THIS PLAN.
2. REFER TO TM 5571 FOR LOT & BOUNDARY DIMENSIONS.
3. THE GRADING DEPICTED ON THIS PRELIMINARY GRADING PLAN IS CONCEPTUAL PURPOSES ONLY. THE FINAL GRADING DESIGN WILL BE DEPICTED WITH EACH SUCCESSIVE IMPLEMENTING TENTATIVE MAP PROCESSED FOR THIS PROJECT.

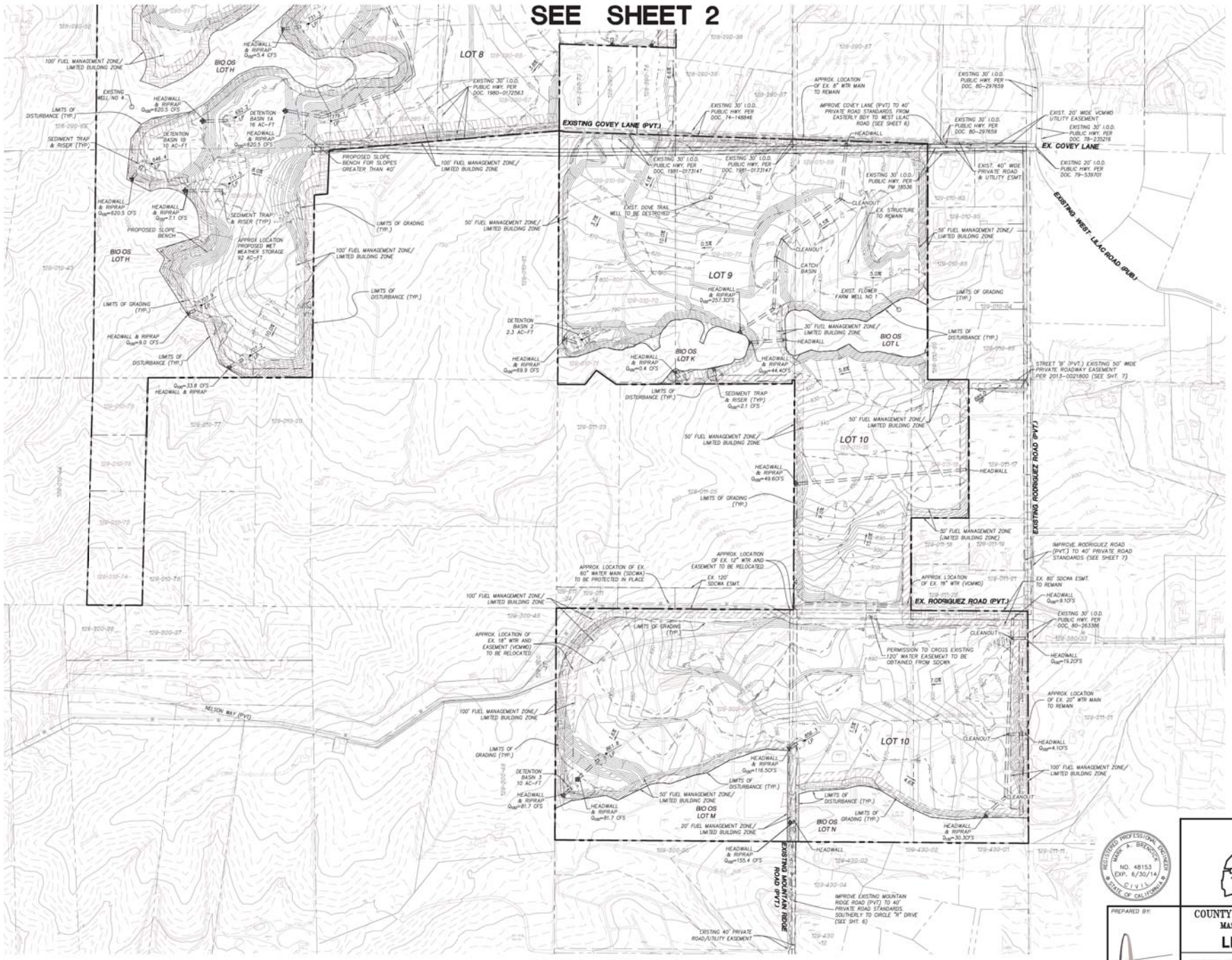
REGISTERED PROFESSIONAL ENGINEER MARK A. BRENCICH NO. 48153 (EXP. 6/30/14) CIVIL STATE OF CALIFORNIA

SHEET INDEX
NOT TO SCALE

PREPARED BY:
LANDMARK CONSULTING

COUNTY OF SAN DIEGO TM 5571 RPL 4
MASTER PRELIMINARY GRADING PLAN
LILAC HILLS RANCH
PRELIMINARY GRADING PLAN
SHEET NO. 2 OF 12

05-19-14 SUBMITTAL



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REGISTERED PROFESSIONAL ENGINEER MARK A. BRENDEL NO. 48153 EXP. 6/30/14 CIVIL STATE OF CALIFORNIA

SHEET INDEX
NOT TO SCALE

PREPARED BY:
LANDMARK CONSULTING
Planning & Engineering
9245 Activity Road, Suite 205
San Diego, CA 92126 (858) 527-0010

COUNTY OF SAN DIEGO TM 5571 RPL 4
MASTER PRELIMINARY GRADING PLAN
LILAC HILLS RANCH
PRELIMINARY GRADING PLAN
SHEET NO. 3 OF 12

05-19-14 SUBMITTAL