

Volume 1

Report of Geotechnical Studies

Proposed Newport Banning Ranch Development

City of Newport Beach/County of Orange

Plates 8.9 - 17

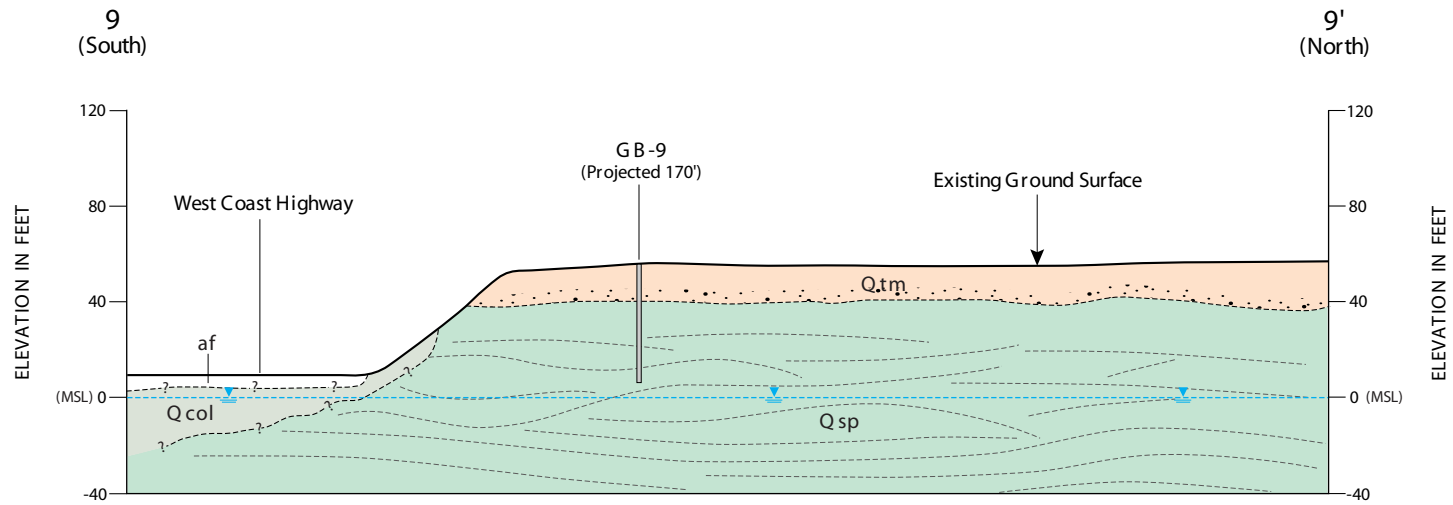
Prepared for:

Newport Banning Ranch LLC

Prepared By:

GMU Geotechnical, Inc.

July 2011



EXPLANATION

Q _{al}	Alluvium
af	Man Made Fill
Q _{col}	Colluvium/Slopewash Deposits
Q _{tm}	Marine Terrace Deposits
Q _{sp}	San Pedro Formation

	Geologic Contact, Queried Where Unknown
	Strike and Dip of Bed
	Groundwater Table

Notes:
 1. All locations are approximate.
 2. Bedding shown in Q_{sp} is largely diagramatic and has been drawn to illustrate the formations general structural nature (i.e. gentle folds, warping, cross bedding and minor fault offsets).

0 40 80 120
 Approximate Graphic Scale
 Horizontal: 1 Inch Equals 80 Feet

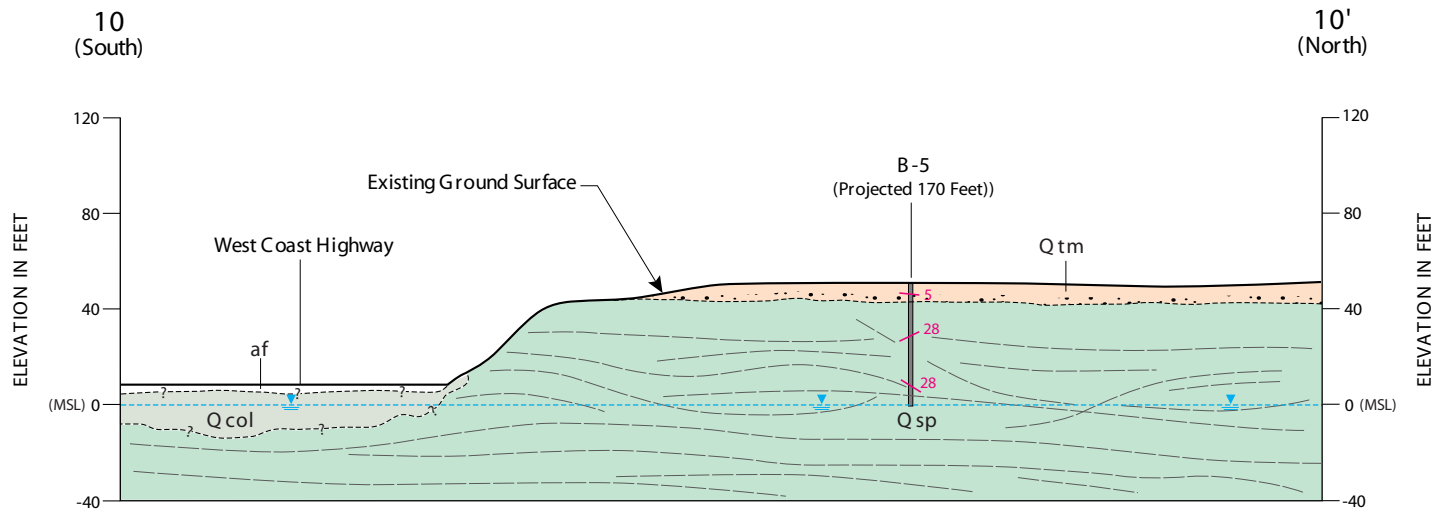


GEOLOGIC CROSS SECTION 9-9'

Project Name: Newport Banning Ranch	Project No: 06-163-00	Date: July 2011
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PLATE

8.9



EXPLANATION

Qal	Alluvium
af	Man Made Fill
Qcol	Colluvium/Slopewash Deposits
Qtm	Marine Terrace Deposits
Qsp	San Pedro Formation

	Geologic Contact, Queried Where Unknown
	Strike and Dip of Bed
	Groundwater Table

Notes:
 1. All locations are approximate.
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0 40 80 120
 Approximate Graphic Scale
 Horizontal: 1 Inch Equals 80 Feet

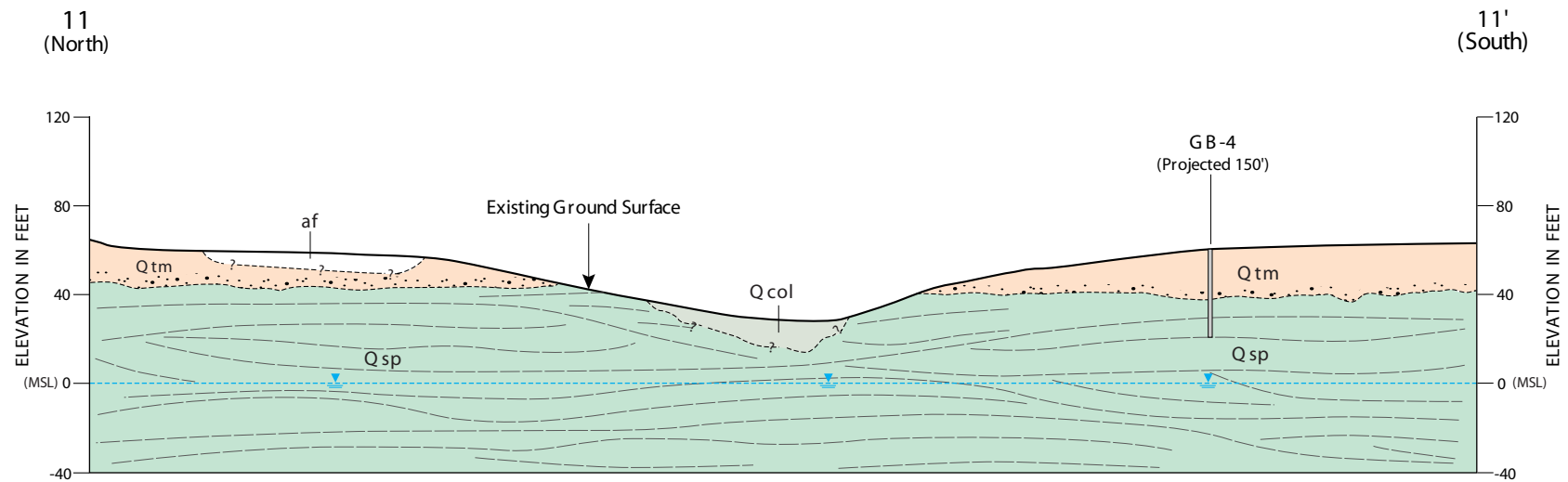


GEOLOGIC CROSS SECTION 10-10'

Project Name: Newport Banning Ranch	Project No: 06-163-00	Date: July 2011
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PLATE

8.10



EXPLANATION

Qal	Alluvium
af	Man Made Fill
Qcol	Colluvium/Slopewash Deposits
Qtm	Marine Terrace Deposits
Qsp	San Pedro Formation

	Geologic Contact, Queried Where Unknown
	Strike and Dip of Bed
	Groundwater Table

Notes:
1. All locations are approximate.
2. Bedding shown in Qsp is largely diagramatic and has been drawn to illustrate the formations general structural nature (i.e. gentle folds, warping, cross bedding and minor fault offsets).

0 40 80 120
Approximate Graphic Scale
Horizontal: 1 Inch Equals 80 Feet



GEOLOGIC CROSS SECTION 11-11'

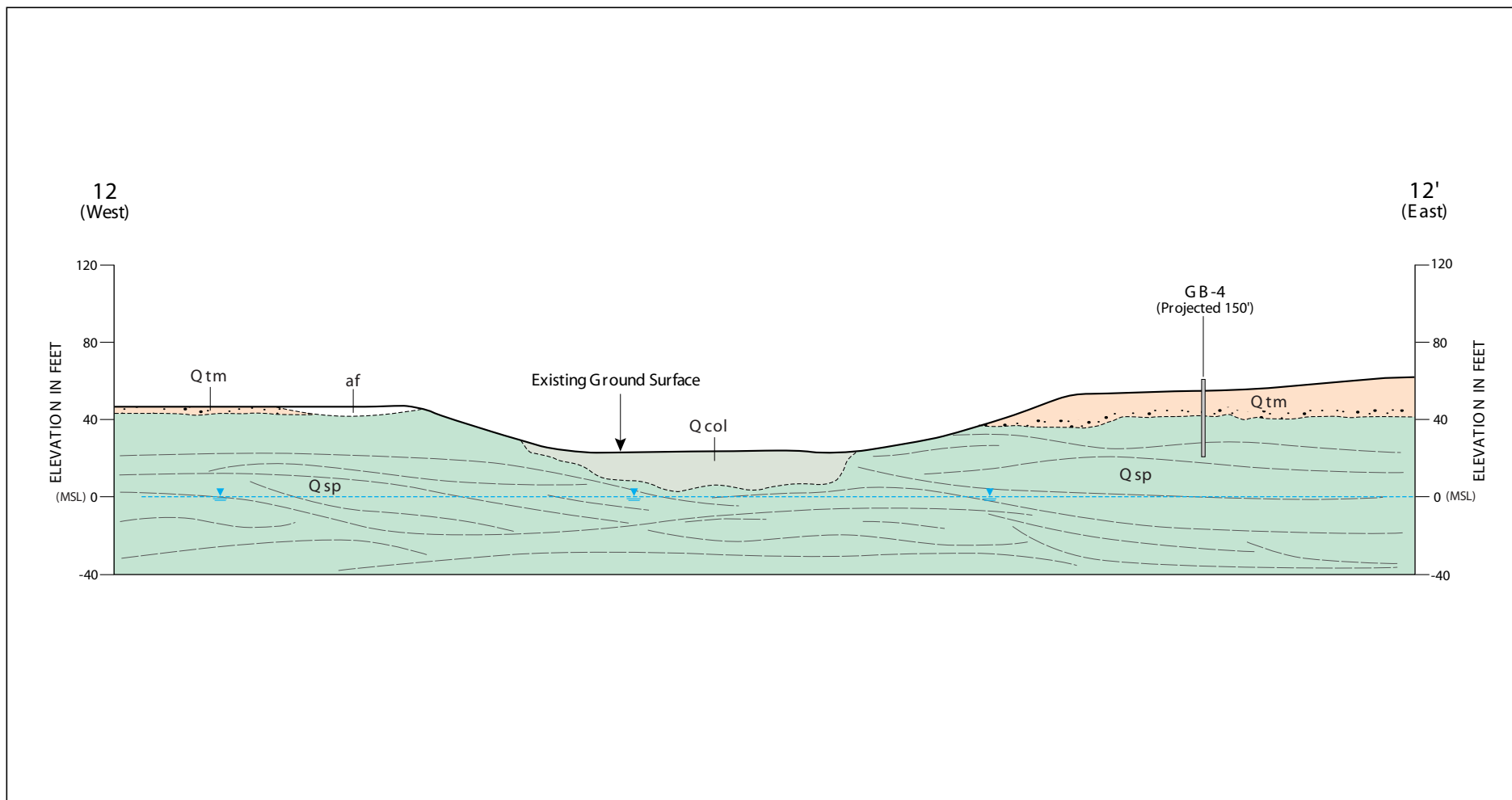
Project Name:
Newport Banning Ranch

Project No:
06-163-00

Date:
July 2011

PLATE

8.11

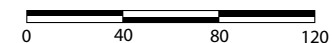


EXPLANATION

Qal	Alluvium
af	Man Made Fill
Qcol	Colluvium/Slopewash Deposits
Qtm	Marine Terrace Deposits
Qsp	San Pedro Formation

	Geologic Contact, Queried Where Unknown
	Strike and Dip of Bed
	Groundwater Table

Notes:
 1. All locations are approximate.
 2. Bedding shown in Qsp is largely diagrammatic and has been drawn to illustrate the formations general structural nature (i.e. gentle folds, warping, cross bedding and minor fault offsets).



Approximate Graphic Scale
 Horizontal: 1 Inch Equals 80 Feet

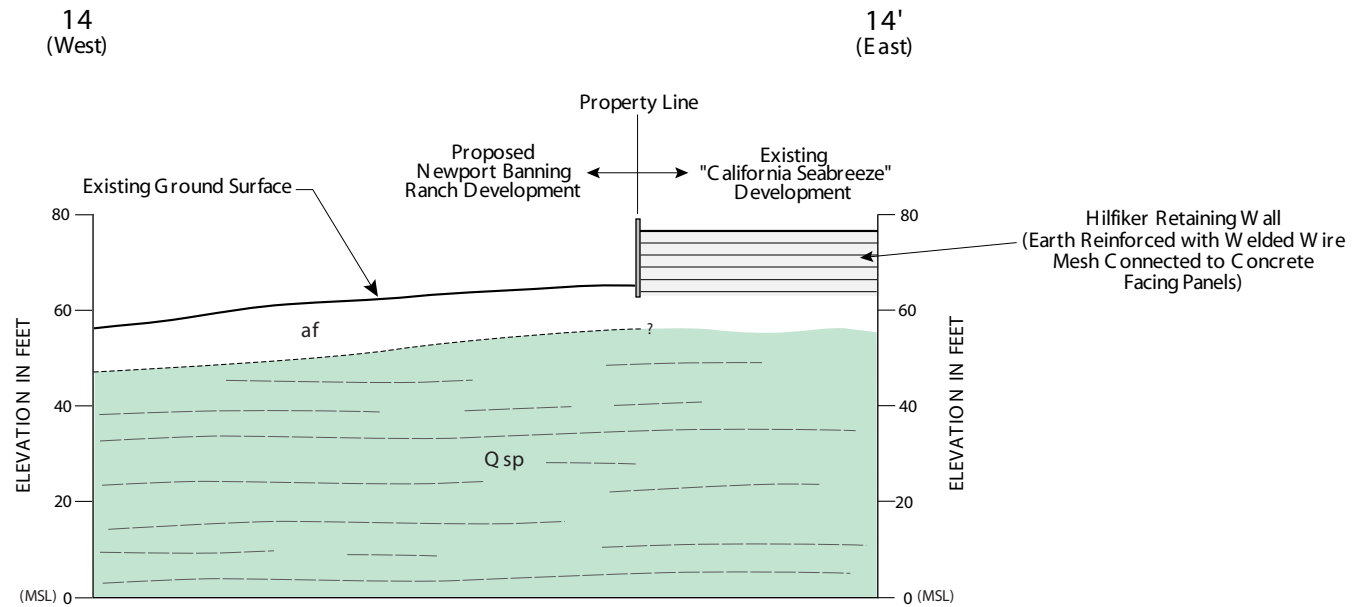


GEOLOGIC CROSS SECTION 12-12'

Project Name:	Project No:	Date:
Newport Banning Ranch	06-163-00	July 2011

PLATE

8.12



EXPLANATION

Qal	Alluvium
af	Man Made Fill
Qcol	Colluvium/Slopewash Deposits
Qtm	Marine Terrace Deposits
Qsp	San Pedro Formation

	Geologic Contact, Queried Where Unknown
	Strike and Dip of Bed
	Groundwater Table

Notes:
 1. All locations are approximate.
 2. Bedding shown in Qsp is largely diagrammatic and has been drawn to illustrate the formations general structural nature (i.e. gentle folds, warping, cross bedding and minor fault offsets).

0 20 40 60
 Approximate Graphic Scale
 Horizontal: 1 Inch Equals 40 Feet

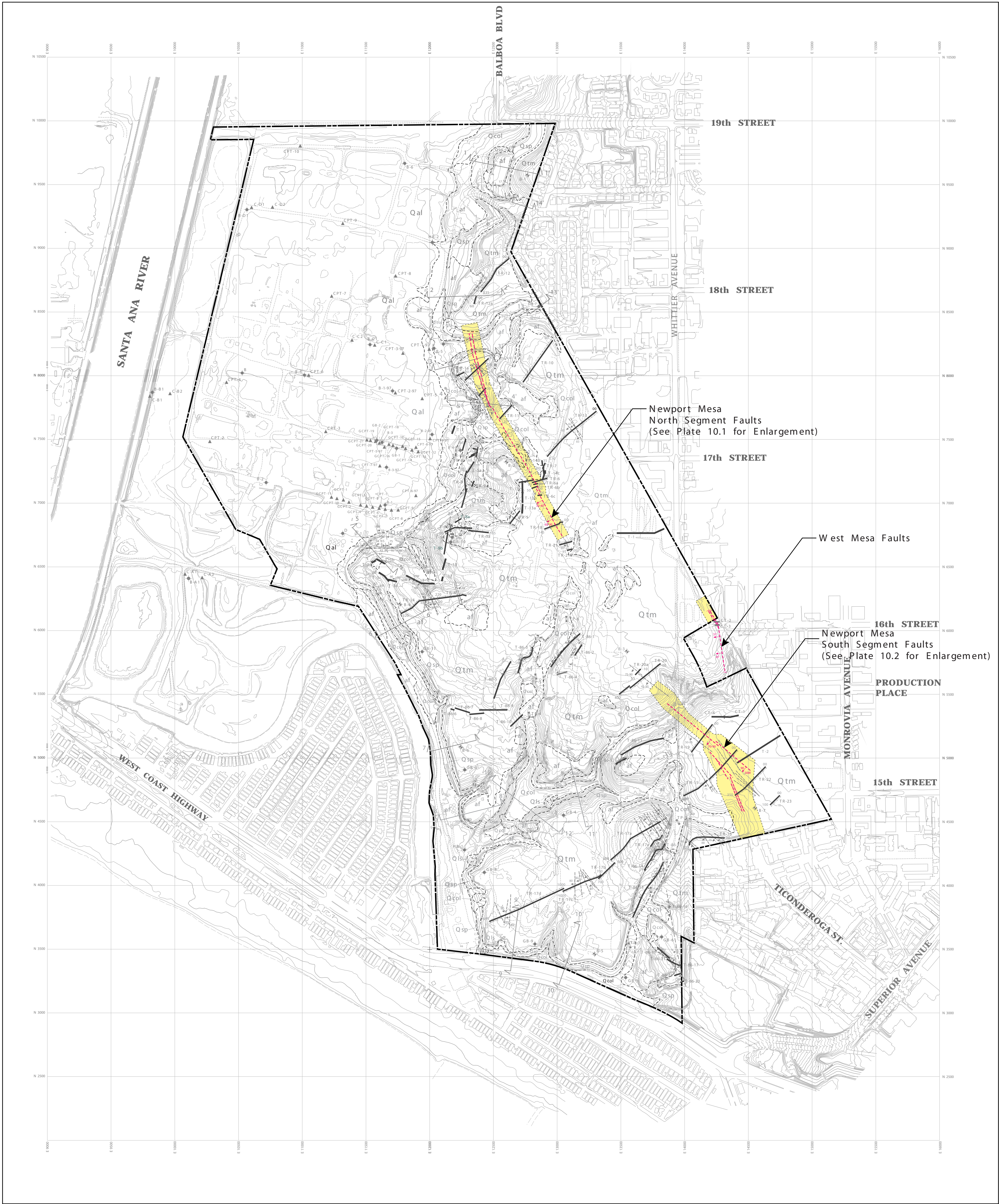


GEOLOGIC CROSS SECTION 14-14'

Project Name: Newport Banning Ranch	Project No: 06-163-00	Date: July 2011
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PLATE

8.14



EXPLANATION

- Strike and Dip of Beds
- Horizontal Bedding
- Geologic Contact, Approximately Located, Dotted W here Concealed and Dashed W here Uncertain
- Continuous, Unbroken Pre-Holocene Age Deposits
- Inactive Fault (Black), Showing Strike and Dip
- Fault That Could Not Be Proved Inactive (Red), Showing Strike and Dip
- Paleo-Channel in Qsp Formation Deposits
- Landslide, Showing Movement Direction
- Fault Setback Zone

- Leighton & Associates CPT Sounding (1997)
- Leighton & Associates Hollow Stem Auger Boring (1997)
- Goffman, McCormick & Urban, Inc., CPT Sounding (1998)
- Goffman, McCormick & Urban, Inc., Bucket Auger Boring (1998)
- Pacific Soils Engineering Bucket Auger Boring (1993)
- Pacific Soils Engineering Hollow Stem Auger Boring (1993)
- Woodward Clyde Consultants CPT Sounding (1985)
- Woodward Clyde Consultants Hollow Stem Auger Boring (1985)
- Fault Trench, by Goffman, McCormick & Urban, Inc., This Study, Showing Station "00"

- Fault Trench by Earth Technology (1986)
- Fault Trench by Converse Consultants (1994)
- Fault Trench By ECI, Inc., for Leighton & Associates, Inc. (1997)
- Test Pits by Goffman, McCormick & Urban, Inc. (1998)
- Groundwater Monitoring Well Installed by GeoSyntec (1994)
- Hilfiker Wall
- Geologic Cross Section Line



Approximate Graphic Scale:
One Inch Equals 400 Feet
Contour Interval: 2 feet

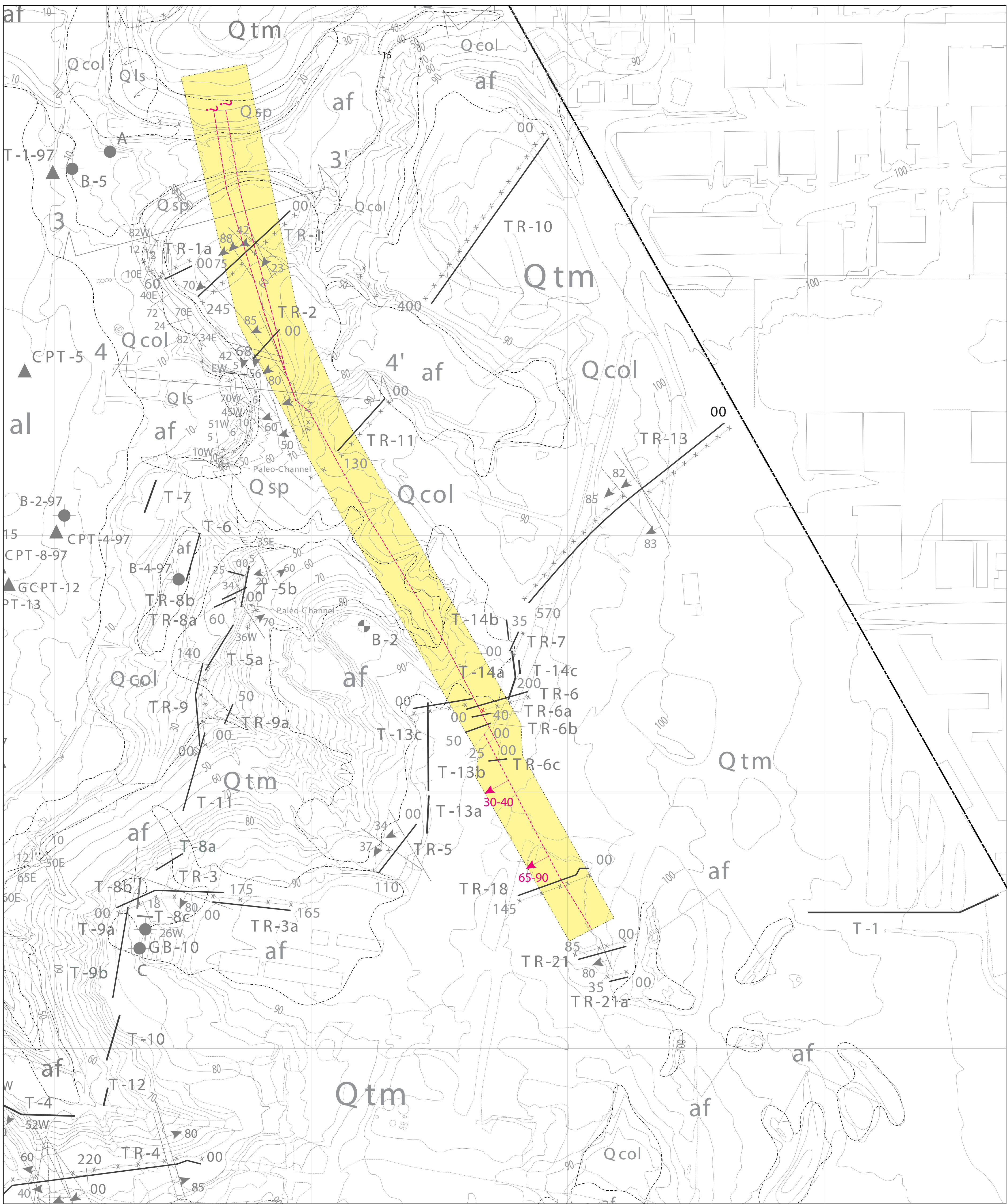
- Notes:
- 1. All Locations are Approximate.
 - 2. The Base Map was Obtained from Fuscoe Engineering.



FAULT SETBACK ZONES

Project Name: Newport Banning Ranch Project No: 06-163-00 Date: July 2011

PLATE



EXPLANATION

- Strike and Dip of Beds
- Horizontal Bedding
- Geologic Contact, Approximately Located, Dotted W here Concealed and Dashed W here Uncertain
- Continuous, Unbroken Pre-Holocene Age Deposits
- Inactive Fault (Black), Showing Strike and Dip
- Fault That Could Not Be Proved Inactive (Red), Showing Strike and Dip
- Paleo-Channel in Qsp Formation Deposits
- Landslide, Showing Movement Direction
- Fault Setback Zone

- Leighton & Associates CPT Sounding (1997)
- Leighton & Associates Hollow Stem Auger Boring (1997)
- Goffman, McCormick & Urban, Inc., CPT Sounding (1998)
- Goffman, McCormick & Urban, Inc., Bucket Auger Boring (1998)
- Pacific Soils Engineering Bucket Auger Boring (1993)
- Pacific Soils Engineering Hollow Stem Auger Boring (1993)
- Woodward Clyde Consultants CPT Sounding (1985)
- Woodward Clyde Consultants Hollow Stem Auger Boring (1985)
- Fault Trench, by Goffman, McCormick & Urban, Inc., This Study, Showing Station "00"

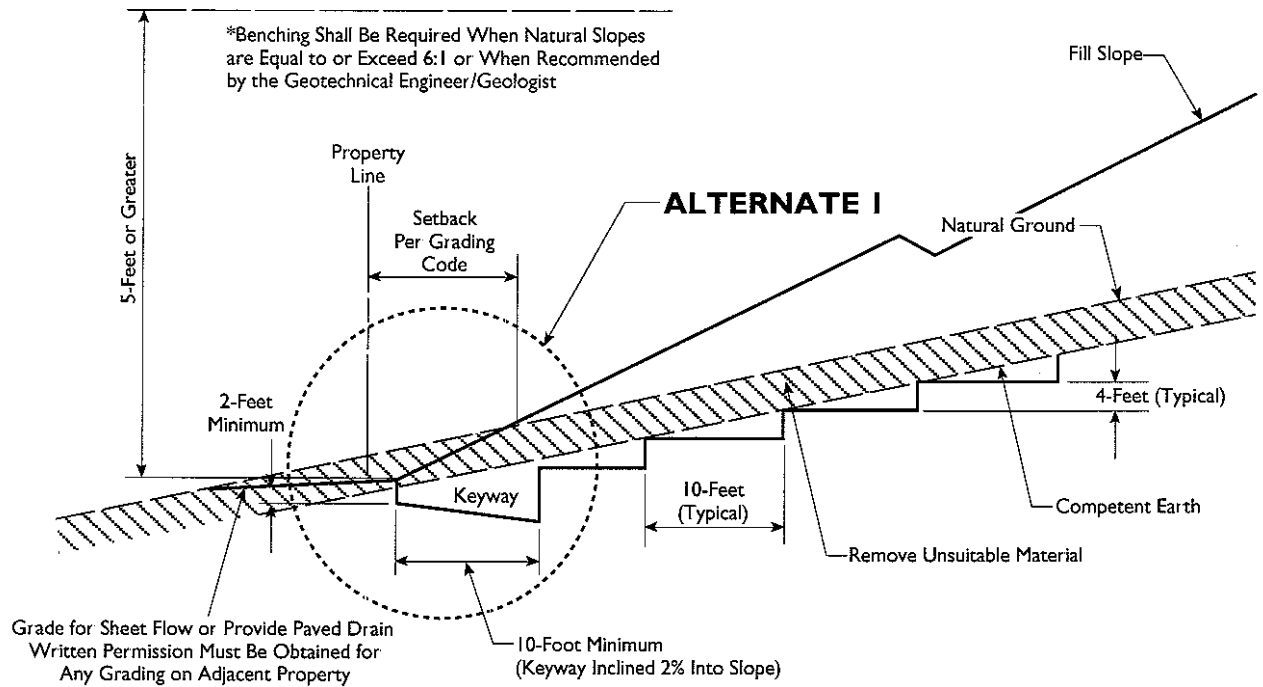
- Fault Trench by Earth Technology (1986)
- Fault Trench by Converse Consultants (1994)
- Fault Trench By ECI, Inc., for Leighton & Associates, Inc. (1997)
- Test Pits by Goffman, McCormick & Urban, Inc. (1998)
- Groundwater Monitoring Well Installed by GeoSyntec (1994)
- Hilfiker Wall
- Geologic Cross Section Line



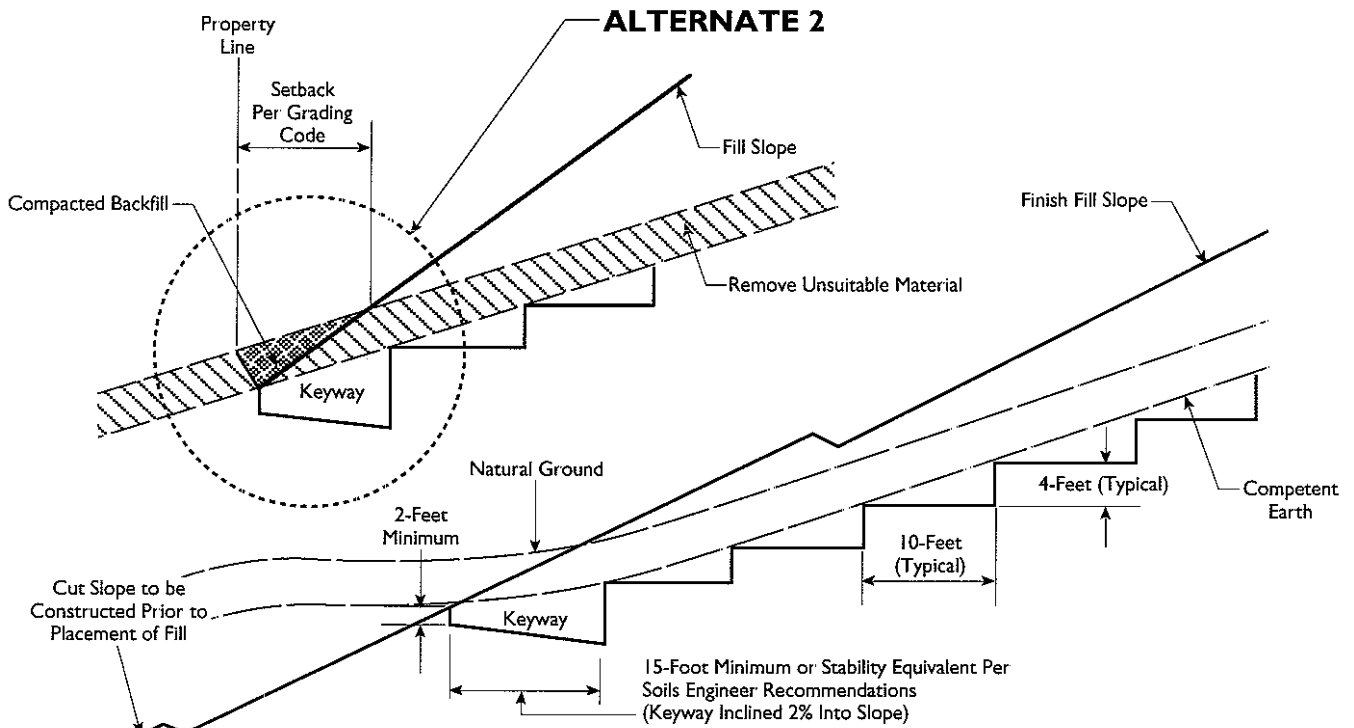
Approximate Graphic Scale:
One Inch Equals 100 Feet
Contour Interval: 2 feet

Notes:
1. All Locations are Approximate.
2. The Base Map was Obtained from Fuscoe Engineering.





BENCHED FILL OVER NATURAL



BENCHED FILL OVER CUT



TYPICAL BENCHING AND KEYWAY

PLATE

10

Project Name:

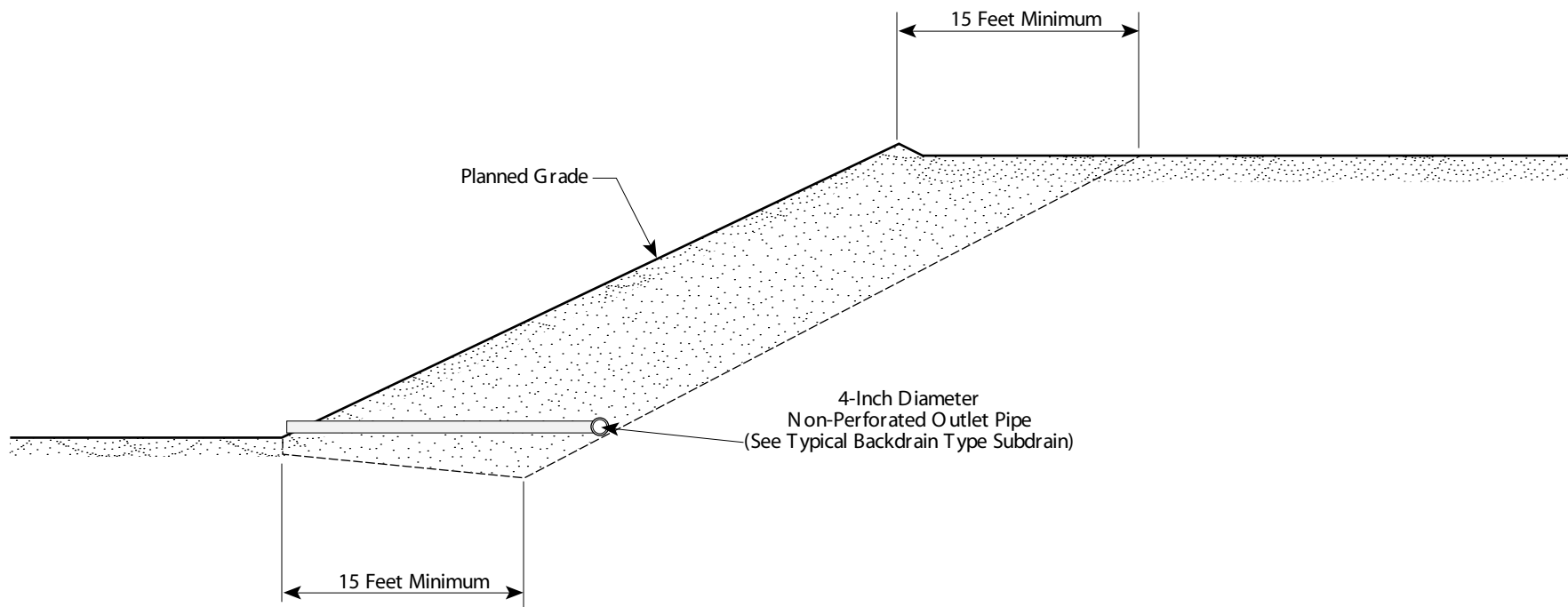
Newport Banning Ranch

Project No:

06-163-00

Date:

July 2011



Notes:

1. All Buttress or Stabilization Dimensions to be Determined by Geotechnical Engineer/Geologist.
2. Keyway Width and Depth to be per Recommendations of Soils Engineer and Geologist
3. Natural Slope Surface Removed to be Reconstructed as a Compacted Fill Slope.
4. Any "Tailings" Deposited on the Natural Slope Surface Downhill from the Keyway are to be Removed.
5. All Dimensions and Locations are Approximate.
6. Drawing is not to Scale.



TYPICAL BUTTRESS OR
STABILIZATION FILL

Project Name:

Newport Banning Ranch

Project No:

06-163-00

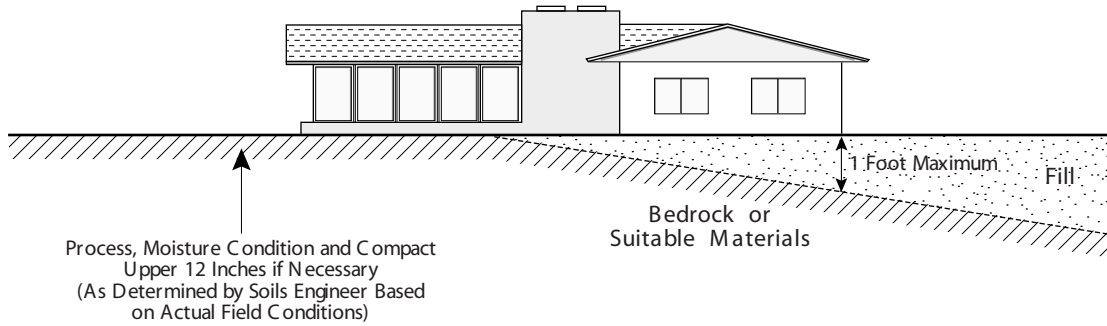
Date:

July 2011

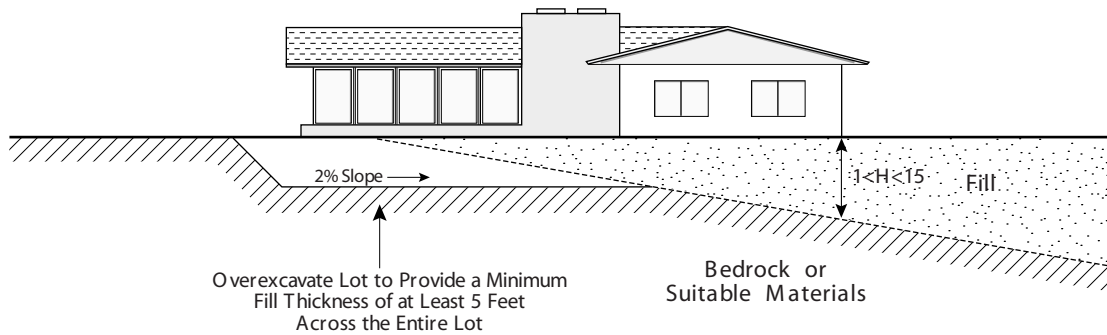
PLATE

11

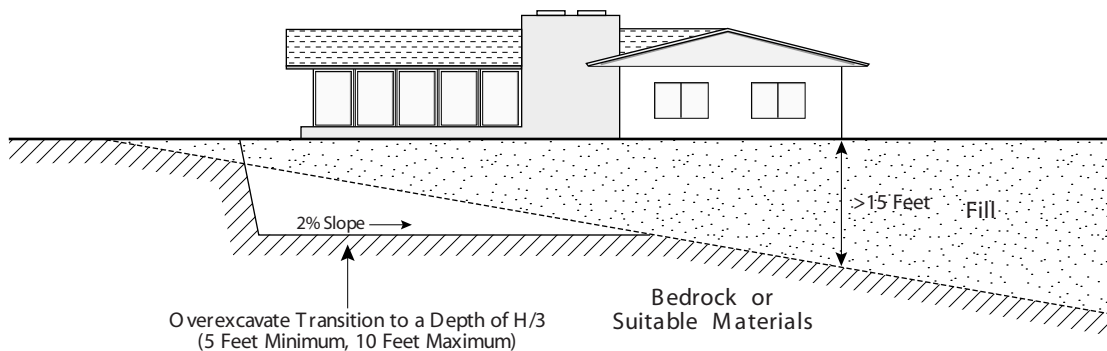
SCENARIO 1



SCENARIO 2



SCENARIO 3



TYPICAL DETAIL OVER-EXCAVATION OF TRANSITION LOTS

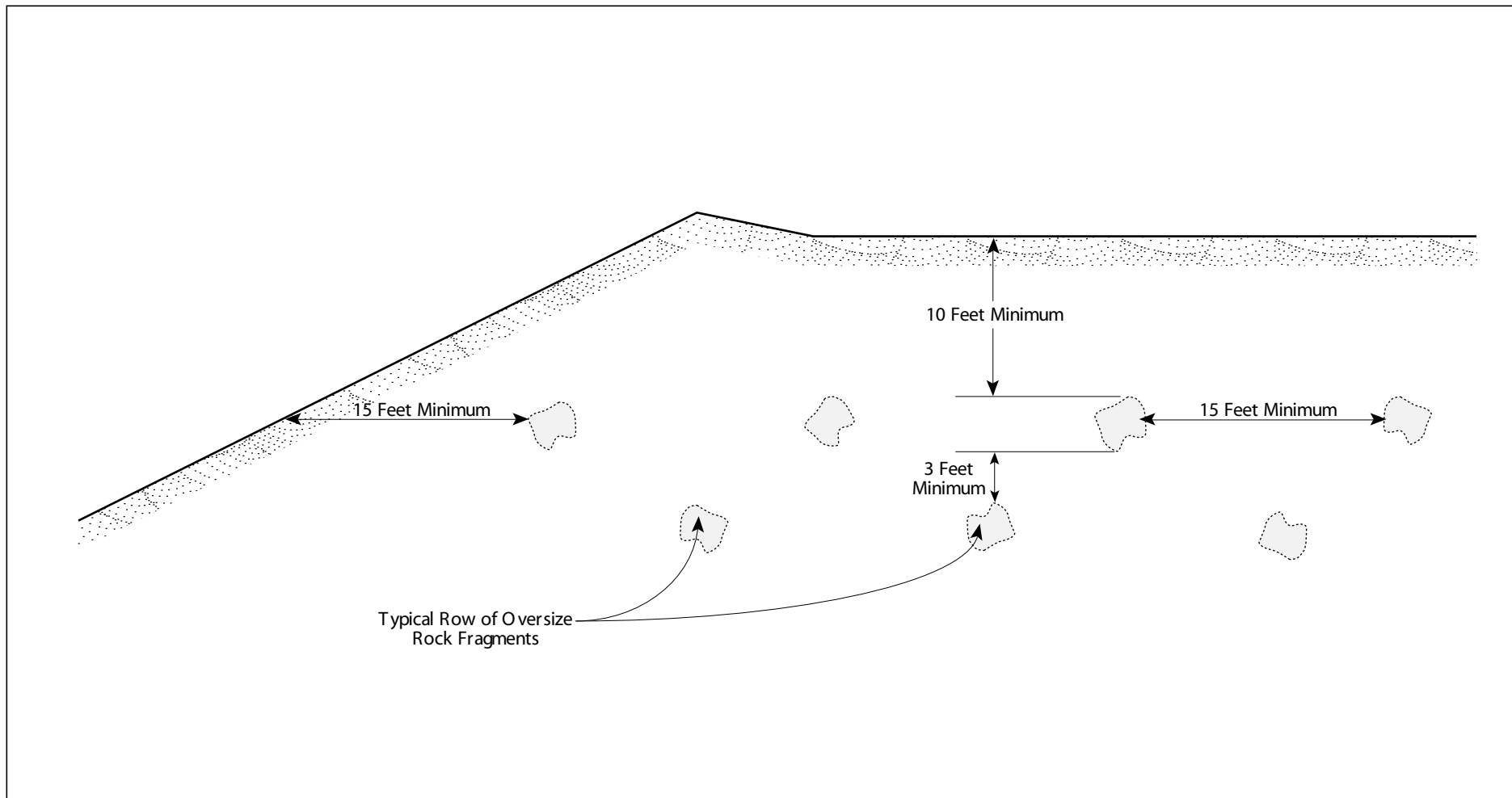
Project Name:
Newport Banning Ranch

Project No:
06-163-00

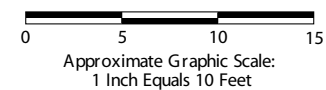
Date:
July 2011

PLATE

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- Notes:
1. All Dimensions and Locations are Approximate.
 2. Drawing is not to scale.



RECOMMENDED PLACEMENT METHOD FOR OVERSIZE ROCK OR CONCRETE

Project Name:

Newport Banning Ranch

Project No:

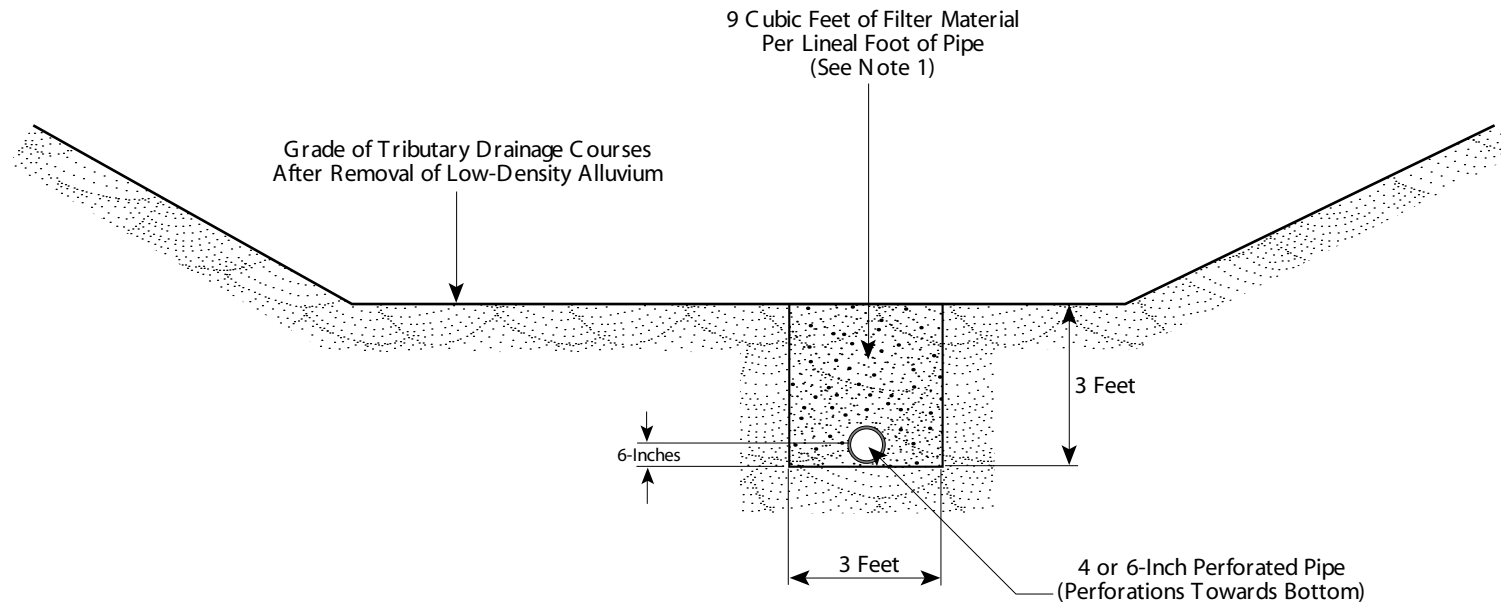
06-163-00

Date:

July 2011

PLATE

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PIPE TO MEET COUNTY OF ORANGE REQUIREMENTS
 ABS PIPE: ASTM D2751, SDR 35 OR ASTM D1527, Schedule 40
 PVC PIPE: ASTM D3034, SDR 35 or ASTM D1785, Schedule 40

Notes:

1. Filter Material to Conform to Gradation Specifications per OCEMA Standard Plan No. 1323 or an Approved Equal Consisting of Filter Fabric and Crushed Rock.
2. See Typical Canyon Bottom Subdrain Detail for Pipe Specification.
3. All Dimensions and Locations are Approximate.
4. Drawing is not to Scale.



TYPICAL CANYON BOTTOM DETAIL

Project Name:

Newport Banning Ranch

Project No:

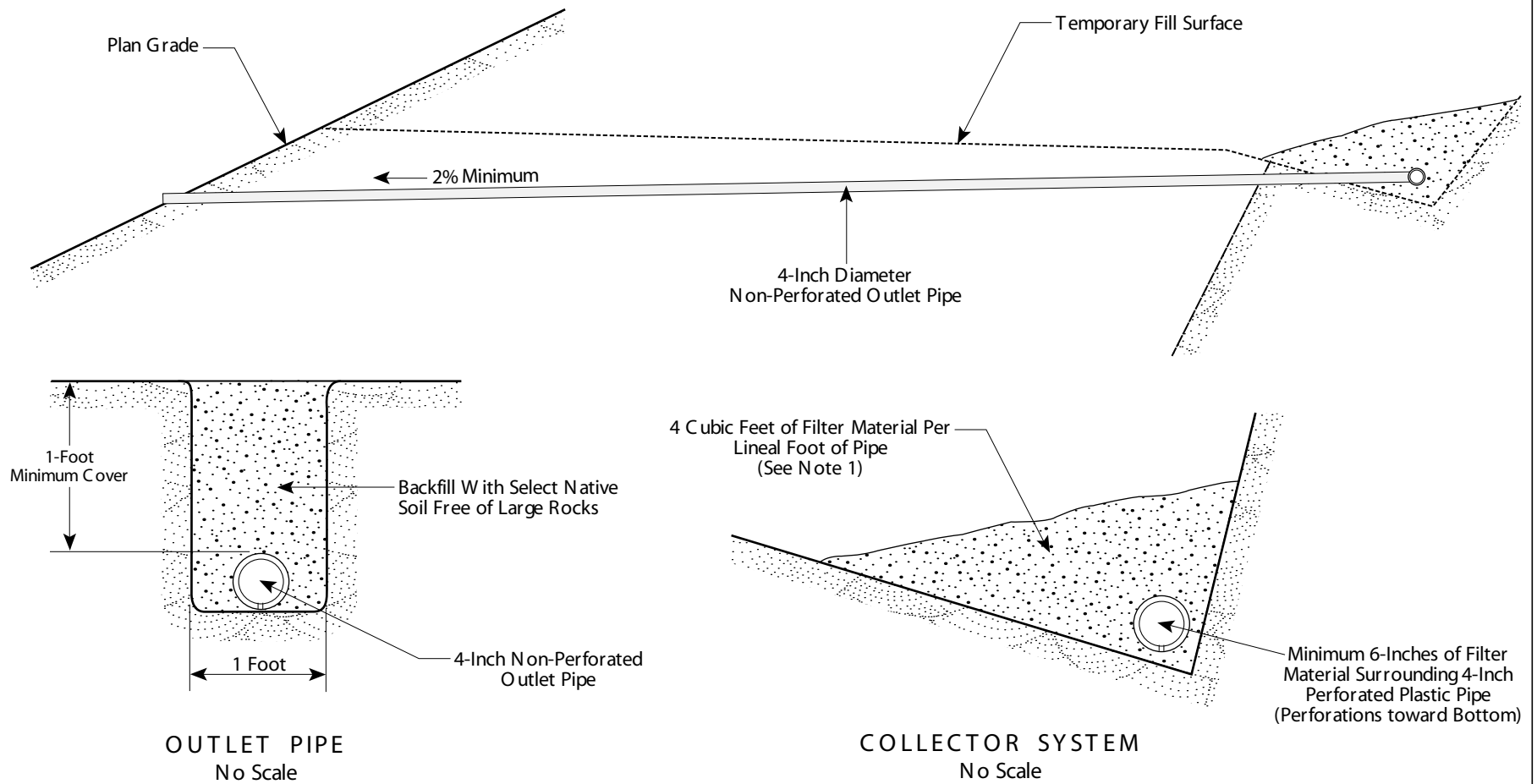
06-163-00

Date:

July 2011

PLATE

14



Notes:

1. Filter Material to Conform to Gradation Specifications per OCEMA Standard Plan No. 1323 or an Approved Equal Consisting of Filter Fabric and Crushed Rock.
2. See Typical Canyon Bottom Subdrain Detail for Pipe Specification.
3. All Dimensions and Locations are Approximate.
4. Drawing is not to Scale.



TYPICAL BACKDRAIN TYPE SUBDRAIN

Project Name:

Newport Banning Ranch

Project No:

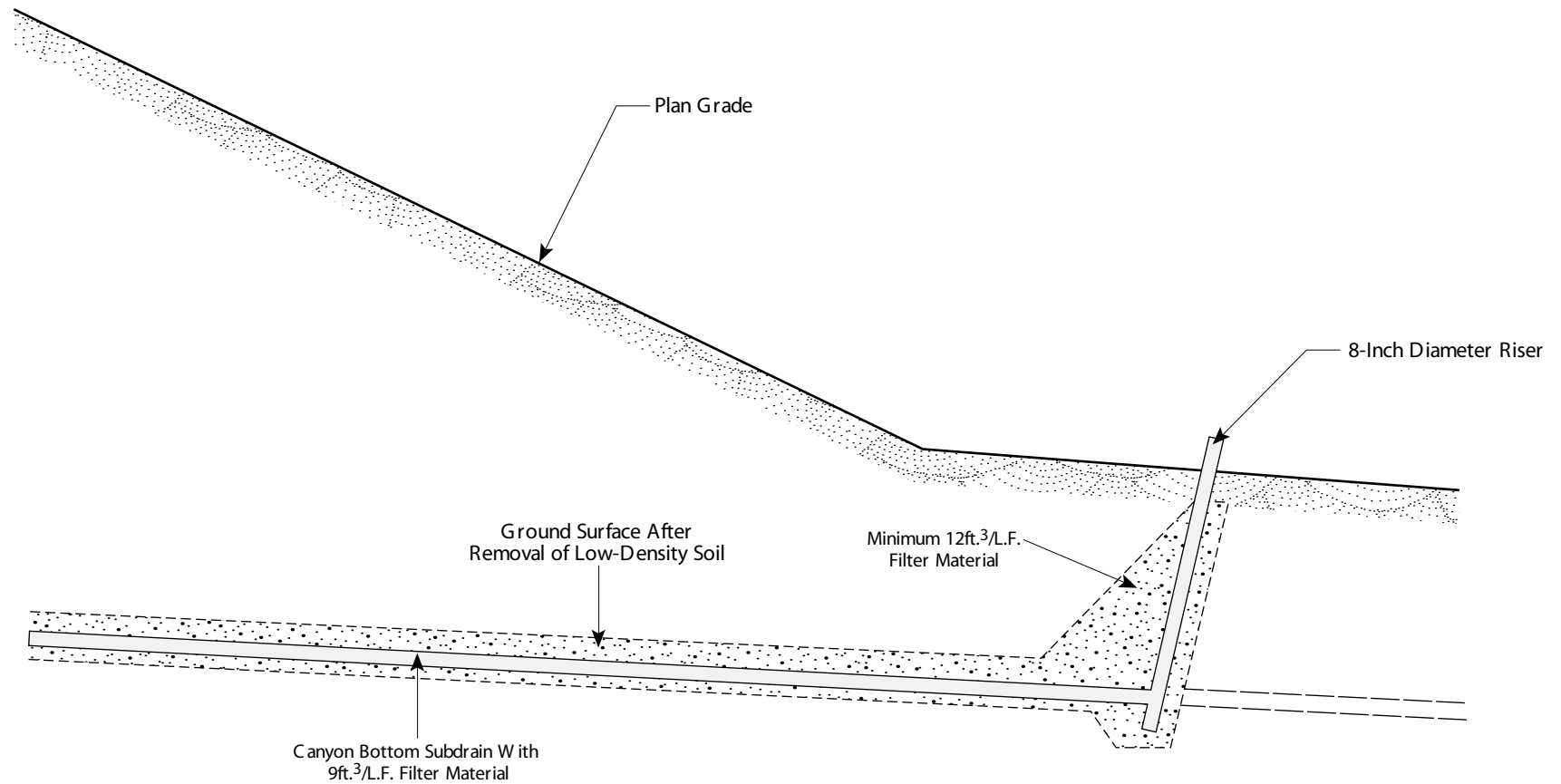
06-163-00

Date:

July 2011

PLATE

15



Notes:

1. Filter Material to Conform to Gradation Specifications per OCEMA Standard Plan No. 1323 or an Approved Equal Consisting of Filter Fabric and Crushed Rock.
2. See Typical Canyon Bottom Subdrain Detail for Pipe Specification.
3. All Dimensions and Locations are Approximate.
4. Drawing is not to Scale.



TYPICAL DEWATERING SUMP

Project Name:

Newport Banning Ranch

Project No:

06-163-00

Date:

July 2011

PLATE

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