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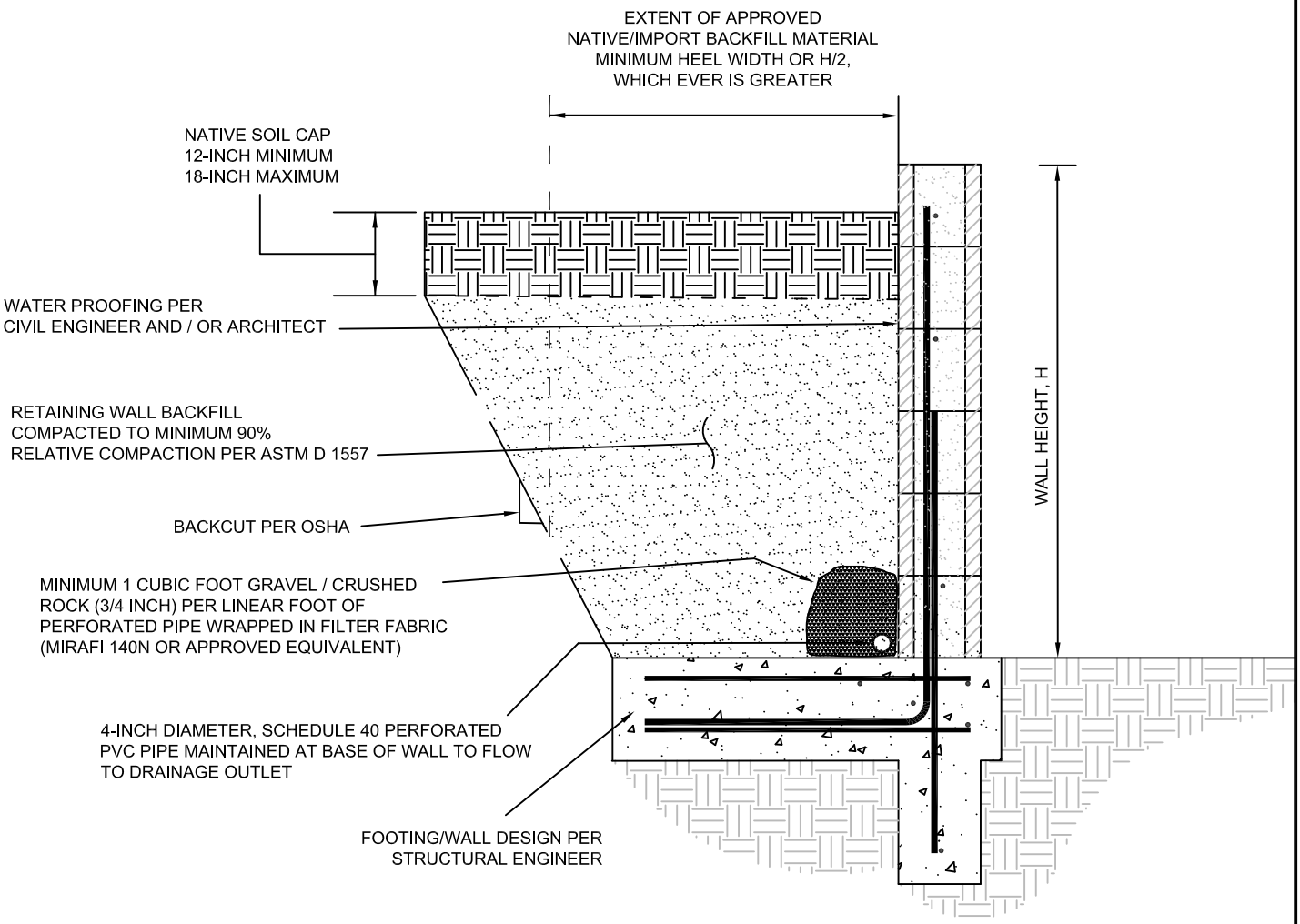
FIGURE 2
Geotechnical Map

CLIENT:
Baker Ranch Properties, LLC

PROJECT NAME	*Baker Ranch Development*
PROJECT NO.	*11094-03*
ENG. / GEOL.	*DJB / KTM*
SCALE	*Not to Scale*
DATE	*January 2012*



NOTE:
1. PLACEMENT OF SUBDRAIN AT BASE OF WALL IS INTENDED TO DRAIN THE RETAINING WALL BACKFILL AND WILL NOT PREVENT SATURATION OF SOILS BELOW AND / OR IN FRONT OF WALL

Version 05/2010

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FIGURE 3
Typical Retaining Wall Backfill and Drainage Detail Approved Native/Import Material Backfill
SE > 30

PROJECT NAME	Baker Ranch Development
PROJECT NO.	11094-03
ENG. / GEOL.	DJB / KTM
SCALE	N.T.S.
DATE	January 2012

Appendix A
References

APPENDIX A

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Appendix B
Logs of Exploratory Borings

Geotechnical Boring Log Borehole HS-1

Date: 11/15/2011	**Drilling Company:** CalPac Drilling
Project Name: Baker Ranch Development	**Type of Rig:** B-61 Hollow Stem Auger
Project Number: 11094-03	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~768' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By KTM
Sampled By KTM
Checked By KTM

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							**Tertiary Capistrano Formation - Oso Member (Tco)**	
765									
	5		R-1	31 50/5"	111.5	3.8	[SP-SM]	@5' R-1 Light gray with black specks, SANDSTONE with SILT, slightly moist, very dense, medium to coarse sand, subangular, quartz-rich, lacks cementation	
760									
	10		R-2	24 50/3"	115.8	4.0	[SP-SM]	@10' R-2 Light brownish gray, SILTY SANDSTONE, moist, very dense, very fine to medium with few coarse sand	
755									
	15	B-1	R-3	50/3"	102.8	3.8	[SP-SM]	@15' R-3 as above at 10'	
750								@15' to 20' B-1 Light brown, SAND with SILT, very moist, very dense, fine to medium subrounded sand, quartz-rich	EI MD RV CR
	20		R-4	50/5"			[SP-SM]	@20' R-4 Sample lost	
745								Total Depth = 20' Groundwater Not Encountered Backfilled with Cuttings on 11/15/2011	
	25								
740									
	30								

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THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED. THE DESCRIPTIONS PROVIDED ARE QUALITATIVE FIELD DESCRIPTIONS AND ARE NOT BASED ON QUANTITATIVE ENGINEERING ANALYSIS.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/14/2011

Geotechnical Boring Log Borehole HS-2

Date: 11/15/2011	**Drilling Company:** CalPac Drilling
Project Name: Baker Ranch Development	**Type of Rig:** B-61 Hollow Stem Auger
Project Number: 11094-03	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~775' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By KTM
Sampled By KTM
Checked By KTM

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							**Tertiary Capistrano Formation - Oso Member (Tco)**	
770	5		R-1	8 12 24	112.2	9.2	[SM]	@5' R-1 Light brown & gray mottled, SILTY SANDSTONE, moist, dense, very fine to fine sand, weakly cemented	
765	10		R-2	16 50/6"	101.1	13.8	[SM]	@10' R-2 Light yellowish gray, SILTY SANDSTONE, moist, very dense, fine sand, weakly cemented zones, well indurated otherwise	DS
760	15		R-3	24 50/3"	112.9	3.6	[SM]	@15' R-3 Light brown & gray mottled, SILTY SANDSTONE, slightly moist, very dense, very fine to fine with few medium sand, lacks cementation	
755	20		R-4	50/5"	102.3	4.9	[SM]	@20' R-4 As above at 15'	
								Total Depth = 21' Groundwater Not Encountered Backfilled with Cuttings on 11/15/2011	
750	25								
	30								

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
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EI	EXPANSION INDEX
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CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/14/2011

Geotechnical Boring Log Borehole HS-3

Date: 11/15/2011	**Drilling Company:** CalPac Drilling
Project Name: Baker Ranch Development	**Type of Rig:** B-61 Hollow Stem Auger
Project Number: 11094-03	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~782' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By KTM
Sampled By KTM
Checked By KTM

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0								
780								**Tertiary Capistrano Formation - Oso Member (Tco)**	
	5		R-1	30 50/4"	103.8	11.4	[SM]	@5' R-1 Light brownish gray, SILTY SANDSTONE, moist, very dense, very fine to fine sand, weakly cemented	
775									
	10		R-2	30 50/3"	105.4	7.1	[SM]	@10' R-2 Light yellowish brown mottled, SILTY SANDSTONE, slightly moist, very dense, very fine to fine sand with few medium, variable weakly cemented zones (nodules)	
770									
	15		R-3	20 50/4"	108.1	11.5	[SM]	@15' R-3 Light brownish gray, SILTY SANDSTONE, moist, very dense, very fine to fine sand, weakly cemented	
765									
	20		R-4	22 50/4"	107.5	1.8	[SM]	@20' R-4 Light orangish brown, SILTY SANDSTONE, moist, very dense, very fine to fine sand (beach sand appearance), mica grains, minor oxidation staining	
760									
	25							Total Depth = 21' Groundwater Not Encountered Backfilled with Cuttings on 11/15/2011	
755									
	30								

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/14/2011

Geotechnical Boring Log Borehole HS-4

Date: 11/15/2011	**Drilling Company:** CalPac Drilling
Project Name: Baker Ranch Development	**Type of Rig:** B-61 Hollow Stem Auger
Project Number: 11094-03	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~774' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By KTM
Sampled By KTM
Checked By KTM

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							**Tertiary Capistrano Formation - Oso Member (Tco)**	
770									
	5		R-1	56/6"	98.8	11.5	[SP-SM]	@5' R-1 Off white to light gray, SANDSTONE with SILT to SILTY SANDSTONE, slightly moist, very dense, fine to coarse sand, subangular to subrounded, quartz-rich	
765									
	10		R-2	24 50/4"	106.2	3.6	[SP-SM]	@10' R-2 As above at 5', except moist, faint yellowish oxidation staining	S&H
760									
	15		R-3	32 50/3"	112.4	4.1	[SP-SM]	@15' R-3 As above at 10'	
755									
	20		R-4	32 50/2"	107.7	4.2	[SP-SM]	@20' R-4 As above at 10'	
750								Total Depth = 21' Groundwater Not Encountered Backfilled with 3' Diameter Perforated PVC and 3/4" Gravel on 11/15/2011, Filled with Native on 11/16/11	
	25								
745									
	30								

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/14/2011

Geotechnical Boring Log Borehole HS-5

Date: 11/15/2011	**Drilling Company:** CalPac Drilling
Project Name: Baker Ranch Development	**Type of Rig:** B-61 Hollow Stem Auger
Project Number: 11094-03	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~774' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By KTM
Sampled By KTM
Checked By KTM

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							**Tertiary Capistrano Formation - Oso Member (Tco)**	
770	5	B-1	R-1	30 50/3"	111.9	8.9	[SM]	@5' R-1 Light grayish brown with brown specks, SILTY SANDSTONE, moist, very dense, very fine to medium sand, mica grains, lacks cementation @5' to 7' Bulk Sample B-1 - Light brown SILTY SANDSTONE (with trace Clay?), moist, very dense, very fine to fine	EI
765	10		R-2	24 40 50/3"	112.8	14.2	[SM]	@10' R-2 Light grayish brown, SILTY SANDSTONE, moist, very dense, very fine to fine (high % of fines), weakly cemented	
760	15		R-3	15 50/4"	101.1	13.4	[SM]	@15' R-3 As above except lacks cementation (possible trace clay)	
755	20		R-4	20 50/3"	103.6	6.3	[SM]	@20' As above at 15'	
750	25							Total Depth = 21' Groundwater Not Encountered Backfilled with Cuttings on 11/15/2011	
745	30								

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/14/2011

Geotechnical Boring Log Borehole HS-6

Date: 11/15/2011	**Drilling Company:** CalPac Drilling
Project Name: Baker Ranch Development	**Type of Rig:** B-61 Hollow Stem Auger
Project Number: 11094-03	**Drop:** 30" **Hole Diameter:** 6"
Elevation of Top of Hole: ~788' MSL	**Drive Weight:** 140 pounds
Hole Location: See Geotechnical Map	Page 1 of 1

Logged By KTM
Sampled By KTM
Checked By KTM

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0							**@0' to 11' - Quaternary Younger Fan Deposit (Qyf)**	
785									
	5		R-1	8 8 9	110.5	8.4	SM	@5' R-1 Mottled light brown, orange, and brown, SILTY SAND, moist, medium dense, very fine to fine sand, clasts of fine sandstone to 1/2" dia., angular inclusions	
780									
	10		R-2	7 7 6	104.3	10.3	SM	@10' R-2 Light brown to light orange brown with reddish brown inclusions, SILTY SAND, moist, medium dense, very fine to fine sand, sandstone clasts to 1"dia, well cemented, angular	
775								**@11' to TD - Tertiary Capistrano Formation - Oso Member (Tco)**	
	15		R-3	26 50/4.5"	100.3	7.0	[SM]	@15' R-3 Light yellowish brown, SILTY SANDSTONE, moist, very dense, fine sand with mica (beach sand appearance), lacks cementation, well indurated	
770									
	20		R-4	24 50/6"	111.2	8.4	[SM]	@20' R-4 Off white to light gray, SILTY SANDSTONE, moist, very dense, fine to medium with few coarse sand, quartz-rich, subangular, minor yellowish oxidation staining (similar to material of HS-4 of same project)	
765									
	25							Total Depth = 21' Groundwater Not Encountered Backfilled with Cuttings on 11/15/2011	
760									
	30								

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE (CA Modified Sampler)
G	GRAB SAMPLE
SPT	STANDARD PENETRATION TEST SAMPLE
▽	GROUNDWATER TABLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE
-#200	% PASSING # 200 SIEVE

Last Edited: 12/14/2011

Geotechnical Boring Log LGC-1

Date : 11/8/2011	Page 1 of 2	**Drilling Company :**	Haven Geotech Construction
Project Name :	Psomas Desilter	**Type of Rig :**	Bayshore Limited Access
Project Number :	11094-02	**Drop :** 30"	**Hole Diameter :** 24"
Elevation of Top of Hole :	~ 786 ' MSL	**Drive Weight :**	140
Hole Location :	See Geotechnical Map		

Logged by KTM

Sampled by KTM

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
785	0							SC-SM	**@0' to 0.5' <u>Artificial Fill Uncompacted</u> -** Light brown & dark brown mottled Clayey Sand, Very moist, slightly dense to dense, roots, debris	
								[SM]	**@0.5 to TD - <u>Tertiary Capistrano Formation, Oso Member (Tco)</u> -** Off white & gray with black grains, SILTY SANDSTONE, slightly moist to moist, dense to very dense, very fine to coarse sand with scattered gravel to 0.5", subangular, about 20% fines, massive,	
	5									
780									@5' Light yellow oxidation circles to 3" dia scattered, lacks gravels @6' Increase mica content, slight moisture increase to moist	
			B: N30E, 14 W						@8' Mica laminations, faint crossbedding attitude	
	10									
775										
			J: N40W, 35SW						@12' Joint attitude, faintly defined	
	15									
770										
			B:N25W, 22NE						@17.5' Bedding attitude, defined by mica (not crossbed)	
								[SM]	@19' Bulk Sample B-1 - Light Gray to off white, SILTY SANDSTONE, moist, dense, very fine to coarse sand, subangular, quartz-rich	MD
	20								@20' Yellow oxidation halos around grains persist, quartz grains globular, mica grains are fresh-looking	
765			B:N60W, 23NE						@21' Bedding attitude, faint, generalized	
				B1						
	25									
760										
									@28 Yellow Oxidation circles scattered, to 4" dia	

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE
G	GRAB SAMPLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE

Last Edited: 11/27/2011

Geotechnical Boring Log LGC-1

Date : 11/8/2011	Page 2 of 2	**Drilling Company :**	Haven Geotech Construction
Project Name :	Psomas Desilter	**Type of Rig :**	Bayshore Limited Access
Project Number :	11094-02	**Drop :** 30"	**Hole Diameter :** 24"
Elevation of Top of Hole :	~ 786 ' MSL	**Drive Weight :**	140
Hole Location :	See Geotechnical Map		

Logged by KTM

Sampled by KTM

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
755	30			R-1	26/12"	103.5	5.7	[SM]	@30' R-1 - Off-white to light brown, SILTY SANDSTONE, moist, dense, very fine to coarse sand, subangular, lacks cementation, well indurated	
			J:N75W, 65N						@30' Joint Attitude, faint discoloration, sub-planar	
									remains faintly oxidized	
	35									
750									@36' slight increase in moisture	
									@37' Zone of oxidation rings, concentric, variable color, thin rings to 4" dia	
									@39' Single 12-layer oxidation ring to 7" dia	
	40			R-2	36/12"	99.3	6.7	[SM]	'@40' R-2 - as above at 30'	
745									@42' End visual log	
	45								**Total Depth = 44'**	
740									**No Ground Water Encountered**	
									Backfilled with Bentonite Layers and Native Compacted on 11/8/2011 (2' layer at bottom, 10' native, 1' layer, 10' native, etc., to within 10' of top, then 5' layer, and 5' native)	
	50									
735										
	55									
730										

LGC Geotechnical, Inc.

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SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE
G	GRAB SAMPLE

TEST TYPES:

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MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE

Geotechnical Boring Log LGC-2

Date : 11/9/2011	Page 1 of 2	**Drilling Company :**	Haven Geotech Construction
Project Name :	Psomas Desilter	**Type of Rig :**	Bayshore Limited Access
Project Number :	11094-02	**Drop :** 30"	**Hole Diameter :** 24"
Elevation of Top of Hole :	~ 781 ' MSL	**Drive Weight :**	140
Hole Location :	See Geotechnical Map		

Logged by KTM

Sampled by KTM

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
780	0							SC-SM	**@0' to 5' Artificial Fill Uncompacted** - Light brown & dark brown layered, Clayey & Silty Sand, very moist, dense, fine to medium sand, pods of clayey topsoil	
									@5 to TD - Tertiary Capistrano Formation, Oso Member (Tco) - Off white & light yellowish/greenish gray with dark grains, SILTY SANDSTONE, slightly moist to moist, dense to very dense, very fine to coarse sand, subangular,quartz and feldspar rich, few mica	
	5							[SM]		
775			B: N10E, 14E						@6' Bedding attitude, defined by thin brown	
			B: N5W, 21W						@9' Bedding attiutde, mica defined, lamination, faint yellow oxidation circles to 3" dia	
	10			R-1	38/12"	106.3	5.6	[SM]	@10' R-1 - Off white to light gray with dark grains, SILTY SANDSTONE, slightly moist, dense, sand is very fine to coarse, subangular, scattered mica	DS
770									@11' Increase coarse sand, scattered pebbles to 0.5", gradational variation	
									@13' Decrease coarse, more fine to medium sand	
			B: N5E, 18W						@14' Bedding attitude, mica lamination	
	15									
765										
									@18' Oxidation rings, concentric thin rings to 8" dia, to 23' depth. Faint yellow halos around sand grains indicate slightly weathered	
	20			R-1	39/12"	103.8	8.1	[SM]	@20' R-2 - same as above at 10', except moist, less coarse grain sand	S&H
760										
			B: N10W, 13W					[SC]	@23' Bedding attitude, sharp contact with light yellowish brown, CLAYEY SANDSTONE, moist, dense, fine to medium sand, mica, 0.5' thick bed, below is as above at 20'	
	25							[SM]	@25' Faint oxidation along bedding	
755										
									@27' Becomes 'salt & pepper' fine to coarse sandstone	

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE
G	GRAB SAMPLE

TEST TYPES:

DS	DIRECT SHEAR
MD	MAXIMUM DENSITY
SA	SIEVE ANALYSIS
S&H	SIEVE AND HYDROMETER
EI	EXPANSION INDEX
CN	CONSOLIDATION
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE

Last Edited: 11/27/2011

Geotechnical Boring Log LGC-2

Date : 11/9/2011	Page 2 of 2	**Drilling Company :**	Haven Geotech Construction
Project Name :	Psomas Desilter	**Type of Rig :**	Bayshore Limited Access
Project Number :	11094-02	**Drop :** 30"	**Hole Diameter :** 24"
Elevation of Top of Hole :	~ 781 ' MSL	**Drive Weight :**	140
Hole Location :	See Geotechnical Map		

Logged by KTM

Sampled by KTM

Elevation (ft)	Depth (ft)	Graphic Log	Attitudes	Sample Number	Blow Count	Dry Density(pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
750	30			R-3	42/12"	95.3	6.1	[SM]	@30' R-3 - as above at 20'	DS
			B:N5W, 15W						@32' Bedding attitude, CLAYEY SANDSTONE, moist, dense, fine to medium sand, 4" thick, concentric oxidation circles truncated by bed	
745	35			B1				[SM]	@35' to 38' Bulk Sample. Zone of moderately well cemented, light brown, SILTY SANDSTONE with CLAY, moist, very dense, harder drilling, vague contacts	
									@38' Material returns to as below at 40'	
740	40			R-4	50/12"	107.7	6.1	[SM]	@40' R-4 - Light gray with dark specs, SILTY SANDSTONE, moist, very dense, faint oxidation, fine to coarse sand @42' End visual log	
735	45								**Total Depth = 44'** **No Ground Water Encountered** **Backfilled with Bentonite Layers and Native Compacted on 11/9/2011 (2' layer at bottom, 10' native, 1' layer, 10' native, etc., to within 10' of top, then 5' layer, and 5' native)**	
730	50									
725	55									

LGC Geotechnical, Inc.

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

SAMPLE TYPES:

B	BULK SAMPLE
R	RING SAMPLE
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TEST TYPES:

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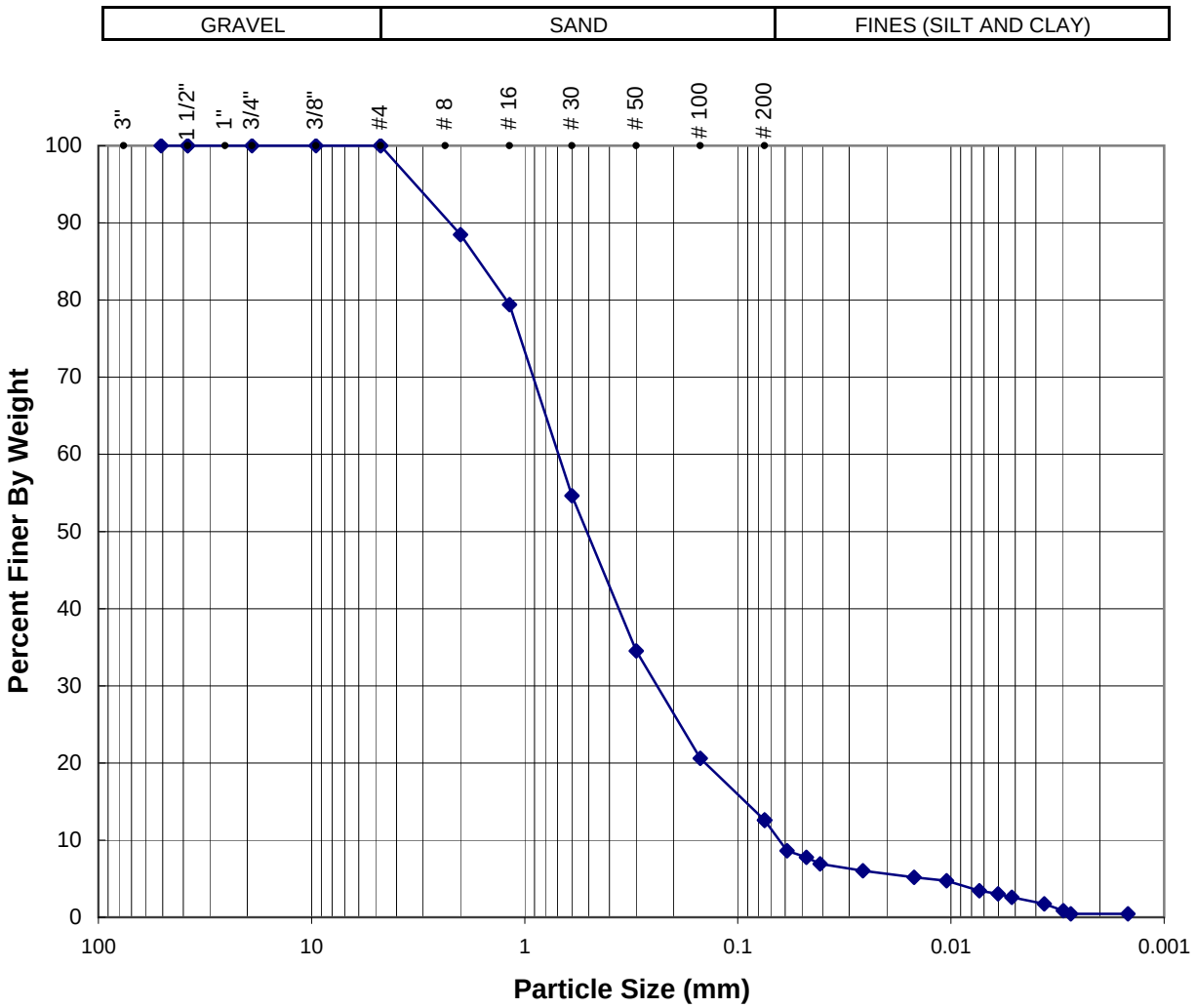
CR	CORROSION
AL	ATTERBERG LIMITS
CO	COLLAPSE/SWELL
RV	R-VALUE

Appendix C
Laboratory Test Results



Location:	Sample No.:	Depth (ft.)	Soil Type	Gravel (%)	Sand (%)	Fines (%)
HS-4	**R-2**	**10**	**SC**	**0**	**87**	**13**

Sample Description: Silty Sand

LGC Geotechnical, Inc.	**PARTICLE SIZE ANALYSIS** (ASTM D 422)	**Project Number:**	11094-03
		Date:	Dec-11
		Baker Ranch Development	

Location	Sample No.	Depth (ft)	Molding Moisture Content (%)	Initial Dry Density (pcf)	Final Moisture Content (%)	Expansion Index	Expansion Classification[1]
HS-5	B-1	5'-7'	50.0	114.9	18.7	0	Very Low

[1] Per ASTM D4829-08a

LGC Geotechnical, Inc.

EXPANSION INDEX
(ASTM D 4829)

Project Number: 11094-03
Date: Dec-11

Baker Ranch Development

Location	Sample No.	Depth (ft)	Molding Moisture Content (%)	Initial Dry Density (pcf)	Final Moisture Content (%)	Expansion Index	Expansion Classification[1]
HS-1	B-1	15'-20'	43.3	114.8	12.5	1	Very Low

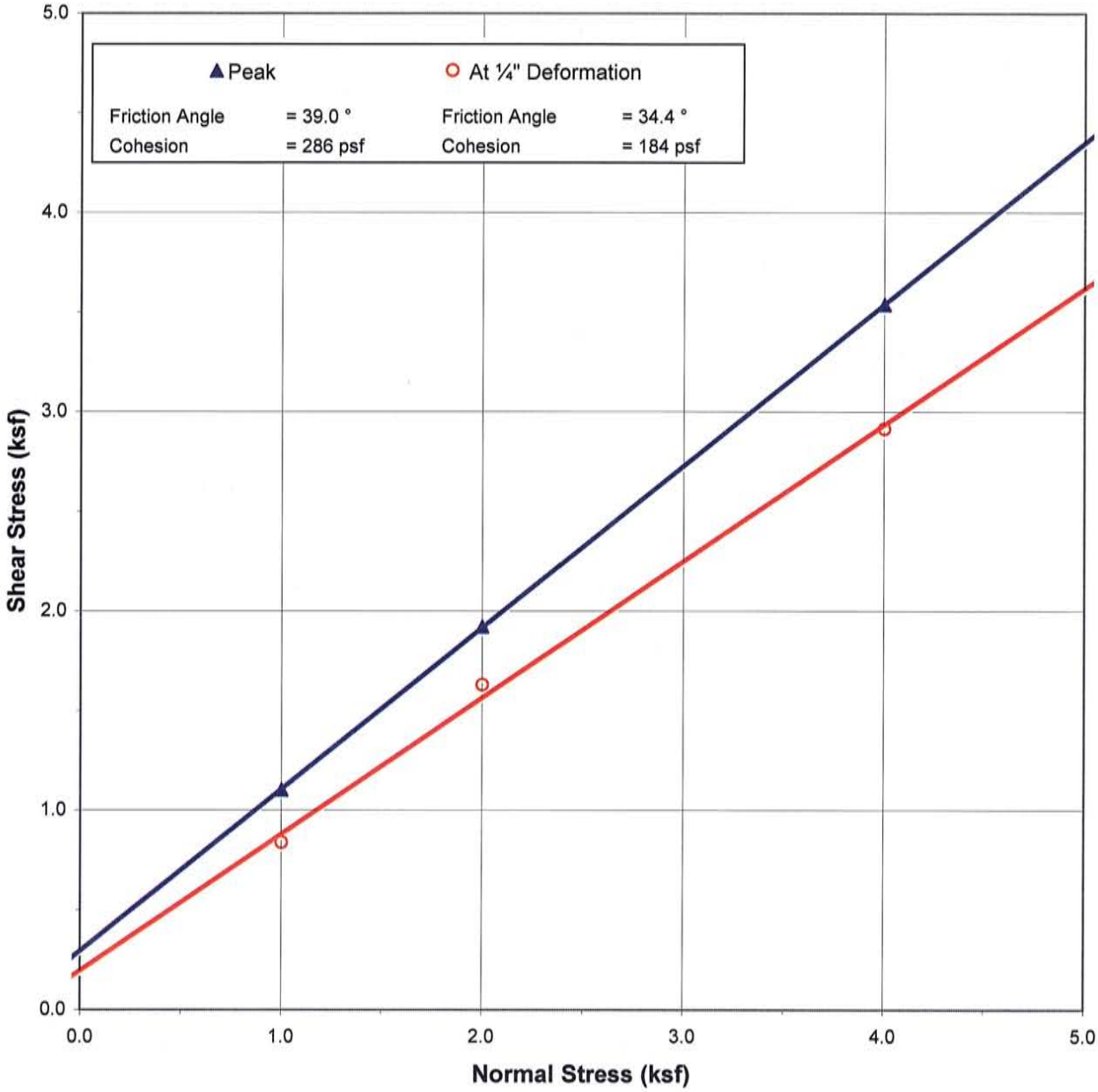
[1] Per ASTM D4829-08a

LGC Geotechnical, Inc.

EXPANSION INDEX
(ASTM D 4829)

Project Number: 11094-03
Date: Dec-11

Baker Ranch Development



Location:	Sample No.:	Depth (ft)	Sample Type	Shear Rate (inch/min)	Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)
HS-2	**R-2**	**10'**	**Ring**	**0.004**	**101.1**	**13.8**	**24.4**

Sample Description: Silty Sand

LGC Geotechnical, Inc.	**DIRECT SHEAR PLOT**	**Project Number:** 11094-03 **Date:** Jan-12
		Baker Ranch Development

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name:	LGC Geotechnical, Inc.	Tested By :	G. Berdy	Date:	01/04/12
Project No.:	11094-03	Input By :	J. Ward	Date:	01/11/12
Boring No.:	HS-1	Depth (ft.)	15-20		
Sample No. :	B-1				
Soil Identification:	Light olive poorly-graded sand (SP)				

Preparation Method: [X] Moist [ ] Dry

[X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03340

Ram Weight = 10 lb.; Drop = 18 in.

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	3798.0	3897.0	3985.0	3984.0		
Weight of Mold (g)	1880.0	1880.0	1880.0	1880.0		
Net Weight of Soil (g)	1918.0	2017.0	2105.0	2104.0		
Wet Weight of Soil + Cont. (g)	508.70	506.80	455.40	514.10		
Dry Weight of Soil + Cont. (g)	494.00	481.30	423.30	468.30		
Weight of Container (g)	50.90	51.00	50.50	50.80		
Moisture Content (%)	3.32	5.93	8.61	10.97		
Wet Density (pcf)	126.6	133.1	138.9	138.9		
Dry Density (pcf)	122.5	125.7	127.9	125.1		

Maximum Dry Density (pcf) 128.0 **Optimum Moisture Content (%)** 8.5

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

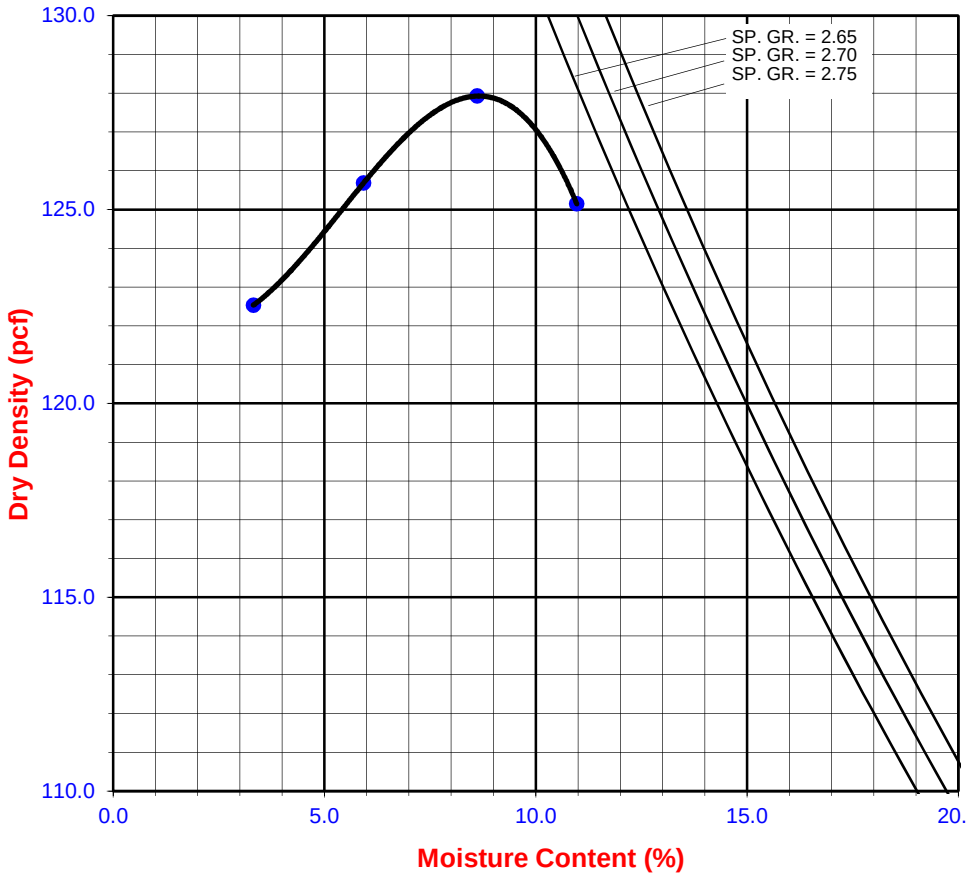
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI



MX HS-1, B-1 @ 15-20

TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: LGC Geotechnical, Inc. Tested By : V. Juliano Date: 01/03/12

Project No. : 11094-03 Data Input By: J. Ward Date: 01/11/12

Boring No.	HS-1			
Sample No.	B-1			
Sample Depth (ft)	15-20			
Soil Identification:	Light olive (SP)			
Wet Weight of Soil + Container (g)	196.50			
Dry Weight of Soil + Container (g)	195.10			
Weight of Container (g)	66.40			
Moisture Content (%)	1.09			
Weight of Soaked Soil (g)	100.30			

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	15			
Crucible No.	29			
Furnace Temperature (°C)	840			
Time In / Time Out	7:30/8:15			
Duration of Combustion (min)	45			
Wt. of Crucible + Residue (g)	20.7393			
Wt. of Crucible (g)	20.7384			
Wt. of Residue (g) (A)	0.0009			
PPM of Sulfate (A) x 41150	37.04			
PPM of Sulfate, Dry Weight Basis	**37**			

CHLORIDE CONTENT, DOT California Test 422

ml of Chloride Soln. For Titration (B)	30			
ml of AgNO3 Soln. Used in Titration (C)	0.7			
PPM of Chloride (C -0.2) * 100 * 30 / B	50			
PPM of Chloride, Dry Wt. Basis	**51**			

pH TEST, DOT California Test 532/643

pH Value	**8.13**			
Temperature °C	19.5			

SOIL RESISTIVITY TEST

DOT CA TEST 532 / 643

Project Name:	LGC Geotechnical, Inc.	Tested By :	V. Juliano	Date:	01/04/12
Project No. :	11094-03	Data Input By:	J. Ward	Date:	01/11/12
Boring No.:	HS-1	Depth (ft.) :	15-20		
Sample No. :	B-1				

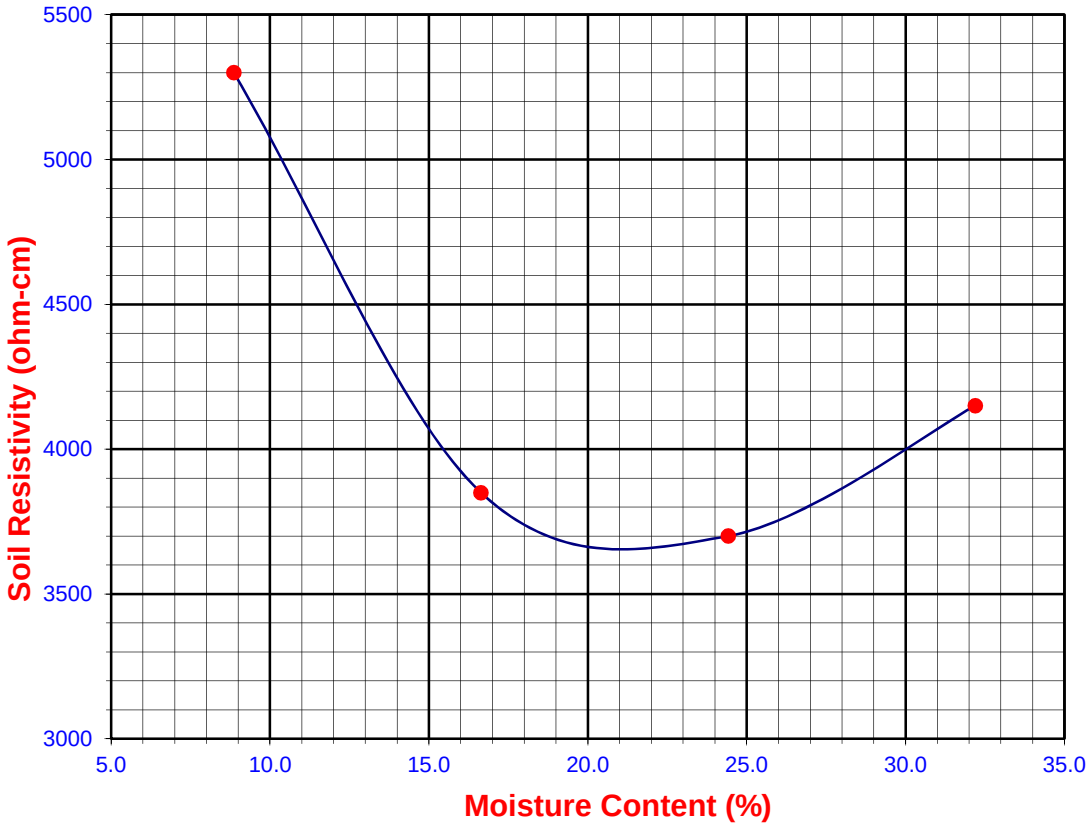
Soil Identification:* Light olive (SP)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	10	8.86	5300	5300
2	20	16.64	3850	3850
3	30	24.42	3700	3700
4	40	32.19	4150	4150
5				

Moisture Content (%) (MCi)	1.09
Wet Wt. of Soil + Cont. (g)	196.50
Dry Wt. of Soil + Cont. (g)	195.10
Wt. of Container (g)	66.40
Container No.	
Initial Soil Wt. (g) (Wt)	130.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 532 / 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 532 / 643	
3650	**21.0**	**37**	**51**	**8.13**	**19.5**



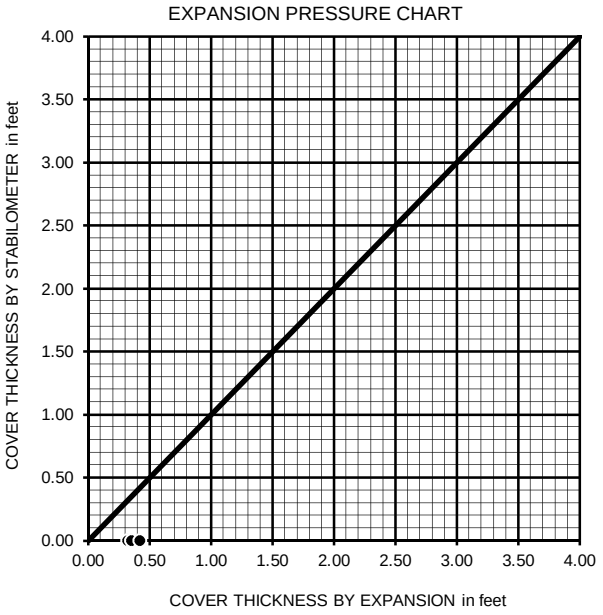
R-VALUE TEST RESULTS

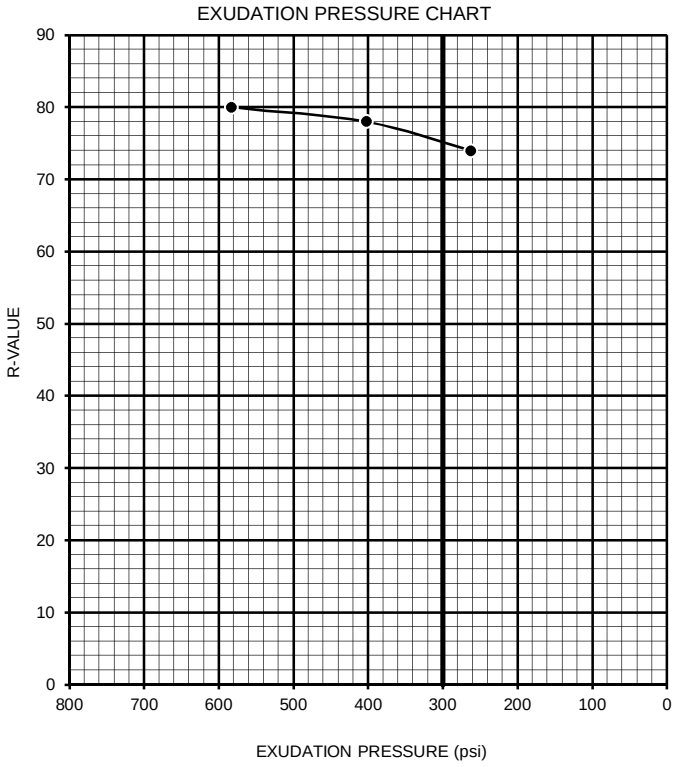
DOT CA Test 301

PROJECT NAME:	LGC Geotechnical, Inc.	PROJECT NUMBER:	11094-03
BORING NUMBER:	HS-1	DEPTH (FT.):	15-20
SAMPLE NUMBER:	B-1	TECHNICIAN:	S. Felter
SAMPLE DESCRIPTION:	Light olive (SP)	DATE COMPLETED:	1/11/2012

TEST SPECIMEN	a	b	c
MOISTURE AT COMPACTION %	9.6	10.0	10.4
HEIGHT OF SAMPLE, Inches	2.54	2.50	2.52
DRY DENSITY, pcf	124.4	124.9	123.3
COMPACTOR PRESSURE, psi	350	350	350
EXUDATION PRESSURE, psi	583	403	263
EXPANSION, Inches x 10exp-4	0	0	0
STABILITY Ph 2,000 lbs (160 psi)	18	19	23
TURNS DISPLACEMENT	4.87	5.14	5.23
R-VALUE UNCORRECTED	80	78	74
R-VALUE CORRECTED	80	78	74

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.32	0.35	0.42
EXPANSION PRESSURE THICKNESS, ft.	0.00	0.00	0.00





R-VALUE BY EXPANSION:	N/A
R-VALUE BY EXUDATION:	75
EQUILIBRIUM R-VALUE:	75

Appendix D
General Earthwork & Grading Specifications for Rough Grading

APPENDIX D

General Earthwork and Grading Specifications for Rough Grading

1.0 General

1.1 Intent: These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record: Prior to commencement of work, the owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required.

The Geotechnical Consultant shall observe the moisture conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to confirm that the attained level of compaction is being accomplished as specified. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor: The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the project plans and specifications. The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of “equipment” of work and the estimated quantities of daily earthwork contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that

appropriate personnel will be available for observation and testing. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified. It is the contractor's sole responsibility to provide proper fill compaction.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing: Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). No fill lift shall contain more than 10 percent of organic matter. Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed. The contractor is responsible for all hazardous waste relating to his work. The Geotechnical Consultant does not have expertise in this area. If hazardous waste is a concern, then the Client should acquire the services of a qualified environmental assessor.

2.2 Processing: Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 15 centimeters (6 inches). Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soils are broken down and free of oversize material and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Overexcavation: In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich,

highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 ***Benching:*** Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 4.6 meters (15 feet) wide and at least 0.6 meters (2 feet) deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 1.2 meters (4 feet) into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.

2.5 ***Evaluation/Acceptance of Fill Areas:*** All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 ***Fill Material***

3.1 ***General:*** Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 ***Oversize:*** Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 20 centimeters (8 inches), shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 3 vertical meters (10 feet) of finish grade or within 0.6 meters (2 feet) of future utilities or underground construction.

3.3 ***Import:*** If importing of fill material is required for grading, proposed import material shall meet the requirements of Section 3.1. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 ***Fill Placement and Compaction***

4.1 ***Fill Layers:*** Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 20 centimeters (8 inches) in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 ***Fill Moisture Conditioning:*** Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557) or California Test Method 216.

4.3 ***Compaction of Fill:*** After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557 or Cal 216). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity. Compaction is the sole responsibility of the contractor.

4.4 ***Compaction of Fill Slopes:*** In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of approximately 1 meter (3 to 4 feet) in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557 or Cal 216.

4.5 ***Compaction Testing:*** Field tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 ***Frequency of Compaction Testing:*** Tests shall be taken at intervals not exceeding 0.6 meters (2 feet) in vertical rise and/or 765 cubic meters (1000 cubic yards) of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 465 square meters (5000 square feet) of slope face and/or each 3 meters (10 feet) of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 ***Compaction Test Locations:*** The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the

Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 30 meters (100 feet) and vertically less than 1.5 meters (5 feet) apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

7.1 The Contractor shall follow all OHSA and Cal/OSHA requirements for safety of trench excavations.

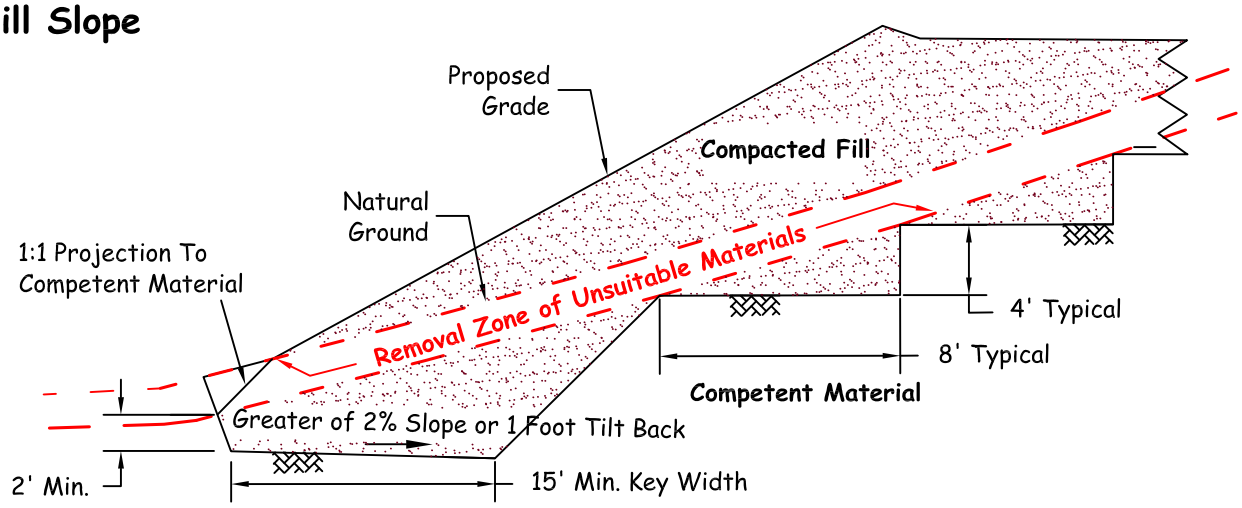
7.2 All bedding and backfill of utility trenches shall be done in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 0.3 meters (1 foot) over the top of the conduit and densified by jetting. Backfill shall be placed and densified to a minimum of 90 percent of maximum from 0.3 meters (1 foot) above the top of the conduit to the surface.

7.3 The jetting of the bedding around the conduits shall be observed by the Geotechnical Consultant.

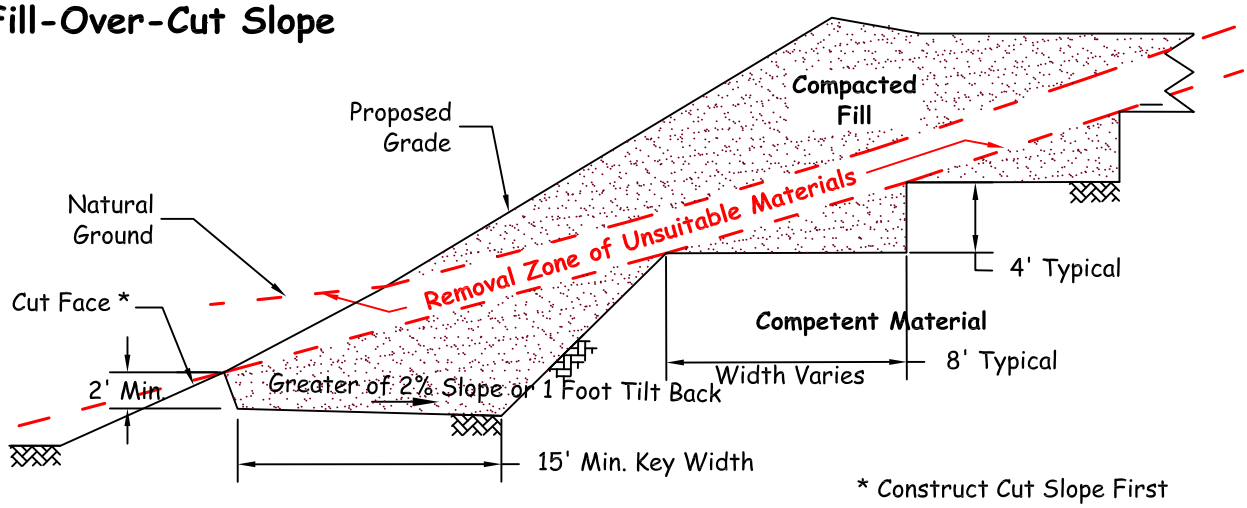
7.4 The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 91 meters (300 feet) of trench and 0.6 meters (2 feet) of fill.

7.5 Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

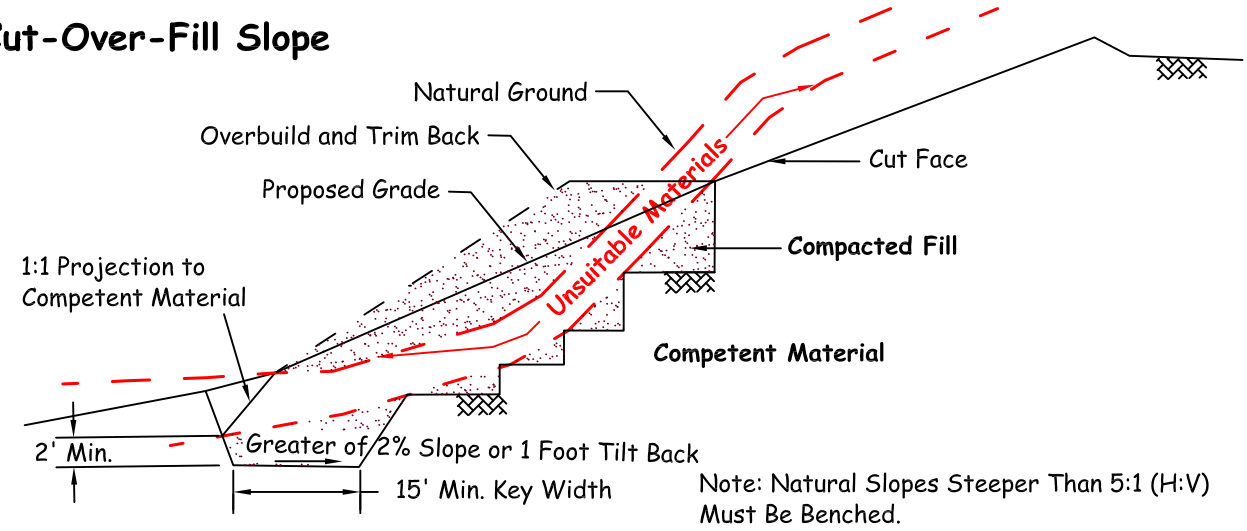
Fill Slope



Fill-Over-Cut Slope



Cut-Over-Fill Slope



Note: Natural Slopes Steeper Than 5:1 (H:V) Must Be Benched.

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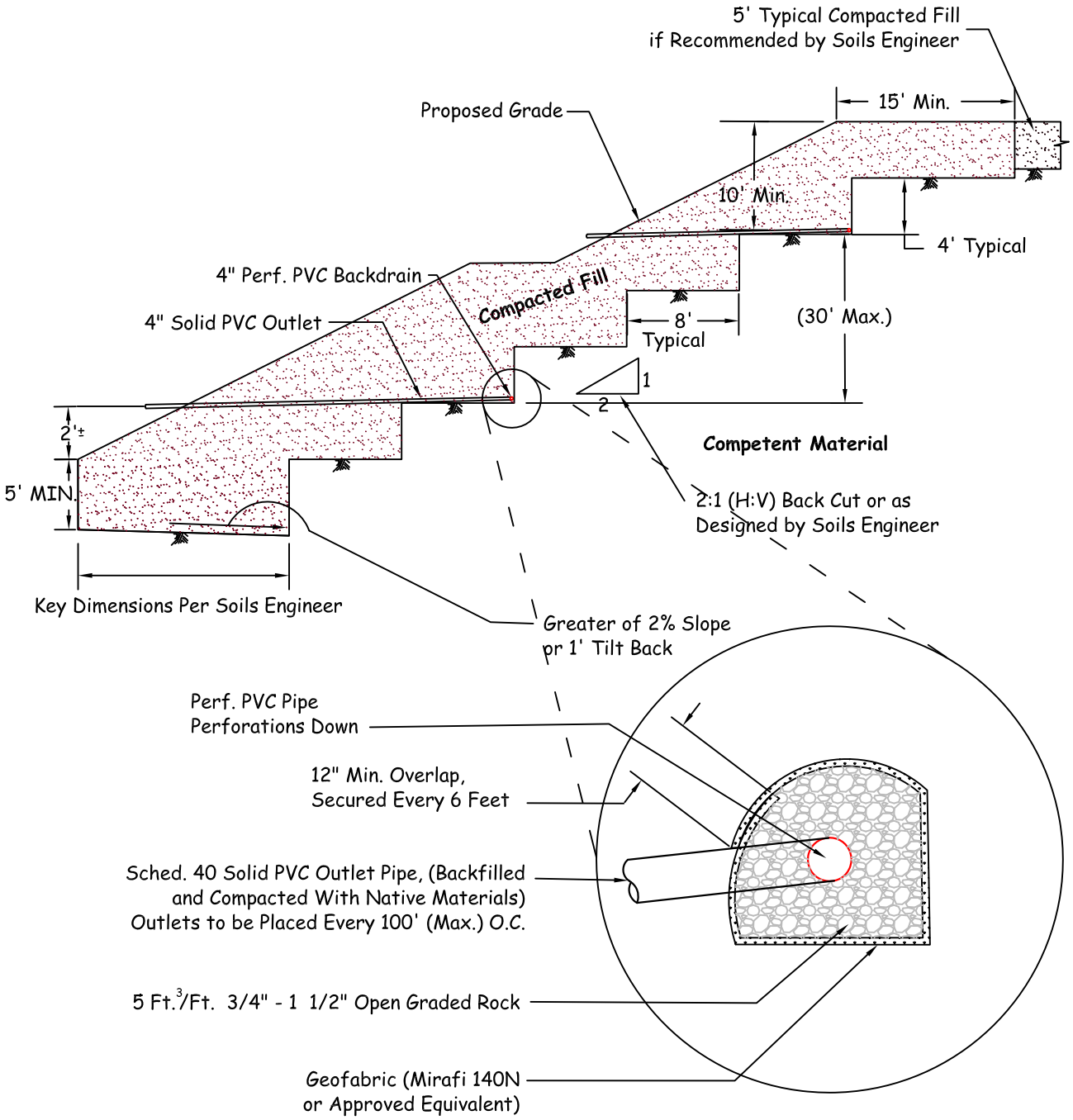
KEYING AND BENCHING



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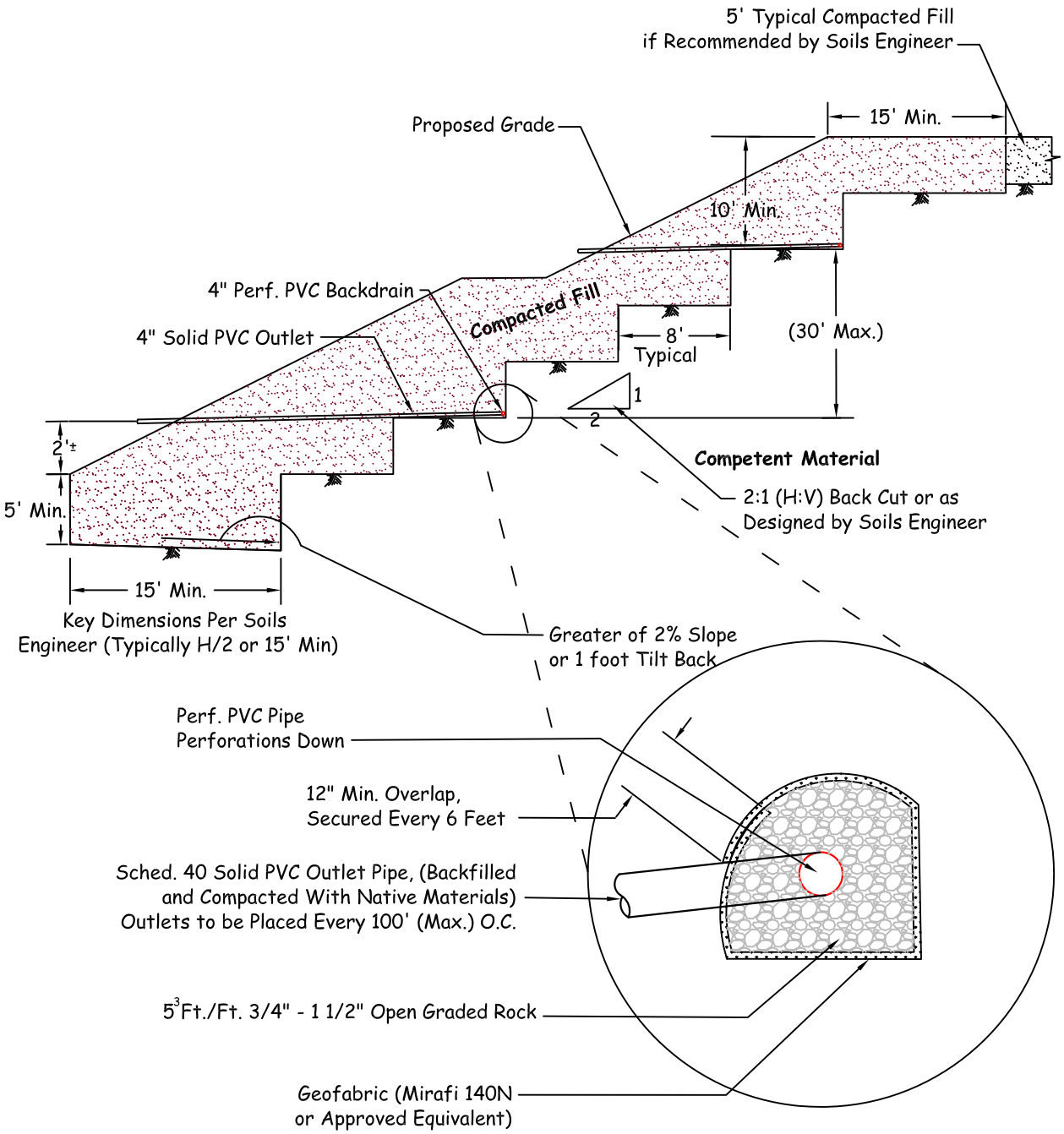
TYPICAL BUTTRESS DETAIL



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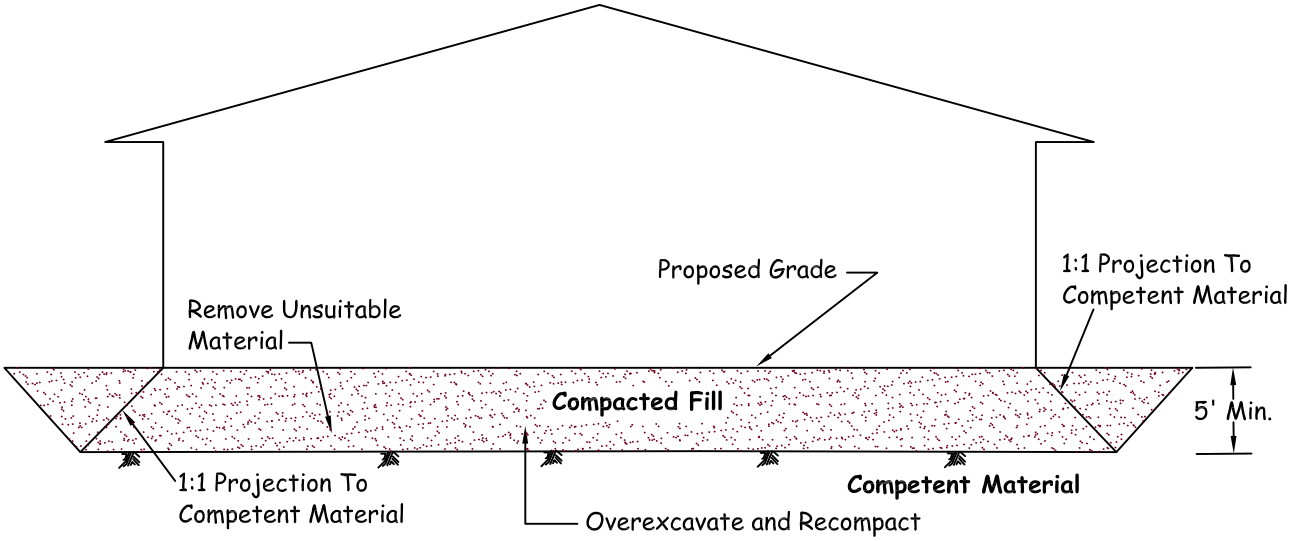
TYPICAL STABILIZATION FILL DETAIL

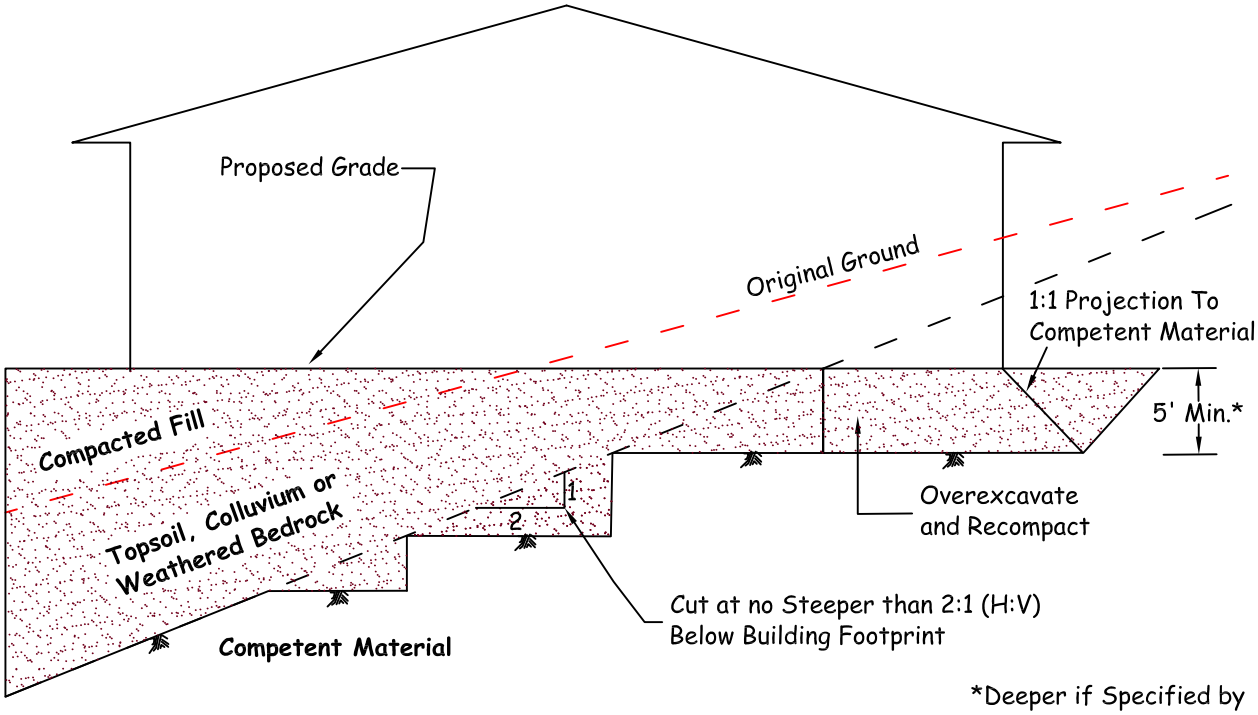
Cut Lot
(Exposing Unsuitable Soils at Design Grade)



Note 1: Removal Bottom Should be Graded With Minimum 2% Fall Towards Street or Other Suitable Area (as Determined by Soils Engineer) to Avoid Ponding Below Building

Note 2: Where Design Cut Lots are Excavated Entirely Into Competent Material, Overexcavation May Still be Required for Hard-Rock Conditions or for Materials With Variable Expansion Characteristics.

Cut/Fill Transition Lot



*Deeper if Specified by Soils Engineer

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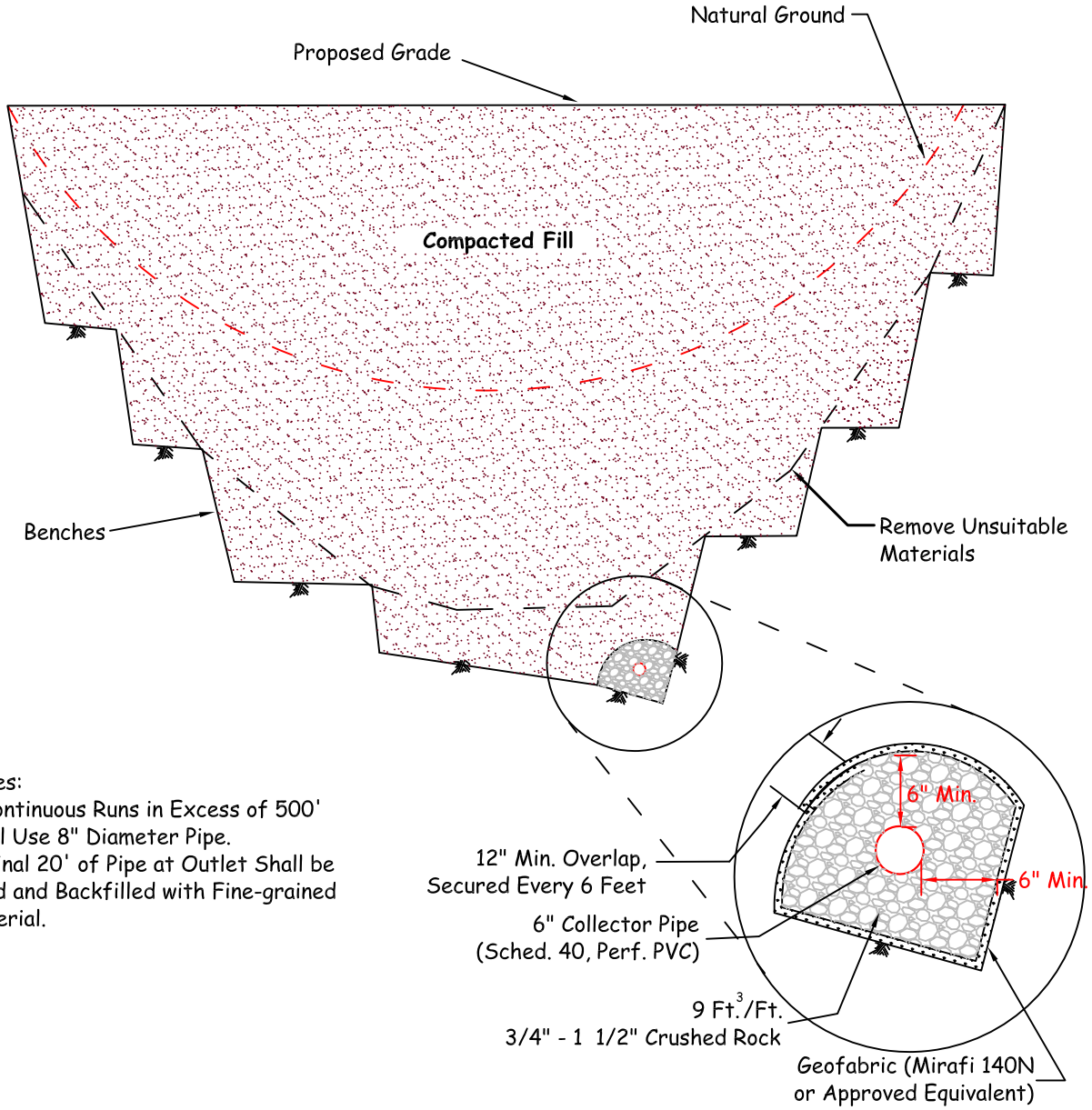
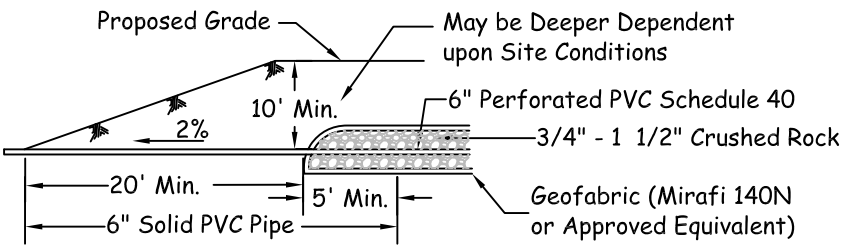
CUT AND TRANSITION LOT OVEREXCAVATION DETAIL



Notes:
1) Continuous Runs in Excess of 500' Shall Use 8" Diameter Pipe.
2) Final 20' of Pipe at Outlet Shall be Solid and Backfilled with Fine-grained Material.

Proposed Outlet Detail



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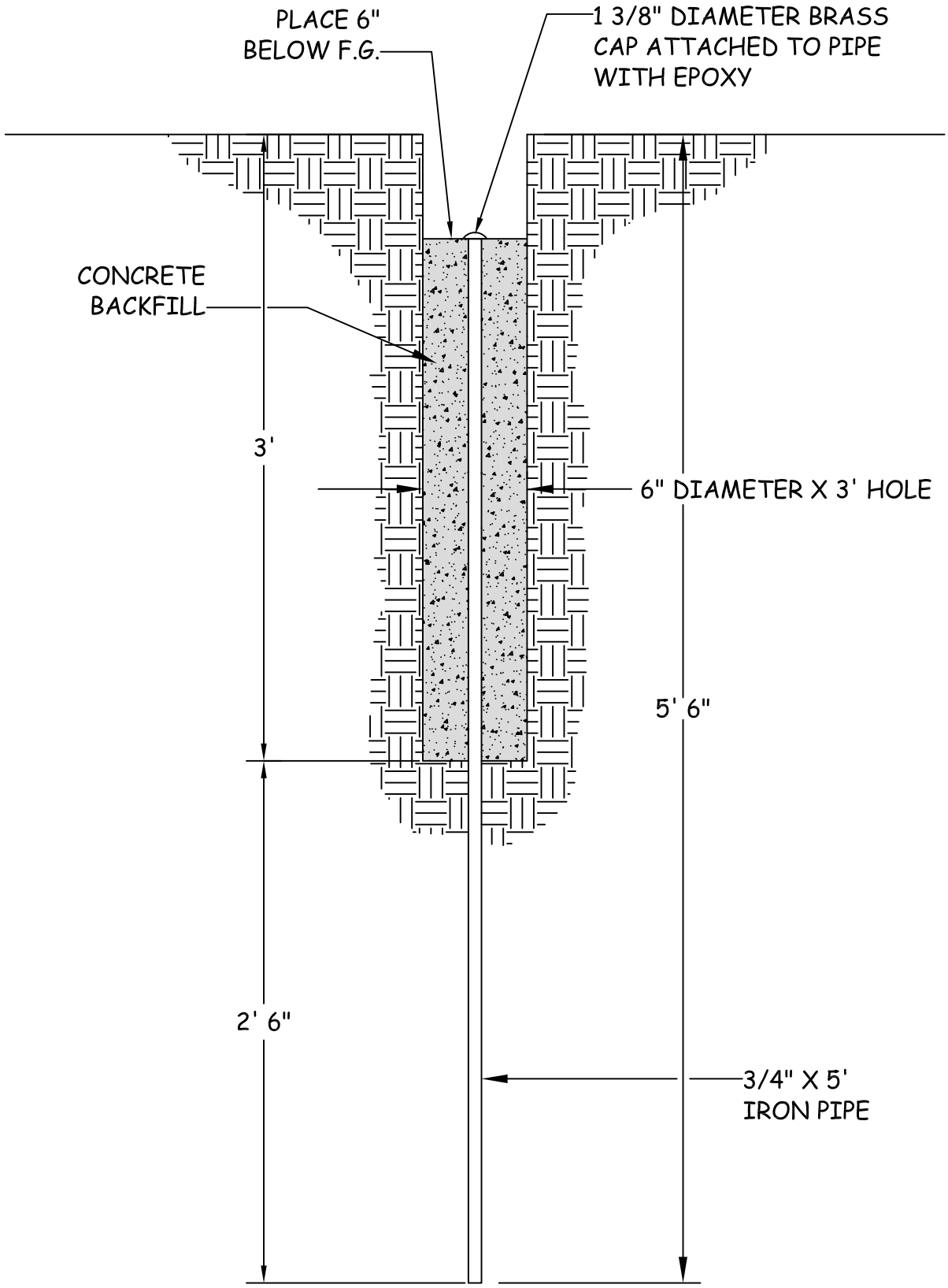
CANYON SUBDRAINS



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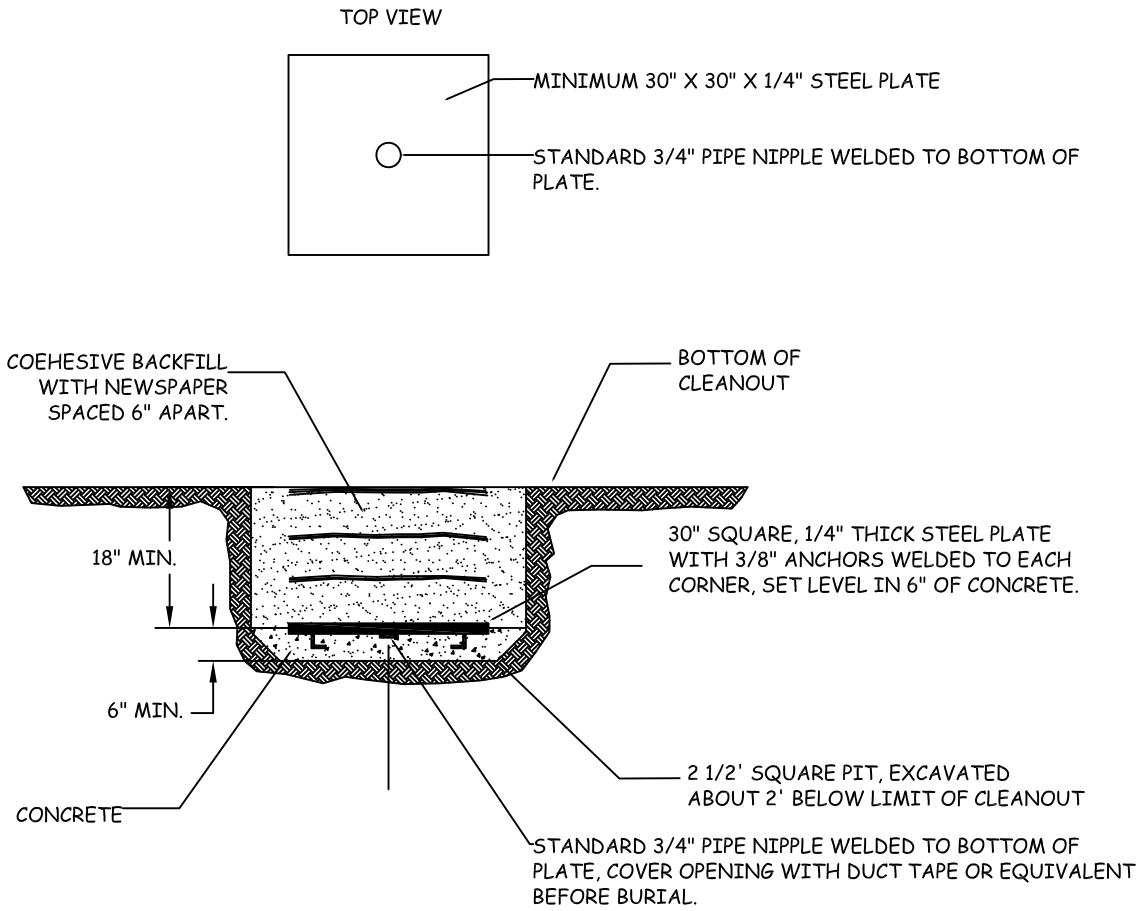
TYPICAL SURFACE SETTLEMENT MONUMENT



1. SURVEY FOR HORIZONTAL AND VERTICAL LOCATION TO NEAREST .01 INCH PRIOR TO BACKFILL USING KNOW LOCATIONS THAT WILL REMAIN INTACT DURING THE DURATION OF THE MONITORING PROGRAM. KNOW POINTS EXPLICITELY NOT ALLOWED ARE THOSE LOCATED ON FILL OR THAT WILL BE DESTROYED DURING GRADING.
2. IN THE EVENT OF DAMAGE TO SETTLEMENT PLATE DURING GRADING, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE GEOTECHNICAL ENGINEER AND SHALL BE RESPONSIBLE FOR RESTORING THE SETTLEMENT PLATES TO WORKING ORDER.
3. DRILL TO RECOVER AND ATTACH RISER PIPE.

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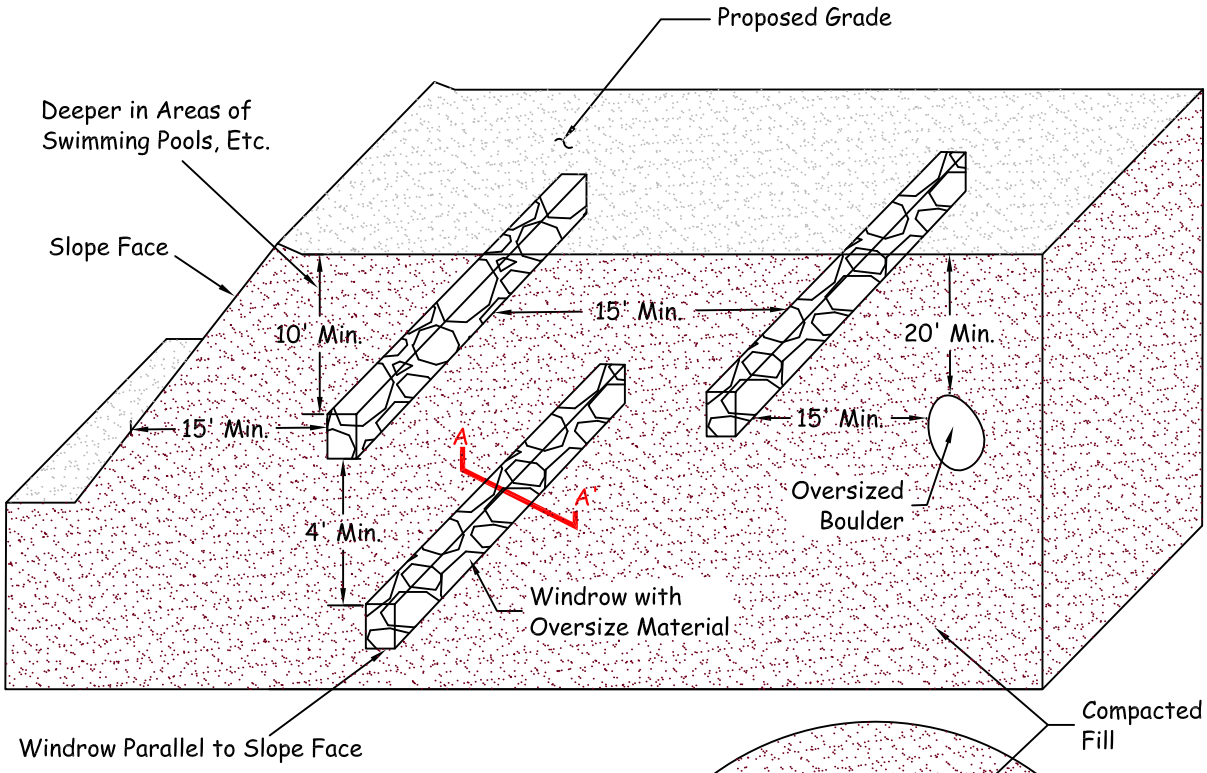
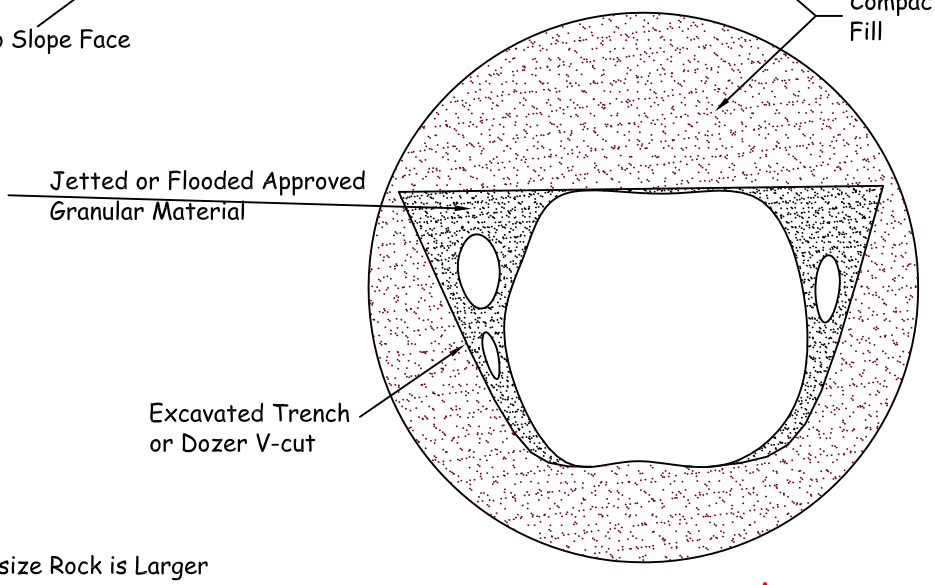
TYPICAL SETTLEMENT PLATE AND RISER





Note: Oversize Rock is Larger than 8" in Maximum Dimension.

Section A-A'

LGC Geotechnical, Inc.

OVERSIZE ROCK DISPOSAL DETAIL

LGC Geotechnical, Inc.

PROJECT MEMORANDUM

To: ***Baker Ranch Properties, LLC***
One Upper Newport Plaza Drive
Newport Beach, CA 92660

Date: July 3, 2014
Project No.: 11094-05

REGISTERED PROFESSIONAL ENGINEER
DENNIS BORATYNEC
No. 2770
Exp. 12/31/14
GEOTECHNICAL
STATE OF CALIFORNIA

Attention: Mr. Larry Tucker

CC: Mr. Ed Mandich, *Hunsaker & Associates*

From: Dennis Boratynec DB

Subject: ***Geotechnical Recommendations and Testing Results of On-site Material for the Proposed Slope Grading at Baker Ranch Property, City of Lake Forest, California***

References: LGC Geotechnical, Inc., 2013, Geotechnical Evaluation of Proposed Slope Grading at Northern Boundary of the Baker Ranch Property, City of Lake Forest, California, Project No. 11094-05, dated July 24, 2013.

_____, 2014a, Geotechnical Response Letter to California Department of Transportation, District 12, Project No. 11094-05, dated January 16, 2014.

_____, 2014b, Geotechnical Testing Requirements During Perimeter Slope Construction, Baker Ranch Property, City of Lake Forest, California, Project 11094-05, dated April 11, 2014.

Attachments: Boring Location Map, dated June 2014.

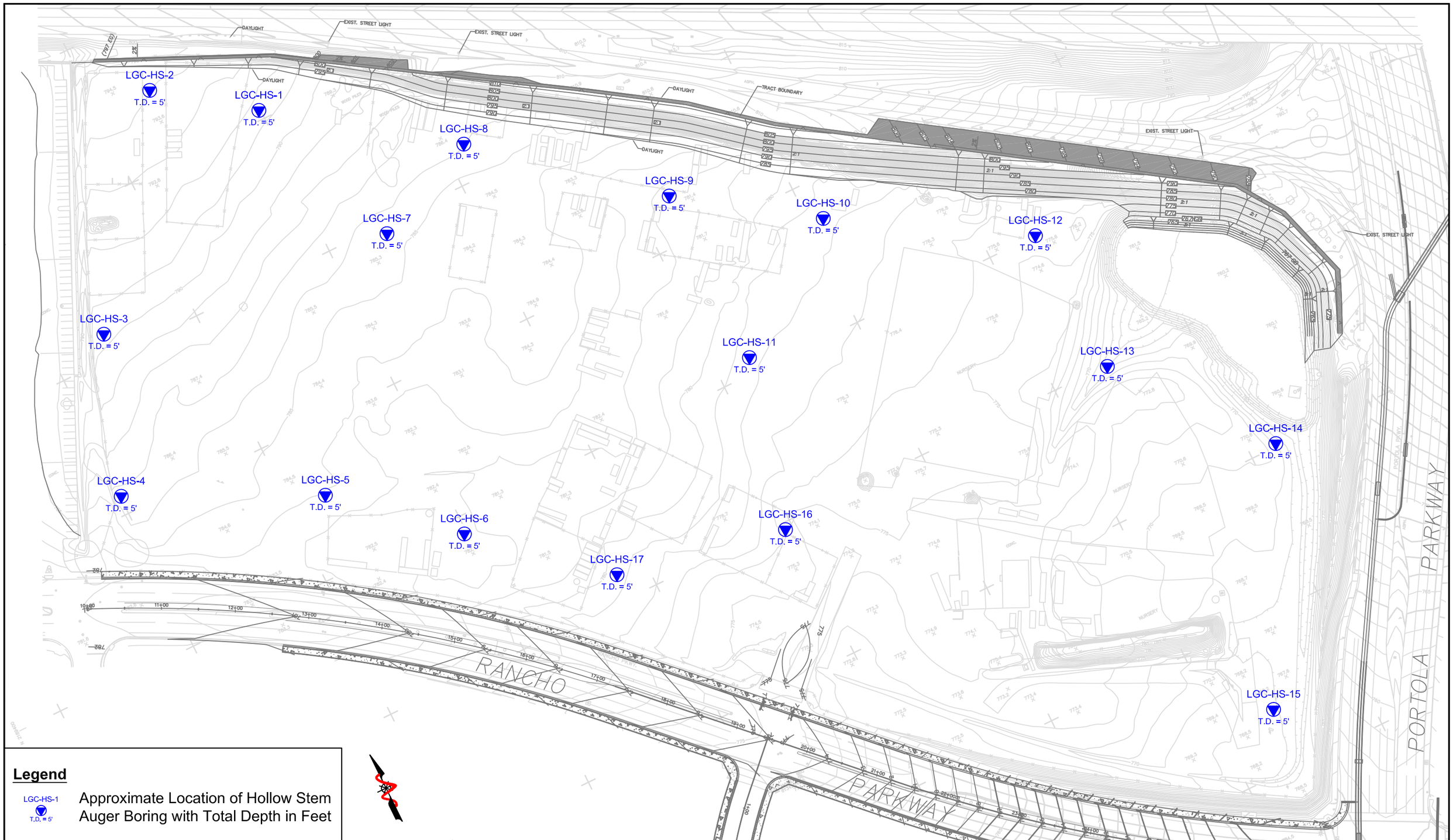
In accordance with your request, LGC Geotechnical has prepared this memo to summarize our findings from our subsurface geotechnical evaluation conducted June 13, 2014. Our field work consisted of seventeen (17) shallow-stem auger borings that were drilled to a depth of approximately 5 feet below existing grade (See attached map for boring location). Soil samples were collected to perform laboratory testing to determine the fines content of the onsite soils. A total of 51 samples were collected and 20 samples were tested to determine the percent fines content. The remaining 31 samples were visually examined for similarities to the tested samples in order to estimate their fines content. As indicated on Table 1, the average fines content of the 20 samples that were tested was approximately 22 percent and only 3 of the samples had fines content less than 15 percent of which only 2 samples were less than 12 percent fines. See the results from laboratory testing in Table 1 on the following page.

It is our geotechnical opinion that if the onsite soils are properly blended during rough grading, they will meet the Caltrans criteria (LGC Geotechnical, 2014b) of a minimum 12 percent fines content with an average minimum fines content of 15 percent for soils within the outer 15 feet of the perimeter slope face. Therefore, it is our opinion that import of "clayey soils" is not necessary. Additional fines content testing should be performed during construction in order to document the actual fines content of slope materials.

Should you have any questions regarding this memorandum, please do not hesitate to contact our office.

Table: Summary of Fines Content

Boring #	Sample #	Approximate Depth (feet)	% Fines (% Passing No. 200 Sieve)	Fines > 15%	Estimated Fines Content from Visual Appearance
HS-1	B-1	0.5 - 1			35
HS-1	SPT-1	2	36	Yes	
HS-1	SPT-2	3.5			35
HS-2	B-1	0.5 - 1			19
HS-2	SPT-1	2	20	Yes	
HS-2	SPT-2	3.5			19
HS-3	B-1	0.5 - 1			23
HS-3	SPT-1	2	23	Yes	
HS-3	SPT-2	3.5	18	Yes	
HS-4	B-1	0.5 - 1			18
HS-4	SPT-1	2	18	Yes	
HS-4	SPT-2	3.5			18
HS-5	B-1	0.5 - 1			18
HS-5	SPT-1	2	32	Yes	
HS-5	SPT-2	3.5			31
HS-6	B-1	0.5 - 1			18
HS-6	SPT-1	2	29	Yes	
HS-6	SPT-2	3.5			
HS-7	B-1	0.5 - 1			10
HS-7	SPT-1	2	10	No	
HS-7	SPT-2	3.5			10
HS-8	B-1	0.5 - 1	32	Yes	
HS-8	SPT-1	2	24	Yes	
HS-8	SPT-2	3.5			23
HS-9	B-1	0.5 - 1			32
HS-9	SPT-1	2	11	No	
HS-9	SPT-2	3.5			10
HS-10	B-1	0.5 - 1			32
HS-10	SPT-1	2	20	Yes	
HS-10	SPT-2	3.5			10
HS-11	B-1	0.5 - 1			20
HS-11	SPT-1	2			20
HS-11	SPT-2	3.5	20	Yes	
HS-12	B-1	0.5 - 1			12
HS-12	SPT-1	2	13	No	
HS-12	SPT-2	3.5			12
HS-13	B-1	0.5 - 1			32
HS-13	SPT-1	2	23	Yes	23
HS-13	SPT-2	3.5			23
HS-14	B-1	0.5 - 1			18
HS-14	SPT-1	2	18	Yes	
HS-14	SPT-2	3.5			18
HS-15	B-1	2	20	Yes	
HS-15	SPT-1	2	15	Yes	
HS-15	SPT-2	3.5			15
HS-16	B-1	0.5 - 1	23	Yes	
HS-16	SPT-1	2			23
HS-16	SPT-2	3.5			23
HS-17	B-1	0.5 - 1			26
HS-17	SPT-1	2	26	Yes	
HS-17	SPT-2	3.5			26
Minimum % Fines Content			10		10
Maximum % Fines Content			36		35
Average % Fines Content			22		21



Legend

LGC-HS-1 / T.D. = 5' — Approximate Location of Hollow Stem Auger Boring with Total Depth in Feet

LGC Geotechnical, Inc.

LGC Geotechnical, Inc.
131 Calle Iglesia, Ste. 200
San Clemente, CA 92672
TEL (949) 369-6141 FAX (949) 369-6142

Boring Location Map

CLIENT:
Baker Ranch Properties, LLC
One Upper Newport Plaza Drive
Newport Beach, CA 92660

PROJECT NAME	*Baker Ranch - Offramp Cut Slope*
PROJECT NO.	*11094-05*
ENG. / GEOL.	*DJB / KTM*
SCALE	*No Scale*
DATE	*July 2014*