LOS VALLES PROJECT

Draft Environmental Impact Report

Volume XVI – Appendices

SCH No. 2013121056
Project No. 98-034
Revised Vesting Tentative Tract No. 52584
Variance No. 201300003
Conditional Use Permit No. 201300081
Oak Tree Permit No. 201300023
Environmental Assessment No. 201300138

Lead Agency:

County of Los Angeles
Department of Regional Planning
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March 2016

APPENDIX 5.11-1

Average Daily Trips Calculations

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NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

Del Valle and Hasley Canyon Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Del Valle s/o Hasley Cyn											
Existing 2013		2	0	3,256	40	75	0	0	1.8%	0.7%	57.9
Existing W/P		2	0	3,498	40	75	0	0	1.8%	0.7%	58.2
2018 W/OP		2	0	3,663	40	75	0	0	1.8%	0.7%	58.4
2018 W/P		2	0	3,905	40	75	0	0	1.8%	0.7%	58.7
2018 W/P/C		2	0	3,905	40	75	0	0	1.8%	0.7%	58.7
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Hasley Cyn e/o Del Valle											
Existing 2013		2	0	5,693	40	75	0	0	1.8%	0.7%	60.3
Existing W/P		2	0	6,177	40	75	0	0	1.8%	0.7%	60.7
2018 W/OP		2	0	6,397	40	75	0	0	1.8%	0.7%	60.9
2018 W/P		2	0	6,881	40	75	0	0	1.8%	0.7%	61.2
2018 W/P/C		2	0	7,277	40	75	0	0	1.8%	0.7%	61.4
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Hasley Cyn w/o Del Valle											
Existing 2013		2	0	2,712	40	75	0	0	1.8%	0.7%	57.1
Existing W/P		2	0	2,954	40	75	0	0	1.8%	0.7%	57.5
2018 W/OP		2	0	3,042	40	75	0	0	1.8%	0.7%	57.6
2018 W/P		2	0	3,284	40	75	0	0	1.8%	0.7%	58.0
2018 W/P/C		2	0	3,680	40	75	0	0	1.8%	0.7%	58.5
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Commerce Ctr n/o Hasley											
Existing 2013		2	0	13,244	40	75	0	0	1.8%	0.7%	64.0
Existing W/P		2	0	15,653	40	75	0	0	1.8%	0.7%	64.7
2018 W/OP		2	0	14,883	40	75	0	0	1.8%	0.7%	64.5
2018 W/P		2	0	17,292	40	75	0	0	1.8%	0.7%	65.2
2018 W/P/C		2	0	18,073	40	75	0	0	1.8%	0.7%	65.4
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Commerce Ctr s/o Hasley											
Existing 2013		2	0	8,014	40	75	0	0	1.8%	0.7%	61.8
Existing W/P		2	0	9,460	40	75	0	0	1.8%	0.7%	62.6
2018 W/OP		2	0	9,636	40	75	0	0	1.8%	0.7%	62.6
2018 W/P		2	0	10,467	40	75	0	0	1.8%	0.7%	63.0
2018 W/P/C		2	0	10,973	40	75	0	0	1.8%	0.7%	63.2
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Hasley Cyn e/o Commerce											
Existing 2013		2	0	1,760	40	75	0	0	1.8%	0.7%	55.3
Existing W/P		2	0	1,760	40	75	0	0	1.8%	0.7%	55.3
2018 W/OP		2	0	1,969	40	75	0	0	1.8%	0.7%	55.7
2018 W/P		2	0	1,969	40	75	0	0	1.8%	0.7%	55.7
2018 W/P/C		2	0	1,969	40	75	0	0	1.8%	0.7%	55.7
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Hasley Cyn w/o Commerce											
Existing 2013		2	0	6,177	40	75	0	0	1.8%	0.7%	60.7
Existing W/P		2	0	10,032	40	75	0	0	1.8%	0.7%	62.8
2018 W/OP		2	0	7,557	40	75	0	0	1.8%	0.7%	61.6
2018 W/P		2	0	10,797	40	75	0	0	1.8%	0.7%	63.1
2018 W/P/C		2	0	11,204	40	75	0	0	1.8%	0.7%	63.3
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Commerce Ctr n/o Franklin Pkwy											
Existing 2013		2	0	15,686	40	75	0	0	1.8%	0.7%	64.8
Existing W/P		2	0	16,885	40	75	0	0	1.8%	0.7%	65.1
2018 W/OP		2	0	17,677	40	75	0	0	1.8%	0.7%	65.3
2018 W/P		2	0	18,860	40	75	0	0	1.8%	0.7%	65.6
2018 W/P/C		2	0	26,021	40	75	0	0	1.8%	0.7%	66.9
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Commerce Ctr s/o Franklin Pkwy											
Existing 2013		2	0	18,359	40	75	0	0	1.8%	0.7%	65.4
Existing W/P		2	0	19,558	40	75	0	0	1.8%	0.7%	65.7
2018 W/OP		2	0	20,686	40	75	0	0	1.8%	0.7%	66.0
2018 W/P		2	0	21,868	40	75	0	0	1.8%	0.7%	66.2
2018 W/P/C		2	0	28,413	40	75	0	0	1.8%	0.7%	67.3
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Franklin Pkwy w/o Commerce Ctr											
Existing 2013		2	0	5,302	40	75	0	0	1.8%	0.7%	60.0
Existing W/P		2	0	5,302	40	75	0	0	1.8%	0.7%	60.0
2018 W/OP		2	0	5,968	40	75	0	0	1.8%	0.7%	60.6
2018 W/P		2	0	5,968	40	75	0	0	1.8%	0.7%	60.6
2018 W/P/C		2	0	7,519	40	75	0	0	1.8%	0.7%	61.6
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

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NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Commerce Ctr n/o Sr-126											
Existing 2013		2	0	17,842	40	75	0	0	1.8%	0.7%	65.3
Existing W/P		2	0	19,047	40	75	0	0	1.8%	0.7%	65.6
2018 W/OP		2	0	20,020	40	75	0	0	1.8%	0.7%	65.8
2018 W/P		2	0	21,192	40	75	0	0	1.8%	0.7%	66.1
2018 W/P/C		2	0	27,676	40	75	0	0	1.8%	0.7%	67.2
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Commerce Ctr s/o Sr-126											
Existing 2013		2	0	2,948	40	75	0	0	1.8%	0.7%	57.5
Existing W/P		2	0	2,948	40	75	0	0	1.8%	0.7%	57.5
2018 W/OP		2	0	3,311	40	75	0	0	1.8%	0.7%	58.0
2018 W/P		2	0	3,311	40	75	0	0	1.8%	0.7%	58.0
2018 W/P/C		2	0	14,064	40	75	0	0	1.8%	0.7%	64.3
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
SR-126 e/o Commerce Ctr											
Existing 2013		2	0	30,492	40	75	0	0	1.8%	0.7%	67.6
Existing W/P		2	0	31,213	40	75	0	0	1.8%	0.7%	67.7
2018 W/OP		2	0	34,227	40	75	0	0	1.8%	0.7%	68.1
2018 W/P		2	0	34,909	40	75	0	0	1.8%	0.7%	68.2
2018 W/P/C		2	0	51,051	40	75	0	0	1.8%	0.7%	69.9
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
SR-126 w/o Commerce Ctr											
Existing 2013		2	0	17,226	40	75	0	0	1.8%	0.7%	65.2
Existing W/P		2	0	17,710	40	75	0	0	1.8%	0.7%	65.3
2018 W/OP		2	0	19,377	40	75	0	0	1.8%	0.7%	65.7
2018 W/P		2	0	19,866	40	75	0	0	1.8%	0.7%	65.8
2018 W/P/C		2	0	41,113	40	75	0	0	1.8%	0.7%	68.9
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!

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NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
The Old Road n/o Hillcrest Pkwy											
Existing 2013		2	0	5,984	40	75	0	0	1.8%	0.7%	60.6
Existing W/P		2	0	6,226	40	75	0	0	1.8%	0.7%	60.7
2018 W/OP		2	0	6,738	40	75	0	0	1.8%	0.7%	61.1
2018 W/P		2	0	6,980	40	75	0	0	1.8%	0.7%	61.2
2018 W/P/C		2	0	7,123	40	75	0	0	1.8%	0.7%	61.3
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
The Old Road s/o Hillcrest Pkwy											
Existing 2013		2	0	14,729	40	75	0	0	1.8%	0.7%	64.5
Existing W/P		2	0	14,971	40	75	0	0	1.8%	0.7%	64.5
2018 W/OP		2	0	16,577	40	75	0	0	1.8%	0.7%	65.0
2018 W/P		2	0	16,819	40	75	0	0	1.8%	0.7%	65.1
2018 W/P/C		2	0	16,874	40	75	0	0	1.8%	0.7%	65.1
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Hillcrest Pkwy w/o The Old Road											
Existing 2013		2	0	14,487	40	75	0	0	1.8%	0.7%	64.4
Existing W/P		2	0	14,487	40	75	0	0	1.8%	0.7%	64.4
2018 W/OP		2	0	16,286	40	75	0	0	1.8%	0.7%	64.9
2018 W/P		2	0	16,286	40	75	0	0	1.8%	0.7%	64.9
2018 W/P/C		2	0	16,374	40	75	0	0	1.8%	0.7%	64.9
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!

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Old Road 1 n/o I-5/Sedona											
Existing 2013		2	0	14,751	40	75	0	0	1.8%	0.7%	64.5
Existing W/P		2	0	14,993	40	75	0	0	1.8%	0.7%	64.6
2018 W/OP		2	0	16,577	40	75	0	0	1.8%	0.7%	65.0
2018 W/P		2	0	16,819	40	75	0	0	1.8%	0.7%	65.1
2018 W/P/C		2	0	16,869	40	75	0	0	1.8%	0.7%	65.1
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Old Road 1 s/o I-5/Sedona											
Existing 2013		2	0	11,968	40	75	0	0	1.8%	0.7%	63.6
Existing W/P		2	0	12,326	40	75	0	0	1.8%	0.7%	63.7
2018 W/OP		2	0	13,437	40	75	0	0	1.8%	0.7%	64.1
2018 W/P		2	0	13,794	40	75	0	0	1.8%	0.7%	64.2
2018 W/P/C		2	0	13,926	40	75	0	0	1.8%	0.7%	64.2
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
I-5/Sedona e/o Old Road											
Existing 2013		2	0	6,650	40	75	0	0	1.8%	0.7%	61.0
Existing W/P		2	0	6,765	40	75	0	0	1.8%	0.7%	61.1
2018 W/OP		2	0	7,486	40	75	0	0	1.8%	0.7%	61.5
2018 W/P		2	0	7,601	40	75	0	0	1.8%	0.7%	61.6
2018 W/P/C		2	0	7,684	40	75	0	0	1.8%	0.7%	61.7
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
I-5/Sedona w/o Old Road											
Existing 2013		2	0	3,867	40	75	0	0	1.8%	0.7%	58.7
Existing W/P		2	0	3,867	40	75	0	0	1.8%	0.7%	58.7
2018 W/OP		2	0	4,356	40	75	0	0	1.8%	0.7%	59.2
2018 W/P		2	0	4,356	40	75	0	0	1.8%	0.7%	59.2
2018 W/P/C		2	0	4,356	40	75	0	0	1.8%	0.7%	59.2
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!

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ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
Old Road n/o I-5 SB/Hasley											
Existing 2013		2	0	10,945	40	75	0	0	1.8%	0.7%	63.2
Existing W/P		2	0	11,297	40	75	0	0	1.8%	0.7%	63.3
2018 W/OP		2	0	12,320	40	75	0	0	1.8%	0.7%	63.7
2018 W/P		2	0	12,678	40	75	0	0	1.8%	0.7%	63.8
2018 W/P/C		2	0	12,755	40	75	0	0	1.8%	0.7%	63.9
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Old Road s/o I-5 SB/Hasley											
Existing 2013		2	0	12,348	40	75	0	0	1.8%	0.7%	63.7
Existing W/P		2	0	13,371	40	75	0	0	1.8%	0.7%	64.1
2018 W/OP		2	0	13,866	40	75	0	0	1.8%	0.7%	64.2
2018 W/P		2	0	14,900	40	75	0	0	1.8%	0.7%	64.5
2018 W/P/C		2	0	15,505	40	75	0	0	1.8%	0.7%	64.7
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
I-5 SB/Hasley Cyn e/o Old											
Existing 2013		2	0	14,724	40	75	0	0	1.8%	0.7%	64.5
Existing W/P		2	0	15,747	40	75	0	0	1.8%	0.7%	64.8
2018 W/OP		2	0	16,577	40	75	0	0	1.8%	0.7%	65.0
2018 W/P		2	0	17,600	40	75	0	0	1.8%	0.7%	65.3
2018 W/P/C		2	0	18,541	40	75	0	0	1.8%	0.7%	65.5
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
I-5 SB/Hasley Cyn w/o Old											
Existing 2013		2	0	16,203	40	75	0	0	1.8%	0.7%	64.9
Existing W/P		2	0	18,601	40	75	0	0	1.8%	0.7%	65.5
2018 W/OP		2	0	18,222	40	75	0	0	1.8%	0.7%	65.4
2018 W/P		2	0	20,636	40	75	0	0	1.8%	0.7%	65.9
2018 W/P/C		2	0	21,412	40	75	0	0	1.8%	0.7%	66.1
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

2

NOISE LEVEL CONTOURS - Existing Plus Project Weekday Off-Site ADT Volumes

ROADWAY NAME Segment	Land Use	Lanes	Median Width	ADT Volume	Design Speed (mph)	Dist. from Center to Receptor	Alpha Factor (1)	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
I-5 NB n/o Hasley Cyn											
Existing 2013		2	0	1,260	40	75	0	0	1.8%	0.7%	53.8
Existing W/P		2	0	1,386	40	75	0	0	1.8%	0.7%	54.2
2018 W/OP		2	0	1,414	40	75	0	0	1.8%	0.7%	54.3
2018 W/P		2	0	1,540	40	75	0	0	1.8%	0.7%	54.7
2018 W/P/C		2	0	1,815	40	75	0	0	1.8%	0.7%	55.4
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
I-5 NB s/o Hasley Cyn											
Existing 2013		2	0	11,528	40	75	0	0	1.8%	0.7%	63.4
Existing W/P		2	0	12,425	40	75	0	0	1.8%	0.7%	63.7
2018 W/OP		2	0	12,969	40	75	0	0	1.8%	0.7%	63.9
2018 W/P		2	0	13,866	40	75	0	0	1.8%	0.7%	64.2
2018 W/P/C		2	0	14,168	40	75	0	0	1.8%	0.7%	64.3
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
Hasley Cyn 2 w/o I-5 SB											
Existing 2013		2	0	12,348	40	75	0	0	1.8%	0.7%	63.7
Existing W/P		2	0	13,371	40	75	0	0	1.8%	0.7%	64.1
2018 W/OP		2	0	13,888	40	75	0	0	1.8%	0.7%	64.2
2018 W/P		2	0	14,911	40	75	0	0	1.8%	0.7%	64.5
2018 W/P/C		2	0	15,488	40	75	0	0	1.8%	0.7%	64.7
2030 W/OP - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!
2030 W/P - 2		2	0		40	75	0	0	1.8%	0.7%	#NUM!

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such as vegetative ground cover.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

APPENDIX 5.11-2

SLM Field Data

SLM Field Data Sheet

Project:	Los Valles	Date	16 July 2013
Location:	Loc 1 - Glendower Ct.	Field Crew (Initials)	DB
Latitude:		SLM Number	OAK2
Longitude:			

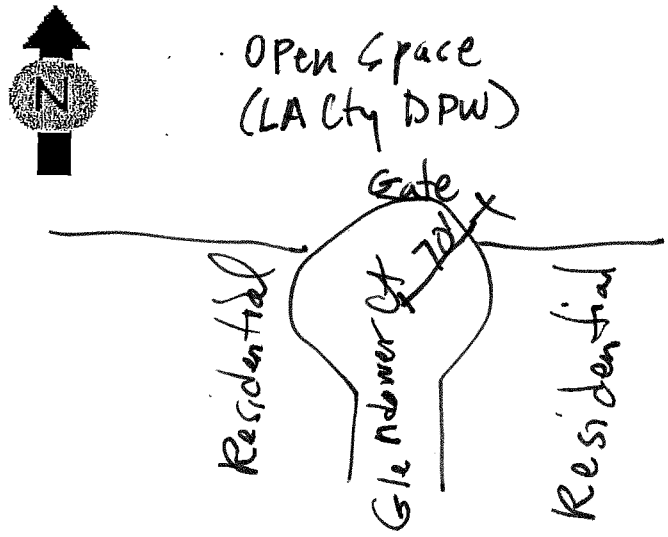
Pre-Monitoring Data	
Calibration $Level_{Start}$ (dBA)	No Chng / Changed / Offset 114.0
Battery $Level_{Start}$ (%)	178
Relative $Humidity_{Start}$ (%)	
$Temp_{Start}$ (F)	

Post-Monitoring Data			
Calibration $Level_{End}$ (dBA)	114		
Battery $Level_{End}$ (%)			
RH_{Max} (%)		RH_{Min} (%)	
$Temp_{Max}$ (F)		$Temp_{Min}$ (F)	

Time Start	Time Stop	L1	L10	L25	L50	L90	L99	Lmin	Lmax	Leq	Notes
0941											
1035											

Notes:

Site Drawing:



C:\LARDAV\SLMUTIL\OAK2.bin Summary Data

Site: 0 Model: 720 Firmware rev: 1.634
Location:
Date: 11May 02 16:52:11

	Overall	Current
Run Time	24:53:13.0	24:53:13.0
Start Time	11May 02 16:52:11	11May 02 16:52:11
TWA: Leq	54.5	Leq 54.5
SEL	104.0	104.0
Lmax	108.2	108.2
Lmax Time	11May 02 16:52:21	11May 02 16:52:21
Lmin	35.2	35.2
Lmin Time	12May 02 09:04:10	12May 02 09:04:10
Peak	135.5	135.5
Peak Time	11May 02 16:52:21	11May 02 16:52:21
Unweighted Peak	133.7	133.7
Uwpk Time	11May 02 16:52:21	11May 02 16:52:21
Dose	0.1	0.1
Projected Dose	0.0	0.0
Threshold	80	80
Criterion	90	90

Ln values
L10 = 45.3 L25 = 41.2 L50 = 38.9
L90 = 36.4 L99 = 35.4 L99 = 35.4

Ldn	0.0	Overall Leq	55.6	24:53:13.0
Cnel	0.0	Event Leq	78.8	00:05:49.7
Sound Exposure	0.0	Background Leq	48.1	24:47:23.3
Overloads	0			
Pause Time	00:00:00.0			

Records:

Run/Stop	2	Daily	0
Event	54	Calibration	2
Interval	101	Time History	0

SLM Field Data Sheet

Project:	Los Valles	Date	16 July 2013
Location:	Loc 2- Hayward Dr.	Field Crew (Initials)	DB
Latitude:		SLM Number	CAM 1
Longitude:			

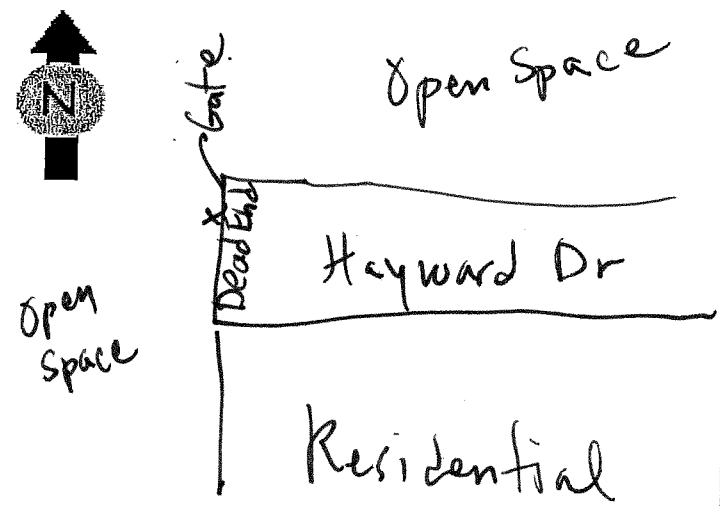
Pre-Monitoring Data	
Calibration $Level_{Start}$ (dBA)	No Chng / Chngd / Offset 114.0
Battery $Level_{Start}$ (%)	181
Relative $Humidity_{Start}$ (%)	
$Temp_{Start}$ (F)	

Post-Monitoring Data			
Calibration $Level_{End}$ (dBA)			
Battery $Level_{End}$ (%)			
RH_{Max} (%)		RH_{Min} (%)	
$Temp_{Max}$ (F)		$Temp_{Min}$ (F)	

Time											
Start	Stop	L1	L10	L25	L50	L90	L99	Lmin	Lmax	Leq	Notes
1000											
1040											

Notes:

Site Drawing:



C:\LARDAV\SLMUTIL\16JUL_07.bin Summary Data

Site: 0 Model: 720 Firmware rev: 1.634
Location:
Date: 16Jul 13 08:54:56

	Overall	Current
Run Time	24:45:00.8	24:45:00.8
Start Time	16Jul 13 08:54:56	16Jul 13 08:54:56
TWA: Leq	63.6	Leq 63.6
SEL	113.1	113.1
Lmax	118.4	118.4
Lmax Time	16Jul 13 08:55:03	16Jul 13 08:55:03
Lmin	37.0	37.0
Lmin Time	17Jul 13 07:48:44	17Jul 13 07:48:44
Peak	141.4	141.4
Peak Time	16Jul 13 08:55:13	16Jul 13 08:55:13
Unweighted Peak	143.4	143.4
Uwpk Time	16Jul 13 08:55:13	16Jul 13 08:55:13
Dose	0.7	0.7
Projected Dose	0.2	0.2
Threshold	80	80
Criterion	90	90

Ln values
  L10 = 42.8 L25 = 40.6 L50 = 39.1
  L90 = 37.8 L99 = 37.1 L99 = 37.1

Ldn	0.0	Overall Leq	63.6	24:45:00.8
Cnel	0.0	Event Leq	91.9	00:02:09.4
Sound Exposure	0.0	Background Leq	46.7	24:42:51.3
Overloads	0			
Pause Time	00:00:00.0			

Records:

Run/Stop	2	Daily	0
Event	9	Calibration	2
Interval	26	Time History	0

SLM Field Data Sheet

Project:	Los Valles	Date	16 July 2013
Location:	Loc 3 - June Rose Ct.	Field Crew (Initials)	DB
Latitude:		SLM Number	OAK 1
Longitude:			

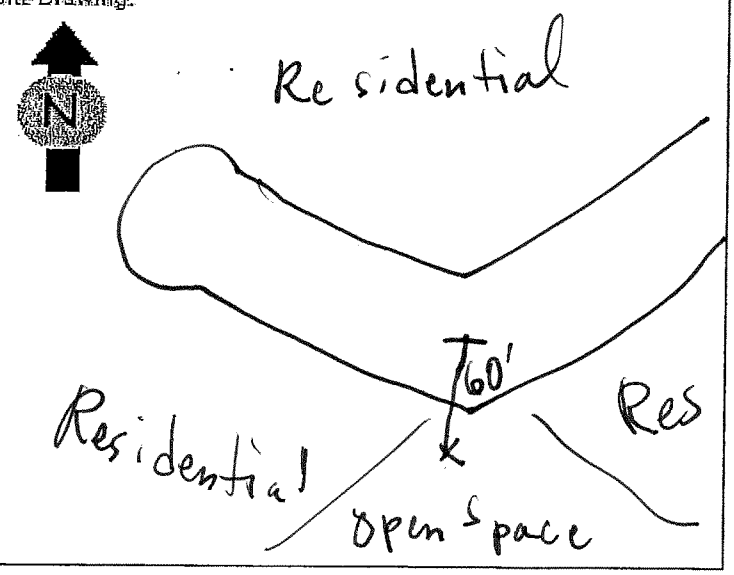
Pre-Monitoring Data	
Calibration $Level_{Start}$ (dBA)	No Chng / Chngd / Offset 114.0
Battery $Level_{Start}$ (%)	185
Relative $Humidity_{Start}$ (%)	
$Temp_{Start}$ (F)	

Post-Monitoring Data			
Calibration $Level_{End}$ (dBA)			
Battery $Level_{End}$ (%)			
RH_{Max} (%)		RH_{Min} (%)	
$Temp_{Max}$ (F)		$Temp_{Min}$ (F)	

Time											
Start	Stop	L1	L10	L25	L50	L90	L99	Lmin	Lmax	Leq	Notes
1020	1050										

Notes:

Site Drawing:



C:\LARDAV\SLMUTIL\OAK1.bin Summary Data

Site: 0 Model: 720 Firmware rev: 1.634
Location:
Date: 16Jul 13 09:13:22

	Overall	Current
Run Time	24:34:21.0	24:34:21.0
Start Time	16Jul 13 09:13:22	16Jul 13 09:13:22
TWA: Leq	61.9	Leq 61.9
SEL	111.4	111.4
Lmax	112.0	112.0
Lmax Time	16Jul 13 17:57:01	16Jul 13 17:57:01
Lmin	35.4	35.4
Lmin Time	16Jul 13 18:33:54	16Jul 13 18:33:54
Peak	140.5	140.5
Peak Time	16Jul 13 18:01:01	16Jul 13 18:01:01
Unweighted Peak	146.4	146.4
Uwpk Time	16Jul 13 18:01:01	16Jul 13 18:01:01
Dose	0.5	0.5
Projected Dose	0.2	0.2
Threshold	80	80
Criterion	90	90

Ln values
L10 = 64.2 L25 = 64.1 L50 = 47.3
L90 = 37.7 L99 = 35.6 L99 = 35.6

Ldn	0.0	Overall Leq	64.1	24:34:21.0
Cnel	0.0	Event Leq	69.1	07:17:00.0
Sound Exposure	0.0	Background Leq	53.5	17:17:21.0
Overloads	0			
Pause Time	00:00:00.0			

Records:

Run/Stop	2	Daily	0
Event	0	Calibration	2
Interval	100	Time History	0

SLM Field Data Sheet

Project:	Los Valles	Date	16 July 2013
Location:	Loc 4 - Barcelona Pl.	Field Crew (Initials)	DB
Latitude:		SLM Number	CAM 2
Longitude:			

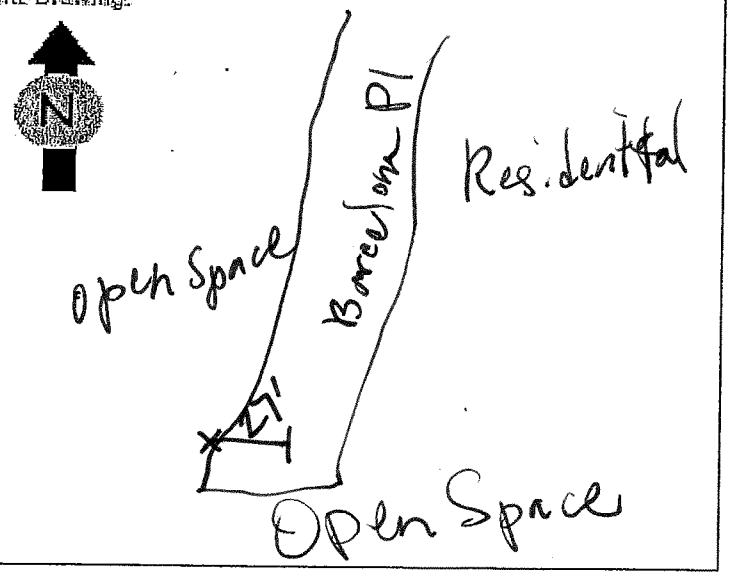
Pre-Monitoring Data	
Calibration $Level_{Start}$ (dBA)	No Chng / Chngd / Offset 114.0
Battery $Level_{Start}$ (%)	176
Relative $Humidity_{Start}$ (%)	
$Temp_{Start}$ (F)	

Post-Monitoring Data			
Calibration $Level_{End}$ (dBA)			
Battery $Level_{End}$ (%)			
RH_{Max} (%)		RH_{Min} (%)	
$Temp_{Max}$ (F)		$Temp_{Min}$ (F)	

Time											
Start	Stop	L1	L10	L25	L50	L90	L99	Lmin	Lmax	Leq	Notes
1040	1105										

Notes:

Site Drawing:



C:\LARDAV\SLMUTIL\CAM2.bin Summary Data

Site: 0 Model: 820 Firmware rev: 1.634
Location:
Date: 16Jul 13 09:39:03

	Overall	Current
Run Time	24:25:45.8	00:00:00.0
Start Time	16Jul 13 09:39:03	17Jul 13 14:24:27
TWA: Leq	50.3	Leq 0.0
SEL	99.7	0.0
Lmax	103.9	0.0
Lmax Time	16Jul 13 19:08:15	- - - - - - 00:00:00
Lmin	30.7	0.0
Lmin Time	17Jul 13 00:58:39	- - - - - - 00:00:00
Peak	116.2	0.0
Peak Time	17Jul 13 06:17:36	- - - - - - 00:00:00
Unweighted Peak	122.7	0.0
Uwpk Time	17Jul 13 06:17:36	- - - - - - 00:00:00
Dose	0.0	0.0
Projected Dose	0.0	0.0
Threshold	80	80
Criterion	90	90

Ln values
L10 = 52.4 L25 = 44.2 L50 = 38.8
L90 = 33.5 L90 = 33.5 L90 = 33.5

Ldn 55.7 Overall Leq 54.3 24:25:45.8
Cnel 57.4 Event Leq 72.2 00:06:39.5
Sound Exposure 0.0 Background Leq 52.9 24:19:06.3
Overloads 0
Pause Time 00:00:00.0

Records:
Run/Stop 2 Daily 0
Event 54 Calibration 2
Interval 26 Time History 0

APPENDIX 5.11-3

Construction Vibration Calculations

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Air Compressor		0	0.090	25	0.000	0.000	0.0
Backhoe		0	0.040	25	0.000	0.000	0.0
Caisson drilling		0	0.089	25	0.000	0.000	0.0
Clam shovel drop (slurry wall)		0	0.202	25	0.000	0.000	0.0
Compactor		0	0.050	25	0.000	0.000	0.0
Compressor		0	0.045	25	0.000	0.000	0.0
Concrete Mixer		0	0.040	25	0.000	0.000	0.0
Concrete Pump		0	0.028	25	0.000	0.000	0.0
Concrete Vibrator		0	0.014	25	0.000	0.000	0.0
Crane (Derrick)		0	0.057	25	0.000	0.000	0.0
Crane (Mobile)		0	0.057	25	0.000	0.000	0.0
Generator		0	0.018	25	0.000	0.000	0.0
Excavator		1	0.040	25	0.040	0.010	80.0
Hydromill (slurry wall)	in soil	0	0.008	25	0.000	0.000	0.0
	in rock	0	0.017	25	0.000	0.000	0.0
Jackhammer		0	0.035	25	0.000	0.000	0.0
Large bulldozer		0	0.089	25	0.000	0.000	0.0
Loaded trucks		1	0.076	25	0.076	0.019	85.6
Water trucks		1	0.076	25	0.076	0.019	85.6
Loader		1	0.071	25	0.071	0.018	85.0
Pavement Breaker		0	0.100	25	0.000	0.000	0.0
Paver		0	0.063	25	0.000	0.000	0.0
Pile Driver (impact)	upper rang	0	1.518	25	0.000	0.000	0.0
	typical	0	0.644	25	0.000	0.000	0.0
Pile Driver (sonic)	upper rang	0	0.734	25	0.000	0.000	0.0
	typical	0	0.170	25	0.000	0.000	0.0
Pneumatic Tool		0	0.040	25	0.000	0.000	0.0
Pump		0	0.014	25	0.000	0.000	0.0
Roller		0	0.020	25	0.000	0.000	0.0
Saw		0	0.018	25	0.000	0.000	0.0
Scraper		0	0.057	25	0.000	0.000	0.0
Shovel		0	0.028	25	0.000	0.000	0.0
Tub Grinder		0	0.252	25	0.000	0.000	0.0
Small bulldozer		0	0.003	25	0.000	0.000	0.0

* Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.

-Fragile Buildings- 0.20 in/sec

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Air Compressor		0	0.090	50	0.000	0.000	0.0
Backhoe		0	0.040	50	0.000	0.000	0.0
Caisson drilling		0	0.089	50	0.000	0.000	0.0
Clam shovel drop (slurry wall)		0	0.202	50	0.000	0.000	0.0
Compactor		0	0.050	50	0.000	0.000	0.0
Compressor		0	0.045	50	0.000	0.000	0.0
Concrete Mixer		0	0.040	50	0.000	0.000	0.0
Concrete Pump		0	0.028	50	0.000	0.000	0.0
Concrete Vibrator		0	0.014	50	0.000	0.000	0.0
Crane (Derrick)		0	0.057	50	0.000	0.000	0.0
Crane (Mobile)		0	0.057	50	0.000	0.000	0.0
Generator		0	0.018	50	0.000	0.000	0.0
Excavator		1	0.040	50	0.014	0.004	71.0
Hydromill (slurry wall)	in soil	0	0.008	50	0.000	0.000	0.0
	in rock	0	0.017	50	0.000	0.000	0.0
Jackhammer		0	0.035	50	0.000	0.000	0.0
Large bulldozer		0	0.089	50	0.000	0.000	0.0
Loaded trucks		1	0.076	50	0.027	0.007	76.5
Water trucks		1	0.076	50	0.027	0.007	76.5
Loader		1	0.071	50	0.025	0.006	76.0
Pavement Breaker		0	0.100	50	0.000	0.000	0.0
Paver		0	0.063	50	0.000	0.000	0.0
Pile Driver (impact)	upper range	0	1.518	50	0.000	0.000	0.0
	typical	0	0.644	50	0.000	0.000	0.0
Pile Driver (sonic)	upper range	0	0.734	50	0.000	0.000	0.0
	typical	0	0.170	50	0.000	0.000	0.0
Pneumatic Tool		0	0.040	50	0.000	0.000	0.0
Pump		0	0.014	50	0.000	0.000	0.0
Roller		0	0.020	50	0.000	0.000	0.0
Saw		0	0.018	50	0.000	0.000	0.0
Scraper		0	0.057	50	0.000	0.000	0.0
Shovel		0	0.028	50	0.000	0.000	0.0
Tub Grinder		0	0.252	50	0.000	0.000	0.0
Small bulldozer		0	0.003	50	0.000	0.000	0.0

* Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.

-Fragile Buildings- 0.20 in/sec

-Extremely Fragile Buildings- 0.12 in/sec

a. PPV is typically a factor of 1.7 to 6 times greater than RMS vibration velocity. In this analysis a factor of 4 has been used to caulculate the apprxoimate RMS vibration velocity levels above.

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Air Compressor		0	0.090	100	0.000	0.000	0.0
Backhoe		0	0.040	100	0.000	0.000	0.0
Caisson drilling		0	0.089	100	0.000	0.000	0.0
Clam shovel drop (slurry wall)		0	0.202	100	0.000	0.000	0.0
Compactor		0	0.050	100	0.000	0.000	0.0
Compressor		0	0.045	100	0.000	0.000	0.0
Concrete Mixer		0	0.040	100	0.000	0.000	0.0
Concrete Pump		0	0.028	100	0.000	0.000	0.0
Concrete Vibrator		0	0.014	100	0.000	0.000	0.0
Crane (Derrick)		0	0.057	100	0.000	0.000	0.0
Crane (Mobile)		0	0.057	100	0.000	0.000	0.0
Generator		0	0.018	100	0.000	0.000	0.0
Excavator		0	0.040	100	0.000	0.000	0.0
Hydromill (slurry wall)	in soil	0	0.008	100	0.000	0.000	0.0
	in rock	0	0.017	100	0.000	0.000	0.0
Jackhammer		0	0.035	100	0.000	0.000	0.0
Large bulldozer		0	0.089	100	0.000	0.000	0.0
Loaded trucks		0	0.076	100	0.000	0.000	0.0
Water trucks		0	0.076	100	0.000	0.000	0.0
Loader		0	0.071	100	0.000	0.000	0.0
Pavement Breaker		0	0.100	100	0.000	0.000	0.0
Paver		0	0.063	100	0.000	0.000	0.0
Pile Driver (impact)	upper range	0	1.518	100	0.000	0.000	0.0
	typical	0	0.644	100	0.000	0.000	0.0
Pile Driver (sonic)	upper range	0	0.734	100	0.000	0.000	0.0
	typical	0	0.170	100	0.000	0.000	0.0
Pneumatic Tool		0	0.040	100	0.000	0.000	0.0
Pump		0	0.014	100	0.000	0.000	0.0
Roller		0	0.020	100	0.000	0.000	0.0
Saw		0	0.018	100	0.000	0.000	0.0
Scraper		0	0.057	100	0.000	0.000	0.0
Shovel		0	0.028	100	0.000	0.000	0.0
Tub Grinder		0	0.252	100	0.000	0.000	0.0
Small bulldozer		0	0.003	100	0.000	0.000	0.0

* Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.

-Fragile Buildings- 0.20 in/sec

Equipment		Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance[a]	RMS Vibration level in VdB at adjusted distance
Air Compressor		0	0.090	200	0.000	0.000	0.0
Backhoe		0	0.040	200	0.000	0.000	0.0
Caisson drilling		0	0.089	200	0.000	0.000	0.0
Clam shovel drop (slurry wall)		0	0.202	200	0.000	0.000	0.0
Compactor		0	0.050	200	0.000	0.000	0.0
Compressor		0	0.045	200	0.000	0.000	0.0
Concrete Mixer		0	0.040	200	0.000	0.000	0.0
Concrete Pump		0	0.028	200	0.000	0.000	0.0
Concrete Vibrator		0	0.014	200	0.000	0.000	0.0
Crane (Derrick)		0	0.057	200	0.000	0.000	0.0
Crane (Mobile)		0	0.057	200	0.000	0.000	0.0
Generator		0	0.018	200	0.000	0.000	0.0
Excavator		0	0.040	200	0.000	0.000	0.0
Hydromill (slurry wall)	in soil	0	0.008	200	0.000	0.000	0.0
	in rock	0	0.017	200	0.000	0.000	0.0
Jackhammer		0	0.035	200	0.000	0.000	0.0
Large bulldozer		0	0.089	200	0.000	0.000	0.0
Loaded trucks		0	0.076	200	0.000	0.000	0.0
Water trucks		0	0.076	200	0.000	0.000	0.0
Loader		0	0.071	200	0.000	0.000	0.0
Pavement Breaker		0	0.100	200	0.000	0.000	0.0
Paver		0	0.063	200	0.000	0.000	0.0
Pile Driver (impact)	upper range	0	1.518	200	0.000	0.000	0.0
	typical	0	0.644	200	0.000	0.000	0.0
Pile Driver (sonic)	upper range	0	0.734	200	0.000	0.000	0.0
	typical	0	0.170	200	0.000	0.000	0.0
Pneumatic Tool		0	0.040	200	0.000	0.000	0.0
Pump		0	0.014	200	0.000	0.000	0.0
Roller		0	0.020	200	0.000	0.000	0.0
Saw		0	0.018	200	0.000	0.000	0.0
Scraper		0	0.057	200	0.000	0.000	0.0
Shovel		0	0.028	200	0.000	0.000	0.0
Tub Grinder		0	0.252	200	0.000	0.000	0.0
Small bulldozer		0	0.003	200	0.000	0.000	0.0

* Suggested Vibration Thresholds per the Federal Transit Administration, United States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.

-Fragile Buildings- 0.20 in/sec

APPENDIX 5.11-4

Noise Level Distance Adjustments

Noise Level Distance Adjustments

Baseline		Adjusted for Distance		
Distance	Noise (dB(A))	New Distance	Drop in dB(A)	New dB(A)
75	66.9	80	0.56	66.34
75	66.9	1070	23.09	43.81

Noise Level Distance Adjustments

Baseline		Adjusted for Distance		
Distance	Noise (dB(A))	New Distance	Drop in dB(A)	New dB(A)
17	58	56	10.35	47.65
21	58	79	11.51	46.49

APPENDIX 5.11-5

Interval Data

C:\LARDAV\SLMUTIL\16JUL_07.bin Interval Data

Date	Time	Duration	Leq	Lmax
16Jul 13	08:54:56	303.8	88.2	118.3
16Jul 13	09:00:00	3600.0	42.3	71.2
16Jul 13	10:00:00	3600.0	38.7	52.3
16Jul 13	11:00:00	3600.0	43.9	69.1
16Jul 13	12:00:00	3600.0	43.7	61.8
16Jul 13	13:00:00	3600.0	43.3	79.0
16Jul 13	14:00:00	3600.0	40.7	66.5
16Jul 13	15:00:00	3600.0	44.2	65.9
16Jul 13	16:00:00	3600.0	41.0	59.4
16Jul 13	17:00:00	3600.0	41.8	63.1
16Jul 13	18:00:00	3600.0	40.4	63.2
16Jul 13	19:00:00	3600.0	40.8	61.1
16Jul 13	20:00:00	3600.0	41.6	65.4
16Jul 13	21:00:00	3600.0	42.4	63.7
16Jul 13	22:00:00	3600.0	39.9	57.5
16Jul 13	23:00:00	3600.0	39.5	48.9
17Jul 13	00:00:00	3600.0	40.7	50.4
17Jul 13	01:00:00	3600.0	41.4	58.1
17Jul 13	02:00:00	3600.0	39.4	49.4
17Jul 13	03:00:00	3600.0	41.5	54.7
17Jul 13	04:00:00	3600.0	41.7	52.4
17Jul 13	05:00:00	3600.0	41.0	52.7
17Jul 13	06:00:00	3600.0	51.5	81.0
17Jul 13	07:00:00	3600.0	54.9	85.6
17Jul 13	08:00:00	3600.0	40.5	58.7
17Jul 13	09:00:00	2396.9	62.2	100.1

C:\LARDAV\SLMUTIL\CAM2.bin Interval Data

Date	Time	Duration	Leq	Lmax
16Jul 13	09:39:03	1256.8	53.5	91.5
16Jul 13	10:00:00	3600.0	51.1	81.8
16Jul 13	11:00:00	3600.0	56.9	77.0
16Jul 13	12:00:00	3600.0	58.3	78.2
16Jul 13	13:00:00	3600.0	57.7	80.4
16Jul 13	14:00:00	3600.0	57.0	76.6
16Jul 13	15:00:00	3600.0	53.5	76.1
16Jul 13	16:00:00	3600.0	51.0	71.4
16Jul 13	17:00:00	3600.0	49.0	72.9
16Jul 13	18:00:00	3600.0	42.6	63.3
16Jul 13	19:00:00	3600.0	63.2	103.9
16Jul 13	20:00:00	3600.0	39.2	55.3
16Jul 13	21:00:00	3600.0	40.5	57.7
16Jul 13	22:00:00	3600.0	40.1	58.9
16Jul 13	23:00:00	3600.0	36.2	46.6
17Jul 13	00:00:00	3600.0	35.2	59.0
17Jul 13	01:00:00	3600.0	34.2	53.2
17Jul 13	02:00:00	3600.0	35.0	55.8
17Jul 13	03:00:00	3600.0	34.9	49.8
17Jul 13	04:00:00	3600.0	38.7	75.6
17Jul 13	05:00:00	3600.0	39.2	56.7
17Jul 13	06:00:00	3600.0	53.8	89.7
17Jul 13	07:00:00	3600.0	40.0	56.5
17Jul 13	08:00:00	3600.0	59.6	94.3
17Jul 13	09:00:00	3600.0	54.7	90.9
17Jul 13	10:00:00	288.9	53.5	82.6

C:\LARDAV\SLMUTIL\OAK1.bin Interval Data

Date	Time	Duration	Leq	Lmax
16Jul 13	09:13:22	97.7	79.2	103.1
16Jul 13	09:15:00	900.0	63.0	65.1
16Jul 13	09:30:00	900.0	63.6	65.5
16Jul 13	09:45:00	900.0	64.1	64.9
16Jul 13	10:00:00	900.0	64.0	67.4
16Jul 13	10:15:00	900.0	64.0	66.1
16Jul 13	10:30:00	900.0	63.3	66.1
16Jul 13	10:45:00	900.0	64.0	71.5
16Jul 13	11:00:00	900.0	64.0	82.0
16Jul 13	11:15:00	900.0	64.1	70.4
16Jul 13	11:30:00	900.0	64.5	89.1
16Jul 13	11:45:00	900.0	64.1	80.4
16Jul 13	12:00:00	900.0	67.5	81.9
16Jul 13	12:15:00	900.0	65.1	88.7
16Jul 13	12:30:00	900.0	64.9	88.5
16Jul 13	12:45:00	900.0	70.4	104.7
16Jul 13	13:00:00	900.0	70.2	105.1
16Jul 13	13:15:00	900.0	72.6	108.7
16Jul 13	13:30:00	900.0	65.8	94.6
16Jul 13	13:45:00	900.0	66.1	97.2
16Jul 13	14:00:00	900.0	68.3	101.1
16Jul 13	14:15:00	900.0	66.1	96.4
16Jul 13	14:30:00	900.0	65.6	93.8
16Jul 13	14:45:00	900.0	66.1	95.9
16Jul 13	15:00:00	900.0	66.5	98.0
16Jul 13	15:15:00	900.0	67.2	100.9
16Jul 13	15:30:00	900.0	67.6	101.0
16Jul 13	15:45:00	900.0	71.8	107.4
16Jul 13	16:00:00	900.0	65.0	95.1
16Jul 13	16:15:00	900.0	65.3	94.1
16Jul 13	16:30:00	900.0	66.5	100.2
16Jul 13	16:45:00	900.0	71.3	105.8
16Jul 13	17:00:00	900.0	69.4	104.8
16Jul 13	17:15:00	900.0	64.7	89.0
16Jul 13	17:30:00	900.0	65.2	94.6
16Jul 13	17:45:00	900.0	74.6	112.0
16Jul 13	18:00:00	900.0	75.5	111.6
16Jul 13	18:15:00	900.0	40.8	61.1
16Jul 13	18:30:00	900.0	42.2	68.7
16Jul 13	18:45:00	900.0	39.4	62.5
16Jul 13	19:00:00	900.0	44.2	64.1
16Jul 13	19:15:00	900.0	40.5	54.4
16Jul 13	19:30:00	900.0	46.3	53.8
16Jul 13	19:45:00	900.0	53.0	71.3
16Jul 13	20:00:00	900.0	52.0	73.9
16Jul 13	20:15:00	900.0	50.4	73.9
16Jul 13	20:30:00	900.0	49.4	55.4
16Jul 13	20:45:00	900.0	48.8	59.0
16Jul 13	21:00:00	900.0	46.8	67.3
16Jul 13	21:15:00	900.0	43.8	47.6
16Jul 13	21:30:00	900.0	46.7	57.5
16Jul 13	21:45:00	900.0	47.5	49.7
16Jul 13	22:00:00	900.0	48.4	60.2
16Jul 13	22:15:00	900.0	48.6	65.4
16Jul 13	22:30:00	900.0	49.4	59.1
16Jul 13	22:45:00	900.0	48.4	54.3
16Jul 13	23:00:00	900.0	48.3	55.7
16Jul 13	23:15:00	900.0	48.2	51.0
16Jul 13	23:30:00	900.0	48.4	52.5
16Jul 13	23:45:00	900.0	47.4	52.6
17Jul 13	00:00:00	900.0	44.6	49.6

17Jul 13	00:15:00	900.0	43.7	50.3
17Jul 13	00:30:00	900.0	46.1	50.3
17Jul 13	00:45:00	900.0	45.4	49.1
17Jul 13	01:00:00	900.0	45.0	49.5
17Jul 13	01:15:00	900.0	45.4	50.4
17Jul 13	01:30:00	900.0	44.1	50.5
17Jul 13	01:45:00	900.0	42.1	51.7
17Jul 13	02:00:00	900.0	45.9	55.2
17Jul 13	02:15:00	900.0	43.9	53.2
17Jul 13	02:30:00	900.0	44.3	52.0
17Jul 13	02:45:00	900.0	42.1	54.8
17Jul 13	03:00:00	900.0	40.8	47.3
17Jul 13	03:15:00	900.0	42.6	60.1
17Jul 13	03:30:00	900.0	41.7	45.8
17Jul 13	03:45:00	900.0	40.3	45.2
17Jul 13	04:00:00	900.0	42.8	53.0
17Jul 13	04:15:00	900.0	41.5	53.5
17Jul 13	04:30:00	900.0	43.3	52.9
17Jul 13	04:45:00	900.0	47.0	53.1
17Jul 13	05:00:00	900.0	43.5	49.3
17Jul 13	05:15:00	900.0	44.8	56.9
17Jul 13	05:30:00	900.0	46.3	61.4
17Jul 13	05:45:00	900.0	46.1	58.5
17Jul 13	06:00:00	900.0	46.8	57.1
17Jul 13	06:15:00	900.0	41.7	56.6
17Jul 13	06:30:00	900.0	40.3	54.2
17Jul 13	06:45:00	900.0	45.9	61.5
17Jul 13	07:00:00	900.0	38.9	57.4
17Jul 13	07:15:00	900.0	41.9	65.1
17Jul 13	07:30:00	900.0	39.9	48.6
17Jul 13	07:45:00	900.0	39.5	61.3
17Jul 13	08:00:00	900.0	40.6	59.6
17Jul 13	08:15:00	900.0	39.5	56.0
17Jul 13	08:30:00	900.0	42.0	55.1
17Jul 13	08:45:00	900.0	44.3	60.0
17Jul 13	09:00:00	900.0	41.8	56.9
17Jul 13	09:15:00	900.0	40.3	55.6
17Jul 13	09:30:00	900.0	42.8	60.3
17Jul 13	09:45:00	163.2	62.4	86.2

APPENDIX 5.12.1-1

County of Los Angeles Public Library Correspondence, August 21, 2013

County Library
Of Los Angeles Public
READ · LISTEN · EXPLORE · CREATE

County of Los Angeles Public Library ■ www.colapublib.org
7400 East Imperial Hwy., Downey, CA 90242 ■ (562) 940-8400

"Enriching Lives"

Margaret Donnellan Todd
County Librarian

August 21, 2013

Kathleen King
Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road, Suite C
Camarillo, CA 93012

Dear Ms. King:

REQUEST FOR LIBRARY SERVICE INFORMATION
DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE
LOS VALLES RESIDENTIAL PROJECT

This is to respond to your request for library service information for the Draft Environmental Impact Report for the proposed Los Valles Residential Project. Attached is the Library's response to your questions.

If you have any questions or need additional information, please contact Elsa Muñoz at (562) 940-8450 or emuñoz@library.lacounty.gov.

Sincerely,

Yolanda De Ramus
Chief Deputy

YDR:EM:MB:lh
U:\STAFFSERVICES\DEVELOPER FEE\EIR\Los Valles Residential Project - Cover Letter.doc

c: Elsa Muñoz, Head, Support Services, Public Library
Beth Wilson, Library Administrator, Public Library

COUNTY OF LOS ANGELES PUBLIC LIBRARY

RESPONSE TO REQUEST FOR LIBRARY SERVICE INFORMATION
DRAFT ENVIRONMENTAL IMPACT REPORT
LOS VALLES RESIDENTIAL PROJECT

1. Would the Castaic Public Library of Los Angeles County Library System serve the proposed project? If so, what is the current supply of books, magazines, newspapers, DVDs, CDs, videos, books on tape, computers, and librarians available to the public in this library branch?

   Yes, the Castaic Library (Library) located at 27971 Sloan Canyon Road, Castaic, CA 91384 is the library that would provide library service to the proposed Project.

   The Library has a collection of 39,956 books and other library materials as of March 31, 2013 (latest data available), twenty-two (22) public use computers, and one (1) Librarian.

2. What is the square footage of the library that would mainly serve the project site?

   The size of the Library is 6,985 square feet.

3. Does the Los Angeles County Library System calculate impacts to the public library service through volume-to-resident ratios? If so, what is the current volume-to-resident ratio, and what is the current standard? If not, how does the public library determine if it is properly serving the public?

   The County of Los Angeles Public Library (County Library) uses material-to resident and square footage-to-resident ratios for planning purposes. The materials-to-resident ratio is 2.75:1 and the square footage-to-resident ratio is 0.50:1. In addition, the County Library uses a service level guideline of 1.0 public access computer per 1,000 people served.

4. Are any improvements or construction of new libraries planned for facilities located in the vicinity of the project site? Is so what size would the facility be and how many books would the facility accommodate?

   The Library is currently being expanded from 6,985 sq. ft. to approximately 12,000 sq. ft. and will be able to accommodate approximately 20,000 more books and other library materials.

5. Does the Los Angeles County Library System recommend any mitigation measures to reduce any identified potentially significant impacts as a result of project implementation?

The County of Los Angeles (County) applies a library facilities mitigation fee on new residential projects in all unincorporated areas served by the County Library (*Los Angeles County Code,* Chapter 22.72). In order to mitigate the impact of residential projects on library services, developers or its successors in interest, are required to pay the library facilities mitigation fee that is in effect at the time building permits for projects in unincorporated County areas are issued.

The proposed project is located in the County Library's Planning Area 1 (Santa Clarita Valley). The current mitigation fee for this area, which may be adjusted annually based on changes in the Consumer Price Index, is $857 per residential unit. Therefore, the total mitigation fee that would be required is $425,929 ($857 x 497 residential units). The actual fee obligation for this project may be higher because the fee per residential unit will be that in effect at the time the building permits are issued.

6. Does the Los Angeles County Library System foresee any future problems that the proposed project could pose to the Los Angeles County Library System? If so, please relate the concerns.

   Any commercial component of the proposed project could have both a direct and indirect impact on the service capacity of the Library. Demand for library services will be created if people move into the Library service area to fill jobs in the project site. In addition, people who work, but do not live, in the project area could have an indirect impact on library services. These people are likely to use local library services during their time at work or while commuting to and from work.

APPENDIX 5.12.2-1

Castaic Union School District Correspondence, August 21, 2013

CASTAIC UNION SCHOOL DISTRICT

28131 Livingston Avenue • Valencia, California 91355
Phone: (661) 257-4500 • Fax: (661) 257-3596 • www.castaic.k12.ca.us

J
President *Clerk* *Member* *Member* *Member*

August 21, 2013

Kathleen King
Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road Suite C
Camarillo, Ca 93012

RE: Revised Tract No. is 52584

Dear Ms. King:

This letter is in response to your request for information regarding the impact of the proposed project on educational services. The Castaic Union School District serves Kindergarten through Eigth grades in the northern western portion of Los Angeles County. The area specified will be in the Live Oak Elementary School attendance boundary for K-5 grades and Castaic Middle School for grades 6, 7, and 8. This project will affect district planning and capacity for schools. Castaic Union School District is cooperative with developers in pursuing agreements with developments to ensure all student needs are met in a timely manner. There are several developments in the Castaic area that will require further study with regard to available seats at each of our schools.

I have prepared the following information to assist you in preparation of your EIR.

1. The enrollment for the Castaic Union School at the end of the 2012-13 school was 2871 and by school as follows:

LiveOak Elementary	673
Castaic Elementary	485
NorthLake Hills Elementary	624
Castaic Middle	1028

2. Live Oak design capacity was at 500 with a number of portable classrooms added since 1989. Plans are underway to Modernize Live Oak Elementary to improve the design capacity to the district standard of 750. Castaic Elementary design is for 750 with a number of Class Size Reduction portable classrooms on site. It is unknown at this time if CSR will continue given the state of funding for public education. NorthLake Hills Elementary School is the newest school in the district and opened August 2003 with a design capacity of 750 students. A number of relocatables are on each site to accommodate attendance areas. Castaic Middle School design capacity is 1200 students with the addition of a two story modular units completed in 2002.

3. Student Generation Rates, as of December 2012:

	SFD	MFA	APTS
K-5	0.319	0.190	0.245
6,7,8	0.135	0.079	0.123
K-8	0.454	0.269	0.368
SFD= single family dwellings			
MFA= Multiple family attached			
APT= Apartment			

4. School fees for new and residential construction is currently the statutory limit of $3.20, of which $2.08 per square foot is Castaic Union School Disrict will assess.

5. The Castaic Union School District provides transportation free of charge to students that qualify for free and reduced lunch programs and special needs children. A fee is assessed to all other students that are outside the walk distance set by board policy (currently 2 mile for TK-5 and 3.25 mile for 6-8). This project is inside the walk distances and transportation services will not be available.

6. The Castaic Union School District is currently reviewing several projects that will have a profound effect on the District. NLF/Lennar has entered into negotiations to mitigate their proposed development within the same

attendance of Live Oak Elementary as tract 52584. More information from regional planning and developers is required to validate status of projects and timeline for construction of new schools. Please call Castaic Union School District for information regarding negotiating agreements for impact on school facilities.

I do sincerely apologize for the delay in getting this out to you. Please feel free to contact me if you have any further questions. I can be reached at 661-257-4500 x 1546.

Sincerely,

Jaime Garcia
Director of Facilities

Cc James Gibson, Superintendent
files

APPENDIX 5.12.2-2

School Facilities Needs Analysis

From: Lorna Baril <lbaril@hartdistrict.org>
Sent: Monday, December 02, 2013 4:29 PM
To: Kathleen King
Subject: General District Information
Attachments: 2013 Final.pdf; Enrollment & Capacity Info.pdf

Kathleen,

Please see responses in blue and attachments.

I hope to respond in a more timely manner if your require any further information or clarification.

Thank you for your extreme patience,

Lorna

• Are there any planned improvements (i.e., school expansions, new school construction, etc.) to the William S. Hart Union School District that would be of interest to the proposed Project? If so, what are these improvements and what are their projected beginning and completion dates? Construction of Castaic High School.

Castaic High School is targeted to open fall 2012. I saw online that this school is not yet open, but projected for August 2016, could you please confirm this? Thanks Actually, at this point, the opening date is undetermined. We were targeting 2016 (the 2012 date was a typo), however, there are issues that may affect the 2016 date.

• Please provide student generation rates for residential units (single-family and multi-family) that the William S. Hart Union School District uses to estimate the number of children that would be generated by this proposed project that would attend the District's schools. Please provide generation rates for high schools. SFD: .1874

As calculated by the District's accountancy firm in the District's 2013 School Facilities Needs Analysis: .2924 Does the District maintain specific student generation rates? (i.e. Single-family dwelling = 0.319, multi-family dwelling =0.190 and apartment 0.245)? If not can the District provide an explanation for how this number is determined? A copy of the 2013 SFNA is attached which details the methodology for calculation of SGR.

• Is there, or will there be adequate school capacities in the William S. Hart Union School District when the proposed development is built out? Yes

Contingent upon completion of Castaic High School. As parts of the project will be completed before CHS is operating, does Valencia HS or West Ranch HS have the capacity to accept the projected students living in the proposed development? I know you had mentioned that enrollment projections are District-wide, is it possible to provide the design capacity for each school (not just the two closest ones) and the current enrollment numbers at each facility? Not without the installation of additional relocatable classrooms. Please see the attached enrollment information.

School Facilities Needs Analysis

William S. Hart Union High School District

May 17, 2013

Prepared For:
William S. Hart Union High School District
21515 Centre Pointe Parkway
Santa Clarita, CA 91350
T 661.259.0033
F 661.259.4762

Prepared By:
Dolinka Group, LLC
20 Pacifica, Suite 900
Irvine, CA 92618
T 949.250.8300
F 949.250.8301

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Exhibits

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Executive Summary

This School Facilities Needs Analysis ("Analysis") has been prepared in accordance with applicable laws to provide the factual basis for the William S. Hart Union High School District ("School District") to consider and, if desired, adopt alternative school facility fees ("Alternative Fees") that may be collected from residential development in the School District consistent with Section 17620 of the Education Code and Sections 65995.5, 65995.6, and 65995.7 of the Government Code (future code section references are to the Government Code unless otherwise specified). The Analysis provides factual information as to the following three (3) elements:

(i) Determination by the State Allocation Board ("SAB") of eligibility to receive funds from the State of California ("State") for new school facility construction;
(ii) Designation by the School District of satisfying two (2) of the four (4) statutory school requirements ("Statutory Requirements") set forth in Section 65995.5(b)(3); and
(iii) Calculation of the amount of the permissible Alternative Fees authorized by Section 65995.5 ("Alternative No. 2 Fee") and by Section 65995.7 ("Alternative No. 3 Fee").

A. Eligibility for New Construction Funding from the State

The School District has taken action electing to participate in the new School Facilities Program ("SFP") established by Section 17070.10 of the Education Code and authorized a designated representative to (i) approve, certify, and submit the SAB Forms 50-01, 50-02, and 50-03 to the SAB and (ii) request an eligibility determination ("Eligibility Determination") for new construction funding as required by the SFP.

As shown in Exhibits A, B, C, and D, the School District is eligible to receive new construction funding under the SFP.

B. Compliance with Statutory Requirements

A review of the records of the School District was accomplished to ascertain if the School District satisfies at least two (2) of the Statutory Requirements. Table ES-1 summarizes the Statutory Requirements and identifies those satisfied by the School District as of the date hereof.

Table ES-1
Summary of Statutory Requirements

Statutory Requirements	Status
Substantial enrollment as defined in Section 65995.5(b)(3)(A) of its students on a multi-track year-round calendar	**Not Met**
Placed at least one (1) general obligation bond measure on the ballot in the last four (4) years, and the measure received at least 50 percent plus one (1) of the votes cast	**Not Met**
Issued debt or incurred obligations for capital outlay in an amount equivalent to the percentage of its bonding capacity specified in Section 65995.5(b)(3)(C)	**Met**
At least 20 percent of the teaching stations are relocatable classrooms	**Met**

C. Calculation of Alternative No. 2 Fee and Alternative No. 3 Fee

The facts set forth herein justify on a roughly proportional and a reasonably related basis that the following amounts meet the requirements of Sections 66000, *et seq.*, as well as other applicable legal requirements, including but not limited to Sections 65995.5, 65995.6 and 65995.7. Because Newhall School District ("NSD"), Saugus Union School District ("SUSD"), and Sulphur Springs Union School District ("SSUSD") serve elementary school students (i.e., grades kindergarten through 6), and Castaic Union School District ("CUSD") serves elementary and middle school students (i.e., grades kindergarten through 8), the Analysis identifies Alternative Fees by location. The Alternative No. 2 Fees and Alternative No. 3 Fees by location for the School District are listed in Table ES-2.

Table ES-2
Alternative Fees (2013$)

Fee	Units Located Within the CUSD Area of the School District	Units Located Within NSD, SUSD, & SSUSD
Alternative No. 2 Fee	$1.31	$2.33
Alternative No. 3 Fee	$2.61	$4.65

Attached as Exhibit E is (i) a summary of the school facility planning policies of the School District and (ii) an estimate of the school facilities cost impacts per square foot of residential construction. As can be seen from comparing Exhibit E to the recommended Alternative No. 2 Fees and the Alternative No. 3 Fees in Table ES-2, the Alternative Fees are less than the comparable amounts set forth in Exhibit E and are not sufficient to cover all of the actual school facilities cost impacts caused by new residential development on the School District. Therefore, the Alternative No. 2 Fees and the Alternative No. 3 Fees are reasonably related and roughly proportional to the cost of school facilities for the future development identified in the Analysis in accordance with applicable laws.

D. Imposition of Alternative No. 2 Fee and Alternative No. 3 Fee

Prior to the adoption of the Analysis, the public is given a 30-day period to review and comment on the Analysis, and any written comments received by the Governing Board of the School District must be responded to. The Governing Board is also required to hold a public hearing prior to its consideration of the Analysis.

Should the Governing Board of the School District approve the resolution that adopts the Analysis and the accompanying Alternative No. 2 Fee and Alternative No. 3 Fee, those amounts would be effective immediately for a period not to exceed 12 months. By approving the Analysis and the accompanying Alternative Fees, the Governing Board is authorizing the imposition of the Alternative No. 2 Fee for those periods when the State has new construction bond funds available and the Alternative No. 3 Fee for those periods when the SAB is no longer approving apportionments for new construction due to a lack of funds available.

I. General

Upon adoption of Alternative Fees by a school district, such Alternative Fees may be required in accordance with applicable law. It is anticipated that such adoption will specify that Alternative No. 2 Fees will be required as provided in Section 65995.5(a) if the SAB is approving apportionments for new construction funding, and Alternative No. 3 Fees will be required as provided in Section 65995.7(a), if the SAB is not approving apportionments for new construction funding, and subject to the suspension of Alternative No. 3 Fees as set forth in Section 65995.7(a)(2).

The Analysis is divided into seven (7) main sections.

» Section I is the introductory section that generally describes the methodology used in preparing the Analysis.

» Section II describes the Eligibility Determination that has been obtained from the SAB, as well as documents which of the four (4) Statutory Requirements the School District presently satisfies.

» Section III projects the unhoused students to be generated by residential development anticipated to occur in the School District over the next five (5) years ("Future Units") in accordance with Section 65995.6(a).

» Section IV identifies any surplus school sites or existing surplus local funds that the School District might elect in whole or part to use to reduce the impact of the Future Units on the School District.

» Section V of the Analysis sets forth the recommended amount of the Alternative No. 2 Fee.

» Section VI of the Analysis sets forth the recommended amount of the Alternative No. 3 Fee.

» Finally, Section VII documents facts whereby the School District may make determinations regarding compliance of the Alternative Fees with Sections 66000, et seq.

Eligibility to Collect Alternative Fees

Eligibility to Receive State Funds

A school district must have been determined by the SAB to be eligible for new construction funding under the SFP or requested such a determination from the SAB 120 days prior to adopting any Alternative Fees.

Statutory Requirements

A school district must satisfy at least two (2) of the four (4) Statutory Requirements in order to adopt and impose Alternative Fees. The Statutory Requirements are summarized as follows:

1. A school district has a substantial enrollment, as defined in Section 65995.5(b)(3)(A) ("Substantial Enrollment") of its students on a multi-track year-round calendar;

2. A school district has placed at least one (1) general obligation bond measure on the ballot in the last four (4) years, and the measure received at least 50 percent plus one (1) of the votes cast;

3. A school district has issued debt or incurred obligations for capital outlay in an amount equivalent to a certain percentage of its bonding capacity; and/or

4. At least 20 percent of the teaching stations within a school district are relocatable classrooms.

Projected Unhoused Students from Future Residential Development

Total Projected Student Enrollment

In determining the amount of any proposed Alternative Fees, a school district must project in accordance with Section 65995.6 the total number of students to be generated by Future Units ("Projected Student Enrollment"). This projection is performed by applying the student generation rates for residential development over the previous five (5) years of a type similar to that of the Future Units either in the school district or in the city or the county in which the school district is located. The projection may be modified by relevant planning agency information.

Excess Capacity

A school district must identify and consider the number of excess seats, if any, which are available at each school level (i.e., junior high school and high school). If surplus seats exist at one (1) or more school levels, the school district must determine what portion of the excess seats, if any, it desires to make available to accommodate the Projected Student Enrollment. The determination may include such considerations as matriculation of existing students, advance funding from mitigated future residential units, long term needs of the school district, as well as other relevant factors. Excess seats shall be determined by comparing capacity as calculated pursuant to Section 17071.25 of the Education Code to student enrollment.

Projected Unhoused Students

Lastly, a school district must reduce the Projected Student Enrollment by the excess capacity, if any, that is identified and allocated by the school district to the Future Units to calculate the number of projected unhoused students ("Projected Unhoused Students").

Surplus Property and Existing Surplus Local Funds

Surplus Property

A school district must identify and make a reasonable allocation of surplus property, if any, which could be (i) used as a school site and/or (ii) sold to finance additional school facilities needed to accommodate the Projected Unhoused Students.

Existing Surplus Local Funds

A school district must identify and make a reasonable allocation of existing surplus local sources, including local funds, which includes commercial/industrial school fees ("Local Funds"), if any, that could be available to finance the construction of school facilities needed to accommodate the Projected Unhoused Students as referred to in Section 65995.5(c)(2) and 65995.6(b)(3).

Alternative No. 2 Fee

Student Capacity and Site Size of Future School Facilities

A school district must determine the appropriate number of students to be housed at each school level. Pursuant to Section 65995.5(h), after this determination has been made, the school district must calculate the appropriate site size for each school level based on the "School Site Analysis and Development Handbook" published by the State Department of Education as that handbook read as of January 1, 1998.

Site Acquisition and Site Development Costs

A school district must establish a factual basis for the estimated cost of acquiring property(s) for a school site(s) or the appraised value of a proposed school site(s). Additionally, the school district must establish an estimate of the permissible cost of developing such site(s). The site development cost includes utilities, off-site, and service site development costs.

Total School Facility Costs per Student and Total School Facility Costs

A school district must estimate the total school facility costs per student based on the site acquisition and the site development costs mentioned above, as well as the amounts specified in Section 65995.5, which may or may not be adequate to fund the necessary school facilities. Thereafter, the total school facility costs must be calculated. This calculation involves multiplying the number of Projected Unhoused Students by the school facility costs per student set forth in Section 65995.5 and subtracting any available local sources, including Local Funds, identified by the school district and dedicated to such portion of future development in the school district.

Residential Square Footage to be Constructed during the Next Five (5) Years

Based on information from the county, the city(s) or one (1) or more independent third party market reports, a school district must estimate the total assessable square footage of the Future Units.

Alternative No. 2 Fee

A school district must calculate the Alternative No. 2 Fee by dividing the total school facility costs by the total assessable square footage of the Future Units in accordance with Section 65995.5(c).

Alternative No. 3 Fee

Alternative No. 3 Fee

The Alternative No. 3 Fee is determined by increasing the Alternative No. 2 Fee by an amount that may not exceed the amount calculated pursuant to Section 65995.5(c), provided that such amount may exclude reductions for available local sources, including Local Funds, identified and dedicated in accordance with Section 65995.7(a).

II. Eligibility to Collect Alternative Fees

Section 65995.5 requires that a school district (i) be eligible for new construction funding under the SFP and (ii) satisfy at least two (2) of the Statutory Requirements to be eligible to impose an Alternative No. 2 Fee or an Alternative No. 3 Fee. Section II.A. provides an evaluation of the eligibility of the School District for new construction funding under the SFP and Section II.B. documents the School District's satisfaction of at least two (2) Statutory Requirements.

A. Eligibility to Receive State Funds

The School District has taken action electing to participate in the School Facilities Program ("SFP") established by Section 17070.10 of the Education Code. Additionally, the School District authorized a designated representative to (i) approve, certify, and submit the SAB Forms 50-01, 50-02, and 50-03 to the SAB and (ii) request an eligibility determination ("Eligibility Determination") for new construction funding as required by the SFP. The School District filed SAB Forms 50-01, 50-02, and 50-03 and requested an Eligibility Determination for new construction funding as required by the SFP on March 5, 1999. On May 26, 1999, the Eligibility Determination of the School District was approved by the SAB. Subsequently, the School District submitted updated SAB Forms 50-01, 50-02, and 50-03 as part of its ongoing facilities planning and financing program. The current SAB Forms 50-01, 50-02, and 50-03 are incorporated herein as Exhibits A, B, and C, respectively. As shown in the School District's most current Eligibility Determination from the SAB (attached and incorporated as Exhibit D), the School District is eligible for new construction funding under the SFP for 3,646 students in grades 7 and 8, 5,146 students in grades 9 through 12, 772 non-severe special day class students, and 298 severe special day class students.

B. Statutory Requirements

As stated in Section I, a school district must satisfy at least two (2) of the four (4) Statutory Requirements in order to levy Alternative Fees. What follows are facts establishing that the School District satisfies at least two (2) of the Statutory Requirements.

1. <u>Substantial Enrollment on Multi-track Year-Round Schedule</u>

This Statutory Requirement is met if the school district has Substantial Enrollment on a multi-track year-round schedule. Substantial Enrollment is defined differently for different types of school districts, as follows:

a. *Unified School Districts and Elementary School Districts*. At least 30 percent of the school district's students in grades kindergarten through 6 are on a multi-track year-round schedule in the high school attendance area in which all or some of the new residential units identified in the Analysis are planned for construction.

b. *High School Districts.* (i) At least 30 percent of the high school district's students are on a multi-track year-round schedule, or (ii) at least 40 percent of the students in grades kindergarten through 12 within the boundaries of the high school attendance area in which all or some of the new residential units identified in the Analysis are planned for construction are on a multi-track year-round schedule.

The School District has determined this Statutory Requirement has not been satisfied.

2. General Obligation Bond Measure

This Statutory Requirement is met if the school district has placed a general obligation ("GO") bond measure on the ballot in the last four (4) years and received at least 50 percent plus one (1) of the votes cast on one (1) such measure.

The School District has determined this Statutory Requirement has not been satisfied.

3. Debt or Obligations for Capital Outlay

This Statutory Requirement is met if the school district has issued debt or incurred obligations for capital outlay in an amount equivalent to a specified percent of its local bonding capacity. If the debt does not include debt associated with a Mello-Roos Community Facilities District ("CFD") formed by a landowner election after November 4, 1998, the threshold is 15 percent. If the debt includes debt associated with a Mello-Roos CFD formed by a landowner election after November 4, 1998, the threshold is increased to 30 percent. All debt and obligations to be repaid from property taxes, parcel taxes, special taxes, and the school district's general fund may be included.

The School District has determined this Statutory Requirement has been satisfied. The School District currently has $453,001,110 in outstanding debt. This outstanding debt consists of $394,571,110 from GO bonds, $52,430,000 from special tax bonds, and $6,000,000 from Certificates of Participation ("COPs"). In total, this debt represents 108.7 percent of the School District's bonding capacity (see Exhibit F for a calculation of the School District's bonding capacity).

4. Relocatable Classrooms

This Statutory Requirement is met if at least 20 percent of the school district's teaching stations are relocatable classrooms.

The School District has determined this Statutory Requirement has been satisfied. The School District currently has a total of 646 permanent classrooms and 174 relocatable classrooms. This equates to a 21.2 percent relocatable classroom utilization rate.

C. Eligibility to Collect Alternative Fees

As determined above, the School District is eligible to receive new construction funding and currently satisfies at least two (2) of the four (4) Statutory Requirements. As a result, the School District is eligible to adopt and impose Alternative Fees as provided by applicable law.

III. Projected Unhoused Students from Residential Development over the Next Five Years

Section 65995.6(a) requires that the School District determine the need for new school facilities for the Projected Unhoused Students. The calculation of the Projected Unhoused Students shall be based on historical student generation rates ("SGRs") of new residential units constructed during the previous five (5) years of a type similar to that of the Future Units. Section III.A. below calculates the Projected Student Enrollment. Section III.B. sets forth the relevant facts as to the identification of any excess seats which might be considered by the School District as available at each school level to house the Projected Student Enrollment, as determined in Section III.A. Finally, Section III.C. calculates the Projected Unhoused Students.

A. Projected Student Enrollment

As stated above, Section 65995.6(a) specifies the methodology the School District must use to calculate the Projected Student Enrollment. What follows is a step-by-step description of this calculation.

1. Student Generation Rates

In order to calculate SGRs in accordance with Section 65995.6(a), the School District must identify residential units that (i) were constructed during the previous five (5) years and (ii) are representative of the Future Units. Residential data pertaining to the School District was obtained by Dolinka Group, LLC from the Office of the Assessor ("Assessor") of the County of Los Angeles ("County"). Using data from the Assessor of the County and the School District, Dolinka Group compiled a database from such information containing the addresses of the units that met the criteria listed above. Parcels in the database were then classified by housing type (i.e., single family detached, single family attached, and multifamily).

» Residential units classified as single family detached ("SFD") are defined as units with no common walls each assigned a unique Assessor's parcel number.

» The category of single family attached ("SFA") consists of units with common walls each assigned a unique Assessor's parcel number (e.g., townhomes, condominiums).

» The third type of residential unit, multifamily ("MF"), is defined as a unit with common walls on an Assessor's parcel on which other units are located (e.g., apartments).

Based on residential data provided by the County, Dolinka Group was able to identify units that (i) were built in the last five (5) years and (ii) are representative of Future Units. Dolinka Group then obtained a database of all students within the School District in school year 2012/2013. The student database was then matched to parcels in the residential database and the number of students was queried based on the parcels to which they matched and whether or not the matching parcel was located within the CUSD boundary. Upon completion of such queries, Dolinka Group calculated SGRs for the three (3) unit types for the junior high school and high school levels. Table 1 below lists the SGRs by school level and land use, while Exhibit G contains specific numbers and counts used in calculating the SGRs.

Table 1
Student Generation Rates

School Level	SFD Units	SFA Units	MF Units
Junior High School (Grades 7 & 8)[1]	0.1050	0.0751	0.1455
High School (Grades 9 - 12)[2]	0.1874	0.0751	0.1455
Total	**0.2924**	**0.1502**	**0.291**

[1] Excludes CUSD.
[2] District-wide, including CUSD.

2. Future Units

Based on residential development projections prepared by Davis Demographics and Planning, Inc. ("DDP") and information provided by the Planning Departments of the City of Santa Clarita ("City") and the County, Dolinka Group estimates that the School District could experience the construction of 10,740 additional residential units over the next five (5) years (see Exhibit H for Dolinka Group's correspondence with the City and County). Of the 10,740 Future Units, 9,226 are located in the area within NSD, SUSD, and SSUSD (please refer to the map on the following page for a geographic profile of the School District). Table 2 distinguishes between mitigated and non-mitigated Future Units by unit type for the area within NSD, SUSD, and SSUSD, and Table 3 classifies mitigated and non-mitigated Future Units by unit type in the entire School District.

Table 2
Mitigated and Non-Mitigated Future Units by Unit Type within NSD, SUSD, & SSUSD

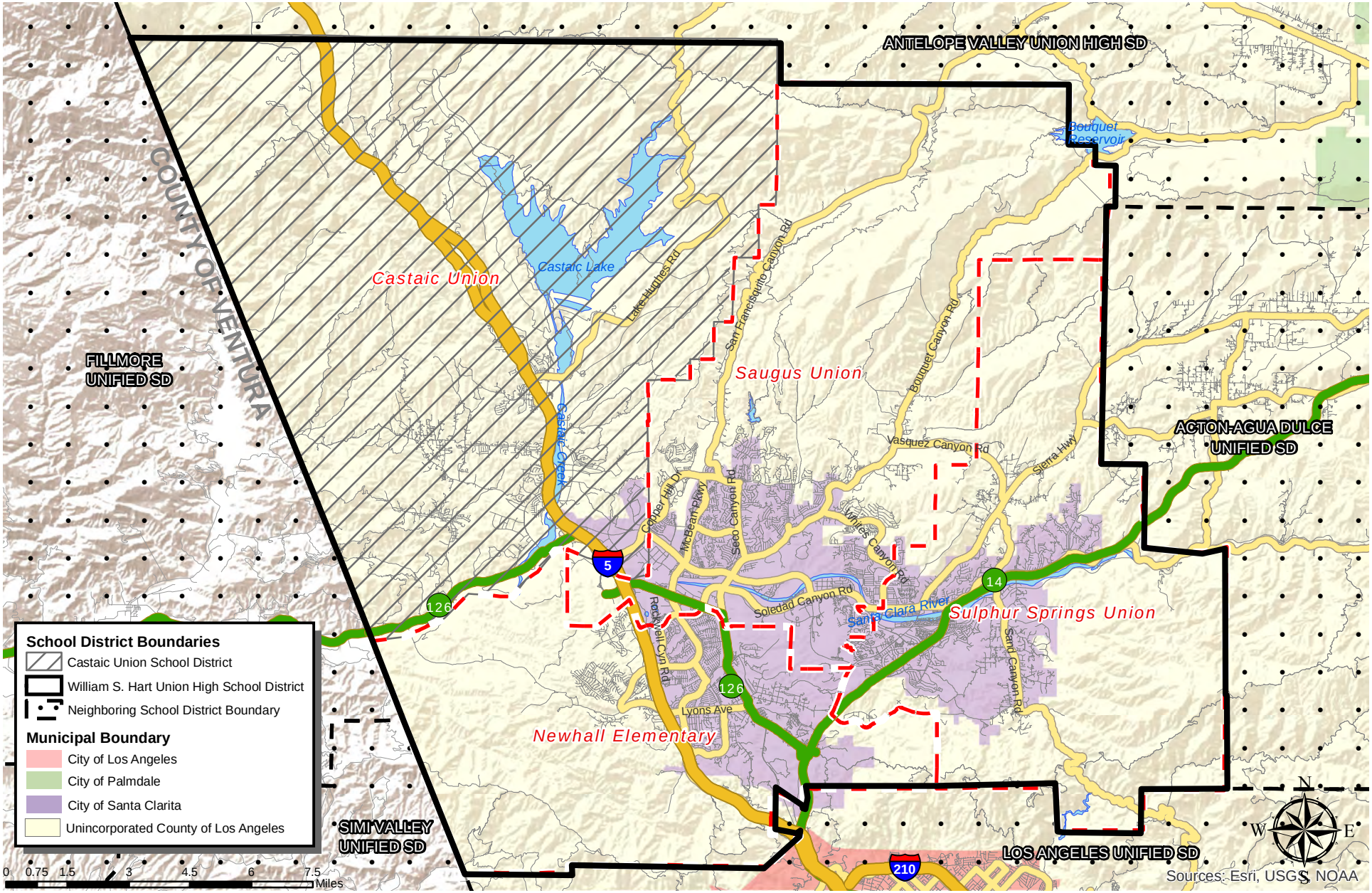
Unit Type	Mitigated Future Units	Non-Mitigated Future Units	Total Future Units
Single Family Detached	515	2,900	3,415
Single Family Attached	2,156	1,838	3,994
Multifamily	1,117	700	1,817
Total Units	**3,788**	**5,438**	**9,226**

Table 3
Mitigated and Non-Mitigated Future Units by Unit Type in the Entire School District

Unit Type	Mitigated Future Units	Non-Mitigated Future Units	Total Future Units
Single Family Detached	998	2,970	3,968
Single Family Attached	2,745	1,838	4,583
Multifamily	1,489	700	2,189
Total Units	**5,232**	**5,508**	**10,740**

William S. Hart Union High School District

Geographic Profile - School Year 2012/2013



May 2013

DOLINKA GROUP

The projected number of non-mitigated Future Units identified in Tables 2 and 3 include units which may result from residential units that are voluntarily demolished in order to be replaced by new residential development ("Reconstruction"). For additional information regarding the facilities cost impacts of Reconstruction please refer to Exhibit I.

It should be noted these projections are based on the best available information at this time and are independent of the projected residential development reported to the State in SAB Form 50-01.

3. Projected Student Enrollment

To calculate the Junior High School Projected Student Enrollment, the number of Future Units listed in Table 2 was multiplied by the Junior High School SGRs in Table 1. To calculate the High School Projected Student Enrollment, the number of Future Units listed in Table 3 was multiplied by the High School SGRs in Table 1. The results of these operations, according to school level, are shown in Table 4.

Table 4
Projected Student Enrollment

School Level	Students Generated from Mitigated Future Units	Students Generated from Non-Mitigated Future Units	Total Projected Students from Future Units
Junior High School	379	545	924
High School	610	797	1,407
Total	**989**	**1,342**	**2,331**

B. Current Capacity

Collectively, the School District's school facilities in school year 2012/2013 have a capacity of 20,825 seats per Section 17071.10 of the Education Code. Of these 20,825 seats, 6,320 are at the junior high school level and 14,505 are at the high school level. These capacities include seats from all new school facility construction projects funded by the State. Based on student enrollment data for school year 2012/2013, the enrollment of the School District is 22,750 students. As shown in Table 5, student enrollment exceeds facilities capacity at both the junior high school and high school levels in school year 2012/2013.

Table 5
Existing School Facilities Capacity and Student Enrollment

School Level	2012/2013 Facilities Capacity[1]	2012/2013 Student Enrollment[2]	Excess/ (Shortage) Capacity
Junior High School	6,320	6,863	(543)
High School	14,505	15,887	(1,382)
Total	**20,825**	**22,750**	**(1,925)**

[1] See Exhibit B for SAB Form 50-02, and Exhibit J for the Updated School Facilities Capacity Calculation.
[2] Student enrollment from October 2012.

C. Projected Unhoused Students

As shown in Table 5, the School District's existing school facilities capacity is not adequate to house all the students currently being generated from existing residential units. Accordingly, the School District has no excess facilities capacity to house the Projected Student Enrollment. Therefore, the Projected Unhoused Students and the Projected Student Enrollment are identical.

IV. Surplus School Sites and Existing Surplus Local Funds

Section 65995.6(b) states that the School District must identify and consider (i) surplus property, if any, owned by the School District that can be used as a school site or that is available for sale to finance school facilities, (ii) the extent to which projected enrollment growth can be accommodated at existing school facilities, and (iii) local sources that are available to finance the construction or reconstruction of school facilities needed to accommodate any growth in enrollment attributable to the construction of new residential units. Additionally, Section 65995.5(c)(2) requires the School District to subtract from the school facilities cost impact created by Future Units the amount of Local Funds that the governing board has dedicated to facilities necessitated by new residential units. To comply with Section 65995.6(b), the School District has identified and considered property it owns and has determined that it does not possess any sites that could be considered surplus. The Governing Board will review and re-adopt this Analysis annually, including a review of this determination and any need to consider property that may then be surplus to fund school facilities required to accommodate students being generated from existing residential units, or other students.

As for identifying and considering existing excess capacity that could accommodate the Projected Student Enrollment generated from non-mitigated Future Units, Section III.B. illustrates that the School District does not have adequate seats to house all of the students currently being generated from existing residential units.

Finally, in accordance with Sections 65995.6(b) and 65995.5(c)(2), the School District has determined that no local sources, including Local Funds, are available to finance the construction or reconstruction of school facilities needed to accommodate any Projected Student Enrollment generated from Future Units (see Exhibit K for more detail on local sources, including Local Funds).

V. Alternative No. 2 Fee

As discussed in Section I, the objective of this Analysis is (i) to determine whether the School District may adopt Alternative Fees and (ii) to determine the permissible amount of the Alternative No. 2 Fee and the Alternative No. 3 Fee that the School District is permitted to levy on new residential development. Based on the findings, determinations, and projections made in Sections II through IV, Section V contains a step-by-step calculation of the permissible Alternative No. 2 Fee in accordance with Section 65995.5.

A. Alternative No. 2 Fee School Facility Costs

As stated in Section 65995.5(c)(1), the initial step in calculating the maximum Alternative No. 2 Fee is to multiply the number of unhoused students generated from non-mitigated Future Units by the appropriate per-pupil grant amounts provided in Section 17072.10(a) of the Education Code. In addition, the sum shall be added to the site acquisition and site development costs determined pursuant to Section 65995.5(h).

1. Per-Pupil Grant Amounts

The per-pupil grant amounts identified in Section 17072.10(a) of the Education Code were adjusted by the SAB on January 23, 2013, pursuant to Section 17072.10(b) of the Education Code. The per-pupil grant amounts specified in Section 17072.10 are adjusted annually by the SAB to reflect construction cost changes as set forth in the statewide cost index for class B construction. Further, pursuant to SAB Regulation 1859.71.2 and Section 17074.56 of the Education Code, the per-pupil grants have been increased to account for automatic fire alarm detection systems and fire sprinkler systems. Table 6 shows the base per-pupil grant amounts.

Table 6
Base Per-Pupil Grant Amounts (2013$)

School Level	Per-Pupil Grant Amount	Additional Grants for Auto Alarm and Fire Sprinkler System	Base Per-Pupil Grant Amount
Junior High School	$10,312	$212	$10,524
High School	$13,119	$228	$13,347

In addition to the base per-pupil grant amounts shown in Table 6, SAB Regulation 1859.76 provides additional grants for general site development on new school construction projects. Currently, these additional grants are calculated as (i) 6 percent of the base per-pupil grants for junior high school projects, (ii) 3.75 percent of the base per-pupil grants for high school projects, and (iii) a grant of $15,846 per new useable acre acquired for new school construction. To determine the general site development grant for each school level, Dolinka Group first applied the percentages mentioned above to the base per-pupil grant amounts shown in Table 6.

Second, Dolinka Group applied the grant per new useable acre mentioned above to the student capacity of future school facilities and corresponding site size requirements for the School District listed in Table 9 below to derive a grant amount per student (see Exhibit L for more information on the calculation of the additional grants for general site development). Table 7 shows these additional grants as well as the total per-pupil grant amount.

Table 7
Total Per-Pupil Grant Amount (2013$)

School Level	Base Per-Pupil Grant Amount	Additional Grants for General Site Development	Total Per-Pupil Grant Amount
Junior High School	$10,524	$928	$11,452
High School	$13,347	$788	$14,135

The understanding of the School District is that applicable law specifies the per-pupil grant amounts specified in Section 17072.10 are adjusted annually by the SAB to reflect construction cost changes as set forth in the statewide cost index for class B construction as provided in Section 17072.10(b) of the Education Code. The intent of the School District is to use the amount permissible by law.

2. Total New School Construction Grants

To determine the total new school construction grants under Section 65995.5, the number of Projected Unhoused Students to be generated from non-mitigated Future Units, as shown in Table 4, is multiplied by the total per-pupil grant amounts set forth in Section 17072.10(a) and (b) of the Education Code, as shown in Table 7. Table 8 shows the total new school construction grants of the School District pursuant to Section 65995.5(c)(1).

Table 8
Total New School Construction Grants for Projected Unhoused Students from Non-Mitigated Future Units (2013$)
(In Accordance with Section 65995.5(c)(1) of the Government Code)

School Level	Projected Unhoused Students	Total Per-Pupil Grant Amount	Total New Construction Grants
Junior High School	545	$11,452	$6,241,340
High School	797	$14,135	$11,265,595
Total	**1,342**	**NA**	**$17,506,935**

3. Total School Site Acquisition and Site Development Costs

In addition to the total new school construction grants specified by Section 17072.10 of the Education Code, Section 65995.5(c)(1) permits the Alternative No. 2 Fee to include site acquisition and site development costs determined pursuant to Section 65995.5(h) and the applicable statutory provisions referred to therein. What follows is the calculation for determining the appropriate site acquisition and site development costs in accordance with Section 65995.5(h).

a. Site Size Requirement

To calculate the amount of site acquisition and site development costs that may be included in the Alternative No. 2 Fee, a school district must determine the student capacity of future school facilities that will be needed to accommodate the Projected Unhoused Students, as well as students to be generated from residential development anticipated to occur over the next 20 years. Based on the educational programs of the School District, the School District has determined that future junior high school facilities will be designed to accommodate 1,200 students and future high school facilities will be designed to accommodate 2,600 students. Based on these capacities, the guidelines included in the "School Site Analysis and Development Handbook" published by the State Department of Education as that handbook read as of January 1, 1998, identify the following site sizes for the School District.

Table 9
Student Capacities and Site Sizes of Future School Facilities

School Level	Student Capacity	Site Size (Acres)
Junior High School	1,200	22.50
High School	2,600	47.10

It should be emphasized that the site sizes shown in Table 9 are based on site sizes recommended by the State Department of Education as of January 1, 1998. Since that time, the State Department of Education has prepared a revised Handbook that contains site size recommendations more consistent with School District policy. Please refer to Exhibit E for the site sizes more consistent with the revised Handbook.

b. Site Acquisition and Site Development Costs per Acre

Based on appraisals prepared by Grubb & Ellis Landauer, the School District believes a reasonable estimate for site acquisition is $1,034,393 at the junior high school level and $558,941 at the high school level. These amounts are based on appraisals prepared for the Newhall Ranch Junior High School site in Valencia (July 2012), and the high school site in Castaic (June 2012).

In determining the appropriate site development costs for the junior high school level, Dolinka Group used site development costs for Rancho Pico Junior High School approved by the State Office of Public School Construction ("OPSC"). Based on this information, Dolinka Group estimated site development costs to be $51,291 per acre (these numbers were taken from the School Facilities Needs Analysis adopted in 2012 and adjusted by the annual change in the construction cost index as published by Marshall & Swift). The School District anticipates receiving its future high school site in a construction-ready condition, therefore, no site development costs have been included at the high school level. Table 10 lists the total estimated site acquisition costs and site development costs of the School District in accordance with Section 65995.5(h).

Table 10
Site Acquisition and Site Development Costs of Future School Facilities (2013$)

School Level	Site Acquisition Cost[1]	Site Development Cost[1]	Total Site Cost
Junior High School	$23,273,843	$1,154,048	$24,427,891
High School	$26,326,121	$0	$26,326,121

[1] The site acquisition and site development costs are equal to the per acre costs listed above multiplied by the number of acres, as listed in Table 9.

c. School Facilities Needed

To ensure that non-mitigated Future Units are being charged an Alternative No. 2 Fee that is reasonably related to the school facilities that are required to house the Projected Unhoused Students to be generated from non-mitigated Future Units, the School District must identify the number of future school facilities that will be needed to house the Projected Unhoused Students to be generated from non-mitigated Future Units, as well as students to be generated from mitigated Future Units and residential development anticipated to occur over the next 20 years. To calculate the number of school facilities that the School District will need to adequately house the Projected Unhoused Students, the number of Projected Unhoused Students for each school level, as listed in Table 4, was divided by the applicable student capacity, as listed in Table 9. The number of school sites expected to be needed to house the Projected Unhoused Students generated from non-mitigated Future Units is shown in Table 11.

Table 11
School Facilities Needed

School Level	Facilities Needed For Students Generated From Mitigated Units	Facilities Needed For Students Generated From Non-Mitigated Units	Total Facilities Needed
Junior High School	0.316	0.454	0.770
High School	0.235	0.307	0.542

It is important to realize that while the number of Projected Unhoused Students from non-mitigated Future Units equates only to approximately 45.4 percent of a junior high school and 30.7 percent of a high school, the School District will need to construct at least one (1) junior high school and one (1) high school in the future to accommodate (i) existing unhoused students, (ii) students generated from mitigated Future Units, (iii) students generated from non-mitigated Future Units, and (iv) students generated from future residential units beyond the next five (5) years.

d. Alternative No. 2 Fee Site Costs in Accordance with Section 65995.5(h) of the Government Code

The calculation of the total school site acquisition and site development cost impacts under Section 65995.5(h) is a two-step process. The first step involves calculating the total school site acquisition and site development costs related to the Projected Unhoused Students generated from non-mitigated Future Units. The calculation of this first step is shown in Table 12.

Table 12
Total School Site Acquisition and Site Development Costs for Students from Non-Mitigated Future Units (2013$)

School Level	Facilities Needed for Students Generated from Non-Mitigated Future Units	Site Cost	Total Site Costs[1]
Junior High School	0.454	$24,427,891	$11,090,263
High School	0.307	$26,326,121	$8,082,119

[1] Numbers may not sum due to rounding.

Only a portion of the total site costs may be included in the calculation of the Alternative No. 2 Fee. Accordingly, the total school site acquisition and site development costs under Section 65995.5(h) must be reduced by half to arrive at the Alternative Fee No. 2 Site Costs. The calculation of this step is shown in Table 13.

Table 13
Alternative No. 2 Fee Site Costs (2013$)
(In Accordance with Section 65995.5(h) of the Government Code)

School Level	Total Site Costs	Multiplier	Alternative No. 2 Fee Site Cost
Junior High School	$11,090,263	50.00%	$5,545,131
High School	$8,082,119	50.00%	$4,041,060

4. Alternative No. 2 Fee School Facility Costs

As stated previously, the initial step in calculating the maximum Alternative No. 2 Fee is to identify (i) the total new school construction grant, and (ii) the site acquisition and development costs pursuant to Section 65995.5(h). The sum of these amounts, which is the Alternative No. 2 Fee School Facility Costs, is the maximum amount of school facility costs that may be included in the Alternative No. 2 Fee before any local fund credits are applied. For the School District, the total new school construction grant is $17,506,935 and the total site acquisition and site development cost pursuant to Section 65995.5(h) is $9,586,191. These costs and the Alternative No. 2 Fee School Facility Costs are shown by school level in Table 14.

Table 14
Alternative No.2 Fee School Facility Costs (2013$)
(In Accordance with Section 65995.5(c)(1) of the Government Code)

School Level	Total New Construction Grants	Alternative No. 2 Fee Site Costs	Alternative No. 2 Fee School Facility Costs
Junior High School	$6,241,340	$5,545,131	$11,786,471
High School	$11,265,595	$4,041,060	$15,306,655
Total	**$17,506,935**	**$9,586,191**	**$27,093,126**

B. Credit for Local Funds

The second step in calculating the maximum Alternative No. 2 Fee is to subtract the amount of local sources, including Local Funds, if any, the School District has decided to dedicate to school facilities necessitated by the construction of non-mitigated Future Units from the Alternative No. 2 Fee School Facility Costs in order to calculate the Net Alternative No. 2 Fee School Facility Costs. As stated in Section IV of the Analysis, the School District has determined that no credit is available to accommodate Projected Unhoused Students generated from Future Units (see Exhibit K for more detail on local sources, including Local Funds).

Table 15
Net Alternative No.2 Fee School Facility Costs (2013$)
(In Accordance with Section 65995.5(c)(2) of the Government Code)

Item	Junior High School Amounts	High School Amounts
Alternative No. 2 Fee School Facility Costs	$11,786,471	$15,306,655
Credit for Existing Surplus Local Funds	$0	$0
Net Alternative No. 2 Fee School Facility Costs	**$11,786,471**	**$15,306,655**

C. Alternative No. 2 Fee Calculation

The final step in calculating the maximum Alternative No. 2 Fee is to divide the Net Alternative No. 2 Fee School Facility Costs by the total square footage of assessable space for non-mitigated Future Units.

1. Average Square Footage per Unit

In order to project the total square footage of assessable space of the non-mitigated Future Units, the Analysis must estimate the average square footage of Future SFD Units, Future SFA Units, and Future MF Units to be constructed in the School District. To calculate the Alternative Fees at the junior high school level, Dolinka Group has estimated the average square footage of Future SFD Units, Future SFA Units, and Future MF Units, excluding development within the CUSD portion of the School District. For the high school level, Dolinka Group has estimated the average square footage of Future SFD Units, Future SFA Units, and Future MF Units for development within the entire School District. Dolinka Group has estimated that Future SFD Units will contain an average of 2,712 assessable square feet at the junior high school level and 2,705 assessable square feet at the high school level. Dolinka Group also estimated that Future SFA Units will contain an average of 1,629 assessable square feet at the junior high school level and 1,629 assessable square feet at the high school level. Dolinka Group has estimated that Future MF Units will contain an average of 1,000 assessable square feet both levels. (Please refer to Exhibit H for Dolinka Group's correspondence with the City and County).

2. Total Square Footage of Assessable Space

To calculate the total square footage of assessable space for non-mitigated Future Units applicable to the junior high school level Alternative Fees, the average square footages of Future SFD Units and Future SFA Units listed above were multiplied by the number of non-mitigated Future Units listed in Table 2. The results of this operation are shown in Table 16.

Table 16
Estimated Total Residential Square Footage of Non-Mitigated Future Units Applicable to the Junior High School Level Alternative Fees

Land Use	Non-Mitigated Future Units	Average Square Footage	Total Square Footage
Single Family Detached	2,900	2,712	7,864,800
Single Family Attached	1,838	1,629	2,994,102
Multifamily	700	1,000	700,000
Total	**5,438**	**N/A**	**11,558,902**

To calculate the total square footage of assessable space for non-mitigated Future Units applicable to the high school level Alternative Fees, the average square footages of Future SFD Units, Future SFA Units, and Future MF Units listed above were multiplied by the number of non-mitigated Future Units listed in Table 3. The results of this operation are shown in Table 17.

Table 17
Estimated Total Residential Square Footage of Non-Mitigated Future Units Applicable to the High School Level Alternative Fees

Land Use	Non-Mitigated Future Units	Average Square Footage	Total Square Footage
Single Family Detached	2,970	2,705	8,033,850
Single Family Attached	1,838	1,629	2,994,102
Multifamily	700	1,000	700,000
Total	**5,508**	**NA**	**11,727,952**

It should be noted that the total assessable square footage calculated in Tables 16 and 17 include that of units which may be constructed as a result of Reconstruction. For more information on Reconstruction, please see Exhibit I.

3. Calculation of Alternative No. 2 Fee

To calculate the Alternative No. 2 Fee, which may be established by the School District only during periods when the State does have new construction funding available, the Net Alternative No. 2 Fee School Facility Costs, as listed in Table 15, were divided by the total square footage of assessable space of the non-mitigated Future Units, as listed in Tables 16 and 17. Table 18 provides the Alternative No. 2 Fee that can be adopted by the School District.

Table 18
Alternative No. 2 Fees (2013$)

Item	Junior High School Level	High School Level
Net Alternative No. 2 Fee School Facility Costs	$11,786,471	$15,306,655
Total Residential Square Footage	11,558,902	11,727,952
Alternative No. 2 Fee	**$1.02**	**$1.31**

In conclusion, the Alternative No. 2 fee for non-mitigated Future Units constructed within the CUSD area of the School District is $1.31 per square foot while the Alternative No. 2 Fee for non-mitigated Future Units constructed within the NSD, SUSD, and SSUSD area of the School District is $2.33 per square foot. Table 19 lists the Alternative No. 2 Fees of the School District based on whether the non-mitigated Future Units are located within the CUSD area of the School District or within the NSD, SUSD, and SSUSD area of the School District.

Table 19
Total Alternative No. 2 Fees Based on Location (2013$)

School Level	Units Located Within the CUSD Area of the School District	Units Located Within NSD, SUSD, & SSUSD
Junior High School	N/A	$1.02
High School	$1.31	$1.31
Total	**$1.31**	**$2.33**

VI. Alternative No. 3 Fee

The Alternative No. 2 Fee, which is the maximum Alternative Fee that may be imposed during periods when State funds for new construction are available, was calculated in Section V in accordance with Section 65995.5. During periods when the SAB is no longer approving apportionments for new construction due to a lack of funds available, the Alternative No. 3 Fee may be imposed by a school district, subject to the suspension of Alternative No. 3 Fees as set forth in Section 65995.7(a)(2). Additionally, in accordance with Section 1859.81 of the SAB regulations, a school district requesting financial hardship assistance funding is required to impose the maximum developer fee justified by law (the Alternative No. 2 Fee, or the Alternative No. 3 Fee when the State declares that such fees can be imposed), or an alternative source greater than or equal to the amount of such fees. Similar to the methodology of the calculations performed in Section V, this Section VI provides a calculation of the Alternative No. 3 Fee in accordance with Section 65995.7.

A. Alternative No. 3 Fee School Facility Costs

Pursuant to Section 65995.7, the Alternative No. 3 Fee School Facility Cost, which is the maximum amount of school facility costs that may be included in the Alternative No. 3 Fee, is calculated by increasing the Net Alternative No. 2 Fee School Facility Costs by an amount not to exceed the Alternative No. 2 Fee School Facility Costs. As required by Section 65995.7, this amount has been reduced by the amount of local funds ($0 in the case of the School District) identified pursuant to Section 65995.5(c)(2). Accordingly, Table 20 shows the Net Alternative No. 2 Fee School Facility Costs previously shown in Table 15, and adds to that amount the Alternative No. 2 Fee School Facility Costs previously shown in Table 14. The results, shown in Table 20, are the Alternative No. 3 Fee School Facility Costs applicable to both the junior high and high school level.

Table 20
Alternative No. 3 Fee School Facility Costs (2013$)
(In Accordance with Section 65995.7 of the Government Code)

Item	Junior High School Level	High School Level
Net Alternative No. 2 Fee School Facility Costs	$11,786,471	$15,306,655
Alternative No. 2 Fee School Facility Costs	$11,786,471	$15,306,655
Alternative No. 3 Fee School Facility Costs	**$23,572,942**	**$30,613,310**

B. Alternative No. 3 Fee Calculation

To calculate the Alternative No. 3 Fee, the Alternative No. 3 Fee School Facility Costs were divided by the total square footage of assessable space of the non-mitigated Future Units applicable to the junior high school and high school levels listed in Table 16 and Table 17, respectively. This calculation is required by Section 65995.5(c)(3) and outlined in Section V.C. of the Analysis. Table 21 provides the Alternative No. 3 Fee that can be levied by the School District on new residential development where permitted by applicable law.

Table 21
Alternative No. 3 Fees (2013$)

Item	Junior High School Level	High School Level
Alternative No. 3 School Facility Costs	$23,572,942	$30,613,310
Total Residential Square Footage	11,558,902	11,727,952
Alternative No. 3 Fee	**$2.04**	**$2.61**

In conclusion, the Alternative No. 3 Fee for non-mitigated Future Units constructed within the CUSD are of the School District is $2.61 per square foot while the Alternative No. 3 Fee for non-mitigated Future Units constructed within the NSD, SUSD, and SSUSD area of the School District is $4.65 per square foot. Table 22 lists the Alternative No. 3 Fees within the School District based on whether the non-mitigated Future Units are located within the CUSD area of the School District or within the NSD, SUSD, and SSUSD area of the School District.

Table 22
Total Alternative No. 3 Fees Based on Location (2013$)

School Level	Units Located Within the CUSD Area of the School District	Units Located Within NSD, SUSD, & SSUSD
Junior High School	N/A	$2.04
High School	$2.61	$2.61
Total	**$2.61**	**$4.65**

VII. Section 66000 of the Government Code

Sections 66000, *et seq.* were enacted by the State in 1987. These provisions are assumed to be applicable to the Alternative Fees. Sections 66000, *et seq.* require that all public agencies satisfy the following requirements when establishing, increasing or imposing a fee, such as the herein described Alternative Fees, as a condition of approval for a development project.

1. Determine the purpose of the fee.

2. Identify the facilities to which the fee will be put.

3. Determine that there is a reasonable relationship between the need for public facilities and the type of development on which a fee is imposed.

4. Determine that there is a reasonable relationship between the amount of the fee and the public facility or portion of the public facility attributable to the development on which the fee is imposed.

5. Provide an annual accounting of any portion of the fee remaining unexpended or uncommitted in the School District's accounts.

New residential development in the School District, as shown in the Analysis, will generate additional students who will require the School District to provide additional school facilities. The amount to be included in the Alternative Fees is specified by statute. The Alternative No. 2 Fee of $1.31 per square foot for units located within CUSD and $2.33 for units located within NSD, SUSD, and SSUSD, and the Alternative No. 3 Fee of $2.61 per square foot for units located within CUSD and $4.65 for units located within NSD, SUSD, and SSUSD are justified in the Analysis. The estimated average school facilities cost impacts on the School District per square foot of residential development as estimated in Exhibit E is $3.75 for units located within CUSD and $7.39 for units located within NSD, SUSD, and SSUSD. As the actual school facilities cost impacts per square foot of residential construction is greater than the Alternative Fees, it is reasonable for the School District to determine that the Alternative No. 2 Fees and the Alternative No. 3 Fees are roughly proportional and reasonably related to the actual impacts caused by residential development on the School District.

This Analysis and the information included in Exhibit E therefore establish that the Alternative Fees meet the requirements of Sections 66000 *et seq.* and such a determination by the School District as part of adopting the Alternative Fees is justified and appropriate. Further, as determined in Exhibit J, which reviewed the potential impact of Reconstruction, it has been determined that the impact of such units is greater than the Alternative Fees identified herein. The School District, therefore, is justified in levying Alternative Fees on all new development, including Reconstruction.

By way of summary, the Alternative Fees will be used to fund (i) new school facilities, (ii) expansion of existing school facilities, and (iii) other upgrades to existing school facilities, but only to the extent that such items are needed to accommodate the Projected Unhoused Students generated from Future Units and to the extent that the use of the Alternative Fees on such items is permitted by applicable law.

Exhibit A

Current SAB Form 50-01

STATE OF CALIFORNIA

ENROLLMENT CERTIFICATION/PROJECTION

SAB 50-01 (Rev. 09/04) Excel (Rev. 2/27/2003)

STATE ALLOCATION BOARD
OFFICE OF PUBLIC SCHOOL CONSTRUCTION

SCHOOL DISTRICT: WILLIAM S. HART UNION HIGH

FIVE DIGIT DISTRICT CODE NUMBER (see California Public School Directory): 65136

COUNTY: LOS ANGELES

HIGH SCHOOL ATTENDANCE AREA (HSAA) OR SUPER HSAA (if applicable): W/O Castaic

Part A. Enrollment Data - (districts or county superintendent of schools)

Grade	3rd Previous 2003/04	2nd Previous 2004/05	Previous 2005/06	Current 2006/07
K	2,973	2,917	3,114	3,059
1	3,100	3,270	3,264	3,311
2	3,111	3,142	3,318	3,220
3	3,291	3,229	3,263	3,360
4	3,198	3,407	3,378	3,254
5	3,182	3,336	3,552	3,385
6	3,223	3,359	3,539	3,644
7	3,234	3,322	3,360	3,477
8	3,184	3,361	3,387	3,448
9	3,760	4,068	4,336	4,252
10	3,618	3,795	4,242	4,362
11	3,161	3,295	3,536	3,967
12	2,661	2,833	3,037	3,268
TOTAL	41,696	43,333	45,326	46,007

Part B. Pupils Attending Schools Chartered By Another District

3rd Previous	2nd Previous	Previous	Current

Part C. Continuation High School - (districts only)

Grade	3rd Previous	2nd Previous	Previous	Current
9	30			
10	128	9	3	
11	171	145	126	96
12	142	344	380	416

Part D. Special Day Class Pupils - (districts or county superintendent of schools)

Elementary	Non-Severe	Severe	Secondary	Non-Severe	Severe
MR			MR		102
HH			HH		5
DEAF			DEAF		8
HI			HI		
SLI			SLI	42	
VI			VI		
SED			SED	166	
OI			OI		20
OHI			OHI		76
SLD			SLD	520	
DB			DB		1
MH			MH		10
AUT			AUT		75
TBI			TBI		7
TOTAL			TOTAL	728	304

Part E. Special Day Class Enrollment - (county superintendent of schools only)

3rd Previous	2nd Previous	Previous	Current

Part F. Number of New Dwelling Units 8055

Part G. District Student Yield Factor N/A

Part H. Five Year Projected Enrollment - School Facility Program Projections - (except special day class pupils only)

K-6	7-8	9-12	TOTAL
	7,541	18,454	25,995

Projections - special day class pupils only

Elementary	Non-Severe	Severe	Secondary	Non-Severe	Severe
MR			MR		110
HH			HH		5
DEAF			DEAF		9
HI			HI		
SLI			SLI	45	
VI			VI		
SED			SED	179	
OI			OI		22
OHI			OHI		82
SLD			SLD	562	
DB			DB		1
MH			MH		11
AUT			AUT		81
TBI			TBI		8
TOTAL			TOTAL	786	329

Part I.

One Year Projected Enrollment - State Relocatable Program Projections - (except special day class pupils only)

K-6	7-8	9-12	TOTAL
	7,194	16,892	24,086

Projections - (special day class pupils only)
(Includes Severe & Non-Severe)

	Elementary	Secondary		Elementary	Secondary
MR		106	OI		21
HH		5	OHI		79
DEAF		8	SLD		538
HI			DB		1
SLI		43	MH		10
VI			AUT		78
SED		172	TBI		7
			TOTAL		1,068

I certify, as the District Representative, that the information reported on this form is true and correct and that:
I am designated as an authorized district representative by the governing board of the district.
If the district is requesting an augmentation in the enrollment projection pursuant to Regulation Section 1859.42 (b), the local planning commission or approval authority has approved the tentative subdivision map used for augmentation of the enrollment and the district has identified dwelling units in that map to be contracted. All subdivision maps used for augmentation of enrollment are available at the district for review by the Office of Public School Construction (OPSC).
This form is an exact duplicate (verbatim) of the form provided by the Office of Public School Construction.
In the event a conflict should exist, then the language in the OPSC form will prevail.

SIGNATURE OF DISTRICT REPRESENTATIVE: [signature] DATE: 06/07CBEDS7/17/2007

Exhibit B

Current SAB Form 50-02

STATE OF CALIFORNIA
EXISTING SCHOOL BUILDING CAPACITY

SAB 50-02 (Rev. 01/01) Sheet (Rev. 08/30/00)

STATE ALLOCATION BOARD
OFFICE OF PUBLIC SCHOOL CONSTRUCTION

SCHOOL DISTRICT: WILLIAM S. HART UNION HIGH
COUNTY: LOS ANGELES
HIGH SCHOOL ATTENDANCE AREA (if applicable):

PART I - Classroom Inventory (« NEW » ADJUSTED)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Line 1. Leased State Relocatable Classrooms		48	108			156
Line 2. Portable Classrooms leased less than 5 years		2				2
Line 3. Interim Housing Portables leased less than 5 years						
Line 4. Interim Housing Portables leased at least 5 years						
Line 5. Portable Classrooms leased at least 5 years						
Line 6. Portable Classrooms owned by district		12	23			35
Line 7. Permanent Classrooms		71	242	42		355
Line 8. Total (Lines 1 through 7)		134	371	42		547

PART II - Available Classrooms

Option A	[illegible]	[illegible]	[illegible]	Non-Severe	[illegible]	[illegible]
a. Part I, line 4						
b. Part I, line 5						
c. Part I, line 6		12	23			35
d. Part I, line 7		71	242	42		355
e. Total (a, b, c, & d)		83	265	42		390

Option B	[illegible]	[illegible]	[illegible]	Non-Severe	[illegible]	[illegible]
a. Part I, line 8		134	371	42		547
b. Part I, lines 1,2,5 and 6 (total only)	[illegible]					182
c. 25 percent of Part I, line 7 (total only)	[illegible]					89
d. Subtract c from b (enter 0 if negative)		34	69			103
e. Total (a minus d)		100	302	42		444

PART III - Determination of Existing School Building Capacity

	[illegible]	[illegible]	[illegible]	Non-Severe	[illegible]
Line 1. Classroom capacity		2,241	7,156	646	
Line 2. SER adjustment		134	430	33	
Line 3. Operational Grants					
Line 4. Greater of line 2 or 3		134	430	33	
Line 5. Total of lines 1 and 4		2,375	7,586	679	

I certify, as the District Representative, that the information reported on this form is true and correct and that:
I am designated as an authorized district representative by the governing board of the district; and,
This form is an exact duplicate (verbatim) of the form provided by the Office of Public School Construction (OPSC).
In the event a conflict should exist, then the language in the OPSC form will prevail.

SIGNATURE OF DISTRICT REPRESENTATIVE: [signature]
DATE: 2/1/01

Exhibit C

Current SAB Form 50-03

SAB 50-03 (NEW 12/1/98)

SCHOOL DISTRICT WILLIAM S. HART UNION HIGH	FOR DISTRICT CODE NUMBER (see Classified Public Schools Directory) 66136
BUSINESS ADDRESS 21015 Rediview Drive	HIGH SCHOOL ATTENDANCE AREA (if applicable)
CITY Sams Clarita, CA 91350-2948	COUNTY LOS ANGELES

Part I. The following individual(s) have been designated as district representative(s) by the School Board

DISTRICT REPRESENTATIVE	TELEPHONE NUMBER	E-MAIL ADDRESS
Richard Lee	(805) 259-0033	
DISTRICT REPRESENTATIVE	TELEPHONE NUMBER	E-MAIL ADDRESS

Part II. [X] District requests its eligibility determination be reviewed/approved by the Board.

Part III - New Construction Eligibility	K-6	7-8	9-12
1. Projected Enrollment (Part G, Form SAB 50-01)		7,270	14,335
2. Existing School Building Capacity (Part H, line 5 of Form SAB 50-02)		6,074	7,305
3. New Construction Baseline Eligibility (line 1 minus line 2)		3,196	7,030

Part IV - Modernization Eligibility (choose only one option)

1. School Name: Canyon High School	Grade Level		
Option A	K-6	7-8	9-12
2. Permanent classrooms at least 25 years old			
3. Portable classrooms at least 20 years old			
4. Total (lines 2 and 3)			
5. Multiply line 4 by 25 for K-6 and 27 for 7-8 and 9-12			
6. CBEDS enrollment at school			
7. Modernization Eligibility (lesser of totals of line 5 or 6)			

Option B

2. Permanent space at least 25 years old (report by classroom or square footage)	141,415
3. Portable space at least 20 years old (report by classroom or square footage)	
4. Total (lines 2 and 3)	141,415
5. Remaining permanent or portable space (report by classroom or square footage)	23,040
6. Total (lines 4 and 5)	164,455
7. Percentage (Divide line 4 by line 6)	86%
8. CBEDS enrollment at this school	2,267
9. Modernization Eligibility (Multiply line 7 by line 8)	1,967

I certify, as the District Representative, that the information reported on this Form is true and correct and that.

A resolution or other appropriate documentation supporting this application under Chapter 12.5, Part 10, Division 1, commencing with Section 17070.10, et.seq., of the Education Code was adopted by the School Districts Governing Board

on February 10, 1999 ; and,

This form is an exact duplicate (verbatim) of the form provided by the Office of Public School Construction (OPSC). In the event a conflict should exist, then the language in the OPSC Form will prevail.

SIGNATURE OF DISTRICT REPRESENTATIVE: Richard C. Lee

DATE: 2/11/99

FROM : OPSC PHONE NO. : 3225319 May. 05 1999 03:25PM P2

FROM : OPSC PHONE NO. : 3225319 May. 05 1999 03:25PM P2

Exhibit D

Eligibility Determination from the SAB

District Main Page

Return to Search Results

District: William S. Hart Union High
District Rep: Mr. Thomas Cole

Modernization Eligibility | New Construction Eligibility | Fund Release

District Code	Attendance Area	Original SAB Approval Date	Recent SAB Approval
65136	0	5/26/1999	1/28/2009

SAB 50-03 New Construction Eligibility Information

New Construction Baseline Eligibility

Grade Level:	K - 6	7 - 8	9 - 12	Non-Severe	Severe
Established Eligibility:	0	3196	7030	0	0
SAB Approvals/Adjustments:	0	450	-1884	772	298
Remaining Eligibility:	0	3646	5146	772	298

SAB 50-03 Eligibility Document Status/Dates

Status:	PM Complete
Date Signed:	2/11/1999
Date Received:	3/5/1999
SAB Approval Date:	5/26/1999

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Exhibit E

Summary of School Facility Planning Policies and Estimates of Actual School Facility Costs

William S. Hart Union High School District
School Facility Cost Impacts per Residential Square Foot
May 2013

School Facility Costs

School Level	Site Acquisition Cost	Facility Construction Cost	Total Cost
Junior High School	$16,550,000	$76,232,604	$92,782,604
High School	$36,424,000	$107,082,319	$143,506,319

Costs per Student

School Level	Total Cost	Students Housed	Cost per Student
Junior High School	$92,782,604	1,200	$77,319
High School	$143,506,319	2,600	$55,195

Average School Facility Cost Impacts per Residential Square Foot at the Junior High School Level

School Level	Cost per Student	Blended Student Generation Rate	Cost per Unit
Junior High School	$77,319	0.1001	$7,740
Total School Facility Cost Impact			**$7,740**
Average Square Footage of Future Units[1]			2,126
School Facility Cost Impact per Square Foot			**$3.64**

[1] See Table 16 of the Analysis.

Average School Facility Cost Impacts per Residential Square Foot at the High School Level

School Level	Cost per Student	Blended Student Generation Rate	Cost per Unit
High School	$55,195	0.1446	$7,981
Total School Facility Cost Impact			**$7,981**
Average Square Footage of Future Units[1]			2,129
School Facility Cost Impact per Square Foot			**$3.75**

[1] See Table 17 of the Analysis.

Average School Facility Cost Impacts per Residential Square Foot by Location

School Level	Units Located within CUSD Area of the School District	Units Located within NSD, SUSD, & SSUSD Area of the School District
Junior High School	N/A	$3.64
High School	$3.75	$3.75
Total	**$3.75**	**$7.39**

Exhibit F

Bonding Capacity Calculation

$168,280,123
WILLIAM S. HART UNION HIGH SCHOOL DISTRICT
GENERAL OBLIGATION BONDS, 2008 ELECTION, SERIES C
(Los Angeles County, California)

BONDING CAPACITY CERTIFICATE OF THE DISTRICT

The undersigned hereby states and certifies:

(a) that the undersigned, Susan Hoerber, is the duly appointed, qualified and acting Chief Financial Officer of the William S. Hart Union High School District ("District"), County of Los Angeles, California, a school district duly organized and existing under the laws of California, and as such is familiar with the facts herein certified and is authorized and qualified to certify the same;

(b) that, based on information provided to the District by the Auditor-Controller of the County of Los Angeles (the "County Auditor-Controller"), the District has sufficient bonding capacity for the issuance of the captioned general obligation bonds ("Bonds"), as shown below:

1. Total assessed valuation of tangible taxable property (as provided by County Auditor-Controller) $33,326,646,145

2. Applicable percentage bond debt limit 1.25%

3. **District Bonding Capacity (item 1 times item 2) $416,583,076.81**

4. Amount of General Obligation Bonds, 2001 Election Outstanding:
   a. Series B $61,968,487.20

5. Amount of General Obligation Bonds, 2008 Election, outstanding
   a. Series A $75,174,766.10
   b. Series B $40,567,733.90
   $115,742,500.00

6. Amount of 2012 General Obligation Refunding Bonds $48,580,000.00

7. Amount of General Obligation Bonds, 2008 Election Series C $168,280,123.00

8. **TOTAL OUTSTANDING.....$394,571,110.20**

Exhibit G

Student Generation Rate Calculation

William S. Hart Union High School District
Student Generation Rate Calculation

Number of Existing Students in School Year 2011/2012

School Level	Student Enrollment[1]
Junior High School	7,045
High School	15,884
Total	**22,929**
[1] Student enrollment from October 2012.	

Number of Students Matched to Units Built in the Last Five (5) Years by Land Use

Area	Students Matching to SFD Units	Students Matching to SFA Units	Students Matching to MF Units
Junior High School	122	32	30
High School	239	32	30

Number of Residential Units Built in the Last Five (5) Years by Land Use and Area

Area	SFD Units	SFA Units	MF Units
Outside CUSD	1,229	453	220
Within the Entire School District	1,345	453	220

Student Generation Rates

Area	SFD Units	SFA Units	MF Units
Junior High School	0.1050	0.0751	0.1455
High School	0.1874	0.0751	0.1455
Total	**0.2924**	**0.1502**	**0.2910**

Exhibit H

Correspondence with the City and County

DOLINKA GROUP

May 8, 2013

Mr. David Peterson
CITY OF SANTA CLARITA
Planning Division
23920 Valencia Blvd., Ste. 302
Santa Clarita, CA 91355

Regarding: Residential Development Projections within William S. Hart Union High School District Boundaries

Dear Mr. Peterson,

Dolinka Group, LLC is in the process of updating the School Facilities Needs Analysis ("SFNA") for the William S. Hart Union High School District ("School District"). Pursuant to Section 65995.5(c)(3) of the Government Code, one component of the Analysis is an estimate of the number, type, and square footage of expected future residential units ("Future Units") to be constructed in the area of the City of Santa Clarita ("City") served by the School District **over the next five (5) years.**

Projections regarding the Future Units to be constructed within the area of the City served by the School District are shown on the following page. The projection of the number and type of Future Units was based on information provided by the Newhall Land & Farming Company, as well as information prepared by Davis Demographics and Planning, Inc. The average square footages estimates were calculated by Dolinka Group based on an analysis of residential units recently built within the School District. Dolinka Group would like to provide the City with the opportunity to review, and if necessary, modify these projections. Please complete the attached page ("Certificate") and fax the Certificate to Dolinka Group.

Mr. Peterson, should you have any questions regarding the projections please contact me at 949.250.8300. We sincerely appreciate your assistance in providing this information and look forward to hearing from you soon.

Sincerely,

Nicole Jordan
Associate

S:\Clients\William S. Hart Union High SD\Demographics\SFNA\SY1213\Correspondence\City of Santa Clarita.doc

In its efforts to assist Dolinka Group, LLC in preparing a School Facilities Needs Analysis in accordance with the guidelines of Section 65995.5(c)(3) of the Government Code for the William S. Hart Union High School District, the City of Santa Clarita ("City"):

___The City concurs with the residential development projections as provided below:

Unit Type	**Projected Number of Units**	**Estimated Average Square Footage per Unit**
Single Family Detached *(i.e. single family home)*	659	2,902 sq. ft.
Single Family Attached (e.*g. condos, duplexes, townhomes, etc.)*	853	1,584 sq. ft.
Multifamily *(i.e. apartments)*	0	N/A

___The residential development projected by the City is listed below:

Unit Type	**Projected Number of Units**	**Estimated Average Square Footage per Unit**
Single Family Detached *(i.e. single family home)*		
Single Family Attached (e.*g. condos, duplexes, townhomes, etc.)*		
Multifamily *(i.e. apartments)*		

Signed, _____, of the City of Santa Clarita on May ___, 2013.

Printed Name: _____

Title: _____

DOLINKA GROUP

May 8, 2013

Mr. Donald Kress
COUNTY OF LOS ANGELES
Department of Regional Planning
320 West Temple Street, 13th Floor
Los Angeles, CA 90012

Regarding: Residential Development Projections within William S. Hart Union High School District Boundaries

Dear Mr. Kress,

Dolinka Group, LLC is in the process of updating the School Facilities Needs Analysis ("SFNA") for the William S. Hart Union High School District ("School District"). Pursuant to Section 65995.5(c)(3) of the Government Code, one component of the Analysis is an estimate of the number, type, and square footage of expected future residential units ("Future Units") to be constructed in the area of the County of Los Angeles ("County") served by the School District **over the next five (5) years.**

Projections regarding the Future Units to be constructed within the area of the County served by the School District are shown on the following page. Because Castaic Union School District serves grades K-8, while Newhall, Saugus Union, and Sulphur Springs School Districts only serve grades K-6, development projections must be identified based on whether the area is inside or outside Castaic Union School District. The projection of the number and type of Future Units was based on information provided by the Newhall Land & Farming Company, as well as information prepared by Davis Demographics and Planning, Inc. The average square footage estimates were calculated by Dolinka Group based on an analysis of residential units recently built within the School District. Dolinka Group would like to provide the County with the opportunity to review, and if necessary, modify these projections. Please complete the attached page ("Certificate") and fax the Certificate to Dolinka Group.

Mr. Kress, should you have any questions regarding the projections please contact me at 949.250.8300. We sincerely appreciate your assistance in providing this information and look forward to hearing from you soon.

Sincerely,

Nicole Jordan
Associate

S:\Clients\William S. Hart Union High SD\Demographics\SFNA\SY1213\Correspondence\County of Los Angeles.doc

In its efforts to assist Dolinka Group, LLC in preparing a School Facilities Needs Analysis in accordance with the guidelines of Section 65995.5(c)(3) of the Government Code for the William S. Hart Union High School District, the County of Los Angeles ("County"):

___The County concurs with the residential development projections as provided below:

	All Units in WSHUHSD		Units Outside Castaic USD	
Unit Type	**Projected Number of Units**	**Estimated Average Square Footage per Unit**	**Projected Number of Units**	**Estimated Average Square Footage per Unit**
Single Family Detached *(i.e. single family home)*	3,309	2,666 sq. ft.	2,756	2,666 sq. ft.
Single Family Attached (e.*g. condos, duplexes, townhomes, etc.)*	3,796	1,641 sq. ft.	3,207	1,641 sq. ft.
Multifamily *(i.e. apartments)*	2,189	1,000 sq. ft.	1,817	1,000 sq. ft.

___The residential development projected by the County is listed below:

	All Units in WSHUSD		Units Outside Castaic USD	
Unit Type	**Projected Number of Units**	**Estimated Average Square Footage per Unit**	**Projected Number of Units**	**Estimated Average Square Footage per Unit**
Single Family Detached *(i.e. single family home)*				
Single Family Attached (e.*g. condos, duplexes, townhomes, etc.)*				
Multifamily *(i.e. apartments)*				

Signed, _____, of the County of Los Angeles on May ___, 2013.

Printed Name: _____

Title: _____

Exhibit I

Facilities Cost Impacts of Reconstruction

Reconstruction is the act of replacing existing structures with new construction, which may have an alternative land use (i.e. commercial/industrial versus residential). This section examines the facilities cost impacts of two specific types of Reconstruction: (i) Residential Reconstruction and (ii) Reconstruction of Commercial/Industrial Construction into Residential Construction.

A. Residential Reconstruction

Residential Reconstruction consists of voluntarily demolishing existing residential units and replacing them with new residential development. Dolinka Group is aware that a measurable amount of Residential Reconstruction has occurred within the School District over the previous five (5) years, and that a similar amount may occur over the next five (5) years. In order to examine the potential facilities cost impacts that Residential Reconstruction could have upon the School District, Dolinka Group evaluated historical information submitted to the California Department of Finance ("DOF") regarding demolished units. Dolinka Group evaluated demolished unit data for the City of Santa Clarita ("City") and the unincorporated County of Los Angeles ("County"). Based on the annual average number of demolished units within the City and County, Dolinka Group estimates that the School District may see (i) 33 SFD units, zero (0) SFA units, and zero (0) MF units demolished over the next five (5) years and replaced with Future Units within the NSD, SUSD, and SSUSD area of the School District, and (ii) 45 SFD units, zero (0) SFA units, and zero (0) MF units demolished over the next five (5) years and replaced with Future Units in the entire School District. Tables I-1 and I-2 detail the projected number of demolished units for the School District over the next five (5) years by jurisdiction.

Table I-1
Projected Demolished Units over the Next Five Years
Within NSD, SUSD, & SSUSD

Jurisdiction	SFD Units	SFA Units	MF Units	Total Units
City of Santa Clarita	10	0	0	10
County of Los Angeles	23	0	0	23
Future Units	**33**	**0**	**0**	**33**

Table I-2
Projected Demolished Units over the Next Five Years
Within the Entire School District

Jurisdiction	SFD Units	SFA Units	MF Units	Total Units
City of Santa Clarita	10	0	0	10
County of Los Angeles	35	0	0	35
Future Units	**45**	**0**	**0**	**45**

The Future Units listed in Tables 2 and 3 of Section III.A include units that could be constructed to take the place of demolished units. To determine the net student enrollment from Future Units, (i) the student generation rates calculated for the School District at the junior high school level, as shown in Section III.A, were applied to the projected demolished units shown in Table I-1, and (ii) the student generation rates calculated for the School District at the high school level, as shown in Section III.A, were applied to the projected demolished units shown in Table I-2, to determine the potential number of students who could be displaced as a result of demolished residential units. Projected student enrollment from non-mitigated Future Units (Table 4) was then calculated less students displaced from Residential Reconstruction ("Net Projected Student Enrollment"). The Net Projected Student Enrollment is shown in Table I-3.

Table I-3
Projected Student Enrollment

School Level	Students Projected from Non-Mitigated Future Units	Students Projected from Reconstruction	Net Projected Student Enrollment
Junior High School	545	3	542
High School	797	8	789
Total	**1,342**	**11**	**1,331**

Utilizing per student costs (Exhibit E), Dolinka Group calculated the total school facilities costs for Net Projected Student Enrollment by school level in order to provide a credit due to the reduced cost impacts of displaced students. The total school facilities costs for Net Projected Student Enrollment are shown in Table I-4.

Table I-4
Net Projected Student Enrollment Total Facilities Cost Impacts (2013$)

School Level	Net Projected Student Enrollment	Cost per Student	Total Facilities Cost Impacts
Junior High School	542	$88,364	$47,893,288
High School	789	$55,195	$43,548,855
Total	**1,331**	**N/A**	**$91,442,143**

These cost impacts are less than the total cost impacts as a result of crediting the potential loss of enrollment due to the demolition of existing units. In order to determine the total facilities cost impacts per square foot, Dolinka Group divided (i) the total facilities cost impacts generated from the Net Projected Student Enrollment at the junior high school level by the total square footage of assessable space of non-mitigated Future Units within the NSD, SUSD, and SSUSD area of the School District, including that which may be a result of Reconstruction (Table 16), and (ii) the total school facilities cost impacts generated from the Net Projected Student Enrollment at the high school level by the total square footage of assessable space of non-mitigated Future Units in the entire School District, including that which may be the result of Residential Reconstruction (Table 17). Table I-5 shows the total facilities cost impacts per square foot for Net Projected Student Enrollment.

Table I-5
Total Facilities Cost Impacts per Square Foot (2013$)

Item	Total Facilities Cost Impacts	Total Square Footage	Total Cost Impact per Square Foot
Junior High School	$47,893,288	11,558,902	$4.14
High School	$43,548,855	11,729,790	$3.71

Table I-6 lists the total school facilities cost impacts per square foot for Net Projected Student Enrollment based on whether the non-mitigated Future Unit is located inside the CUSD area of the School District or within the NSD, SUSD, and SSUSD area of the School District.

Table I-6
Total School Facilities Cost Impacts
per Square Foot Based on Location (2013$)

School Level	Units Located Within the CUSD Area of the School District	Units Located Within NSD, SUSD, & SSUSD
Junior High School	NA	$4.14
High School	$3.71	$3.71
Total	**$3.71**	**$7.85**

As shown, (i) the total cost impact per square foot in Table I-6 is $3.71 for units located within CUSD, which is greater than the Alternative No. 2 Fee of $1.31 per square foot for units located within CUSD as calculated in the Analysis, and (ii) the total school facilities cost impacts per square foot in Table I-6 is $7.85 for units located within NSD, SUSD, and SSUSD, which is greater than the Alternative No. 2 Fee of $2.33 per square foot as calculated in the Analysis. It should be noted that the actual cost impact produced by students generated from all non-mitigated Future Units, without consideration of those who have been displaced by Residential Reconstruction, is $3.75 per square foot for units located within CUSD and $7.39 per square foot for units located within NSD, SUSD, and SSUSD (see Exhibit E).

In summary, Residential Reconstruction was considered by reducing the projected number of unhoused student from non-mitigated Future Units by the estimated number of students occupying units projected to be demolished over the next five (5) years. As a result, the number of projected unhoused students was reduced. The cost impact generated from this reduced number of unhoused students was then divided by the total assessable square footage, including that attributable to Residential Reconstruction. Despite reducing impacts by considering existing students living in units to be demolished, the total cost per square foot, as shown in Table I-6, exceeds the Alternative Fees justified in the Analysis. The School District is, therefore, fully justified in levying the Alternative Fees calculated in the Analysis on all non-mitigated Future Units, including those from Residential Reconstruction which may occur over the next five (5) years.

B. Reconstruction of Commercial/Industrial Construction into Residential Construction

The voluntary demolition of existing commercial/industrial buildings and replacement of them with new residential development is a different category of Reconstruction. Dolinka Group is aware that such types of Reconstruction may occur within the School District over the next five (5) years, however, Dolinka Group was unable to find information (i) about the amount planned within the School District over the next five (5) years or (ii) historical levels, which might indicate the amount to be expected in the future. Due to the lack of information, the School District has decided to evaluate the impacts of Commercial/Industrial Reconstruction projects on a case-by-case basis and will make a determination of whether a fee credit is justified based on the nature of the project.

The fee credit determination will be based upon a comparison of the impacts of the planned residential project and the existing land use category (i.e. retail and services, office, research and development, industrial/warehouse/manufacturing, hospital, or hotel/motel). The actual impacts of the planned residential project (taken from Exhibit E) will be reduced by the impact of the existing commercial/industrial category (derived from calculations contained in the current Commercial/Industrial Development School Fee Justification Study adopted by the School District). Any reduction to the Alternative No. 2 Fee would only occur if the reduced amount falls below the Alternative No. 2 Fee. In such a case, the School District would levy the reduced amount per square foot of new residential construction for the subject Reconstruction project.

Exhibit J

Updated School Facilities Capacity Calculation

William S. Hart Union High School District
School Facilities Capacity Calculation

Application	Item	New Classrooms	Junior High Capacity	High Capacity
N/A	SAB Form 50-02	N/A	2,375	7,585
N/A	Non-Severe/Severe Capacity	N/A	193	386
N/A	Teaching Stations Added Without State Funding*	3	0	81
50/65136-00-001	Rio Norte Junior High School	44	1,701	0
50/65136-00-002	Sierra Vista Junior High School	6	162	0
50/65136-00-003	West Ranch High School	96	0	2,484
50/65136-00-004	Rancho Pico Junior High School	44	1,700	0
50/65136-00-005	Golden Valley High School	96	0	2,592
50/65136-00-006	Saugus High School	13	0	351
50/65136-00-007	Arroyo Seco Junior High School	9	189	0
50/65136-00-008	Canyon High School	26	0	702
50/65136-00-009	Valencia High School	2	0	54
50/65136-00-010	Academy of the Canyons	10	0	270
Total Capacity	**N/A**	**N/A**	**6,320**	**14,505**

Exhibit K

Identification and Consideration of Local Funding Sources per Section 65995.5(c)(2) and Section 65995.6(b)(3)

Section 65995.6(b)(3) requires the School District to identify and consider any local sources other than fees, charges, dedications, or other requirements that can be used to offset the cost impacts of Future Units. Additionally, Section 65995.5(c)(2) requires the School District to subtract the amount of Local Funds, which includes commercial/industrial school fees, that the governing board has dedicated to facilities necessitated by Future Units. What follows is a summary of potential local sources, including Local Funds that were evaluated for reducing such impact.

1. <u>Certificates of Participation</u>

Certificates of Participation ("COPs") are a means of financing facilities through a lease. The lease payments are typically secured by the School District's general fund.

The School District has issued COPs in the past but does not currently have any proceeds from COPs to offset the available impacts of non-mitigated Future Units.

2. <u>General Obligation Bonds</u>

General obligation ("GO") bonds are tax-exempt bonds secured by the "full faith and credit," i.e., unlimited taxing power, of the issuing school district. A bond generally requires 2/3 approval of voters; however, a Proposition 39 GO bond is approved by 55 percent of the votes. In return for a lower voter approval threshold, the School District (i) has limitations on the type of expenditures, (ii) must provide additional data to the electorate, and (iii) upon approval, the expenditures are monitored by a Citizens Oversight Committee. Voter approval grants the School District the right to levy an additional ad valorem tax on all taxable property within its jurisdiction in order to pay debt service on the GO bonds.

On November 6, 2001, the voters of the School District approved Measure V, which authorized the issuance of $158,000,000 in GO bonds. Currently there are no remaining Measure V Funds allocated for new construction projects. Additionally, the voters of the School District authorized $300 million in GO bonds on November 4, 2008 (see Exhibit F for more information on Measure SA). Of the $300,000,000 to be issued, approximately $110,000,000 is available for new construction projects that could be used to offset the impact of Future Units. Therefore, the School District has a total of $110,000,000 in GO bond proceeds available at the time to offset the impacts of non-mitigated Future Units. However, in addition to the Future Units listed in Tables 2 and 3 of the Analysis, the School District will experience growth beyond the next five (5) years. According to the best residential development estimates available, the School District can expect an additional 29,461 units to be constructed within the School District through buildout. This number includes Future Units and residential units to be constructed beyond the next five (5) years.

Apportioning the $110,000,000 in earmarked proceeds between students generated from Future Units and students generated from residential units constructed beyond the next five (5) years resulted in $38,918,000 of the proceeds being available to reduce the impact of students generated from Future Units over the next five (5) years (see Exhibit M for more information on the allocation of GO bond proceeds). This potential funding will be discussed further below.

3. Redevelopment Pass-Throughs

California redevelopment law allows school districts to share in tax increment income via pass-through agreements with local redevelopment agencies. The passage of AB X1 26 eliminated redevelopment agencies as of February 1, 2012, and replaced them with successor agencies. Though redevelopment agencies have been eliminated, local educational agency's pass-through entitlements remain.

The School District currently has a pass-through agreement with the Redevelopment Agency of Santa Clarita. Based on projected revenues from this pass-through agreement, the School District estimates it will receive $244,885 for capital facilities over the next five (5) years. At this time, $244,885 is considered to be available as potential funding for school facilities to house students generated from Future Units.

4. Community Facilities Districts

The Mello-Roos Community Facilities Act provides an alternative method for public agencies to fund facilities with useful lives of five (5) years or more. The Community Facilities District ("CFD") is a financing entity through which a local government is authorized to levy special taxes to pay debt service on issued bonds or to pay for the direct construction of facilities. A two-thirds vote of the qualified voters is required to form the CFD.

The School District has formed nine (9) CFDs to date: CFD No. 87-1, CFD No. 88-4, CFD No. 89-2, CFD No. 90-1, CFD No. 99-1, CFD No. 2002-1, CFD No. 2004-1, CFD No. 2005-1, and CFD No. 2008-1. These CFDs were formed on specific residential development projects as a mechanism to finance mitigation payments. Accordingly, none of the special tax or bond proceeds from these CFDs will be available to offset the cost impacts of any residential units constructed outside the boundaries of the CFDs. In most instances, the School District will not be permitted to collect additional statutory school fees, mitigation payments or Alternative Fees from the units located within the CFDs, nor were the units from the CFDs considered in calculating the Alternative No. 2 and Alternative No. 3 Fees.

5. School Fees

Sections 17620 *et seq.* of the Education Code gives school districts the authority to collect statutory school fees ("School Fees") from commercial and industrial development if a justification study is prepared and certain nexus findings are made. Section 65995.5(c)(2) requires the School District to identify and consider Local Funds, which includes commercial/industrial School Fees, and to subtract such funds from the total impact created by Future Units, if such Local Funds are available.

A total of $164,060 in commercial/industrial fees has been collected over the last five (5) years. A similar amount of commercial/industrial School Fees can be expected to be received over the following five (5) years. This potential funding will be discussed further below.

6. Identification of Existing Surplus Local Funds

As stated in Section III.B, the School District currently has 543 unhoused junior high school students and 1,382 unhoused high school students from existing residential units. Based on per-student costs calculated in Exhibit E, these existing unhoused students have a cost impact to the School District of $41,984,128 at the junior high school level and $76,279,128 at the high school level.

Over the next five (5) years, the School District will also need to construct school facilities to house students to be generated from Future Units. Using per-student costs calculated in Exhibit E, providing adequate school facilities to the 545 Projected Unhoused Students at the junior high school level and the 797 Projected Unhoused Students at the high school level identified in Section III.C will have a cost of $42,138,766 and $43,990,206, respectively. Table K-1 shows a summary of the school facilities needs of the School District.

Table K-1
Identification of School Facilities Needs (2013$)

Item	Junior High School Level	High School Level	Total
Current Unhoused Student Impact	$41,984,128	$76,279,128	$118,263,256
Future Unhoused Student Impact	$42,138,766	$43,990,206	$86,128,972
Total	**$84,122,894**	**$120,269,334**	**$204,392,228**

As stated above, the School District has identified the following local funds: (i) $38,918,000 in available GO bond proceeds and (ii) potential commercial/industrial school fees in the amount of $164,060. In addition, the School District also plans to pursue State funding for the construction of school facilities to adequately house students generated from existing residential development and non-mitigated Future Units. Based on the current per-pupil grant amounts established by the State and the School District's site costs, the 543 existing unhoused students at the junior high school level and the 1,382 existing unhoused students at the high school level would generate $11,751,353 and $26,537,318 in State funding, respectively. Furthermore, the 545 Projected Unhoused Students at the junior high school level and the 797 Projected Unhoused Students at the high school level would generate $11,786,471 and $15,306,655 in State funding, respectively. Additionally, based on Table 14 of the Analysis, the School District can expect to receive $11,786,471 from Alternative No. 2 Fees at the junior high school level and $15,306,655 from Alternative No. 2 Fees at the high school level on new residential development. Table K-2 summarizes potential funding sources to fund the school facilities needs identified in Table K-1.

Table K-2
Identification of Local Funds (2013$)

Item	Junior High School Level	High School Level	Amount
Available GO Bond Proceeds	N/A	N/A	$38,918,000
Projected Redevelopment Revenues	N/A	N/A	$254,878
Projected Commercial/Industrial School Fees	N/A	N/A	$164,060
State Funding for Current Unhoused Students	$11,751,353	$26,537,318	$38,288,671
State Funding for Projected Unhoused Students	$11,786,471	$15,306,655	$27,093,126
Projected Alternative No. 2 Fees	$11,786,471	$15,306,655	$27,093,126
Total	**N/A**	**N/A**	**$131,811,861**

As shown below in Table K-3, when considering the current and future school needs of the School District, there is currently a $72,580,367 funding shortfall. Therefore, the School District does not have surplus funds available to offset the cost impact of Future Units.

Table K-3
Identification of Funding Shortfall (2013$)

Item	Amount
School Facilities Needs	$204,392,228
Local Funding Sources	($131,811,861)
Remaining Funding Shortfall	**$72,580,367**

Exhibit L

Calculation of Additional Grants for General Site Development

William S. Hart Union High School District
General Site Development Grant per Student Calculation

Calculation of Additional Grant Amount as a Percentage of Base Per-Pupil Grant at Each School Level

School Level	Base Per-Pupil Grant[1]	Percent	Additional Grant
Junior High School	$10,524	6.000%	$631
High School	$13,347	3.750%	$501

[1] Includes Automatic Fire Detection/Sprinkler Grant.

Calculation of Total Grant Amount for a New School Facility at Each School Level

School Level	Grant per New Useable Acre	Site Size	Grant per School Facility
Junior High School	$15,846	22.5	$356,535
High School	$15,846	47.1	$746,347

Calculation of Grant Amount per Student at Each School Level

School Level	Grant per School Facility	Facility Capacity	Grant per Student
Junior High School	$356,535	1,200	$297
High School	$746,347	2,600	$287

Determination of Total Grant per Student for General Site Development at Each School Level

School Level	Additional Grant as a Percentage of Base Per-Pupil Grant	Grant per Student	Total Grant for General Site Development
Junior High School	$631	$297	**$928**
High School	$501	$287	**$788**

Exhibit M

Allocation of GO Bond Authorization

William S. Hart Union High School District
Allocation of GO Bond Authorization
May 2013

GO Bond Issuances Available for New Construction Projects

GO Bond Authorizations	Available GO Bond Proceeds
Measure SA	$110,000,000

Units to be Constructed Over the Next Five (5) Years ("Future Units") and Total Units to be Constructed (i.e. Next Five (5) Years + Beyond the Next Five (5) Years) ("Total Units")

Item	Future Units within NSD, SUSD, & SSUSD	Future Units within Entire School District	Number of Total Units[1]
Number of SFD Units	3,415	3,968	11,377
Number of SFA Units	3,994	4,583	11,123
Number of MF Units	1,817	2,189	6,961

[1] Residential Development School Fee Justification Study, dated March 9, 2012, and adjusted by additional units constructed.

Percent of Students Generated from Future Units

Item	Students Generated from Future Units	Students Generated from Total Units
Junior High School Students from SFD Units	358	1,028
Junior High School Students from SFA Units	299	728
Junior High School Students from MF Units	264	841
Total Middle Students Generated	**921**	**2,597**
High Students from SFD Units	744	2,132
High Students from SFA Units	344	835
High Students from MF Units	318	1,013
Total High Students Generated	**1,406**	**3,980**
Total Students Generated	**2,327**	**6,577**
% of Students Generated from Future Units		**35.38%**

Allocation of GO Bond Authorization Available to Students Generated from Future Units

School Level	Available GO Bond Proceeds
GO Bond Proceeds Available to Students Generated from Future Units	$38,918,000

APPENDIX 5.12.2-3

William S. Hart Union High School District E-Mail Correspondence, September 18, 2013

From: Lorna Baril <lbaril@hartdistrict.org>
Sent: Wednesday, September 18, 2013 9:11 AM
To: Kathleen King
Subject: Re: General Information needed for Hart Union School District

Kathleen,

Responses to your general information questions are below (in bold):

- What high schools are located within the William S. Hart Union School District?

Canyon High School
Golden Valley High School
Hart High School
Saugus High School
Valencia High School
West Ranch High School
Bowman Continuation High School

- What schools would serve the proposed project? Please provide design capacities and the current enrollment (2012-2013 school-years) of each of the schools located within the William S. Hart Union School District, and the William S. Hart Union School District as a whole. Also, what are the projected 2013-2014 and 2014-2015 enrollments for each of the schools in the William S. Hart Union School District and the William S. Hart Union School District itself?

Valencia High School/West Ranch High School until completion of Castaic High School

Enrollment projections are District-wide, not by individual school site: 2013/14 = 22,609, 2014/15 = 22618

- Is bus service provided for students that would be located in the Project area? If so, is the District currently experiencing any difficulty in providing service or does the District predict any future difficulties?

The District provides transportation only for special needs students.

- Are there any planned improvements (i.e., school expansions, new school construction, etc.) to the William S. Hart Union School District that would be of interest to the proposed Project? If so, what are these improvements and what are their projected beginning and completion dates?

Castaic High School is targeted to open fall 2012.

- Please provide student generation rates for residential units (single-family and multi-family) that the William S. Hart Union School District uses to estimate the number of children that would be generated by this proposed project that would attend the District's schools. Please provide generation rates for high schools.

As calculated by the District's accountancy firm in the District's 2013 School Facilities Needs Analysis: .2924

- Please provide development fees for residential and commercial development that the William S. Hart Union School District uses to off-set the impact new developments would have on the school district.

The District's 2013 School Facilities Needs Analysis authorizes the District to levy Level 2 fees; currently $1.31 per square foot for residential development and $0.179 per square foot of covered and enclosed commercial space. The District also has School Facilities Funding and Mitigation Agreements (aka Fair Share Agreement) in place with major developers which is based upon a per dwelling unit amount.

- Is there, or will there be adequate school capacities in the William S. Hart Union School District when the proposed development is built out?

Contingent upon completion of Castaic High School.

- What measures would the William S. Hart Union School District require and/or recommend mitigating potential impacts to the school District associated with development of the proposed project?

The proposed project is subject to Community Facilities District No. 2008-1 which was formed at the request of the developer. Mitigation fees will be collected via property taxes.

Please let me know if you need anything further and thank you very much for your patience.

Regards,

Lorn

Lorna R. Baril
Senior Administrative Assistant
William S. Hart Union High School District
(661) 259-0033 x271
(661) 259-4762 FAX
lbaril@hartdistrict.org
a

>>> "Kathleen King" <KKing@impactsciences.com> 7/10/2013 10:30 AM >>>

Dear Ms. Baril,

I briefly spoke with you over the phone regarding a proposed project in Los Angeles County, located in the Santa Clarita Valley Region which our firm is preparing an Environmental Impact Report for. We want to make sure to include the most current existing conditions of the public services available in the area, so we can be sure to document any impacts the project may have. Below is a brief project description, followed by several questions regarding the Hart Union High School District. Thank you in advance for your time and assistance.

Our firm is currently preparing the Draft Environmental Impact Report for the Los Valles Residential Project proposed in the Santa Clarita Region of unincorporated Los Angeles County. The proposed Project will be developed on 430.4 acres of land owned by the Applicant with primary access from Hasley Canyon Road. The property is located at 28801 Hasley Canyon Road.

The Project will be comprised of a single-family residential development of 497 dwelling units all on lot sizes above 7,000 square feet, together with significant community amenities for residents and the public including a community

recreation center controlled by a homeowner's association, an approximately 19-acre community park, seven private recreation lots which provide neighborhood park amenities, and approximately 5 miles of pedestrian trails and accompanying infrastructure and public and private roadways (The Project).

The EIR will analyze the Project as described above and offer alternatives to help mitigate significant impacts to the surrounding environment. The final plan will be determined based on site constraints and environmental factors analyzed during the CEQA process including providing opportunities for incorporating low-impact development strategies into the project. Approximately 232 acres, comprising over 50 percent of the Property, will be preserved as recreational and open space. In addition, the Project will utilize the existing infrastructure and grading work to the maximum extent feasible, and provide additional homeownership opportunities.

Our interest is to provide as much detailed information concerning the educational service impacts in the Draft EIR as possible. In response to this objective, we would appreciate your input regarding the following questions:

- What high schools are located within the William S. Hart Union School District?
- What schools would serve the proposed project? Please provide design capacities and the current enrollment (2012-2013 school-years) of each of the schools located within the William S. Hart Union School District, and the William S. Hart Union School District as a whole. Also, what are the projected 2013-2014 and 2014-2015 enrollments for each of the schools in the William S. Hart Union School District and the William S. Hart Union School District itself?
- Is bus service provided for students that would be located in the Project area? If so, is the District currently experiencing any difficulty in providing service or does the District predict any future difficulties?
- Are there any planned improvements (i.e., school expansions, new school construction, etc.) to the William S. Hart Union School District that would be of interest to the proposed Project? If so, what are these improvements and what are their projected beginning and completion dates?
- Please provide student generation rates for residential units (single-family and multi-family) that the William S. Hart Union School District uses to estimate the number of children that would be generated by this proposed project that would attend the District's schools. Please provide generation rates for high schools.
- Please provide development fees for residential and commercial development that the William S. Hart Union School District uses to off-set the impact new developments would have on the school district.
- Is there, or will there be adequate school capacities in the William S. Hart Union School District when the proposed development is built out?
- What measures would the William S. Hart Union School District require and/or recommend mitigating potential impacts to the school District associated with development of the proposed project?

Thank you for your assistance in answering these questions and providing the requested information. As there are time constraints in preparing the draft EIR, we would appreciate your responses no later than August 10, 2013. Furthermore, if you have any additional concerns which I have not addressed, or need additional project description information please feel free to call me at 805-437-1900.

Best,

Kathleen King
Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road Suite C
Camarillo, Ca 93012
Office: (805) 437-1900 ext. 246
Cell: (323) 459-7942
kking@impactsciences.com

APPENDIX 5.12.2-4

William S. Hart Union High School District
Current and Planned Facilities, October 2013

William S. Hart Union High School District

Current and Planned Facilities

October 2013

Arroyo Seco Junior High School
27171 Vista Delgado Drive
Valencia, CA 91354

Permanent capacity is 930 students and is provided by 35 permanent classrooms.
Temporary classroom capacity for 659 students is provided by 26 relocatable classrooms.
Total classroom capacity is currently 1589 students. Modernization was completed in summer 2007, which added 15 permanent classrooms and increased the overall teaching spaces to 53. All relocatables have been removed. The new adjusted classroom capacity is 1431.
Enrollment in October of 2013 was 1256.

La Mesa Junior High School
26623 May Way
Santa Clarita, CA 91351

Permanent capacity is 1026 students and is provided by 25 permanent classrooms and 12 built-in-place "permanent" relocatable classrooms.
Temporary classroom capacity for 368 students is provided by 20 relocatable classrooms.
Total classroom capacity is currently 1394 students.
Enrollment in October of 2013 was 1095.
There are no plans to expand the permanent size of this school.

Placerita Junior High School
25015 N. Newhall Avenue
Newhall, CA 91321

Permanent capacity is 846 students and is provided by 34 permanent classrooms.
Temporary classroom capacity for 390 students is provided by 25 relocatable classrooms.
Total classroom capacity is currently 1236 students.
Enrollment in October of 2013 was 1087.

Rancho Pico Junior High School
26250 W. Valencia Blvd.
Stevenson Ranch, CA 91381

Permanent design capacity is 1200 students provided by 23 classrooms and 10 relocatable classrooms.
Enrollment in October of 2013 was 1022.

Rio Norte Junior High School
28771 Rio Norte Dr.
Valencia, California 91354

Permanent capacity is 1200 students and is provided by 25 permanent classrooms and 6 built-in-place "permanent" relocatable classrooms.
Temporary classroom capacity for 368 students is provided by 20 relocatable classrooms.
Enrollment in October of 2013 was 1155.
There are no plans to expand the permanent size of this school.

Sierra Vista Junior High School
19425 West Stillmore Street
Canyon Country, CA 91351

Permanent capacity is 916 students and is provided by 35 permanent classrooms.
Temporary classroom capacity for 305 students is provided by 25 relocatable classrooms.
Total classroom capacity is currently 1221 students.
Enrollment in October of 2013 was 1233.

Canyon High School
19200 West Nadal Street
Canyon Country, CA 91351

Permanent capacity is 1604 students and is provided by 63 permanent classrooms.
Temporary classroom capacity for 934 students is provided by 32 relocatable classrooms.
Total classroom capacity is currently 2538 students.
Enrollment in October of 2013 was 2450.
Plans to expand the permanent size of this school are underway with the current modernization which will add 28 permanent classrooms bringing the total classroom capacity to 2484. Once the new theatre building is completed, there will be 96 permanent classrooms.

Golden Valley High School
20501 Golden Valley Road
Santa Clarita, CA 91321

Permanent design capacity is 2600 students provided by 35 classrooms and 24 relocatable classrooms.
Enrollment in October of 2013 was 2197.

Hart (William S.) High School
24825 N. Newhall Avenue
Newhall, CA 91321

Permanent capacity is 1392 students and is provided by 55 permanent classrooms.
Temporary classroom capacity for 923 students is provided by 40 relocatable classrooms.
Total classroom capacity is currently 2315 students.
Enrollment in October of 2013 was 2175.
There are no plans to expand the permanent size of this school.

Saugus High School
21900 Centurion Way
Saugus, CA 91350

Permanent capacity is 1624 students and is provided by 63 permanent classrooms.
Temporary classroom capacity for 649 students is provided by 26 relocatable classrooms.
Total classroom capacity is currently 2273 students. Modernization was completed summer 2007, which added 30 permanent classrooms bringing the total classroom capacity to 2511. Once the new theatre building is in place, there will be 96 permanent classrooms.
Enrollment in October of 2013 was 2376.

Valencia High School
27801 Dickason Drive
Valencia, CA 91355

Permanent capacity is 1924 students and is provided by 48 permanent classrooms and 26 built-in-place "permanent" relocatable classrooms.
Temporary classroom capacity for 840 students is provided by 32 relocatable classrooms.
Total classroom capacity is currently 2764 students.
Enrollment in October of 2032 was 3074.
There are no plans to expand the permanent size of this school.

West Ranch High School
26255 W. Valencia Blvd.
Stevenson Ranch, CA 91381

Permanent design capacity is 2600 students and is provided by 35 classrooms and 24 relocatable classrooms.
Enrollment in October of 2013 was 2490.

Castaic High School
Projected opening fall 2016.

APPENDIX 5.12.2-5

School Facilities Funding and Mitigation Agreement
By and Between the William S. Hart Union High School District
and Hasley Canyon Land Company, LLC.'

2

Recording Requested by
and When Recorded Mail to:

William S. Hart Union High School District
Attention: Superintendent
21515 Redview Drive
Santa Clarita, CA 91350-2948

02-0914966

Space above this line for Recorder's use only.
Exempt from recording fee pursuant to Government Code § 6103.

SCHOOL FACILITIES FUNDING AND MITIGATION AGREEMENT
BY AND BETWEEN
THE WILLIAM S. HART UNION HIGH SCHOOL DISTRICT
AND
HASLEY CANYON LAND COMPANY, L.L.C.

This School Facilities Funding and Mitigation Agreement ("Agreement") is made at Santa Clarita, California, as of January 23, 2002, by and between the William S. Hart Union High School District, a public school district organized and existing pursuant to the laws of the State of California ("Hart"), and Hasley Canyon Land Company, L.L.C., a Delaware limited liability company ("Developer"). Hart and Developer may hereinafter be referred to individually as "Party" and collectively as "Parties".

RECITALS

A. Developer has a legal interest in a portion ("Currently-Owned Property") and an equitable interest (option to purchase) in a portion ("Optioned Property") of the property located in the County of Los Angeles ("County"), the legal description of which is attached hereto as Exhibit "A," and the depiction of which is attached hereto as Exhibit "B." (The Currently-Owned Property and the Optioned Property may be referred to herein collectively as the "Property.") The Developer is seeking governmental approvals for development of the Property ("Land Use Entitlements"), including Tentative Tract Map No. ("Tract") 52584. The Property is located within the boundaries of both Hart and the Castaic Union School District ("Castaic"); however, Castaic is not a party to this Agreement. The Parties intend that this Agreement shall apply to all of the Property if the Developer obtains ownership of the Optioned Property. This

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Agreement shall apply to the Currently-Owned Property regardless of whether the Developer subsequently obtains ownership of the Optioned Property.

B. The Land Use Entitlements provide that Developer may construct two hundred and nine (209) single family dwelling units ("SFDU") and a golf course with appurtenant non-residential buildings within Tract 52584 (collectively, the "Project"). For purposes of this Agreement, an SFDU is any dwelling unit ("DU") that is a single family residence with no structural walls in common with any other DU. For purposes of this Agreement, a multi-family attached dwelling unit ("MFDU"), including an MFDU rented or for rent as an apartment, is a DU in any building or buildings in which all of the DU have one or more supporting, above-ground, vertical, common walls establishing a substantial connection between two (2) or more DU. For purposes of this Agreement, commercial and industrial development ("Commercial/Industrial Development") is deemed to be any non-residential development. For purposes of this Agreement, an age restricted DU ("Age-Restricted DU") is any DU the occupation of which is restricted in conformance with the provisions of Government Code Section 65995.1. The plans for development of the Property may change over time to meet the needs of the market, and modifications of existing or pending Land Use Entitlements also may occur. The provisions herein are applicable to whatever development may occur on the portions of the Property against which this Agreement is recorded.

C. Developer acknowledges that the development of the Property will generate additional senior high school ("SHS") students ("Project Students"). Developer further acknowledges that Hart must provide interim and permanent school facilities, including land, buildings, furnishings and equipment, interim and permanent classrooms, and central and administration facilities (collectively, "School Facilities") for the Project Students. Hart does not have capacity in its existing School Facilities to accommodate the Project Students and, therefore, must acquire and construct new SHS School Facilities.

D. Previously, the State of California ("State") provided a substantial portion of the funds necessary for acquisition and construction of School Facilities ("State Funds"). Whether Hart obtains State Funds for School Facilities necessary to accommodate Project Students is dependent on Hart's ability to meet the State's requirements. The Parties acknowledge the possibility that Hart may receive State Funds for a portion of the cost of the additional School

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Facilities needed to accommodate Project Students. However, there is no guarantee that Hart will receive such State Funds in an amount sufficient to provide School Facilities for the Project Students and other students within Hart's boundaries. Hart previously provided to each real-estate developer the opportunity to assign to Hart any rights the developer may have to reimbursement from certain State Funds attributable to such developer's project. While State Funds provided to Hart pursuant to Education Code Sections 17072.10 and 17072.12 are potentially available for reimbursement to developers ("Reimbursable State Funds"), State financial or other hardship assistance received by the District is, and at all times has been, solely for the benefit of, and shall be retained and used by, Hart. In exchange for the assignment of the Reimbursable State Funds to Hart, such developer's obligation to mitigate the impacts on Hart's School Facilities was proportionally reduced. Developer acknowledges that Hart and other developers ("Fair Share Mitigation Payment Participants") have entered into similar agreements and that those agreements may contain such reimbursement provisions. The Developer has elected to assign to Hart the Developer's rights, if any, to future Reimbursable State Funds, and in exchange therefor, the Developer's obligation to mitigate the impacts of development of the Property has been reduced as specified herein. Hart hereby assumes the risk that State Funds will not be available to assist in funding School Facilities necessary to mitigate the impact of development of the Property.

E. Subject to the limitations set forth herein, the Developer shall be permitted to request that Hart form a Mello-Roos Community Facilities District ("CFD") for purposes of financing Developer's mitigation obligations pursuant to this Agreement ("Project CFD"). Upon receipt of such request, Hart shall make best efforts to initiate and complete formation of the Project CFD. The Parties intend that all Age-Restricted DU and Commercial-Industrial Development shall be subject to a one-time lump-sum Special Tax in an amount equal to the Statutory School Fee for such development. The Parties agree that they shall, as soon as reasonably practicable after execution of this Agreement, cooperate in developing mutually-agreeable parameters for formation of the Project CFD ("CFD Parameters") and specifications for the rate and method of apportionment for the Project CFD ("RMA Specifications"). If the Parties are unable, after making good faith efforts, to reach such agreement, Hart shall be under no obligation to form the Project CFD, in which event, construction within the Project shall be subject to the obligation to make Fair Share School Impact Mitigation Payments as set forth herein. If Hart implements the Project CFD, after construction of all DU on all residential

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portions of the Property, Hart shall determine if the need has been satisfied for School Facilities necessary to adequately serve the Property and, if so, Hart shall determine in its reasonable discretion the available portion of any Reimbursable State Funds attributable to the Property, which Hart in its discretion shall, if required by law, allocate and utilize consistent with Government Code Section 53313.9.

F. Hart anticipates that it will be able to mitigate the adverse impacts that might otherwise result from the development of the Property through (i) payment by Developer of the Fair Share School Impact Mitigation Payments (defined in Section 2); or (ii) to the extent it finances such obligation to make the Fair Share School Impact Mitigation Payments, formation of the Project CFD and receipt of the special taxes levied within the Project CFD ("Special Taxes") or proceeds of sales of bonds of the Project CFD ("Bonds"). The Parties desire to enter into this Agreement to hereby set forth Developer's obligations to mitigate impacts of the development of the Project and Hart's obligations to provide School Facilities necessary to accommodate Project Students.

G. The procedure set forth in this Agreement will ensure that the development of the Project will have no adverse impacts on Hart's ability to provide adequate School Facilities for the Project Students.

IN LIGHT OF THE FOREGOING FACTS, THE PARTIES AGREE THAT:

1. ***Incorporation of Recitals and Exhibits.*** Each of the foregoing Recitals, and each Exhibit attached hereto or referenced herein, is hereby incorporated into, and is a fully operative and effective part of, this Agreement.

2. ***Mitigation Obligation.*** Hart has caused to be prepared a "Fair Share School Impact Mitigation Payment Adjustment Analysis for Calendar Year 2002" ("Year 2002 Adjustment Analysis"), which is incorporated herein by this reference. The Year 2002 Adjustment Analysis calculates the actual cost to Hart of acquiring and constructing SHS School Facilities, including new permanent SHS facilities, interim classrooms and central and administrative facilities, which shall be the mitigation amounts payable pursuant to this Agreement ("Fair Share School Impact Mitigation Payments"). The Year 2002 Adjustment

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Analysis is on file and may be reviewed at Hart's main offices located at 21515 Redview Drive in the City of Santa Clarita.

(a) The Fair Share School Impact Mitigation Payments applicable in calendar year 2002, as determined by Hart on a per-DU basis as of January 1, 2002, are: (i) five thousand, seven hundred and fifty-four dollars and seventy-one cents ($5,754.71) per SFDU; and (ii) two thousand, nine hundred and forty-nine dollars and seventy-five cents ($2,949.75) per MFDU. As previously noted herein, the Parties agreed to reduce the initial Fair Share School Impact Mitigation Payment amounts in consideration of the assignment to Hart by Developer of its rights, if any, to Reimbursable State Funds attributable to Project Students that are received by Hart. The Developer hereby assigns to Hart all of Developer's rights to reimbursement, if any, from future Reimbursable State Funds. Therefore, the initial Fair Share School Impact Mitigation Payment amounts payable in calendar year 2002 have been reduced to: (i) five thousand, four hundred and fifty-four dollars and thirty-one cents ($5,454.31) per SFDU; and (ii) two thousand, seven hundred and ninety-seven dollars and ninety-one cents ($2,797.91) per MFDU.

(b) With respect to any Age-Restricted DU or Commercial/Industrial Development occurring on the Property, Developer shall pay the fees as provided in Education Code Section 17620 and Government Code Section 65995 *et seq.* or any comparable successor statutory provisions ("Statutory School Fees").

3. ***Timing of Payments.*** With respect to the Currently-Owned Property, and the Optioned Property after acquisition thereof by Developer, the Fair Share School Impact Mitigation Payments and the Statutory School Fees required pursuant to this Agreement shall be paid to Hart at the time that Developer applies to Hart for a Certificate of Compliance necessary to obtain a building permit for any construction on such portions of the Property from the County, the City of Santa Clarita ("City") or any other governmental entity that has the authority to issue building permits for the development of the Property.

4. ***Adjustments to Mitigation Obligation.*** The Fair Share School Impact Mitigation Payment amounts shall be reviewed and, if applicable, increased or decreased by Hart, at the times and in accordance with the methodologies set forth in this Section. Such adjustments shall be based on variations in student generation factors ("SGF"), land value of school sites ("Land

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Value Component") and costs of construction, furnishings, equipment and related costs ("Non-Land Value Component") as follows:

(a) *Student Generation Factors.* As set forth in the Year 2002 Adjustment Analysis, certain initial SGF were used in determining the initial amounts of the Fair Share School Impact Mitigation Payments. Effective each January 1, commencing January 1, 2003, the amount of the Fair Share School Impact Mitigation Payments shall be increased or decreased based upon the recalculation of the SGF for Hart determined in accordance with the methodology set forth in the Year 2002 Adjustment Analysis and the other provisions of this Section.

(b) *Land Value Component.* The Year 2002 Adjustment Analysis established a Land Value Component assuming a construction-ready condition, with dedicated and improved public roads and utilities, including storm drainage facilities, that is applicable during calendar year 2002. The Parties acknowledge this value per acre may vary as the Project and/or Property is developed. Consequently, effective each January 1, commencing January 1, 2003, the Fair Share School Impact Mitigation Payment amount shall be increased or decreased based upon the Land Value Component determined as of a valuation date in the preceding October 15th. This adjustment shall be determined by the appraised value per-net-acre of the sites then under consideration by Hart for the next junior high school ("JHS") site and the next SHS site ("Proposed Sites"). If Hart identifies more than one (1) JHS Proposed Site or more than one SHS Proposed Site, the Land Value Component adjustment shall be based on the average of the appraised per-acre values of all JHS Proposed Sites and on the average of the appraised per-acre values of all SHS Proposed Sites. The following procedure shall be used to separately value each Proposed Site.

Hart shall select an appraiser ("Hart Appraiser"), who shall be a member of the Appraisal Institute ("AI"), to conduct the appraisals of the Proposed Sites. The Fair Share School Impact Mitigation Payments received by Hart from Developer or others, or interest earned thereon, may be used by Hart to pay the cost of the appraisals. Each Proposed Site shall be appraised on the basis of the highest and best use of the Proposed Sites as determined by the Hart Appraiser. If Developer does not concur with Hart's choice of the Hart Appraiser, or with the Hart Appraiser's opinion of value, Developer may, at its own expense, designate an AI appraiser ("Developer Appraiser") to independently appraise the Proposed Site and prepare a report establishing and supporting the Developer Appraiser's opinion of the fair market value ("FMV") of the Proposed Site. If the opinions of value of the Hart Appraiser and the Developer Appraiser differ by ten percent (10%) or less from each other, the appraised FMV of the Proposed Site shall be deemed

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to be the average FMV of the two (2) appraisals of the Proposed Site. If the opinions of value of the Hart Appraiser and the Developer Appraiser differ by more than ten percent (10%), the Hart Appraiser and the Developer Appraiser shall be instructed to agree upon a third AI appraiser ("Supplemental Appraiser") to appraise the Proposed Site. Hart and Developer shall equally share the cost of the Supplemental Appraiser. The Supplemental Appraiser also shall independently appraise the Proposed Site and prepare a report establishing and supporting his or her opinion of the FMV of the Proposed Site. In that event, the appraised FMV of the Proposed Site shall be deemed to be the average FMV of the two (2) appraisals having the closest opinions of value. In the event the appraisal of the Proposed Site conducted by the Supplemental Appraiser equals the average of the FMVs determined by the Hart Appraiser and the Developer Appraiser, then the appraised FMV of the Proposed Site shall be deemed to be the FMV determined by the Supplemental Appraiser.

In the event one or more other Fair Share Mitigation Payment Participants also desire to designate a Developer Appraiser, such appraiser shall be the appraiser designated by a majority of Developer and the other Fair Share Mitigation Payment Participants. Developer agrees to bear its pro rata share of the cost of the Developer Appraiser and the Supplemental Appraiser designated by such majority of the Fair Share Mitigation Payment Participants. If the Fair Share Mitigation Payment Participants are unable to agree on the Developer Appraiser, Hart shall designate the Developer Appraiser from a list of appraisers submitted by Developer and the other Fair Share Mitigation Payment Participants.

(c) *Non-Land Value Component*. Each January 1, commencing January 1, 2003, the Non-Land Value Component shall be increased or decreased, if applicable, based upon the percentage change in the Marshall & Swift Class D Wood Frame Index for the Western United States ("Index") for the twelve (12) month period ending on the preceding October 31st. In the event the Index is no longer published, an equivalent index shall be reasonably determined by Hart.

(d) *Adjustment Process*. The annual adjustment of the Fair Share School Impact Mitigation Payments shall be accomplished in accordance with the procedure set forth in this Subsection.

On or about December 15th of each year, commencing with the calendar year 2002, Hart shall prepare and submit to Developer an analysis for the subsequent calendar year, which shall specify the adjustments made in accordance with Subsections (a) through (c) above ("Annual Adjustment Analysis"). The Annual Adjustment Analysis shall set forth the proposed

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Fair Share School Impact Mitigation Payments to be applicable effective January 1st of the next succeeding calendar year. Upon Developer's request at any other reasonable time, Hart shall meet with Developer to review and discuss the Annual Adjustment Analysis not later than January 10th of that next succeeding year. Hart shall take into account any information provided by Developer with respect to the Annual Adjustment Analysis, either before or after completion of the Annual Adjustment Analysis, in determining adjustment of the Fair Share School Impact Mitigation Payments. Any disputes between Developer and Hart with respect to the Annual Adjustment Analysis not resolved to each Party's satisfaction shall be resolved in accordance with Section 23 of this Agreement, but only after either Hart or Developer determines that no other alternative is feasible. Pending such resolution, any revised Fair Share School Impact Mitigation Payments that become due may be paid under protest and, if any amount is subsequently determined to have been improperly applied by Hart, Hart shall return any excess amount to Developer with interest at the average rate earned by the Los Angeles County Local Agency Investment Fund accruing from the date of initial payment by Developer to the date of repayment by Hart to Developer.

5. ***Notice of Annual Adjustment.*** On or about December 15 of each year, commencing with calendar year 2002, Hart shall forward to Developer the Annual Adjustment Analysis provided for in Section 4(d) of this Agreement. The Annual Adjustment Analysis shall serve as notice from Hart of any determination applicable in the next calendar year of the SGF, Land Value Component, Non-Land Value Component, Fair Share School Impact Mitigation Payments, or any other determination or document that would impose a duty on Developer or change the extent of Developer's obligations under this Agreement. Developer acknowledges that Hart's ability to provide the Annual Adjustment Analysis to Developer by December 15 in any particular year is dependent on collection and analysis of certain information not within Hart's control. Failure by Hart in any particular year to forward the Annual Adjustment Analysis to Developer by December 15 shall be deemed insufficient grounds for Developer to avoid the increase or decrease in the Fair Share School Impact Mitigation Payments for the subsequent calendar year. Hart's provision of the Annual Adjustment Analysis to Developer after December 15 in any particular year shall not prejudice Developer's right, as set forth in Subsection (d) of Section 4, to review the Annual Adjustment Analysis and seek a determination from Hart, if Developer requests such determination within thirty (30) calendar days after receipt of the Annual Adjustment Analysis.

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6. ***Community Facilities District.*** Within ten (10) calendar days of acquiring fee title to any of the Optioned Property, and upon acquiring fee title to all of the Property, the Developer shall provide written notice thereof to Hart. At any time after acquiring fee title to all of the Property, the Developer may request in writing that Hart form the Project CFD for purposes of financing the Developer's obligation to make Fair Share School Impact Mitigation Payments pursuant to this Agreement. Subject to the Parties having previously agreed on the CFD Parameters and RMA Specifications as provided in Recital E, Hart shall thereafter use its best efforts to initiate and pursue to completion the formation of the Project CFD and authorization of the Special Taxes and Bonds. Hart shall attempt to complete all actions necessary to form the Project CFD and issue the Bonds within two hundred and ten (210) days of the Developer's request to form the Project CFD pursuant to this Section.

(a) The proceeds of the Bonds received by Hart, excluding any interest earned thereon, may be used to satisfy the Developer's obligation to make Fair Share School Impact Mitigation Payments pursuant to this Agreement, and any portion of such obligation not satisfied through receipt of the Bond proceeds shall continue to be subject to adjustment pursuant to Section 4 until paid to Hart. Notwithstanding the foregoing and subject to Subsection (e) of this Section, if (1) the District receives Developer's request to form the Project CFD on or before May 31 in any year, (2) through no fault of Developer, Bonds are not issued prior to January 1 of the subsequent year, and (3) the Bonds are subsequently issued, then the portion of the Developer's obligation to make Fair Share School Impact Mitigation Payments that is satisfied by the Bond proceeds, excluding any interest earned thereon, shall not be subject to the adjustment that is effective on that January 1 of the subsequent year. However, if for any reason Hart is unable to complete formation of the Project CFD, all Fair Share School Impact Mitigation Payments for which adjustment pursuant to Section 4 has been deferred shall be retroactively adjusted, Hart shall determine a total amount attributable thereto, and the Developer shall pay such amount to Hart within thirty (30) days of notice thereof from Hart.

(b) Concurrent with requesting formation of the Project CFD as provided above in this Section, and as a condition of Hart's obligation to form the Project CFD, Developer shall pay to Hart an initial advance of thirty thousand dollars ($30,000.00) for purposes of financing expenses incurred by Hart in forming the Project CFD. Within thirty (30) calendar days of receipt of the District's written request therefor, the Developer shall advance any additional funds necessary to pay additional legal, consulting and incidental costs related to the formation of the Project CFD and the authorization and issuance of the Bonds, to the extent those

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costs are not funded from prior advances and for which no funds from previous advances remain on deposit with Hart. (The total of such advances shall be referred to herein as the "Formation and Issuance Deposit.") Formation of the Project CFD shall proceed in conformance with the CFD Parameters and RMA Specifications. In the event the Developer does not advance such funds as requested by the District, the District shall be under no obligation to continue its efforts to form the Project CFD and issue the Bonds, Hart shall refund the remaining portion of the Formation and Issuance Deposit, if any, to Developer, and Developer shall be responsible for making the Fair Share School Impact Mitigation Payments as required pursuant to this Agreement. If formation of the Project CFD is completed, all applicable periods in which any claim, protest, action or other challenge related to the formation of the Project CFD or authorization of its Special Taxes ("Statutes of Limitation") have expired and the Bonds issued, Hart shall cause the Project CFD to reimburse to the Developer the full amount of the Formation and Issuance Deposit paid to the District, without interest, from the proceeds of the Bonds. Hart shall take all actions necessary to satisfy the existing provisions of Government Code Section 53314.9 or any similar statute subsequently enacted to permit reimbursement of the Formation and Issuance Deposit to the Developer from the proceeds of the Bonds, including, but not limited to, inclusion of the proposal to reimburse such funds to the Developer in both the Resolution of Intention and the Resolution of Formation with respect to the Project CFD. This reimbursement obligation shall not constitute a debt or liability of the District.

(c) Developer shall, as an obligation of this Agreement, take all reasonable actions at the request of Hart to assist with the issuance of Bonds and shall take no action to prevent the issuance of Bonds, so long as the issuance thereof is consistent with the terms of this Agreement.

(d) Developer shall comply with all applicable legal requirements for disclosure relating to the Project CFD and its Special Taxes, and Developer hereby indemnifies Hart for and against any and all claims relative to Developer's failure or alleged failure to comply with applicable requirements for such disclosure.

(e) The Developer may request that the Project CFD finance the Developer's separate obligations to Castaic and/or the County, and Hart shall make best efforts in this regard. In such event, the Developer shall be responsible and shall pay all of the District's costs related to securing, if necessary, a joint powers agreement ("JPA") or one or more joint community facilities agreements ("JCFA"). For purposes of Subsection (a) of this Section, Hart shall be deemed not to have received Developer's request to form the Project CFD, and the time period in

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which Hart shall be required to initiate formation of the Project CFD and to issue Bonds shall not commence, until such time as Developer has obtained and provided to Hart fully-executed copies of any such JPA or JCFA.

7. ***Security for Payment of CFD Special Taxes.*** If the Developer requests formation of the Project CFD, not less than ten (10) days prior to issuance of the Bonds, the Developer shall deliver to Hart either (i) an irrevocable, standby letter of credit that satisfies the requirements of this Section ("Special Tax LC") or (ii) cash, as security for payment of the semi-annual installments of the Special Taxes.

(a) The face amount of the Special Tax LC or the amount of the cash deposit shall be equal to the total amount of the semi-annual installments of the Special Taxes projected to be levied on all residential lots and parcels within the Project CFD during the first full fiscal year in which Special Taxes are levied on all real property within the Project CFD.

(b) If Developer elects to deliver the Special Tax LC to Hart, it shall be issued by a financial institution reasonably acceptable to Hart that shall, at a minimum, have a Moody's Investors Service long-term rating of "A" and a Moody's Investors Service short-term rating of "P-1." The financial institution that Developer proposes will issue the Special Tax LC shall provide written evidence of it's Moody's ratings to Hart. The LC shall name Hart as the beneficiary and shall be on a form provided by Hart or on a form approved as to form and all other aspects by Hart's bond counsel. The Special Tax LC shall provide that Hart may draw thereon as provided in this Section.

(c) The Developer shall annually renew the Special Tax LC, either with the original issuer or with a substitute issuer that has been previously approved by Hart and its bond counsel. The Developer shall renew the Special Tax LC not less than forty-five (45) days prior to any expiration thereof, and the Special Tax LC shall require that, if the Developer so fails to renew the Special Tax LC, the issuer shall be obligated to provide notice thereof to the District not less than thirty (30) days prior to expiration of the Special Tax LC. The Special Tax LC shall further provide that the failure of the issuer to provide such notice to Hart shall result in an automatic extension of the Special Tax LC, at no cost to Hart, until the date that is thirty (30) days after the issuer provides such notice to Hart. Upon receipt of any such notice, and unless a substitute Special Tax LC was previously provided to and approved by Hart, Hart shall be entitled to draw upon the Special Tax LC for the full amount thereof.

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(d) The Developer shall be obligated to maintain and annually renew the Special Tax LC until such time as the sale to private homeowners has recorded on at least sixty percent (60%) of all residential lots within the Project. The Special Tax LC shall provide that until such condition is satisfied, the face amount of the Special Tax LC shall be adjusted on July 1 of each year, commencing on the first July 1 following issuance of the Bonds, to equal the amount that is the total of the Special Taxes projected to be levied in the next succeeding fiscal year on all of the residential lots and parcels within the Project CFD that are owned by the Developer.

(e) In the event of any delinquencies in the payment of semi-annual installments of Special Taxes levied on residential lots or parcels within the Project CFD that are owned by Developer, the District may draw upon the Special Tax LC in an amount of any such delinquencies, up to the full amount of the Special Tax LC. If the Developer has elected to deposit cash with Hart in lieu of the Special Tax LC, Hart may expend or use up to the full amount of such cash deposit for such purposes. Except upon the failure of the issuer or Developer to renew the Special Tax LC, in the event the delinquent semi-annual installments are subsequently paid, or if Hart receives full reimbursement for such delinquent semi-annual installments from proceeds of foreclosure of the applicable real property, Hart shall reimburse the amount drawn on the Special Tax LC to the issuer, without interest.

8. ***Certificates of Compliance.***

(a) Immediately upon receipt by Hart of the required Fair Share School Impact Mitigation Payments, in the amount required pursuant to this Agreement for each SFDU and/or MFDU as requested by Developer, or if the District has issued the Bonds and the Statutes of Limitation have expired in the absence of any claim, protest, action or other challenge related to the Project CFD or its Special Taxes, to the extent the Bonds, excluding interest earned thereon, satisfy the Developer's obligation to make Fair Share School Impact Mitigation Payments, Hart shall issue written certification required by Developer to obtain building permits for the construction of those SFDU and/or MFDU from the County, the City or other governmental entity that required such certification ("Certificates of Compliance").

(b) Immediately upon receipt by Hart of the amount required pursuant to this Agreement for any Age-Restricted DU and/or Commercial/Industrial Development as requested by Developer, Hart shall issue Certificates of Compliance to Developer for such Age-Restricted DU and/or Commercial/Industrial Development.

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(c) Notwithstanding Subsection (a) of this Section, if the Developer has requested pursuant to Section 6 that the District form the Project CFD and thereafter the Developer requests any Certificate(s) of Compliance for construction within the Project and, for any reason (1) the Project CFD is not formed, (2) all Statutes of Limitation have not expired in the absence of any claim, protest, action or other challenge related to the Project CFD or its Special Taxes, (3) the Property is not included within the Project CFD, (4) the Special Taxes have been rescinded or are otherwise not effective, or (5) the Bonds have not been issued, then Developer shall secure payment of the Fair Share School Impact Mitigation Payments by one of the means set forth in (i) through (iii) of this Subsection. Any security provided by Developer in accordance with this Subsection shall be released by Hart upon issuance of the Bonds, subject to expiration of all Statutes of Limitation in the absence of any claim, protest, action or other challenge related thereto. The Developer shall take, in its sole discretion, one of the following actions to secure payment of the Fair Share School Impact Mitigation Payments to Hart, as required pursuant to this Subsection:

(i) Developer shall pay to Hart, prior to the issuance of any Certificate(s) of Compliance, the Fair Share School Impact Mitigation Payments as specified in this Agreement. Upon issuance of the Bonds and expiration of all Statutes of Limitation in the absence of any claim, protest, action or other challenge related to the formation of the Project CFD or authorization of its Special Taxes, the District shall reimburse the amount of any such payments, without interest, to Developer; otherwise, the District shall be entitled to retain all such payments.

(ii) Developer shall provide to Hart a letter of credit ("LC") issued by a financial institution that is rated at least "AA" by Standard & Poor's Corporation and "Aa" by Moody's Investors Service. Such LC shall be in (or, prior to requesting additional Certificates of Compliance, shall be increased to) such face amount as is sufficient to exceed by not less than ten percent (10%) the sum total of the outstanding and requested Certificates of Compliance. The LC shall be renewable annually and shall provide that Hart shall receive notice not less than forty-five (45) days prior to any expiration without renewal, termination or decrease in amount of the LC, and, after fifteen (15) days from the date of any such notice, Hart shall be entitled to draw upon the LC for the amount of the outstanding Certificates of Compliance issued to Developer, together with interest thereon calculated at the rate paid on school district funds deposited during the same period with the Treasurer of the County, plus the cost to Hart of collecting such amounts. Notwithstanding any other provision of this Agreement, failure by the Developer to

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renew the LC not less than forty-five (45) days prior to any expiration thereof shall be deemed a material breach of this Agreement. Hart shall also be entitled to draw upon the LC in the amount of the outstanding Certificates of Compliance issued to Developer, together with interest thereon calculated at the rate paid on school district funds deposited during the same period with the Treasurer of the County, plus the cost to Hart of collecting such amounts, in the event the District is unable to complete the formation of the Project CFD and/or issue the Bonds within two hundred and ten (210) days of the request by Developer to form the Project CFD. In such event, Hart shall not be required to complete the formation of the Project CFD and the remaining portion of the Formation and Issuance Deposit, if any, shall be refunded to the Developer.

(iii) Developer shall provide to Hart a payment bond to secure the Fair Share School Impact Mitigation Payment amounts ("Security Bond") issued by an admitted surety as defined in Code of Civil Procedure Section 995.120 and which surety is otherwise reasonably acceptable to Hart. Such Security Bond shall be in (or, prior to requesting additional Certificates of Compliance, shall be increased to) such face amount as is sufficient to exceed by not less than ten percent (10%) the sum total of the outstanding and requested Certificates of Compliance. The Security Bond shall provide that Hart shall receive notice not less than forty-five (45) days prior to any expiration without renewal, termination or decrease in amount of the Security Bond, and, after fifteen (15) days from the date of any such notice, Hart shall be entitled to draw upon the Security Bond for the amount of the outstanding Certificates of Compliance issued to Developer, together with interest thereon calculated at the rate paid on school district funds deposited during the same period with the Treasurer of the County, plus the cost to Hart of collecting such amounts. Notwithstanding any other provision of this Agreement, failure by the Developer to renew the Security Bond not less than forty-five (45) days prior to any expiration thereof shall be deemed a material breach of this Agreement. Hart shall also be entitled to draw upon the Security Bond in the amount of the outstanding Certificates of Compliance issued to Developer, together with interest thereon calculated at the rate paid on school district funds deposited during the same period with the Treasurer of the County, plus the cost to Hart of collecting such amounts, in the event the District is unable to complete the formation of the Project CFD and/or issue the Bonds within two hundred and ten (210) days of the request by Developer to form the Project CFD. In such event, Hart shall not be required to complete the formation of the Project CFD and the remaining portion of the Formation and Issuance Deposit, if any, shall be refunded to the Developer.

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9. ***Hart Educational and School Facilities Policies.*** Except as set forth herein, this Agreement shall not in any manner be asserted by Developer to interfere in any way with, or to limit, the Governing Board of Hart in determining what educational and School Facilities policies will best further the interests of Hart's students or the construction or operation of its School Facilities.

10. ***Support of Land Use Applications.*** After approval and execution of this Agreement by the Parties, within ten (10) days of receipt of written request from Developer, Hart shall express, in either written or oral form, its support for Land Use Entitlements for the Project, whether legislative or administrative, sought for the development of any portion of the Property from the County, the City, or any other governmental entity which has the right to grant such an approval. Such an action by Hart shall relate only to the adequacy of School Facilities for such development and not the desirability or undesirability of approval except as related to adequacy of School Facilities for such proposal.

11. ***Certification of Adequacy of Mitigation.*** Hart shall provide written certification within ten (10) working days of receipt of a written request from Developer that the financing pursuant to this Agreement will provide adequate School Facilities to house the Project Students. This written certification shall be given to the California Department of Real Estate, the County, the City, or any other governmental entity which may have development approval authority over any portion of the Property.

12. ***Equal Treatment Provisions.*** On or about November 15 of each year, or as soon as reasonably practicable thereafter, or upon Developer's written request at any other time, Hart shall provide to Developer copies of all mitigation agreements entered into by Hart and other developers or landowners of property within Castaic's boundaries subsequent to execution of this Agreement that Hart has not already provided to Developer. Hart shall, at the same time, provide any analyses of such agreements prepared by Hart or its consultants and all other materials in Hart's possession reasonably necessary for the evaluation of the economic terms of such agreements to the extent such analyses or other materials are not subject to any attorney-client or attorney-work-product privilege.

If, subsequent hereto, Hart enters into any mitigation agreement applicable to development within the boundaries of Castaic that is more economically advantageous to the

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developer of that property than is this Agreement to the Developer, as agreed upon by the Parties or as determined pursuant to Section 23 herein, this Agreement shall be modified to make the obligations of this Agreement consistent with, and no greater than, the obligation imposed by that agreement. Any such modification shall not require an amendment to this Agreement but may be described in an addendum signed by Hart and Developer. Any modification of the obligations imposed on Developer pursuant to this Agreement shall be effective as of the date of Hart's approval of the more economically advantageous agreement ("Subsequent Approval Date"). The Developer shall be entitled to a refund of the amount of the Fair Share School Impact Mitigation Payments paid to Hart after the Subsequent Approval Date that is in excess of the modified amount plus interest on the refunded amount at the average interest rate paid by the Los Angeles County Local Agency Investment Fund accruing from the date of each payment to the date of refund. The rights provided to Developer pursuant to this Section shall be effective, with respect to any particular DU constructed on the Property, for not more than three (3) years after Developer has obtained a Certificate of Compliance from Hart for such DU.

A subsequent agreement requiring a lesser mitigation payment per DU, but requiring other consideration of equal or greater value, such as land, shall not be considered a more economically advantageous agreement. A subsequent agreement shall in no event be considered more economically advantageous as a result of a developer either retaining or assigning to Hart any rights that developer may have to reimbursement from State Funds. A subsequent agreement shall not be deemed more economically advantageous if it is the result of a condition of approval imposed prior to the effective date of this Agreement that explicitly limits amounts payable to Hart imposed by a prior action of a public agency (other than Hart) or due to a change in applicable law.

13. ***No Further Exactions.*** As long as the Developer is not in default of any of its obligations pursuant to this Agreement, Hart shall not, under any circumstances:

(a) Exercise any power or authority under current or future law to levy or impose an exaction of land, goods, money, or services, whether denominated a fee, charge, dedication, or otherwise, against any development of the Property;

(b) Require, request, or cooperate with the County, the City, or any other governmental entity to exercise any power or authority to levy or impose an exaction of land, goods, money, or services, whether denominated a fee, charge, dedication, or otherwise, for Hart's benefit;

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(c) Oppose the development of any portion of the Property or any governmental approval, whether legislative or administrative, or any change in any governmental approval on any basis whatsoever;

(d) Sponsor or require the formation of a CFD for any of the Property (except for a CFD or multiple CFDs which together include all of the land within Hart's boundaries) without the express, written consent of Developer which consent may be given or withheld in Developer's sole discretion; or

(e) Notwithstanding the foregoing, Hart may at any time, pursue any general obligation bond election, issuance and sale, either on a district-wide basis or as to any portion or portions of the district by means of one or more School Facilities Improvement Districts.

14. ***Adequacy of Developer's Mitigation Obligation.*** The Fair Share School Impact Mitigation Payments paid to Hart, or in lieu thereof to the extent the obligation to make such payments is satisfied, the Bond proceeds received by Hart, pursuant to the terms of this Agreement shall constitute the entire extent of Developer's obligation to provide the funds necessary for Hart to obtain the School Facilities needed to house Project Students.

15. ***Agreement Not Terminated By Change in Law.*** The Parties intend that this Agreement shall provide for the complete mitigation of all impacts, direct and cumulative, from development of the Property on Hart's ability to provide adequate educational opportunities to the Project Students. No development or change in the development of the Property, nor any governmental approval or change in any governmental approval relating to any portion of the Property, shall constitute a sufficient basis for modification or termination of this Agreement. The provisions of this Agreement shall not be affected by: (i) any existing applicable law; (ii) any subsequent legislation enacted by the State acting through the legislative or initiative process; or (iii) any subsequent judicial decisions bearing on the matters provided for in this Agreement.

16. ***Transfer and Encumbrance.*** In its sole discretion, Developer may sell or encumber the Property or a portion thereof, in an improved or unimproved condition, through any means including, but not limited to, deed, mortgage, deed of trust, or other security device. No sale, transfer, or encumbrance of any portion of the Property shall affect Developer's obligations under this Agreement. The Certificates of Compliance issued pursuant to this Agreement may not be utilized to satisfy an obligation to mitigate impacts on Hart's School

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Facilities attributable to development of real property other than the Property. Neither this Agreement nor any breach of this Agreement shall defeat, invalidate, diminish, or impair the lien or priority of any deed, mortgage, deed of trust, or other security device.

17. ***Mutual Cooperation.*** Unless this Agreement provides to the contrary, Hart and Developer shall, within ten (10) days of receipt of a written request from the other Party, perform any acts and prepare, sign, deliver, file, and record any documents reasonably required to obtain the goals, and to satisfy the conditions, contained in this Agreement. This includes, but is not limited to, providing the requesting Party with a written statement certifying that:

(a) This Agreement is unmodified and in full force and effect, or, if there have been modifications, this Agreement, as modified, is in full force and effect, stating the date and nature of any modification; and

(b) There are no current uncured defaults under this Agreement, or, if there are any, the dates and natures of the defaults.

18. ***Assignment of Agreement.*** Developer may act as the master developer of the Property and may sell portions of the Property to builders who will construct and sell DU to the public. Developer shall have the unconditional right to assign any right or obligation under this Agreement to anyone at any time, and the assignee shall automatically assume its proportionate share of all applicable provisions of this Agreement. Whenever this Agreement provides Developer with a right, that right may be exercised by the assignee of that right to the same extent that Developer could have exercised that right. The assignment of any right or obligation under this Agreement shall be in writing and a copy of the assignment shall be provided to Hart. No such assignment shall relieve Developer of any of its obligations under this Agreement without Hart's written consent, which Hart shall not unreasonably withhold.

19. ***No Third Party Beneficiaries.*** This Agreement is entered into solely for the benefit of Hart and Developer. Other than Hart and Developer, no third person shall be entitled, directly or indirectly, to base any claim or to have any right arising from, or related to, this Agreement.

20. ***Entire Agreement.*** This Agreement contains the entire agreement and understanding concerning the funding of School Facilities as to the Property, and this Agreement

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supersedes and replaces all prior negotiations and proposed agreements, written or oral, except as they are included in this Agreement. Hart and Developer acknowledge that neither the other Party nor its agents nor attorneys have made any promise, representation, or warranty whatsoever, express or implied, not contained herein to induce the execution of this Agreement and acknowledge that this Agreement has not been executed in reliance upon any promise, representation, or warranty not contained herein.

21. ***Amendments Must Be In Writing***. This Agreement may not be modified except by a writing signed by Hart and Developer.

22. ***Acknowledgment of Independent Investigation***. Hart and Developer acknowledge that each has conducted an independent investigation of the facts concerning the development of the Property, the impacts that Project Students will have on Hart's School Facilities, and the costs of housing Project Students.

23. ***Disputes to be Arbitrated***. Hart and Developer desire to resolve as quickly and cost-effectively as possible any disputes as to the meaning of any portion of this Agreement or of the validity of any determination or calculation made pursuant to this Agreement. Therefore, each Party shall make its best efforts to resolve informally any such disputes. If, not less than thirty (30) calendar days after first making informal attempts to resolve such dispute, such attempts have been unsuccessful, either Party may thereafter initiate binding arbitration as specified in Exhibit "C" hereto.

24. ***Recovery of Litigation Expenses***. Except as provided in Section 23 above, if it becomes necessary to enforce any of the terms of this Agreement, the prevailing Party shall be entitled to reasonable attorneys' fees and other costs of litigation in addition to any other relief to which it may be entitled.

25. ***Venue for Resolving Disputes***. Any arbitration or litigation arising out of this Agreement shall be conducted only in the County.

26. ***California Law Governs***. This Agreement and all rights and obligations arising out of it shall be construed in accordance with the laws of the State.

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27. ***Interpretation Guides***. In interpreting this Agreement, it shall be deemed to have been prepared by the Parties jointly and no ambiguity shall be resolved against either Party on the premise that it or its attorneys were responsible for drafting this Agreement or any provision hereof. The captions or headings set forth in this Agreement are for convenience only and in no way define, limit, or describe the scope or intent of any Sections, Subsections, or other provisions of this Agreement. Any reference in this Agreement to a Section or to a Subsection, unless specified otherwise, shall be a reference to a Section or Subsection of this Agreement.

28. ***Notices***. All notices, demands, and communications between Hart and Developer shall be duly addressed as indicated below and given by personal delivery, registered or certified mail (postage prepaid and return receipt requested), Federal Express or other reliable private express delivery, or by facsimile transmission. Such notices, demands, or communications shall be deemed received (i) upon delivery if personally served or sent by facsimile, or (ii) after three business days if given or sent by any other approved manner specified above. Any Party to this Agreement may change its below-specified name, address, facsimile number, or person to whom attention should be directed by giving written notice as specified in this Section. A copy of any notice, demand, or communication sent to Hart pursuant to this Agreement shall be sent to Hart's legal counsel, and a copy of any notice, demand, or communication sent to Developer pursuant to this Agreement shall be sent to Developer's legal counsel. Notices, demands, and communications shall be duly addressed and sent as follows:

To Hart:
William S. Hart Union High School District
Attention: Superintendent
21515 Redview Drive
Santa Clarita, CA 91350
Fax No. (661) 254-8635

To Hart's Legal Counsel:
Bowie, Arneson, Wiles & Giannone
Attention: Brian W. Smith
4920 Campus Drive
Newport Beach, CA 92660
Fax No. (949) 851-2014

To Developer:
Hasley Canyon Land Company
Attention: Dan Palmer
1299 Ocean Avenue, Suite 400
Santa Monica, CA 90401
Fax: No. (310) 576-0888

To Developer's Legal Counsel:
Jackson, DeMarco & Peckenpaugh
Attention: Carla K. Ryhal, Esq.
2815 Townsgate Rd., Suite 200
Westlake Village, CA 91361
Fax: No. (805) 230-0087

29. ***Recording***. Hart may record this Agreement in the official records of the County with respect to all portions of the Property owned by Developer, whether currently owned or

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subsequently acquired. The obligations herein shall thereafter be deemed to be obligations that relate to all such portions of the Property and shall run with the land as obligations of whatever development may occur on such portions of the Property.

30. ***Counterparts.*** This Agreement may be signed in one or more counterparts which, taken together, shall constitute one original document.

31. ***Due Authority of Signatories.*** Each individual signing this Agreement warrants and represents that he or she has been authorized by appropriate action of the Party which he or she represents to enter into this Agreement on behalf of that Party.

In Witness Whereof, the undersigned execute this Agreement on behalf of the Parties.

William S. Hart Union High School District

By: Robert C. Lee
Robert C. Lee, Superintendent

Approved as to Form:
Bowie, Arneson, Wiles & Giannone

By: B W Smith
Brian W. Smith, Attorneys for the William S. Hart Union High School District

Hasley Canyon Land Company, L.L.C.,
A Delaware Limited Liability Company

By: Palmer-Hasley, a California limited liability company, a Manager and a Member

By: Palmer Investment, Inc., a California corporation, the Manager and Member

By: _____
Dan S. Palmer, Jr., President

By: Highridge Hasley, L.L.C., a Delaware limited liability company, a Manager and Member

By: HR-Hasley, L.L.C., a Delaware limited liability company, Managing Member

By: _____
Craig A. Manchester, Vice-President

Please notarize signatures of all Parties.

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subsequently acquired. The obligations herein shall thereafter be deemed to be obligations that relate to all such portions of the Property and shall run with the land as obligations of whatever development may occur on such portions of the Property.

30 *Counterparts*. This Agreement may be signed in one or more counterparts which, taken together, shall constitute one original document.

31. *Due Authority of Signatories*. Each individual signing this Agreement warrants and represents that he or she has been authorized by appropriate action of the Party which he or she represents to enter into this Agreement on behalf of that Party.

In Witness Whereof, the undersigned execute this Agreement on behalf of the Parties.

William S. Hart Union High School District

By: _____
Robert C. Lee, Superintendent

Approved as to Form:
Bowie, Arneson, Wiles & Giannone

By: _____
Brian W. Smith, Attorneys for the William S. Hart Union High School District

Hasley Canyon Land Company, L.L.C.,
A Delaware Limited Liability Company

By: Palmer-Hasley, a California limited liability company, a Manager and a Member

By: Palmer Investment, Inc., a California corporation, the Manager and Member

By: _____
Dan S. Palmer, Jr., President

By: Highridge Hasley, L.L.C., a Delaware limited liability company, a Manager and Member

By: HR-Hasley, L.L.C., a Delaware limited liability company, Managing Member

By: _____
Craig A. Manchester, Vice-President

Please notarize signatures of all Parties.

BAW&D/BWS/75667 v. 10 (Final)
8028.B 148 01-25 02

subsequently acquired. The obligations herein shall thereafter be deemed to be obligations that relate to all such portions of the Property and shall run with the land as obligations of whatever development may occur on such portions of the Property.

30. ***Counterparts.*** This Agreement may be signed in one or more counterparts which, taken together, shall constitute one original document.

31. ***Due Authority of Signatories.*** Each individual signing this Agreement warrants and represents that he or she has been authorized by appropriate action of the Party which he or she represents to enter into this Agreement on behalf of that Party.

In Witness Whereof, the undersigned execute this Agreement on behalf of the Parties.

William S. Hart Union High School District

By: _____
Robert C. Lee, Superintendent

Approved as to Form:
Bowie, Arneson, Wiles & Giannone

By: _____
Brian W. Smith, Attorneys for the William S. Hart Union High School District

Hasley Canyon Land Company, L.L.C., A Delaware Limited Liability Company

By: Palmer-Hasley, a California limited liability company, a Manager and a Member

By: Palmer Investment, Inc., a California corporation, the Manager and Member

By: _____
Dan S. Palmer, Jr., President

By: Highridge Hasley, L.L.C., a Delaware limited liability company, a Manager and Member

By: HR-Hasley, L.L.C., a Delaware limited liability company, Managing Member

By: _____
Craig A. Manchester, Vice-President

Please notarize signatures of all Parties.

Description: Los Angeles,CA Document-Year.DocID 2002.914966 Page: 24 of 32
Order: 9729007 Comment:

02 0914966

25

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

On January 24, 2002, before me, **Lorna R. Baril, Notary Public**, personally appeared Robert C. Lee, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS thy hand and official seal.

Signature (Seal)

LORNA R. BARIL
Commission # 1298468
Notary Public - California
Los Angeles County
My Comm. Expires Mar 31, 2005

02 0914966 26

STATE OF CALIFORNIA)
COUNTY OF Los Angeles)

On 1-23-, 2002, before me, Diane Ullman, Notary Public, personally appeared Dan Palmer, ~~personally known to me~~ (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/~~she~~ executed the same in his/~~her~~ authorized capacity, and that by his/~~her~~ signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

DIANE ULLMAN
Commission # 1219686
Notary Public - California
Los Angeles County
My Comm. Expires May 28, 2003

Diane Ullman

02 0914966

27

STATE OF CALIFORNIA)
)
COUNTY OF)

On 1/24, 2002, before me, L. Mills, Notary Public, personally appeared Craig A. Manchester, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

L. MILLS
COMM. # 1237729
NOTARY PUBLIC-CALIFORNIA
SAN DIEGO COUNTY
COMM. EXP. OCT. 14, 2003

WITNESS my hand and official seal.

L. Mills

EXHIBIT A

LEGAL DESCRIPTION
FOR
VTTM 52584

THOSE CERTAIN PARCELS OF LAND IN THE UNINCORPORATED TERRITORY OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, LYING WITHIN FRACTIONAL SECTION 2; TOWNSHIP 4 NORTH, RANGE 17 WEST, SAN BERNARDINO MERIDIAN, ACCORDING TO THE OFFICIAL PLAT THEREOF; DESCRIBED AS FOLLOWS:

LOT 2, LOT 3, LOT 4, THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER, THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER, THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER, THE NORTH HALF OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER, THE NORTH HALF OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER, AND THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER; ALL IN SAID FRACTIONAL SECTION;

EXCEPT THEREFROM THOSE PORTIONS OF SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER GRANTED TO NEWHALL LAND AND FARMING COMPANY IN DEED RECORDED AS INSTRUMENT NO. 01-0689941 ON APRIL 23, 2001, O.R.

TOGETHER WITH THOSE PORTIONS OF THE SOUTH HALF OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER, AND PARCELS 1 AND 3 OF PARCEL MAP NO. 22559, FILED IN BOOK 255 PAGES 46 TO 58, INCLUSIVE OF PARCEL MAPS, RECORDS OF SAID COUNTY, GRANTED TO THE SAID TRUST IN DEED RECORDED AS INSTRUMENT NO. 01-0689940 ON APRIL 23, 2001, O.R.

THOSE CERTAIN PARCELS OF LAND IN THE UNINCORPORATED TERRITORY OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, LYING WITHIN FRACTIONAL SECTION 3; TOWNSHIP 4 NORTH, RANGE 17 WEST, SAN BERNARDINO MERIDIAN, ACCORDING TO THE OFFICIAL PLAT THEREOF; DESCRIBED AS FOLLOWS:

LOT 1, THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER, AND THOSE PORTIONS OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER AND THE NORTH HALF OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER LYING NORTHERLY OF THE NORTH LINE OF HASLEY CANYON ROAD, 40 FEET WIDE, AS NOW ESTABLISHED; ALL IN SAID FRACTIONAL SECTION 3; EXCEPT THEREFROM THAT PORTION OF THE ABOVE DESCRIBED LAND, DESCRIBED AS FOLLOWS:

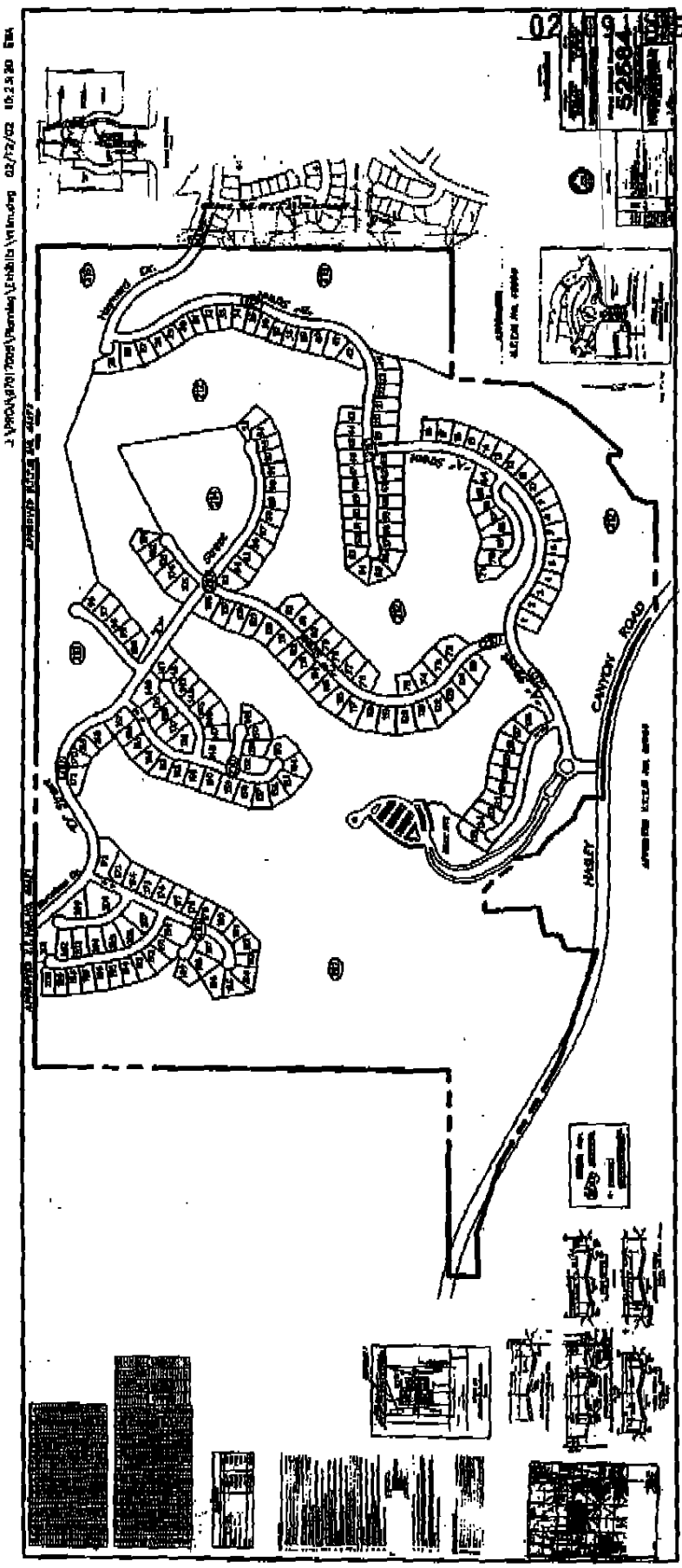
Description: Los Angeles,CA Document-Year.DocID 2002.914966 Page: 28 of 32
Order: 9729007 Comment:

02 0914966

29

BEGINNING A POINT IN THE CENTERLINE OF SAID HASLEY CANYON ROAD, DISTANT THEREON NORTH 70°55'52" WEST 45.19 FEET FROM AN ANGLE POINT THEREIN, SAID LAST MENTIONED ANGLE POINT BEING DISTANT ALONG SAID CENTER LINE, NORTH 89°49'12" WEST 514.86 FEET FROM THE EAST LINE OF SAID SECTION 3; THENCE LEAVING SAID CENTER LINE, NORTH 03°35'53" EAST 98.00 FEET; THENCE NORTH 78°08'28" EAST 190.48 FEET; THENCE NORTH 06°17'22" WEST 340.30 FEET; THENCE NORTH 87°44'41" EAST 139.77 FEET; THENCE SOUTH 52°01'39" EAST 99.93 FEET; THENCE SOUTH 35°33'55" EAST 147.29 FEET TO A POINT IN THE EAST LINE OF SAID SECTION 3, DISTANT THEREON SOUTH 00°06'45" WEST 411.74 FEET FROM SAID NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SAID SECTION 3; THENCE SOUTH 72°20'55" EAST 60.84 FEET; THENCE SOUTH 11°02'47" EAST 144.56 FEET; THENCE SOUTH 59°25'29" EAST 94.36 FEET; THENCE SOUTH 41°32'57" EAST 241.38 FEET; THENCE SOUTH 63°43'48" EAST 147.01 FEET; THENCE SOUTH 00°00'00" WEST 126.28 FEET TO SAID CENTERLINE OF HASLEY CANYON ROAD; THENCE WESTERLY ALONG SAID CENTERLINE TO THE POINT BEGINNING.

30



02 0914966

EXHIBIT B

EXHIBIT C
ARBITRATION OF DISPUTES

All disputes submitted for arbitration pursuant to this purchase agreement shall be resolved by binding arbitration conducted within the County of Los Angeles ("Arbitration") and may be initiated by an aggrieved Party by providing written notice to the other Party ("Arbitration Notice"). The Arbitration Notice must: (i) contain a description of the dispute; (ii) specify the disputed amount, if any; and (iii) specify the remedy sought. The dispute shall then be resolved by a mutually agreed upon retired judge of the Superior Court for the County of Los Angeles ("Arbitrator"), in accordance with the provisions set forth in this Exhibit C. If the Parties are unable to agree on the Arbitrator within thirty (30) days after receipt of the Arbitration Notice, they shall request that the presiding judge of the Superior Court for the County of Los Angeles designate the Arbitrator. The Parties shall, initially, equally bear the cost of any such Arbitration; however, the prevailing Party shall be entitled to recover such initial costs, in addition to other costs as specified herein, as an item of damage and/or recoverable cost. In addition to any other damages, award, or other relief, such prevailing Party shall be entitled to recover its reasonable costs and expenses, including, but not limited to, attorneys' fees, disbursements, and court costs.

Upon selection or designation of an Arbitrator, the Parties shall execute a submission agreement in the form provided by the Arbitrator. The submission agreement shall set forth the rights and responsibilities of the Parties with respect to the conduct of the Arbitration, as set forth herein, and shall contain the following elements in addition to any other rules and procedures for the Arbitration that are established by the Arbitrator:

(a) The Arbitration hearing shall commence no later than six (6) months from the effective date of the submission agreement.

(b) Discovery in aid of Arbitration shall be allowed in accordance with Code of Civil Procedure ("CCP") Section 1283.05, which is hereby incorporated into, made a part of, and made applicable to this Purchase Agreement pursuant to CCP Section 1283.1.

(c) The Arbitrator shall follow and comply with all applicable substantive and procedural California case and statutory law in arriving at a decision, and if the Arbitrator fails to do so, the Arbitrator shall be deemed to have exceeded its powers and the decision shall be subject to vacation or correction pursuant to CCP Sections 1286.2 and 1286.6, respectively.

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Exhibit "C" (continued)

(d) The Arbitrator shall issue a written statement of decision, explaining the factual and legal basis for the decision with respect to each of the principal controverted issues, and shall deliver such statement of decision to the Parties via registered or certified U.S. mail, return receipt requested.

(e) All applicable evidentiary privileges and the work-product doctrine shall be available for purposes of the Arbitration and Arbitration hearing, and shall not be deemed to have been waived by entering into this Purchase Agreement or by any conduct or actions of the Parties undertaken in connection with any subsequent Arbitration pursuant hereto.

(f) Any petition by a Party to confirm, correct or vacate a decision of the Arbitrator must be filed within seventy-five (75) days following the receipt of the decision via registered or certified U.S. mail.

(g) Not less than two (2) calendar weeks prior to commencement of the Arbitration hearing, each Party must make a full disclosure to the other Party of: (i) all documents to be presented by such Party as evidence during the Arbitration hearing; and (ii) any witness to be called by such Party during the Arbitration hearing. Except for purposes of impeachment, only documents and witnesses so disclosed may be presented and called during the Arbitration hearing, or may be considered by the Arbitrator in reaching a decision.

Nothing in these arbitration provisions shall in any way limit or otherwise restrict a Party's right or ability to obtain injunctive or other equitable relief from the Superior Court for the County of Los Angeles.

02 0914966

APPENDIX 5.12.3-1

County of Los Angeles Sheriff's Department Correspondence, July 30, 2013

County of Los Angeles
Sheriff's Department Headquarters
4700 Ramona Boulevard
Monterey Park, California 91754-2169

Leroy D. Baca, Sheriff

(661) 255-1121

PLEASE REFER
TO FILE NO. _____

RECEIVED
AUG 0 8 2013
BY: _____

July 30, 2013

Ms. Kathleen King
Impact Sciences Incorporated
803 Camarillo Springs Road, Suite C
Camarillo, California 93012

Dear Ms. King:

DRAFT ENVIRONMENTAL IMPACT REPORT
LOS VALLES RESIDENTIAL PROJECT

The proposed project consisting of 497 residential units located at 28801 Hasley Canyon Road is within the jurisdiction of the Los Angeles County Sheriff's Department, Santa Clarita Valley Station, 23740 Magic Mountain Parkway, Valencia, California. The station is located approximately 7-8 miles from the project site.

It is anticipated that the non-emergent response time to a request for service would be approximately 55-65 minutes. The priority response time would be approximately 10-15 minutes and the response time under emergent circumstances would be approximately 5-7 minutes. All response times are approximates, only, and would be dependent of both the deployment of area radio cars and traffic conditions.

At present, all law enforcement services with the exception of traffic services (traffic enforcement and traffic accident investigation will be handled by the California Highway Patrol) are handled by the Los Angeles County Sheriff's Department.

This station serves an area of 656 square miles, which is made up of the City of Santa Clarita and unincorporated County area between the Los Angeles City Limits to the south, the Kern County line to the north and involving all area between the Ventura County line to the west and the township of Aqua Dolce to the East. The population served by our station is approximately 270,000 residents.

Our ideal officer to population ratio is one deputy per 1,000 residents and with our current staffing of 202 sworn deputies currently assigned, our ratio is less than ideal at one deputy per every 1,337 residents. Assuming a residential density of 3.1 persons per dwelling unit, this proposed project will generate a population increase of 1,540. Based on the above, this project located in the unincorporated area, would require 1.5 additional deputies to the station complement.

Our primary concern is our ability to provide an adequate level of protection and service to all areas we police. Due to the expanding population of the Santa Clarita Valley and its record setting home building during times of growth, it is difficult to project the impact of this specific project on law enforcement.

It is suggested, for crime prevention purposes and for the security and safety of the future residents, the following measures should be implemented during site and building layout design:

- Proper lighting in open areas and parking lots;
- Provide sufficient street lighting for the project streets;
- Good visibility of doors and windows from the street and between buildings;
- Provide Knox Box entry key system for law enforcement, if a gated community is planned;
- Ensure that the required building address numbers be lighted and readily apparent from the street for emergency response agencies.

Should you have further questions, please feel free to call me at (661) 799-5101, or Deputy Mark Manskar at extension (661) 255-1121 ext. 5161.

Sincerely,

LEROY D. BACA, SHERIFF

Paul Becker, Captain
Santa Clarita Valley Station

APPENDIX 5.12.3-2

California Highway Patrol- Newhall Office Correspondence, September 4, 2013

September 4, 2013

California Highway Patrol- Newhall Office
28648 The Old Road
Valencia, CA 91355
Attn: Rick Miler

Re: Los Valles Draft Environmental Impact Report (EIR)

Dear Mr Miler,

Our firm is currently preparing the Draft Environmental Impact Report for the Los Valles Residential Project proposed in the Santa Clarita Region of unincorporated Los Angeles County. The Proposed Project will be developed on 430.4 acres of land owned by the Applicant with primary access from Hasley Canyon Road. The property is located at 28801 Hasley Canyon Road.

The Project will be comprised of a single-family residential development of 497 dwelling units all on lot sizes above 7,000 square feet, together with significant community amenities for residents and the public including a community recreation center controlled by a homeowner's association, an approximately 19-acre community park, seven private recreation lots which provide neighborhood park amenities, and approximately 5 miles of pedestrian trails and accompanying infrastructure and public and private roadways (The Project).

The EIR will analyze the Project as described above and offer alternatives to help mitigate significant impacts to the surrounding environment. The final plan will be determined based on site constraints and environmental factors analyzed during the CEQA process including providing opportunities for incorporating low-impact development strategies into the project. Approximately 232 acres, comprising over 50 percent of the Property, will be preserved as recreational and open space. In addition, the Project will utilize the existing infrastructure and grading work to the maximum extent feasible, and provide additional homeownership opportunities.

Our interest is to provide as much detailed information concerning the CHP's protection impacts in the Draft EIR as possible. In response to this objective, we would appreciate your input regarding the following questions:

- What local station or stations would be responsible for the provisions of the CHP's protection services to the project site? Please indicate any other departments and/ or agencies that provide additional law enforcement or related services to the project area. CHP Newhall/ LA Sheriff/ LA County Fire Department

- Please provide all pertinent data in as much detail as possible, regarding the staffing and equipment levels of the responsible station(s), and estimated emergency and routine response times to the project site. No change to CHP staffing. Response time varies.

- Does the CHP have a standard response time for emergency and non-emergency calls? If so, what is the standard, and what are the current response times for emergency and non-emergency calls? No standard response times. It depends on availability of units and staffing.

- How many emergency/non-emergency calls were placed to the responding station(s) within the last year (2012)? Please attach any crime statistics profiles for the responding station(s) and for the Santa Clarita Region. Actual number would take a long time to get, but the CHP will respond to any call for service in the area in question.

- Does the CHP station serving the proposed project site have the ability to provide adequate law enforcement services to the proposed project site? Yes

- What mechanisms exist to ensure maintenance of a satisfactory level of CHP protection services at a rate sufficient to accommodate increased demand for CHP enforcement and protection services in the project area from ongoing regional development? Through contract services on a case by case basis.

- Does the CHP recommend any mitigation measures to reduce any identified potentially significant impacts as a result of project implementation? No

- Does the CHP have a standard of officer to-population ratio? If so what is the standard officer-to-population ratio, and what is the current officer-to-population ratio? No

Thank you for your assistance in answering these questions and providing the requested information. As there are time constraints in preparing the draft EIR, we would appreciate your responses as soon as possible. Furthermore, if you have any additional concerns which I have not addressed, or need additional project description information please feel free to call me at (805)-437-1900.

Best,

Kathleen King

Staff Planner

Impact Sciences, Inc.

803 Camarillo Springs Road Suite C

Camarillo, Ca 93012

(805) 437-1900 ext. 246

kking@impactsciences.com

APPENDIX 5.12.4-1

County of Los Angeles Fire Department Correspondence, July 29, 2013

COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

DARYL L. OSBY
FIRE CHIEF
FORESTER & FIRE WARDEN

July 29, 2013

Kathleen King, Staff Planner
Planning Section
Impact Sciences, Inc.
803 Camarillo Springs Road, Suite C
Camarillo, CA 93012

Dear Ms. King:

QUESTIONNAIRE ON A DRAFT ENVIRONMENTAL IMPACT REPORT, "LOS VALLES RESIDENTIAL PROJECT" SINGLE-FAMILY RESIDENTIAL DEVELOPMENT OF 497 DWELLING UNITS ON 430.4 ACRES OF LAND, 28801 HASLEY CANYON ROAD, SANTA CLARITA (FFER #201300101)

The Questionnaire has been reviewed by the Planning Division, Land Development Unit, Forestry Division, and Health Hazardous Materials Division of the County of Los Angeles Fire Department. The following are their comments:

PLANNING DIVISION:

1. Please provide all pertinent data regarding the location of responsible Fire Stations, the staffing and equipment levels of each responsible station, and the distance and estimated response time to the project site.

   Fire Station 76, located at 27223 Henry Mayo Drive in Valencia is currently the jurisdictional station (1st-due) located approximately 2.5 miles from the project site and has an estimated emergency response time of 7-8 minutes. It is staffed with a 4-person engine company; 1-Fire Captain, 1-Fire Fighter Specialist and 2-Fire Fighters.

   A new fire station is currently under development at 28580 Hasley Canyon Road. This new facility (Fire Station 143) will be the jurisdictional station for the project area when it becomes operational.

2. Does the Los Angeles County Fire Department delineate an acceptable emergency response distance/time for new development?

   The Fire Department uses national guidelines of a 5-minute response time for the 1st-arriving unit for fire and EMS responses and 8 minutes for the advanced life support (paramedic) unit in urban areas, and 8-minute response time for the 1st-arriving unit and 12 minutes for advanced life support (paramedic) unit in suburban areas. The project is located in a mix urban/suburban area.

3. What fire flow requirements would be applicable to the proposed project?

   To be answered by Land Development Division.

4. Have flow tests been conducted in the project vicinity to determine available fire flow? If so, what fire flow is currently available near the project site?

   To be answered by Land Development Division.

5. What types and how many fire hydrants serve the project site, and are these hydrants sufficient to serve the fire protection needs of the proposed project.

   To be answered by Land Development Division.

6. Can the Los Angeles County Fire Department provide adequate fire protection emergency services to this proposed project?

   Fire protection serving the area appears to be adequate for the existing development/land use; however, each additional development creates greater demands on existing resources.

7. What mechanisms exist to ensure departmental growth at a rate sufficient to accommodate new demand for fire protection services resulting from ongoing regional development?

   The Los Angeles County Fire Department has a development impact mitigation fee which is imposed on all new development to fund fire protection facilities. Payment of this fee would mitigate the impact that new development would have on fire department services.

8. What is the current firefighter-to-population ratio and standard of the Los Angeles County Fire Department? How many active firefighters are currently working for the Los Angeles County Fire Department?

   The Fire Department does not calculate service-to-population ratios. Such ratios do not properly reflect the need for fire protection and emergency medical services. They do not account for demand caused by non-residential structures, vehicular incidents, transient population, and vacant land with combustible vegetation.

9. Does the Los Angeles County Fire Department recommend any mitigation measures to reduce any identified potently significant impacts as a result of project implementations?

We have no additional comments.

LAND DEVELOPMENT UNIT:

1. The County of Los Angeles, Land Development Unit, will set specific water requirements for the Los Valles Residential Project during the Tentative Map review process. All requirements will be distributed during the Subdivision Committee Meetings. The following are answers to your fire hydrants and fire flows questions as directed in your questionnaire.

2. What fire flow requirements would be applicable to the proposed project?

   Within the single family dwelling units or lots, the required fire flow will be 1,250 gallons per minute at 20 pounds per square inch residual pressure for a two hour duration. The Recreational Center lot or any other lot not classified as single family dwelling, the required fire flow will be 5,000 gallons per minute at 20 pounds per square inch residual pressure for a five hour duration. Final fire flow will be based on the size of the buildings, the type of construction, and the approved fire sprinkler system.

3. Have flow tests been conducted in the project vicinity to determine available fire flow?

   If so, what fire flow is currently available near the project site? The Fire Department is unaware of any recent flow tests performed in the area and the current available fire flow surrounding this project. It will be the responsibility of the applicant to contact the jurisdictional water purveyor to conduct flow test on the Fire Department Form 195 for the existing fire hydrants surrounding the project and submit the forms to the Land Development Unit during the Tentative Map review process.

4. What types and how many fire hydrants serve the project site, and are these hydrants sufficient to serve the fire protection needs of the proposed project?

   It is the responsibility of the applicant to indicate the location of all existing public fire hydrants within 300 feet of the property lines within the existing street on the Tentative Map during the subdivision process. These fire hydrants will not be sufficient to serve the fire protection needs of the project, additional fire hydrant will be required. The required spacing between fire hydrant is 600 feet for the single family dwelling lot and 300 feet spacing for the Recreational Center lot and any other non-residential dwelling lot.

5. Should any questions arise, please contact Juan Padilla, of the County of Los Angeles Fire Department, Land Development Unit, at (323) 890-4243 or Juan.Padilla@fire.lacounty.gov.

FORESTRY DIVISION – OTHER ENVIRONMENTAL CONCERNS:

1. The statutory responsibilities of the County of Los Angeles Fire Department, Forestry Division include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for Very High Fire Hazard Severity Zones or Fire Zone 4, archeological and

cultural resources, and the County Oak Tree Ordinance. Potential impacts in these areas should be addressed in the Final Environmental Document.

HEALTH HAZARDOUS MATERIALS DIVISION:

1. The Health Hazardous Materials Division has no objection to the proposed project at this time. However, it should be noted that the responsible party should complete a Phase I to determine if any adverse environmental condition exists at the property.

If you have any additional questions, please contact this office at (323) 890-4330.

Very truly yours,

Frank Vidales

FRANK VIDALES, ACTING CHIEF, FORESTRY DIVISION
PREVENTION SERVICES BUREAU

FV:ij

bc: ERU
Division III
FFER #201300101/Pac
Land Development
Planning
HHMD
#219
Edapts Upload
(FFER #201300101/SHARED)

APPENDIX 5.12.4-2

County of Los Angeles Fire Department Correspondence

January 30, 2015

From: Bagwell, Loretta <Loretta.Bagwell@fire.lacounty.gov>
Sent: Friday, January 30, 2015 12:17 PM
To: Kathleen King
Cc: Buck, Lorraine
Subject: Los Valles Proposed Project in LA County

As requested:

Fire Station 143:
Has construction started? No, the station is still under design. It is anticipated that construction will start May 2015.

When does the County expect the station to be operational? July 2016.

Is it still anticipated that Fire Station 143 would have similar staffing levels based upon standard County fire department staffing of fire stations? Yes.

Does the County know what type of equipment will be housed at this station? Fire Station 143 will be staffed with a 4-person engine company.

Fire Station 156:

number of staff? A 4-person engine company.

Equipment at this station? 1 engine, see above.

Fire Station 76:

Equipment at this station? A 4-person engine company.

Can you confirm if the following information is correct (in regards to developer fees): Payment of the Developer Fee typically constitutes mitigation in full for development impacts. A credit that can be applied toward unpaid Developer Fee obligations is typically issued for in lieu donations. The Fire Department prepares a Five-Year Capital Plan to identify anticipated facilities that would be constructed during the five-year planning horizon. This plan is updated annually. Yes, this is correct.

If you any further questions you may direct them directly to me, my information is listed below.

Loretta Bagwell, Planning Analyst
Planning Division
Los Angeles County Fire Department
(323) 881-2404
Loretta.Bagwell@fire.lacounty.gov

APPENDIX 5.12.4-3

County of Los Angeles Fire Department Correspondence, June 9, 2015

COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

DARYL L. OSBY
FIRE CHIEF
FORESTER & FIRE WARDEN

RECEIVED
JUN 16 2015
BY:

June 9, 2015

Christina Tran, Senior Planning Assistant
Los Angeles County Department of Regional Planning
Impact Analysis Section
320 West Temple Street, Room 1362
Los Angeles, CA 90012

Dear Ms. Tran:

SECOND SCREENCHECK ENVIRONMENTAL IMPACT REPORT, "LOS VALLES RESIDENTIAL PROJECT", CONSISTS OF A RESIDENTIAL DEVELOPMENT OF 497 SINGLE-FAMILY DETACHED DWELLING UNITS ON LOTS SIZES AVERAGING APPROXIMATELY 12,672 SQUARE FEET, SANTA CLARITA, (FFER 201500093)

The Second Screencheck Environmental Impact Report has been reviewed by the Planning Division, Land Development Unit, Forestry Division, and Health Hazardous Materials Division of the County of Los Angeles Fire Department. The following are their comments:

PLANNING DIVISION:

Section 5.12.4.1, Environmental Setting, paragraph two, second sentence, should be amended as follows:

> "A new fire station (Fire Station 143) is currently under development approximately 0.3 miles southeast of the Project Site at 28580 Hasley Canyon Road, and will be the jurisdictional station for the Project when it becomes operational, ***which is anticipated to occur in 2016-17."***

Section 5.12.4, Service Standards, second paragraph should be updated to reflect the current developer fee amount effective February 1, 2015 is $1.0574 per square foot of new construction.

LAND DEVELOPMENT UNIT:

1. The Fire Services Mitigation Measures as indicated in the Environmental Impact Report, specifically MM 5.12.4-3 and MM 5.12.4-6, are more restrictive than required for this residential development. The Department's requirements for this project will be addressed during the Tentative Tract Map and/or the architectural plans review prior to building permit issuance.

2. Should any questions arise regarding the above comments, please contact Juan Padilla of the County of Los Angeles Fire Department's Land Development Unit at (323) 890-4243 or at Juan.Padilla@fire.lacounty.gov.

FORESTRY DIVISION – OTHER ENVIRONMENTAL CONCERNS:

1. The statutory responsibilities of the County of Los Angeles Fire Department's Forestry Division include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for Very High Fire Hazard Severity Zones or Fire Zone 4, archeological and cultural resources, and the County Oak Tree Ordinance.

HEALTH HAZARDOUS MATERIALS DIVISION:

1. The Health Hazardous Materials Division (HHMD) of the Los Angeles County Fire Department previously provided our comments regarding this project in July 2013 and January 2014. HHMD has no additional comments at this time.

If you have any additional questions, please contact this office at (323) 890-4330.

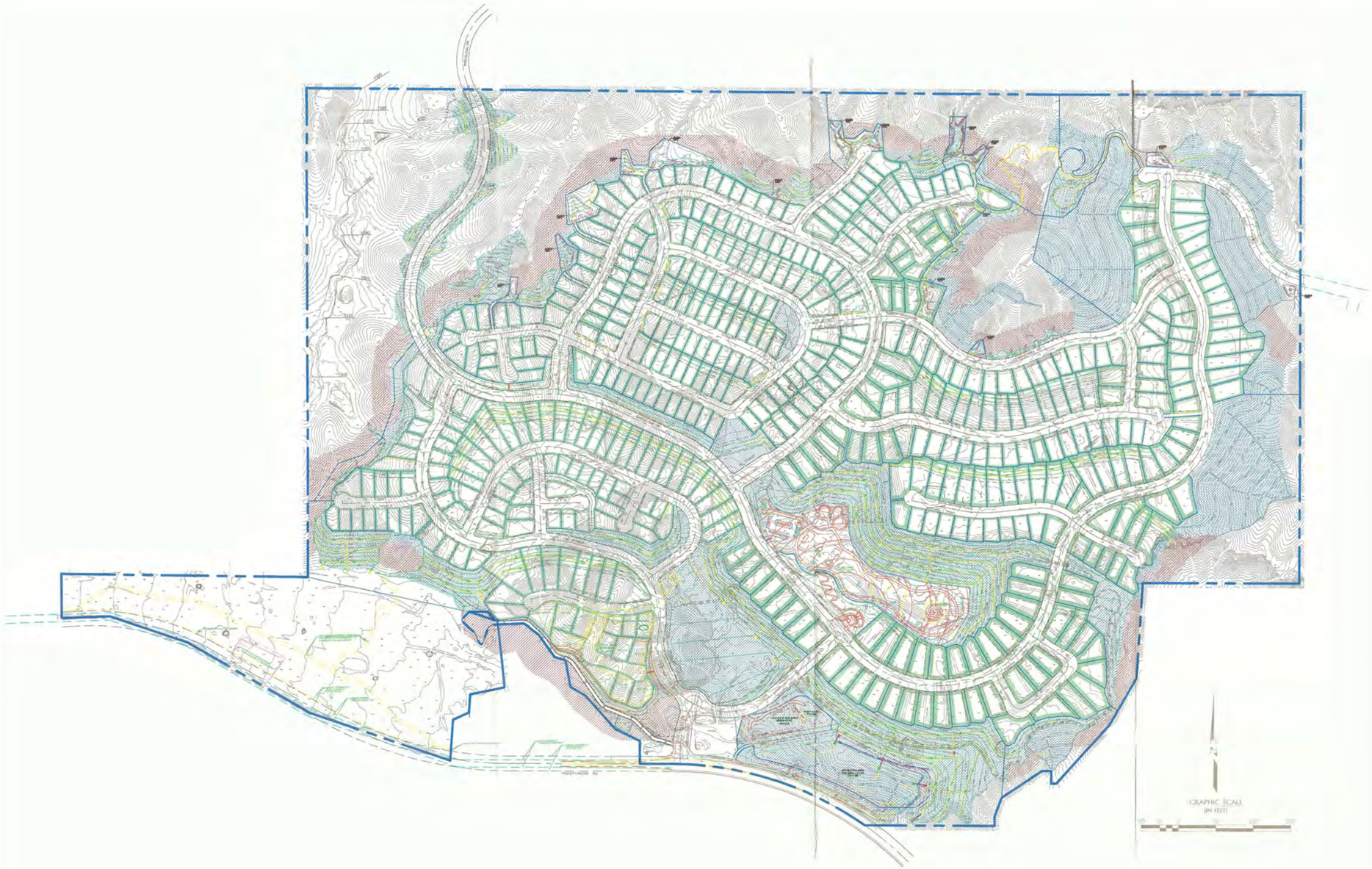
Very truly yours,

KEVIN T JOHNSON, ACTING CHIEF, FORESTRY DIVISION
PREVENTION SERVICES BUREAU

KTJ:ad

APPENDIX 5.12.4-4

Preliminary Fuel Modification Plan



LEGEND

SETBACK ZONE A
20' IRRIGATION ZONE

IRRIGATION/TRANSITION ZONE B
30' OR AS NOTED

NATIVE BRUSH THINNING ZONE C
200' OR PL

SOURCE: LDC, 6/15/2015.

FIGURE **4.0-8**

Preliminary Fuel Modification Plan

1154.001•07/15

APPENDIX IV

APPROVED PLANT LIST

This plant list is provided as a suggested, but not exclusive, guideline for Fuel Modification and Firewise Landscapes within Los Angeles County. Plants not listed (grasses, annuals etc.) may be used if approved on the Landscape Plan. Any conflicts with other County or local ordinances need to be worked out prior to plan approval. Plants approved on any given plan are for that specific species, in that approved location. Moving plants to other areas of the site, or increasing the number of plants may result in the need for an additional submittal and approval.

The plant list is arranged by plant type and includes categories for the acceptable Fuel Modification Zone, water needs, size, and appropriate geographical area for planting. A comment code is included to assist in plant selection and maintenance requirements.

DESIRABLE QUALITIES FOR LANDSCAPE PLANTS

- Ability to store water in leaves or stems.
- Produces limited dead and fine material.
- Extensive, deep root systems for controlling erosion.
- Not considered invasive.
- Ability to withstand drought.
- Prostrate or prone in form.
- Ability to withstand severe pruning.
- Low levels of volatile oils or resins.
- Ability to resprout after a fire.
- Minimal maintenance requirements.

PLANT LIST LEGEND

GEOGRAPHICAL AREA	WATER NEEDS	EVERGREEN/DECIDUOUS
C-Coastal	H-High	E-Evergreen
IV-Interior Valley	M-Moderate	D-Deciduous
D-Deserts	L-Low	E/D-Partly or Summer Deciduous
	VL-Very Low	

ZONES AND DISTANCE AWAY FROM STRUCTURES

A letter under the zone column corresponds to the appropriate zone location for that particular plant. A number on the list denotes the minimum distance allowed from any structure. Example: “A, B-15” would indicate the plant could be planted in Zone A, but should be planted no closer than 15’ from a structure. If just the letter B is present, this plant would typically be appropriate for planting anywhere within Zone B.

Trees should typically be planted no closer than one half their expected mature spread away from structures and roads or driveways that are the access routes for emergency vehicles. Example: If a particular species of tree potentially reaches 30’ in diameter, it should be planted no closer than 15’.

Zone A: Setback Zone – normally extends to 20’ but sometimes up to 50’ from structures.
Zone B: Irrigated/Transition Zone – extends from the edge of Zone A up to 100’ from structures. Irrigated areas extending past 100’, such as manufactured slopes, will need to meet the spacing and planting requirements for this zone in most cases.
Zone C: Thinning Zone – thinned native vegetation extending up to 200’ from structure.

PLANT LIST COMMENT CODE

1. Not for use in coastal areas.
2. Should not be used on steep slopes.
3. May be damaged by frost.
4. Should be thinned bi-annually to remove dead or unwanted growth.
5. Good for erosion control.
6. Grows best in well drained soils.
7. Produces flowers or fruit that attracts birds and/or butterflies
8. Adaptability can vary.
9. Can be used as a lawn substitute.
10. Showy flowers.
11. Produces edible fruit.
12. Native or native cultivar.
13. Tends to be short lived.
14. High fire resistance.
15. Dead fronds or leaves need to be removed to maintain fire safety.
16. Tolerant of heavy pruning.
17. Must be cut back after flowering.
18. May require partial shade in desert or valley areas.
19. Perennial.
20. Tolerates saline soils.
21. Grows naturally in riparian areas.
22. Good tree for lawns.
23. Produces habitat or food for wildlife.

X. May be invasive in some areas.

The desirable planting list is based on comments from numerous professionals and public agencies. These resources included the Sunset Western Garden Book, Bob Perry's Landscape Plants for Western Regions, and the California Department of Water Resources study entitled, WUCOLS (Water Use Classification of Landscape Species).

GROUNDCOVERS – REVISED 7/2011

Groundcovers in Zone A, especially woody species, should be maintained at a height of 6 inches or less in Zone A and flat areas of Zone B.
Groundcovers on slopes in Zone B within 50 feet of the structure shall be maintained at a height of 12 inches or less.
Groundcovers on slopes in Zone B outside of 50 feet from the structure should be maintained at a height of 18 inches or less.

BOTANICAL NAME	COMMON NAME	ZONE	WATER NEEDS	HEIGHT	SPREAD	E/D	GEOGRAPHICAL AREA-COMMENTS
Abelia grandiflora 'Prostrata'	Prostrate Glossy Abelia	B	M	1 - 2'	3 - 4'	E	C,IV - 3
Acacia redolens 'desert carpet'	Desert Carpet Acacia	B-30	L	2'	10-15'	E	C,IV,D-3,5,6,10
A. r. 'Low Boy'	Low Boy Acacia	B-30	L	3'	10-15'	E	C,IV,D-3,5,6,10
Achillea tomentosa	Woolly Yarrow	A,B	L	6 - 10"	6 - 12"	E	C,IV - 7,9,19
Aeonium species	NCN	A,B	L	varies	varies	E	C,IV-2,3,8,14
Ajuga reptans	Carpet Bugle	A,B	H	4 - 6"	2 - 4"	E	C,IV - 2,18,19
Arctostaphylos edmundsii	Little Sur Manzanita	B-30	L,VL	1 - 2'+	4 - 6'	E	C,IV - 4,6,12
A. 'Emerald Carpet'	Emerald Carpet Manzanita	B	L,VL	1'	4 - 6'	E	C,IV - 4,6,12
A. hookeri 'Monterey Carpet"	Monterey Manzanita	B	L	1-2'	8-12'	E	C,IV-6,7,12,23
A. 'Pacific Mist'	NCN	B	L	1-2'	8-10'	E	C,IV-6,7,12,23
A. uva-ursi	Bearberry	B	L	6-12"+	10-15'	E	C,IV-5,6,7,12,23
Artemisia californica 'cultivars'	Sagebrush - Prostrate Forms	B-30	L,VL	varies	varies	E	C,IV,D - 4,6,8,12,23
A. caucasica	Silver Spreader	A,B	L,VL	3-6"	2'	E	C,IV,D-4,6,12
Baccharis pilularis 'Pigeon Point'	Dwarf Coyote Brush	B	L,VL	12-24"	-6'	E	C,IV,D-4,5,12
B.p. 'Twin Peaks'	Dwarf Coyote Brush	B	L,VL	12-24"	-6'	E	C,IV,D-4,5,12
Ceanothus gloriosus	Point Reyes Ceanothus	B	L	1-2'	12-16'	E	C-6,7,10,12
Cerastium tomentosum	Snow-In-Summer	A,B	M,L	6-8"	2-3'	E	C,IV,D-10,14,19
Chamaemelum nobile	Chamomile	A,B	M	6-8"	-12"	E	C,IV,D-9,16,19
Cistus salviifolius	Sageleaf Rockrose	B	L,VL	1-2'	6'	E	C,IV,D-4,5,6,7,10,16,20
C. 'Sunset'	Rockrose	B	L,VL	1-2'	6-8'	E	C,IV,D-4,5,6,7,10,16,20
C. 'Warley rose'	Rockrose	B	L,VL	1'	4'	E	C,IV,D-4,5,6,7,10,16,20
Coprosma kirkii	NCN	B	M,L	-2'	6-8'	E	C,IV-3,4,5,8,18,20
Coreopsis auriculata 'Nana'	NCN	A,B	L,VL	5-8"	-2'	E/D	C,IV-3,8,19
Cotoneaster adpressus praecox	Cotoneaster	B	M,L	-18"	-6'	D	C,IV,D-2
C. salicifolius 'Emerald Carpet'	Prostrate Willowleaf Contoneaster	B	M,L	12-15"	-8'	E	C,IV,D-4
Dalea greggii	Trailing Indigo Bush	B	L,VL	12-18"	5-10'	E	IV,D - 6
Delosperma alba	White Training Ice Plant	A,B	L	-12"	2'	E	C,IV-10
Dichondra micrantha	Dichondra	A,B	H,M	-6"	-2'	E	C,IV-9,14,18
Drosanthemum floribundum	Rosea Ice Plant	A,B	L	-12"	1'-2'	E	C,IV-3,5,10
Duchesnea indica	Indian Mock Strawberry	A,B	L	-8"	-4'	E	C,IV,D-11,16,19
Dymondia margaretae	NCN	A,B	M,L	-3"	12-24"	E	C,IV-3,8
Erigeron glaucus	Seaside Daisy	A,B	M,L	10-12"	-2'	E	C,IV-3,6,8,10,12,18,19,20
E. karvinskianus	Santa Barbara Daisy	B	M,L	10-20"	-3'	E	C,IV-3,6,8,10,12,18,19,20
Euonymus fortunei 'Colorata'	Purple-Leaf Winter Creeper	B	M	1-2'	-6'	E	IV-1,5,8,16
Festuca glauca (cinerea)	Blue Fescue	A,B	M,L	-12"	-2'	E	C,IV,D-4
F. rubra	Red Fescue	A,B	M,L	-16"	-30"	E	C,IV,D-4,9
Fragaria chiloensis	Wild Strawberrry	A,B	L,VL	6-12"	-24"	E	C,IV,D-4,10,11,12,14,20
Gazania Hybrids	Trailing Gazania	A,B	M,L	6-10"	-24"	E	C,IV,D-10,19,X
Geranium incanum	Cranesbill	A,B	M,L	-12"	2'	E	C,IV-4,10,19,X
Glechoma hederacea	Ground Ivy	A,B	M	3-6"	-18"	E/D	C,IV,D-8,19
Helianthemum nummularium	Sunrose	A,B	M	6-8"	-3'	E	C,IV,D - 6,10
Herniaria glabra	Green Carpet	A,B	M	2-3"	16"	E	C,IV,D-6,8,9,19
Heuchera Species	Coral Bells	A,B	M,L	6"-2'	2'	E/D	C,IV,D-6,7,8,10,12,15,18,19
Hypericum calycinum	Aaron's Beard	B	M,L	6-12"	-3'	E	C,IV,D-4,5,7,16

GROUNDCOVERS – page 2

BOTANICAL NAME	COMMON NAME	ZONE	WATER NEEDS	HEIGHT	SPREAD	E/D	GEOGRAPHICAL AREA-COMMENTS
H. coris	St. Johnswort	B	M,L	6-12"	-2'	E	C,IV,D-4,5,7,16
Iberis sempervirens	Evergreen Candytuft	A,B	M	6-12"	-6-12"	E	C,IV,D-10,19
Iva hayesiana	Poverty Weed	B-30	L,VL	2-3'	4-5'	E	C,IV,D-4,5,12,16,23
Juniperus conferta & cultivars	Shore Juniper	B	L	1'	6-8'	E	C,!V,D-5,8,20
J. horizontalis & cultivars		B	L	1'	6-8'	E	C,!V,D-5,8,20
Laurentia fluviatilis	Blue Star Creeper	A	M	2-4"	6-12"	E	C,IV-8,19
Lysimachia nummularia	Moneywort	A	H,M	2-6"	-2'	E	C,IV -18,19
Liriope spicata	Creeping Lily Turf	A,B	M	12"	3'	E	C,IV,D-14,18
Mahonia aquifolium 'Compacta"	Compact Oregon Grape	B	M.L	1-2'	2-3'	E	C,IV-4,7,12,18,23
M. repens	Creeping Mahonia	B	M,L	2-3'	2-3'	E	C,IV-4,7,12,18,23
Myoporum 'Pacificum'	Pacific Myoporum	B	M,L	2-3'	-30'	E	C,IV-1,4,5,16
M. parvifolium	NCN	A,B	M,L	-6"	9'	E	C,IV-3,5,
M. p. 'Putah Creek'	NCN	B	M,L	1'	8'	E	C,IV-3,5,
Oenothera berlandieri	Mexican Evening Primrose	B	L,VL	10-12"	4'	E	IV,D-1,4,7,10,17,19
O. stubbei	Baja Evening Primrose	A,B	L,VL	5"	2'	E	IV,D-7,12,19
Ophiopogon japonicus	Mondo Grass	A,B	M	8-12"	12-24"	E	C,IV-14,18
Pelargonium peltatum	Ivy Geranium	A,B	M	-2'	-4'	E	IV - 1,3,7,10,19
P. tomentosum	Silver Spreader	A,B	M	-18"	2-4'	E	IV-1,3,7,10,19
Persicaria capitata	Pink Clover	A,B	M,L	-18"	3'	E	IV,D -1,10,19,X
Phyla nodiflora (Lippia repens)	Lippia	A,B	M,L	2-15"	-3'	E/D	C,IV,D-9,16,19
Potentilla tabernaemontani	Spring Cinquefoil	A,B	M,L	2-6"	-12"	E	C,IV,D-9,10,19
Ribes viburnifolium	Catalina Perfume	B	L,VL	-3'	-3'	E	C,IV - 12,18,23
Rosmarinus officinalis							
R.o. 'Huntington Carpet (Blue)'	NCN	B-30	L	-18"	-4'	E	C,IV,D - 4,5,16
R.o. 'Prostratus'	Prostrate Rosemary	B-30	L	-24"	-6'	E	C,IV,D - 4,5,16
Salvia sonomensis	Creeping Sage	B	L	8-12"	3-4'	E	C,IV-6,12,13,23
Scaevola 'Mauve Clusters'	NCN	A,B	M,L	4-6"	3-4'	E	C,IV - 6,18,19
Sedum species	Stonecrops	A,B	L,VL	varies	varies	E	C,IV - 2,8,14
Senecio mandraliscae	Chalksticks	A,B	M,L	-18"	-5'	E	C,IV - 3,14,19
S. serpens	Blue Chalksticks	A,B	M,L	-12"	-3'	E	C,IV-3,14,19
Soleirolia soleirolii	Baby's Tears	A	H,M	3-6"	-18"	E	C,IV - 3,14,18,19
Teucrium cossonii majoricum	NCN	A,B	L	8"	-2'	E	C,IV - 6,10
T. X lucidrys 'Prostratum'	Prostrate Germander	A,B	M,L	4-6"	-3'	E	C,IV,D - 4,16
Thymus praecox arcticus	Mother of Thyme	A,B	M,L	2-6"	-18"	E	C,IV,D - 8
T. pseudolanuginosus	Woolly Thyme	A,B	M,L	2-3"	-12"	E	C,IV,D - 8
Trachelospermum jasminoides	Star Jasmine	A,B	M,L	-2'	4-5'	E	C,IV,D - 5,7,10,16
Trifolium fragiferum	White Clover	A,B	M,L	6-15"	-6'	E	C,IV,D-5,9,16,19
Verbena X hybrida	Garden Verbena	A,B	L,VL	6-12"	1 1/2-3'	E	C,IV,D - 3,7,10,13
V. peruviana	NCN	A,B	L,VL	-8"	-2'	E	C,IV,D - 7, 10
V. pulchella gracilior	Moss Verbena	A,B	L,VL	12-15"	2-3'	E	C,IV,D-8,10,19
Vinca minor	Dwarf Periwinkle	A,B	M,L	12"	3'	E	IV,D - 1,5,16,18, X
Wedelia trilobata	Wedelia	B	M,L	1-2'	4-6'	E	C,IV- 3,16, 20
Zoysia tenuifolia	Korean Grass	A	M,L	-6"	-18"	E	C,IV,D - 9

SHRUBS - REVISED 7/2011

BOTANICAL NAME	COMMON NAME	ZONE	WATER NEEDS	HEIGHT	SPREAD	E/D	GEOGRAPHICAL AREA-COMMENTS
Abelia grandiflora	Glossy Abelia	A,B-10	M	8'	8'	E	C,IV,D - 4, 10
A. g. 'Prostrata'	Prostrate Glossy Abelia	A,B-5	M	2'	4'	E/D	C,IV,D - 10
Abutilon hybridum	Flowering Maple, Chinese Lantern	A,B-10	M	10'	10'	E	C,IV - 4
Acanthus mollis	Bear's Breech	A,B	H,M	-4'	4-6'	E/D	C,IV,D-3,8,14,16,17,18,19
Achillea filipendulina	Fernleaf Yarrow	A,B	L,VL	4-5'	2'	E	C,IV,D - 10,16,17,19
A. millefolium	Common Yarrow	A,B	L,VL	-3'	2'	E	C,IV,D - 10,16,17,19
Aeonium species	NCN	A,B	L	varies	varies	E	C,IV - 3,8,14
Agapanthus species	Lily-Of-The-Nile	A,B	M	varies	varies	E/D	C,IV - 3,4,7,10,14,19
Agave species	Agave	A,B	L,VL	varies	varies	E	C,IV,D - 3,10,14,17
Alocasia macrorrhiza	Elephant's Ear	A,B	H	5'	8'	E/D	C,IV - 3,14,18,19
Aloe species	Aloe	A,B	L,VL	varies	varies	E	C,IV, - 3,7,8,14,15
Alyogyne huegelii	Blue Hibiscus	A,B-5	M,L	5-8'	6'	E	C,IV - 3,4,10
Anigozanthos flavidus	Kangaroo Paw	A,B	M,L	3-5'	3'	E	C,IV - 3,6,7,10,19
A. manqlesii	NCN	A,B	M,L	3'	-3'	E	C,IV - 3,6,7,19
Arbutus unedo 'Compacta'	Dwarf Strawberry Tree	A,B-5	M,L	6-8'	-8'	E	C,IV,D-5,7,11,18,23
A.u. 'Elfin King'	Elfin King	A,B-5	M,L	3-5'	-6'	E	C,IV,D - 5,7,11,18,23
A.u. 'Oktoberfest'	NCN	A,B-5	M,L	6-8'	-8'	E	C,IV,D-5,7,11,18,23
Arctostaphylos species	Manzanita	B	L,VL	varies	varies	E	C,IV,D - 4,6,7,10,12
Artemisia 'Powis Castle'	NCN	B	L,VL	-3'	6'	E	C,IV - 4,6,12,23
A. stelleriana	Beach Worm Wood	B	L,VL	-3'	-3'	E	C,IV - 4,6,12,19,23
Aspidistra elatior	Cast-Iron Plant	A,B	M,L	-30"	-3'	E	C,IV -3,18
Aucuba japonica	Japanese Aucuba, Gold Dust Plant	A,B-5	M,L	6-15'	6-15'	E	C,IV,D - 18
Baccharis species	Various	B	L,VL	varies	varies	E	C,IV,D-4,5,6,12,21,23
Begonia species	Begonia	A,B	H,M	varies	varies	E	C,IV - 3,8,10,14,18
Berberis thunbergii	Japanese Barberry	B	M,L	4-6'	4-6'	D	C,IV,D - 4
B. thunbergii 'cultivars'		A,B	M,L	varies	varies	D	C,IV,D - 4
Bergenia crassifolia	Winter Blooming Bergenia	A,B	M,L	-20"	-20"	E	C,IV - 3,18,19
Bougainvillea sp.	Bougainvillea	B	L	varies	varies	E/D	C,IV - 3,4,10
Buddleja davidii	Butterfly Bush	B	M,L	-10'	-12'	E/D	C,IV,D - 7,10,16,17,X
Buxus microphylla japonica	Japanese Boxwood	A,B-5	M,L	4-6'	4-6'	E	C,IV,D -16
B.m. koreana	Korean Boxwood	A,B-5	M,L	4-6'	4-6'	E	C,IV,D -16
Caesalpinia gilliesii	Bird of Paradise Bush	A,B	L,VL	-10'	-10'	E/D	C,IV,D - 7,10
C. mexicana	Mexican Bird of Paradise	A,B	L,VL	10-12'	-15'	E/D	C,IV,D - 7,10
C. pulcherrima	Red Bird of Paradise	A,B	L,VL	-10'	-10	E/D	C,IV,D - 7,10
Calliandra californica	Baja Fairy Duster	B	L,VL	-8'	4-12'	E/D	C,IV,D -4,6,7,10,12
C. eriophylla	Fary Duster	B	L,VL	-3'	4-5'	E/D	C,IV,D -4,6,7,10,12
Callistemon citrinus'compacta'	Bottlebrush	B	L,VL	8'	8'	E	C,IV,D-5,7,10,20
C. viminalis "Little John"	NCN	A,B-10	L	5'	8	E	C,IV,D-5,7,10,20
Calycanthus occidentalis	Spice Bush	B	M,L	4-12'	-5'	D	C,IV-12,18
Carissa macrocarpa (grandiflora)	Natal Plum	A,B-10	M,L	7+	7+	E	C,IV - 4,11,16
C. m. 'cultivars'	Natal Plum	A,B-10	M,L	varies	varies	E	C,IV - 4,11,16
Carpenteria californica	Bush Anemone	A,B-10	L,VL	6-8'	6-8'	E	C,IV - 6,7,10,12
Cassia (Senna) artemisioides	Feathery Cassia	A,B-10	L,VL	3-6'	-6'	E	C,IV,D - 10,
Ceanothus species	Wild Lilac	B-30	L,VL	varies	varies	E/D	C,IV,D - 4,6,7,10,12,23
Cercocarpus betuloides	Mountain Mahogany	B-30	L,VL	5-12'	-10'	E	C,IV,D - 4,6,12,23
Choisya ternata	Mexican orange	B	M	6-8'	-8'	E	C,IV - 10,18

SHRUBS – page 2

BOTANICAL NAME	COMMON NAME	ZONE	WATER NEEDS	HEIGHT	SPREAD	E/D	GEOGRAPHICAL AREA-COMMENTS
Cistus species	Rockrose	A,B-10	L,VL	varies	varies	E	CiIV,D - 4,5,6,10,17,20,X
Clivia miniata	Clivia	A,B	H,M	2'	2'	E	C,IV - 3,10,14,18,19
Colocasia esculenta (caladium)	Taro, Elephant's Ear	A,B	H	-6'	-6'	E/D	C,IV - 3,14,18,19
Comarostaphylis diversifolia	Summer Holly	B	L,VL	6-10'+	6-8'+	E	C,IV,D-6,7,12,18.23
Convolvulus cneorum	Bush Morning Glory	B	L	2-4'	2-4'	E	C,IV,D-6,10
Coprosma petriei (pumila)	NCN	B	M	-3'	8'	E	IV - 1,4,16,20
C. repens	Mirror Plant	B	M	-10'	-6'	E	IV - 1,4,16,20
Cotoneaster species & cultivars	Cotoneaster	B	M,L	varies	varies	E/D	C,IV,D - 4,10,16,X
Cotyledon species	NCN	A,B	L	1-3'	1-3'	E	C,IV - 3,8,14
Crassula species	NCN	A,B	L	1-9'	1-9'	E	C,IV - 3,8,14,X
Cuphea hyssopifolia	False Heather	A,B	M	2'	3'	E	V,IV - 3,7,10,
Cycas revoluta	Sago Palm	A,B	M	8'	10'	E	C,IV,D - 3,8,15,18
Cyrtomium falcatum	Holly Fern	A,B	H,M	2-3'	3-4'	E	C,IV - 15
Dasylirion longissimum	Mexican Grass Tree	A,B-10	L,VL	-10'	8'	E	C,IV,D-15
D. wheeleri	Sotol	A,B-10	L,VL	-6'	-6'	E	C,IV,D-15
Dendromecon harfordii	Island Bush Poppy	B	L,VL	8-20'	10-20'	E	C,IV - 5,10,12,23
Dietes bicolor	Fortnight Lily, African Iris	A,B	M,L	2-3'	2-3'	E	C,IV,D - 4,10,15,19
Dietes iridioides	Fortnight Lily, African Iris	A,B	M,L	3'	3'	E	C,IV,D - 4,10,15,19
Dodonaea viscosa	Hopseed Bush	B	M,L	12-18'	10+	E	C,IV,D - 3,4
D. v. 'Purpurea'	Purple Hopseed Bush	B	M,L	12-18'	10+	E	C,IV,D - 3,4
Elaeagnus pungens & cultivars	Silverberry	B	M,L	6-15'	6-15'	E	C,IV,D - 16
Encelia californica	Coast Sunflower	A,B-10	L,VL	3-5'	3-5'	E/D	C,IV-5,6,10,4,17
E. farinosa	Brittle Bush	B	L,VL	3-5	3-5	E/D	C,IV,D - 4,5,6,10,12,17
Eriogonum giganteum	St. Catherine's Lace	B	L,VL	- 8'	- 8'	E	C,IV - 4,6,10,12,19,20
Escallonia species	Escallonia	A,B-5	M,L	2-15'	2-10'	E	C,IV - 4,10,16
Euonymus japonica & cultivars	Evergreen Euonymus	A,B	M	2-10'	-6'	E	C,IV,D - 4,16
Euphorbia species	Varies	A,B	M,L,VL	varies	varies	E/D	C,IV - 1(varies),3,6,8,10,14,18
Euryops pectinatus	NCN	A,B	M,L	6'	6'	E	C,IV,D - 3,4,6,7,10
Fatsia japonica	Japanese Aralia	A,B	M	5-12'	6-10'	E	C,IV - 15,18
Fouquieria splendens	Ocotillo	A,B	VL	8-25'	8-15'	E	IV,D - 6,10,12
Fremontodendron species & cultivars	Flannel Bush	B	L,VL	5-20'	-15'	E	C,IV,D - 4,6,10,12
Gardenia augusta (jasminoides)	Gardenia	A,B	H	3-6'	3-5'	E	C,IV - 10,18
Garrya elliptica	Coast Silktassel	B	M,L	4-8'	4-8'	E	C,IV,D - 4,5,7,10,12
Grevillea species & cultivars	Grevillea	B	L,VL	varies	varies	E	C,IV,D - 3,4,5,7,8,10
Grewia occidentalis	Lavender Starflower	A,B-10	M	6-10'	6-10'	E	C,IV,D - 4
Hakea suaveolens	Sweet Hakea	B	L	10-20'	-15'	E	C,IV - 4,8
Hebe species & cultivars	Hebe	A,B-10	M	3-6'	3-6'	E	C,IV - 4,5,7,10,16
Helictotrichon sempervirens	Blue Oat Grass	A,B-15	M	2-3'	2-3'	E/D	C,IV,D - 15,19
Hemerocallis hybrids	Daylily	A,B	M,L	1-6'	2-6'	E/D	C,IV,D - 7,10,17,19
Hesperaloe parviflora	Red Yucca	A,B	VL	3-4'	4-6'	E	IV,D - 6,7,15,19
Heuchera Species	Coral Bells	A,B	M,L	6"-2'	2'	E/D	C,IV,D-6,7,8,10,12,15,18,19
Hibiscus rosa - sinensis	Chinese Hibiscus	A,B-5	M	-15'	-12'	E	C,IV - 3,4,7,10,18
Ilex species	Holly	B	M	varies	varies	E	C,IV,D - 7,16,X
Iris species & varities/cultivars	Bearded Iris	A,B	M	-30"	-2'	E	C,IV,D - 10,19,X
I.douglasiana	Douglas Iris	A,B	M,L	-2'	-2'	E	C,IV - 10,12,18,19
Juniperus species	Juniper	B	M,L,VL	varies	varies	E	C,IV,D - 4, 7, 23

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BOTANICAL NAME	COMMON NAME	ZONE	WATER NEEDS	HEIGHT	SPREAD	E/D	GEOGRAPHICAL AREA-COMMENTS
Justicia brandegeeana	Shrimp Plant	A,B	M	-3'	-4'	E	C,IV,D - 4,7,10
J. californica	Chuparosa	B	L,VL	2-5'	-4'	D	IV,D - 4,6,7,10,12
Keckiella cordifolia	Heart-Leaved Penstemon	B	L,VL	5-6'	8-10'	E/D	C,IV-4,7,12
Kniphofia uvaria	Red-Hot Poker	A,B	L	2-3'	3-4'	E	C,IV,D-3,7,10,19,X
Lantana Camara & hybrids	Lantana	A,B-10	M	varies	varies	E	C,IV,D - 4,7,10,X
Larrea tridentata	Creosote Bush	B	VL	4-8'	4-8'	E	IV,D-6,12,23
Lavandula angustifolia	English Lavender	A,B-10	L	3-4'	3-4'	E	C,IV,D-4,6,7,10,17
L. dentata	French Lavender	A,B-10	L	3'	3'	E	C,IV,D-4,6,7,10,17
L. intermedia	Lavandin	A,B	L	1-2'	2-3'	E	C,V,D-4,6,7,10,17
L. stoechas	Spanish Lavender	A,B-10	L	2-3'	3'	E	C,IV,D-4,6,7,10,17
Lavatera assurgentiflora	California Tree Mallow	B	L,VL	8-12'	8-12'	E	C,IV- 4,5,6,7,12,16,20
L. maritima	Tree Mallow	A,B-10	M,L	8-12'	8-12'	E	C,IV- 4,7,8,10,18
Leonotis leonurus	Lion's Tail	A,B-10	L	3-6'	4-6'	E	C,IV,D-3,7,10,17
Leptospermum scoparium & varities	New Zealand Tea Tree	A,B-15	L,VL	10+	10+	E	C,IV-5,10,16
L. s. varities	NCN	Varies	M-VL	varies	varies	E	C,IV-5,10,16
Leucophyllum candidum	Violet Silverleaf	A,B-10	L,VL	4-5'	4-5'	E	IV,D-4,6,7,10
L. frutescens	Texas Ranger	B	L,VL	6-8'	6-8'	E	IV,D-4,6,7,10
L. laevigatum	Chihuahuan Sage	A,B-5	L,VL	3-4'	4-5'	E	IV,D-4,6,7,10
Ligustrum japonicum	Wax-leaf Privet	A,B-10	M,L	10-12'	10	E	C,IV,D-7,10,15,X
Lirope muscari	Big Blue Lily Turf	A,B	M	18"	2-3'	E	C,IV,D-14,18
Lobelia laxiflora	Mexican Bush Lobelia	A,B-5	M,L	2-3'	4-6'	E	C,IV,D-4,7,10,19,X
Lupinus species	Lupine	B	L,VL	varies	varies	E/D	C,IV,D-4,6,7,10,12,17
Mahonia aquifolium	Oregon Grape	A,B-10	M,L	6-8'	6-8'	E	IV,D-4,6,11,12,18,23
Mahonia a. 'Compacta"	Compact Oregon Grape	A,B	M.L	1-2'	2-3'	E	C,IV-4,7,12,18,23
M. fremontii	Desert Mahonia	B	L	3-12'	4-8'	E	C,IV,D-4,6,10,11,12,23
M. 'Golden Abundance'	NCN	A,B-5	M,L	5-6'	6'	E	IV,D-4,6,10,11,12,18,23
M. lomariifolia	Venetian Blind Mahonia	A,B	M,L	6-10'	6-10'	E	C,IV,D-4,6,7,11,15,18,23
M. nevinii	Nevin Mahonia	B-30	L	3-10'	6-12'	E	C,IV,D-4,6,10,11,12,23
M. pinnata	California Holly Grape	B	M,L	4-5'	4-6'	E	C,IV-4,6,7,10,11,12,18,23
M. repens	Creeping Mahonia	A,B	M,L	2-3'	2-3'	E	C,IV-4,7,12,18,23
Malosma - See Rhus							
Malva species	Mallow	A,B	L	varies	varies	E/D	C,IV,D-6,7,10,13
Melaleuca nesophila	Pink Melaleuca	A,B-10	L,VL	10-20'	10-20	E	C,IV - 4,5,7,10,16
Mimulus species (Diplacus)	Monkey Flower	B	L	1-4'	1-4'	E	C,IV,D-4,6,7,10,12
Muhlenbergia rigens	Deer Grass	A,B-10	L,VL	4'	4'	D	C,IV,D- 12,15,17,19
Myrica californica	Pacific Wax Myrtle	B	M,L	10-15'+	10-15'+	E	C,IV - 4,5,7,12,20,23
Myrsine africana	African Boxwood	A,B-5	M	3-8'	3-8'	E	C,IV,D - 16,18
Myrtus communis 'compacta'	Dwarf Myrtle	A,B-10	M	5-8'	5-8'	E	C,IV,D-16
Nandina domestica	Heavenly Bamboo	A,B	M	6-8'	4-5'	E	C,IV,D-4,15
N.d. 'Compacta'	NCN	A,B	M	4-5'	3-4'	E	C,IV,D-4,15
N. d. 'Harbour Dwarf'	Dwarf Heavenly Bamboo	A,B	M,L	1 1/2 -2'	2-3'	E	C,IV,D-15
Nerium oleander	Oleander	B	M,L	8-20'	10-20'	E	C,IV,D-10,16,X
N.o. 'Petite Salmon'	NCN	A,B-10	M	3-4'	5-7'	E	C,IV-3,10,16
Opuntia species	Prickly Pear, Cholla etc.	A,B	L,VL	varies	varies	E	C,IV,D-8,12,14,23
Pelargonium species	Geranium	A,B	M,L	varies	varies	E	C,IV-3,10,19,X
Penstemon species	Beard Tongue	A,B	L	varies	varies	E/D	C,IV,D-7,10,12,17,19

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BOTANICAL NAME	COMMON NAME	ZONE	WATER NEEDS	HEIGHT	SPREAD	E/D	GEOGRAPHICAL AREA-COMMENTS
Phlomis fruticosa	Jerusalem Sage	A,B	M,L	3-4'	3-5'	E	C,IV,D-6,7,10,17,19
Phoenix roebelenii	Pygmy Date Palm	A,B	M,L	6-10'	6-10'	E	C,IV - 3,15,18
Phormium tenax	New Zealand Flax	A,B	M	5-9'	6'	E	C,IV,D-4,15,19
P.t 'cultivars'	NCN	A,B	M	varies	varies	E	C,IV,D-4,15,19
Photinia fraseri	Photinia	B	M,L	10-15'	10-20'	E	C,IV,D-4,7,10,16
Pittosporum tobira	Tobira	A,B-10	M,L	6-15'+	8-15'	E	C,IV,D-5,16
P.t.'Variegata'	NCN	A,B-5	M	5-8'	6-8'	E	C,IV,D-5,16
P.t.'Wheeler's Dwarf'	Dwarf Pittosporum	A,B	M	1-3'	2-4'	E	C,IV,D-16
Portulacaria afra	Elephant's Food	A,B	L	5-12'	6-12'	E	C,IV-3,14
Punica granatum 'Nana'	Dwarf Pomegranate	A,B	L	3'	4'	D	C,IV,D-7,11,20
Pyracantha species	Firethorn	B	M	varies	varies	E/D	C,IV,D-4,16,X
Rhamnus california	Coffeeberry	B	M,L	3-15'	4-15'	E/D	C,IV,D-12,21,23
R. crocea	Redberry	B	M,L	2-3'	3'	E	IV-5,12,23
R.c. ilicifolia	Hollyleaf Redberry	B	M,L	3-15'	3-15'	E	IV-5,12,23
Rhaphiolepis indica	India Hawthorn	A,B-5	M,L	4-8'	4-8'	E	C,IV,D-4,5,10
R.i 'cultivars'	NCN	A,B	M,L	varies	varies	E	C,IV,D-5,10
Rhus integrifolia	Lemonade Berry	B-40	L	3-10'+	6-20'	E	C,IV-4,5,12,23
R.(Molosma) laurina	Laurel Sumac	B-40	L	6-15'+	6-15'	E	C,IV-4,5,12,23
R. ovata	Sugar Bush	B-30	L	3-15'	6-15'	E	C,IV,D-4,5,12,23
Ribes aureum	Golden Currant	A,B-5	L	3-6'	3-6'	D	C,IV,D-7,10,12,23
R. malvaceum	Chaparral Currant	A,B-5	L	6-8'	6-8"	D	IV-7,10,12,23
R. sanguineum & cultivars	Red Flowering Currant	A,B-5	M,L	4-12'	4-8'	D	C,IV,D-7,10,12,23
R. speciosum	Fuchsia-Flowering Gooseberry	A,B-10	L	3-6'	3-6'	D	C,IV,D-4,7,10,12,23
R. viburnifolium	Catalina Perfume	A,B-10	L	3'	12'	E	C,IV-7,10,12,23
Romneya coulteri	Matilija Poppy	B	L	-8'	4'	D	C,IV,D-5,6,10,12,17
Rosa species	Rose	A,B	M	varies	varies	E/D	C,IV,D-10,16,17
Rosmarinus officinalis & cultivars	Rosemary	B	M,L	varies	varies	E	C,IV,D- 4, 5, 7
Salvia species - native varieties	Sage	B	L,VL	varies	varies	E/D	C,IV,D-4,7,10,12,17,23
Salvia species - ornamental varieties	Sage	A,B	M,L	varies	varies	E/D	C,IV,D-4,7,10,17,23
S. greggii	Autumn Sage	A,B	M,L	3-4'	3-4'	E	C,IV,D - 4,7,10
S. leucantha	Mexican Bush Sage	A,B	L,VL	3-4'	4-6'	E	C,IV- 7, 10,17
Santolina chamaecyparissus	Lavender Cotton	A,B	L	-24"	-3'	E	C,IV,D - 10
S. rosmarinifolia (virens)	Green Lavender Cotton	A,B	L	-24"	-3'	E	C,IV,D - 10
Simmondsia chinensis	Jojoba	B	L,VL	3-8'+	4-8'	E	C,IV,D-4,6,11,23
Strelitzia nicolai	Giant Bird of Paradise	A,B	M	-30'	-20'	E	C,IV-3,4,10,15,18
S. reginea	Bird of Paradise	A,B	M	5'	4'	E	C,IV-3,4,10,15,18
Tibouchina urvilleana	Princess Flower	A,B-10	M	5-18'	5-10'	E	C,IV -3,4, 6,10
Trichostema lanatum	Wooly Blue Curls	B	L,VL	3-5'	5'	E	C,IV,D-6,7,10,12,17
Tulbaghia violacea	Society Garlic	A,B	M	18'	2'	E/D	C,IV,D-3,10,19
Viburnum species	Viburnum	A,B-10	M	varies	varies	E/D	C,IV,D-3,7,10
Westringia fruticosa	Coast Rosemary	A,B-10	M,L	5-7'	6-12'	E	C,IV,D-4,6,18
Xylosma congestum	Shiny Xylosma	A,B-10	M,L	15'+	15'+	E	C,IV,D-5,16,18
X.c. 'Compacta'	Compact Xylosma	A,B-5	M,L	8-12'	8-12'	E	C,IV,D-5,16,18
Yucca species	Yucca	B	L,VL	varies	varies	E	C,IV,D - 6,10,15
Zantedeschia aethiopica	Calla Lilly	A,B	H,M	2-4'	3'	E/D	C,IV,D - 3,10,14,18,X

Zauschneria californica	California Fuchsia	B	L,VL	1-3'	3-5'	E/D	C,IVD-4,5,7,10,12,13,23

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BOTANICAL NAME	COMMON NAME	ZONE	WATER NEEDS	HEIGHT	SPREAD	E/D	GEOGRAPHICAL AREA-COMMENTS
Acacia farnesiana	Sweet Acacia	A,B-15	L	15-20'	15-20'	D	IV,D-10,X
A. greggii	Catclaw Acacia	B	L,VL	15-25'	15-25'	E	IV,D-10,12,21,23
A. salicina	Willow Acacia	A,B-15	L	15-35'	12-25'	E	C,IV,D-10,X
A. smallii	NCN	A,B-15	L,VL	15-20'	15-20'	D	C,IV,D-10,12,21,23
A. stenophylla	Shoestring Acacia	A,B-15	M,L	20-45'	10-20'	E	C,IV,D-10,22,X
Acer macrophyllum	Bigleaf Maple	B	M	30-95'	30-95'	D	C,IV-12,21,23
A. negundo	Box Elder	B	M,L	-60'	-50'	D	C,IV,D-12,23
A. palmatum	Japanese Maple	A,B	M	-20'+	-20'	D	C,IV-6
A. saccharinum	Silver Maple	B-30	M	40-100'	40-100'	D	C,IV,D-22
Aesculus californica	California Buckeye	B	M,L	20+	30'	D	C,IV,D-6,7,10,12,23
Agonis flexuosa	Peppermint Tree	B	M,L	25-35'	25-35'	E	C,IV-3,22
Albizia julibrissin	Silk Tree	B	M	-40'	40'+	D	C,IV,D-7,10,22,X
Alnus cordata	Italian Alder	B	M	40'	25'	D	C,IV,D-22
A. rhombifolia	White Alder	B	H,M	50-90'	40'	D	IV-12,21,23
Arbutus 'Marina'	NCN	A,B-15	M.L	-40'	-40'	E	C,IV,D-5,7,10,11,23
A. unedo	Strawberry Tree	A,B-10	M,L	12-35'	20-35'	E	C,IV,D-5,7,10,11,23
Archontophoenix cunninghamiana	King Palm	A,B	M	50'	10-15'	E	C,IV-3,10,15
Bauhinia variegata	Purple Orchid Tree	B	M	20-35'	35'	E/D	C,IV-4,10
Betula pendula	European White Birch	A,B-10	M	30-40'	30'	D	C,IV,D-6,22
Brachychiton acerifolius	Flame Tree	B	L	60'	45-50'	D	C,IV,D-10,22
B. populneus	Kurrajong Bottle Tree	B	L	30-50'	30'	E	C,IV,D-10,22
Brahea armata	Blue Hesper Palm	A,B-10	L,VL	40'	10'	E	C,IV,D-6,10,15
B. edulis	Guadalupe Palm	A,B	L,VL	30'	10'	E	C,IV,D-6,15
Butia capitata	Pindo Palm	A,B-10	M,L	10-20'	10-15	E	C,IV,D-10,11,15
Callistemon citrinus	Lemon Bottlebrush	B	M,L	-25'	-15'	E	C,IV,D-4,7,10
C. viminalis	Weeping Bottlebrush	A,B-10	M,L	20-30'	-15'	E	C,IV-4,7,10,X
Calocedrus decurrens	Incense Cedar	B	L,VL	75+	30+	E	IV,D-6,12
Calodendrum capense	Cape Chestnut	B	M	30'	25-40'	D	C,IV-7,10
Carya illinoinensis	Pecan	B	M,L	70'	70'	D	C,IV,D-6,11
Cedrus deodara	Deodar Cedar	B-30	M,L	60-80'	40+	E	C,IV,D-6
Ceratonia siliqua	Carob	B-30	M,L	30-40'	40+	E	C,IV,D-6
Cercidium floridum	Blue Palo Verde	A,B	L,VL	30'	30'	D	IV,D-6,10,12,21,23
C. microphyllum	Littleleaf Palo Verde	A,B	L,VL	25'	25'	D	IV,D-6,7,10,12,21,23
Cercis occidentalis	Western Redbud	A,B-10	M,L	20'	20'	D	C,IV,D-7,10,12,23
Chamaerops humilis	Mediterranean Fan Palm	A,B	M	20'	20'	E	C,IV,D-15
Chilopsis linearis	Desert Willow	A,B-15	L	-35'	-35'	D	IV,D-6,7,10,12,23
Chionanthus retusus	Chinese Fringe Tree	A,B	M	20'	20'	D	C,IV-10
Chitalpa X tashkentensis	Chitalpa	A,B	M,L	20-30'	20-30'	D	C,IV,D-7,10,12
Chorisia speciosa	Floss Silk Tree	B	M	30-60'	30-40'	D	C,IV,D-10,22
Cinnamomum camphora	Camphor Tree	B-30	M,L	50'+	60'+	E	C,IV,D-22
Citrus species	Citrus	A,B	M	varies	varies	E	C,IV,D-3,6,10,11
Cocculus laurifolius	Laurel Leaf Snail Seed	B	M	25'	30'+	E	C,IV,D-4
Cordyline australis	Giant Dracaena	A,B	M	30'	15'	E	C,IV,D-15,X
Cupressus macrocarpa	Monterey Cypress	B-30	M	40'+	40'	E	C-6,12,23,X
Cyathea cooperi	Australian Tree Fern	A,B	M	20'	12'	E	C,IV-3,15,18
Dicksonia antarctica	Tazmanian Tree Fern	A,B	M	15'	12'	E	C,IV-15,18
Dracaena draco	Dragon Tree	A,B	M,L	20'	20'	E	C,IV-3,10,14,15
Eriobotrya deflexa	Bronze Loquat	A,B-10	M,L	20'	20'	E	C,IV,D-10
Erythrina species	Coral Tree	B	M,L	varies	varies	D	C,IV,D-3,7,8

Eucalyptus citriodora	Lemon-scented Gum	B	M,L	75-100'	-40'	E	C,IV,D-1,7,22

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BOTANICAL NAME	COMMON NAME	ZONE	WATER NEEDS	HEIGHT	SPREAD	E/D	GEOGRAPHICAL AREA-
E. maculata	Spotted Gum	B-30	M,L	60-80'	-40'	E	C,IV,D-1,7,22
E. nicholii	Willow Peppermint	B-30	M,L	-40'	-30'	E	C,IV,D-1,7,22
E. sideroxylon	Red Ironbark	B	M'L	35-80'	-35'	E	C,IV,D-1,7,10
E. torquata	Coral Gum	A,B-15	M,L	-25'	-20'	E	C,IV,D-1,6,7,10,20
Feijoa sellowiana	Pineapple Guava	A,B	M,L	18-25'	-25'	E	C,IV,D-3,7,8,10,11,16
Ficus species	Fig	B-	M,L	varies	varies	E,D	C,IV,D-3,*
Fraxinus augustifolia	Raywood Ash	B	M	25+35'	30'	D	C,IV,D-22
F. dipetala	Foothill Ash	B	L,VL	18-20'	20-30'	D	C,IV,D-12,21,22,23
F. latifolia	Oregon Ash	B	M	40-80'	40-60'	D	C,IV,D-12,22,23
F. velutina	Arizona Ash	B	M,L	20-50'	30-50'	D	C,IV,D-22,23
F.v. Coriacea	Montebello Ash	B	M,L	20-40'	20-40'	D	C,IV,D-12,22,23
Geijera parviflora	Australian Willow	A,B-15	M,L	25-30'	20-30'	E	C,IV,D-6
Ginkgo biloba	Maidenhair Tree	A,B-15	M,L	35-80'	30-60'	D	C,IV,D-6,22
Gleditsia triacanthos	Honey Locust	A,B-15	M,L	35-70'	-30'	D	C,IV,D-6,22,X
Grevillea robusta	Silk Oak	B	M	60'+	30'+	E	C,IV,D-3,7,10
Heteromeles arbutifolia	Toyon	A,B-15	L,VL	15-30'	15-30'	E	C,IV,D-5,7,10,12,23
Hymenosporum flavum	Sweetshade Tree	A,B	M,L	20-40'	15-20'	E	C,IV-10
Jacaranda mimosifolia	Jacaranda	B	M,L	25-40'	-30'	D	C,IV,D-10,22
Juglans californica	Southern California Black Walnut	B	L	20-35'	30-45'	D	C,IV,-5,6,12,23
Koelreuteria bipinnata	Chinese Flame Tree	B	M	20-40'	-45'	D	C,IV,D-6,22
K. paniculata	Golden Rain Tree	B	M,L	20-35'	-40'	D	C,IV,D-20,22,X
Lagerstroemia indica	Crape Myrtle	A,B	M,L	-30	-20	D	IV,D-10,22
Laurus nobilis	Sweet Bay	B	M	20-40'	20-40	E	C,IV-3,16
Leptospermum laevigatum	Australian Tea Tree	A,B-15	L,VL	10-30	10-30'	E	C,IV-5,10,16
Liquidambar formosana	Chinese Sweet Gum	A,B-15	M	40-60'	25'	D	C,IV,D-7
L. styraciflua	American Sweet Gum	A,B-15	M	60'	-25'	D	C,IV,D-7
Liriodendron tulipfera	Tulip Tree	B	M	60-80'	40'	D	C,IV,D-22
Lithocarpus densiflorus	Tanbark Oak	B	L	-60'	-40'	E	C,IV-6,12,23
Lophostemon(Tristania) confertus	Brisbane Box	A,B-15	L,VL	30-60'	-40'	E	C,IV-22
Lyonothamnus floribundus	Catalina Ironwood	A,B-15	M	20-35	15'	E	C,!V-6,10,12,15,23
Magnolia grandiflora	Southern Magnolia	B	M	60-80'	40-60'	E	C,IV,D-10,22
M. X soulangeana	Saucer Magnolia	A,B	M	15-25'	25'+	D	C,IV,D-10
Maytenus boaria	Mayten Tree	A,B-10	M,L	30-50'	30'	E	C,IV-6,22,X
Melaleuca quinquenervia	Cajeput Tree	A,B-15	M,L	20-40'	15-25'	E	C,IV,D-10
Metasequoia glyptostroboides	Dawn Redwood	A,B-15	H,M	-80'	-40'	D	C,IV-22
Metrosideros excelsa	New Zealand Christmas Tree	A,B-10	L,VL	-30'	-30'	E	C,IV-5,6,7,10
Morus alba	White Mulberry	B	M,L	20-60'	30-50'	D	C,IV,D-11,16
Olea europaea	Olive - Fruitless varieties only	A,B-15	L,Vl	-35'	20-30'	E	C,IV,D-11,16,20,X
Parkinsonia aculeata	Jerusalem Thorn	A,B-10	L,VL	15-30'	15-30'	D	C,IV,D-3,6,7,10,22,X
Phoenix dactylifera	Date Palm	B	M,L	80'	30'	E	C,IV,D-7,11,15,X
Pinus species	Pine	B-75	L,VL	varies	varies	E	C,IV,D-15,23
Pistacia chinensis	Chinese Pistache	B	M,L	-60'	-50'	D	C,IV,D-22,X
Pittosporum phillyreoides	Willow Pittosporum	A,B	L	15-25'	10-15'	E	C,IV,D-10
P. rhombifolium	Queensland Pittosporum	A,B	M	15-35'	-25'	E	C,IV,D-22
Platanus racemosa	California Sycamore	B	L	50-100'	50-100'	D	C,IV,D-12,21,22,23
Podocarpus gracilior	Fern Pine	B	M	-60'	-60'	E	C,IV,D-16,22
P. macrophyllus	Yew Pine	B	M	-50'	-45'	E	C,IV,D-16,22
Populus fremontii	Fremont Cottonwood	B	M	40-60'	40-60'	D	C,IV,V-12,21,22,23
Prosopis chilensis	Chilean Mesquite	B	L	30-50'	30-50'	E/D	C,IV,D-10,23

P. glandulosa	Honey Mesquite	A,B-15	L,VL	25-30'	25-30'	D	C,IV,D-5,7,21,22,23

TREES – page 3

BOTANICAL NAME	COMMON NAME	ZONE	WATER NEEDS	HEIGHT	SPREAD	E/D	GEOGRAPHICAL AREA-
Prunus cerasifera 'Atropurpurea'	Purple-leaf Plum	A,B-10	M,L	25'	25'	D	C,IV,D-10,11,22
P. ilicifolia	Hollyleaf Cherry	A,B-15	L,VL	15-30'	15-30'	E	C,IV,D-7,11,12,16,23
Punica granatum	Pomegranate	A,B-10	L	12-18'	-20'	D	C,IV,D-7,11,20
Pyrus calleryana & cultivars	Ornamental Pear	A,B-15	M	varies	varies	D	C,IV,D-10
P. Kawakamii	Evergreen Pear	A,B-10	M	15-30'	15-30'	E/D	C,IV,D-10
Quercus agrifolia	Coast Live Oak	B-30	L,VL	30-70'	70'+	E	C,IV,D-6,12,23
Q. chrysolepis	Canyon Live Oak	B-30	M,L	30-60'	20-60'	E	C,IV-6,12,36
Q. douglasii	Blue Oak	B-30	M	50'	50+	D	C,IV,D-6,12,23
Q. engelmannii	Engelmann Oak	B-30	l	60'	60+	E	IV,D-6,12,33,23
Q. ilex	Holly Oak	B-30	M	40-70'	40-70'	E	C,IV,D-6,23
Q. kelloggii	California Black Oak	B	M	30-80'	-60'	D	IV-6,12,23
Q. lobata	Valley Oak	B-30	L,VL	70'+	70'+	D	C,IV-6,12,23
Q. palustris	Pin Oak	B-30	M	50-80'	5-70'	D	C,IV,D-6,22,23
Q. rubra	Red Oak	B-30	M	60-75'	50'	D	C,IV,D-6,23
Q. suber	Cork Oak	B-30	M	70-100'	-100'	E	C,IV,D-6,23
Q. virginiana	Southern Live Oak	B-30	M,L	60'	100'	E/D	C,IV,D-22
Q. wislizenii	Interior Live Oak	B	M,L	30-75'	75'+	E	IV,D-6,12,23
Rhus lancea	African Sumac	A,B-15	L	20-30'	20-30'	E	C,IV,D-20,22
Robinia ambigua	Locust	B	M,L	30-50'	-30'	D	IV,D-1,7,10,22
Sapium sebiferum	Chinese Tallow Tree	B	M	-35'	-35'	D	IV,D-22,X
Schefflera actinophylla	Queensland Unbrella Tree	A,B	H,M	20'+	20'+	E	C-3,8,18
S. pueckleri	Tupidanthus	A,B	H,M	20'+	20'+	E	C-3,8,18
Sophora japonica	Japanese Pagoda Tree	B	M	30-50'	30-50'	D	C,IV,D-22
Stenocarpus sinuatus	Firewheel Tree	A,B-10	M	30'	15'+	E	C,IV-6,10,22
Syagrus romanzoffianum	Queen Palm	A,B	M	50'	-20'	E	C,IV-15
Tabebuia chrysotricha	Golden Trumpet Tree	A,B-15	M	25-30'	-30'	E	C,IV-6,10,22
T. impetiginosa	Pink Trumpet Tree	A,B-15	M	35'	-30'	E	C,IV-6,10,22
Taxodium mucronatum	Montezuma Cypress	B	H-L	75'	35'	E/D	C,IV-22
Tipuana tipu	Tipu Tree	B	M	-50'	-50'	D	C,IV-10,22
Trachycarpus fortunei	Windmill Palm	A,B	M	-30'	-6'	E	C,IV,D-15
Umbellularia californica	California Bay	B	L,VL	30-75'	30-75'	E	C,IV,D-5,12,23
Washingtonia filifera	California Fan Palm	B-30	M-VL	60'	20'	E	C,IV,D-3,7,10,12,15,21,X
Zelkova serrata	Sawleaf Zelkova	B	M	60'	60'	D	C,IV,D-22
Ziziphus jujuba	Chinese Jujube	A,B-15	M,L	20-30'	20-30'	D	C,IV,D-11,20,22

APPENDIX 5.12.4-5

Conceptual Landscape Plan

SOURCE: ValleyCrest Design Group, September 2015

FIGURE **4.0-7**

Conceptual Landscape Plan

1154.001•09/15

APPENDIX 5.13-1

Quimby Act Park Obligation Report

LOS ANGELES COUNTY
DEPARTMENT OF PARKS AND RECREATION

PARK OBLIGATION REPORT

Tentative Map # **52584**	DRP Map Date: **06/11/2013**	SCM Date: **07/18/2013**	Report Date: **07/09/2013**	
Park Planning Area # **35B**	**CASTAIC/VAL VERDE**	**CSD: Castaic**	Map Type: **REVISED**	

Total Units **497** = Proposed Units **497** + Exempt Units **0**

Sections 21.24.340, 21.24.350, 21.28.120, 21.28.130, and 21.28.140, the County of Los Angeles Code, Title 21, Subdivision Ordinance provide that the County will determine whether the development's park obligation is to be met by:

1) the dedication of land for public or private park purpose or,
2) the payment of in-lieu fees or,
3) the provision of amenities or any combination of the above.

The specific determination of how the park obligation will be satisfied will be based on the conditions of approval by the advisory agency as recommended by the Department of Parks and Recreation.

Park land obligation in acres or in-lieu fees:

ACRES:	**5.28**
IN-LIEU FEES:	**$1,013,686**

Conditions of the map approval:

HOLD: Please schedule a meeting with Parks and Recreation to discuss the proposed public park land dedication and improvements

The park obligation for this development will be met by:

The dedication of 19.86 acres for public park purposes.
The payment of $1,013,686 in-lieu fees.

Trails:

See also attached Trail Report.

Comments:

*****Advisory:**

The Representative Land Value (RLVs) in Los Angeles County Code (LACC) Section 21.28.140 are used to calculate park fees and are adjusted annually, based on changes in the Consumer Price Index. The new RLVs become effective July 1st of each year and may apply to this subdivision map if first advertised for hearing before either a hearing officer or the Regional Planning Commission on or after July 1st pursuant to LACC Section 21.28.140, subsection 3. Accordingly, the park fee in this report is subject to change depending upon when the subdivision is first advertised for public hearing.

Please contact Clement Lau at (213) 351-5120 or Sheela Mathai at (213) 351-5121, Department of Parks and Recreation, 510 South Vermont Avenue, Los Angeles, CA 90020 for further information or to schedule an appointment to make an in-lieu fee payment.

For information on Hiking and Equestrian Trail requirements, please contact the Trails Coordinator at (213) 351-5134.

By: James Barber

James Barber, Land Acquisition & Development Section

Supv D 5th
July 09, 2013 13:42:02
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LOS ANGELES COUNTY
DEPARTMENT OF PARKS AND RECREATION

PARK OBLIGATION WORKSHEET

Tentative Map # **52584**	DRP Map Date: **06/11/2013**	SMC Date: **07/18/2013**	Report Date: **07/09/2013**
Park Planning Area # **35B**	**CASTAIC/VAL VERDE**	**CSD: Castaic**	Map Type: **REVISED**

The formula for calculating the acreage obligation and or In-lieu fee is as follows:

(P)eople x (0.003) Ratio x (U)nits = (X) acres obligation

(X) acres obligation x RLV/Acre = In-Lieu Base Fee

Where:

P = Estimate of number of People per dwelling unit according to the type of dwelling unit as determined by the 2000 U.S. Census*. Assume * people for detached single-family residences; Assume * people for attached single-family (townhouse) residences, two-family residences, and apartment houses containing fewer than five dwelling units; Assume * people for apartment houses containing five or more dwelling units; Assume * people for mobile homes.

Ratio = The subdivision ordinance provides a ratio of 3.0 acres of park land for each 1,000 people generated by the development. This ratio is calculated as "0.0030" in the formula.

U = Total approved number of Dwelling Units.

X = Local park space obligation expressed in terms of acres.

RLV/Acre = Representative Land Value per Acre by Park Planning Area.

Total Units **497** = Proposed Units **497** + Exempt Units **0**

	People*	Ratio 3.0 Acres / 1000 People	Number of Units	Acre Obligation
Detached S.F. Units	**3.54**	**0.0030**	**497**	**5.28**
M.F. < 5 Units	2.37	0.0030	0	0.00
M.F. >= 5 Units	2.88	0.0030	0	0.00
Mobile Units	3.02	0.0030	0	0.00
Exempt Units			0	
			Total Acre Obligation =	**5.28**

Park Planning Area = **35B CASTAIC/VAL VERDE**

Ratio	Acre Obligation	RLV / Acre	In-Lieu Base Fee
@(0.0030)	5.28	$191,986	**$1,013,686**

Lot #	Provided Space	Provided Acres	Credit (%)	Acre Credit	Land
506	Public Park	19.86	100.00%	19.86	Public
			Total Provided Acre Credit:	**19.86**	

Acre Obligation	Public Land Crdt.	Priv. Land Crdt.	Net Obligation	RLV / Acre	**In-Lieu Fee Due**
5.28	19.86	0.00	-14.58	$191,986	**$1,013,686**

APPENDIX 5.13-2

County of Los Angeles Department of Parks and Recreation Correspondence, August 5, 2013

COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS AND RECREATION
"Parks Make Life Better!"
Russ Guiney, Director John Wicker, Chief Deputy Director

August 5, 2013

kking@impactsciences.com

Ms.Kathleen King, Staff Planner
Impact Science Inc.
803 Camarillo Spring Road, Suite C
Camarillo, California 93012

Dear Ms. King:

LOS VALLES DRAFT ENVIRONMENTAL IMPACT REPORT
TRACT MAP NUMBER 52584

Our Department has received your questionnaire regarding the proposed project. We offer the following information in response to your request:

1. *What neighborhood and community parks and or recreational facilities exist within the service area of the proposed project? Does the Parks and Recreation Department of Los Angeles County operate and maintain any regional parks within its district?*

   Please see attachment #1 for a list of County facilities in the Santa Clarita Valley.

2. *Which neighborhood and community parks would be the closest to the proposed project?*

   - Hasley Canyon Park: approx. 0.95 mile
   - Val Verde Community Regional Park: approx. 1.78 miles
   - Del Valle Pak: approx. 2.35 miles

3. *Please provide the address, acreage, classification, and status for each park and or recreational facility that is located under the Parks and Recreation jurisdiction of Los Angeles County. Additionally, please provide a map of the parks within the District and a map of the District boundaries if available.*

   Please see attachment #1 for a list of County facilities in the Santa Clarita Valley.

   The Recreation and Open Space map, which is part of the Santa Clarita Valley Area Plan Update adopted by the Board of Supervisors on November 27, 2012, can be found on the Department of Regional Planning's website http://planning.lacounty.gov/ovv. Appendix II, Exhibit CO-8)

4. *What amenities are available to the public at each of the parks or recreational facilities that would serve the proposed project?*

   Please also see attachment #1 for park amenities.

5. *Are there any current or future plans to build additional neighborhood, community or regional parks within the County's boundaries?*

   Please see attachment # 2 for a list of future parks.

6. *Is there a shortage of neighborhood, community, or regional park facilities within the County? If so, identify the shortage for each park classification and estimated acreage of park and recreational deficiency.*

   In the Santa Clarita Valley planning area, there is a deficit of 308 acres in local parkland and a surplus of 12,798 acres in regional parkland. The surplus in regional parkland is due to the presence of Castaic Lake State Recreation Area, which has an area of 12,658 acres.

7. *Is there a "park acreage to population" standard (e.g., 5 acres of neighborhood park for every 1,000 persons) that the Parks and Recreation Department of Los Angeles County uses for the amount of park and recreational acreage to population? If so what is the standard for mini-parks, neighborhood parks, community parks and regional parks, if available?*

   The Department uses two standards: The "four acres per one thousand persons" is used for local parkland which includes Community Park, Neighborhood Park, Pocket Park and Park Node. The "six acres per one thousand persons" is used for regional parkland which includes Community Regional Park, Regional Park and Special Use Facility.

8. *What is the extent of impacts expected from the proposed project on neighborhood, community, or regional park facilities within the County boundaries?*

   The increased number of future residents from the proposed project will result in higher recreational use at County local parks listed on attachment #1.

9. *Please identify mitigation measures that would be implemented to offset the possible impact the proposed project would create to the park and recreational facilities within Los Angele County.*

   The proposed project will increase the recreation demand for local parks in the Santa Clarita Valley region. The Department is requiring the applicant/developer to provide

19.86 acres of public parkland to meet the Quimby obligation of this project. This information should be included in the project's environmental impact report.

10. *Please identify any other areas of concern you may have in terms of the County's ability to serve this proposed project as well as future development in the County's service area.*

    Per the Trails Report from the Subdivision Committee Review, the applicant/developer is required to dedicate a multi-use (hiking, mountain biking and equestrian) trail easement to the County and provide trail construction for the purposes of implementing the adopted, proposed Hasley Canyon Trail alignment. This information should be included in the project's environmental impact report.

11. *What is the current park acreage to population ratio for the Los Angeles County Park and Recreation Department?*

    For every one thousand people in the unincorporated areas of the County, there are 0.58 acres of local parkland. For every one thousand people throughout the County, there are 7.02 acres of regional parkland.

12. *Does the Parks and Recreation Department of Los Angeles County impose park/recreation development impact fees for new developments proposed within the boundaries of the District? If so, what are the current park/recreation development impact fees for residential, commercial, and industrial uses?*

    Please see the response for #9.

Thank you for including this Department in the review of this environmental issue. If we may be of further assistance, please contact me at (213) 351-5098.

Sincerely,

Kathline King

Kathline J. King
Chief Planning Division

KK:JIC:tls:/ Response to Impact Sciences Los Valles Project

Attachments

c: Parks and Recreation (N. E. Garcia, J. Rupert, J. Barber)

Attachment # 1 : Los Angeles County Facilities in Santa Clarita Valley 8/1/2013

PARK NAME	Classification	ACRES	PARK AMENITIES
CASTAIC LAKE STATE RECREATION AREA 32132 Castaic Lake Drive Castaic, CA 91384 (661) 257-4050 **LAND:** Unincorporated	**Regional**	**12,657.78**	5 offices, 1 boating instruction safety center with 6 multipurpose rooms, 20 restrooms, memorabilia, 2 civic art, 1 concession stand with snacks, bait & boat rentals, 14 picnic shelters, 31 group picnic shelters, 2 lakes with swim beach, boating, sailing, water skiing & fishing, trail staging area, horse trail, hiking trail, bicycle trail, 4 horseshoe pits, BMX area, control airplane area, , RV camping sites with RV dump station, tent camping sites & group camping site, showers for campers, 1 2-5 year old play area, 4 5-12 year old play areas & 2 2-12 year old play areas, info kiosks, educational signage, outdoor kitchens, 6 fish cleaning stations, picnic tables, barbecues, drinking fountains, and security lighting. parking: 2,266 Thomas Brothers map coordinates 4369 H5
CASTAIC REGIONAL SPORTS COMPLEX 31320 North Castaic Road Castaic, CA 91384 (661) 775-8865 **LAND:** Unincorporated	**Community Regional**	**53.66**	2 offices, 1 gymnasium with multipurpose room, teen center & computer lab, 2 restrooms, 3 lighted softball fields with a multipurpose overlay, 3 lighted basketball courts, 1 fitness par course, 1 2-5 year old play area & 1 5-12 year old play area, picnic tables, barbecues, drinking fountains, and security lighting. Parking: 346 Thomas Brothers map coordinates 4459 H1
DEL VALLE PARK 28201 West Sloan Canyon Road Castaic, CA 91384 (661) 294-3500 **LAND:** Unincorporated	**Neighborhood**	**5.46**	1 restroom, 1 2-5 year old play area & 1 5-12 year old play area, picnic tables, barbecues, and drinking fountains. Street parking only Thomas Brothers map coordinates 4369 F7
WILLIAM S. HART REGIONAL PARK 24151 N. San Fernando Road Newhall, CA 91321 (661) 259-0855 **LAND:** Santa Clarita	**Regional (Special Use-Historic)**	**159.99**	2 offices, 1 ranch house, 1 seniors center with multipurpose room, 2 restrooms, museum, historic structures, historic district, 2 gift shops, horse trail, hiking trail, group camping, plaza, info kiosks, outdoor kitchen, vending machines, picnic tables, barbecues, drinking fountains, and security lighting. Parking: 162 spaces Thomas Brothers map coordinates 4641 A2

HASLEY CANYON EQUESTRIAN CENTER 29201Avenue Penn Valencia, CA 91355 (661) 257-4050 **LAND:** Unincorporated	**Special Use (Equestrian)**	**67.00**	Equestrian facility with boarding facilities, trail staging area with performance arena, and horse trail. Rental horses available. Thomas Brothers map coordinates 4459 F5
HASLEY CANYON PARK 28700 West Quincy Street Castaic, CA 91384 (661) 294-3500 **LAND:** Unincorporated	**Neighborhood**	**5.37**	1 restroom, 1 2-12 year old play area, picnic tables, barbecues, and drinking fountains. Street parking only Thomas Brothers map coordinates 4459 H5
JAKE KUREDJIAN PARK 25265 Pico Canyon Road Stevenson Ranch, CA 91381 (661) 294-3500 **LAND:** Unincorporated	**Neighborhood**	**5.74**	1 restroom with a drinking fountain. Parking on site. Thomas Brothers map coordinates 4640 C1
PICO CANYON PARK 25600 Pico Canyon Road Stevenson Ranch, CA 91381 (661) 222-9536 **LAND:** Unincorporated	**Neighborhood**	**21.28**	1 restroom with a drinking fountain, and a hiking trail. Parking on site. Thomas Brothers map coordinates 4640 C1
PLACERITA CANYON NATURAL AREA and NATURE CENTER 19152 Placerita Canyon Road Newhall, CA 91231 (661) 259-7721 **LAND:** Unincorporated	**Community Regional (Special Use-Natural Area)**	**517.86**	1 rest room, historic structures, artifacts, nature center, exhibit area, museum, gift shop, trail staging facility, horse trail, bicycle trail, hiking trail, specialty gardens, animal exhibit, wildlife sanctuary, group camping, info kiosks, educational signage, picnic tables, barbecues, drinking fountains, and security lighting. Parking 222 spaces. Thomas Brothers map coordinates 4624 C2
DR. RICHARD H. RIOUX MEMORIAL PARK 26233 West Faulkner Drive Stevenson Ranch, CA 91381 (661) 222-9536 **LAND:** Unincorporated	**Neighborhood**	**16.68**	1 office, 1 restroom, 1 memorial, 1 softball field, 1 soccer field, 2 tennis courts, 1 basketball court, 12 horseshoe pits, 1 2-5 year old play area & 1 5-12 year old play area, amphitheater, vending machines, picnic tables, barbecues, drinking fountains, and security lighting. Parking: 143 spaces Thomas Brothers map coordinates 4450 B7
TESORO ADOBE HISTORIC PARK 29350 Avenida Rancho Tesoro Valencia, CA 91354 (661) 702-8953 **LAND:** Unincorporated	**Neighborhood (Special Use-Historic)**	**2.25**	1 rest room, multipurpose room, historic structures, historic district, museum, exhibits, amphitheater, educational signage, picnic tables, barbecues, and drinking fountains. Shared parking Thomas Brothers map coordinates 4420 F2

VAL VERDE COMMUNITY REGIONAL PARK 30300 West Arlington Road Val Verde, CA 91384 (661) 257-4014 **LAND:** Unincorporated	**Community Regional**	**57.93**	1 office, 1 community building with 2 multipurpose rooms with computer lab, swimming pool & bath house, 2 restrooms, historic park, 1 lighted softball field with an overlay multipurpose field, 1 lighted tennis court, 1 lighted basketball court, 1 hiking trail, 2 horseshoe pits, 1 2-5 year old play area & 1 5-12 year old play area, a camp site, picnic tables, barbecues, drinking fountains, and security lighting. Parking: 150 spaces Thomas Brothers map coordinates 4459 C6
VASQUEZ ROCKS NATURAL AREA and NATURE CENTER 10700 West Escondido Canyon Road Agua Dulce, CA 91350 (661) 268-0840 **LAND:** Unincorporated	**Community Regional (Special Use-Natural Area)**	**912.90**	1 office (temp trailer), *[nature center, library, exhibit area, museum, and gift shop (under construction)]*, rangers house – historic structure, archeology, artifacts, amphitheater, Trail staging area, horse trail, hiking trail, animal exhibits, wildlife sanctuary, group camping area, educational signage, and picnic tables. Parking: 240 spaces dirt parking lots. Thomas Brothers map coordinates 4373 F7
WEST CREEK PARK 24247 Village Circle Valencia, CA (661) 294-3500 **LAND:** Unincorporated	**Community**	**16.88**	1 restrooms, 1 group picnic shelter, 1 picnic shelter,, 1 amphitheater, 1 basketball court, 1 fitness par course, 1 2-12 year old play area, picnic tables, barbecues, drinking fountains, and security lighting. Parking on site. Thomas Brothers map coordinates 4460 E4

Los Angeles County Trails:

Download current trail data from the link below.
http://egis3.lacounty.gov/dataportal/2011/01/25/existing-county-trails-2010/

Attachment # 2: Proposed Quimby Parks

PARK	NET ACREAGE	STAGE	LOCATION
Neighborhood Park	8.50	SD	North of City of Santa Clarita & east side of Whites Canyon Rd.
Neighborhood Park	6.39	SD	North Bouquet Canyon Area
Neighborhood Park	±5.00	P	South of Pico Canyon Road, approximately 1.5 miles west of I-5 Freeway (Stevenson Ranch area) near Southern Oaks Drive
Neighborhood Park	9.74	SD	South side of 126 Freeway, west of Interstate 5 Freeway
Neighborhood Park	5.00	SD	West of I-5 Freeway and South of 126 Freeway; wraps around Magic Mountain
Lot 1974: 24.45 acres; Community Park Lot 1976: 4.80 acres. Neighborhood Park	29.25	SD	60 miles north of Los Angeles and 40 miles south of Bakersfield, near the junction of Interstate 5 and State Route 138. The site is just south of the kern County/Los Angeles County border.
Lot 1760: 4.19 acres; Neighborhood Park Lot 1761: 5.06 acres Neighborhood Park (est.); Lot 1762: 5.05 Neighborhood Park	14.30	SD	60 miles north of Los Angeles and 40 miles south of Bakersfield, near the junction of Interstate 5 and State Route 138. The site is just south of the kern County/Los Angeles County border.
Neighborhood Park	7.10	P	Between Val Verde Road & Avenue Penn, west of Camino De Valle, east of Van Buren
Community Park	13.93	SD	Northeast corner of Hunstock Street & proposed extension of Del Valle Road
Community Park	16.40	P	On either side (north and south) of the 126 Freeway and Santa Clara River east of LA-Ventura County line.
Community Park	12.00	SD	North of Soledad Canyon Road & south of Vasquez Canyon Rd.; east of Sierra Hwy & west of Whites Canyon Road
Community Park	20.20	SD	Magic Mountain Parkway & Commerce Drive
Neighborhood Park	5.00	SD	
Community Park	20.40	SD	Valencia Blvd.& Magic Mountain Parkway
TOTAL ACREAGE	**173.21**		

Last Updated: 2013-04-18

P Planning
SD Schematic Design

APPENDIX 5.14-1

Los Valles Traffic Report November 2014

LINSCOTT
LAW &
GREENSPAN
engineers

TRAFFIC IMPACT STUDY

LOS VALLES PROJECT

County of Los Angeles, California
November 25, 2014

Prepared for:

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TRAFFIC IMPACT STUDY

LOS VALLES PROJECT

County of Los Angeles, California
November 25, 2014

1.0 INTRODUCTION

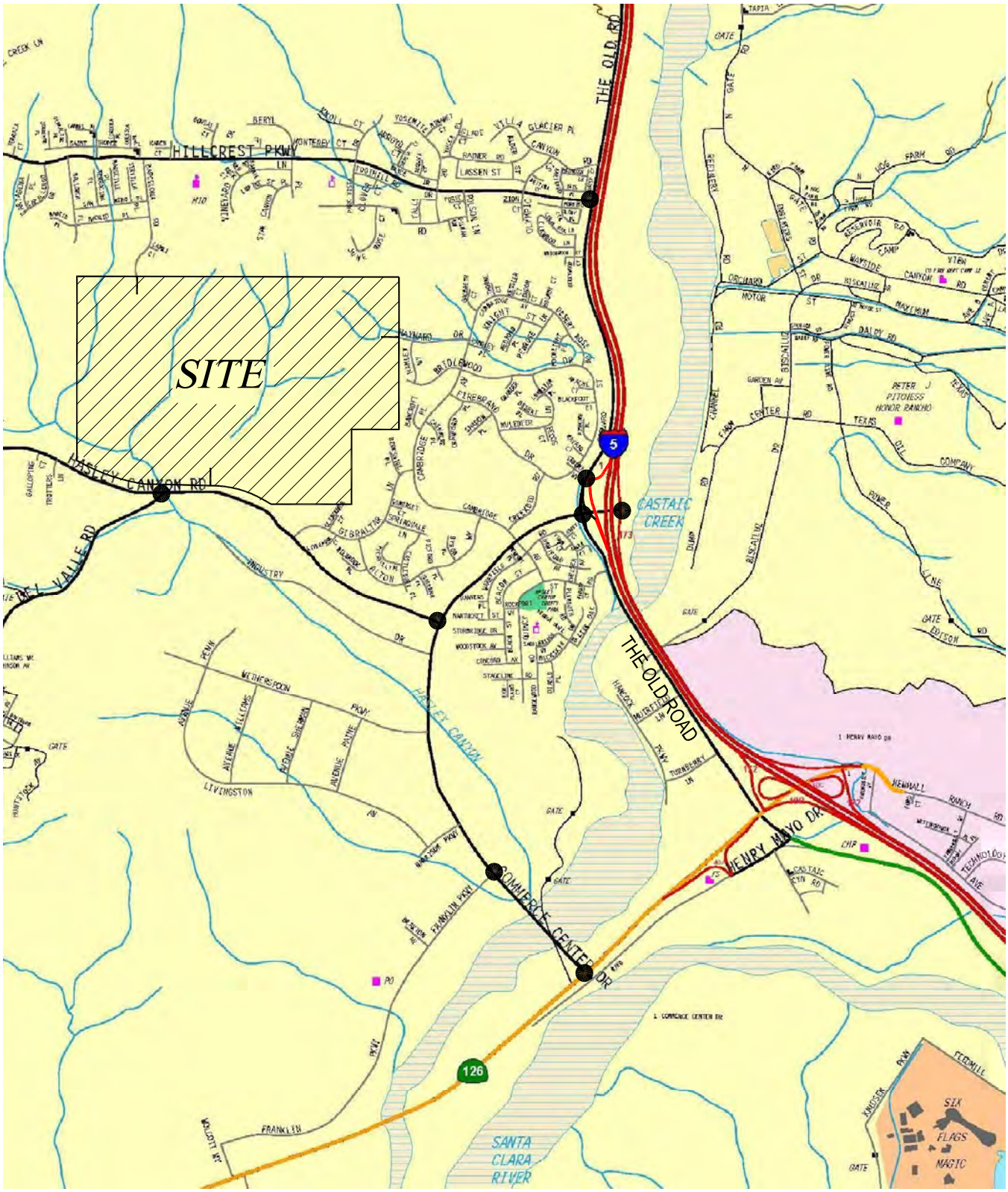
This traffic analysis has been conducted to identify and evaluate the potential traffic impacts generated by the proposed Los Valles residential development project located in the Castaic area of Los Angeles County. The project proposes to build 497 single-family homes at the proposed project site located north of the intersection of Del Valle Road and Hasley Canyon Road. The project site location and general vicinity are shown in ***Figure 1–1***.

The traffic analysis follows Los Angeles County Department of Public Works (LACDPW) traffic study guidelines[1] and is consistent with traffic impact assessment guidelines set forth in the Los Angeles County Congestion Management Program[2]. This traffic analysis evaluates potential project-related impacts at eight key intersections in the vicinity of the project site. The study intersections were determined in consultation with LACDPW Traffic and Lighting Division staff. The Intersection Capacity Utilization (ICU) method was used to determine Volume-to-Capacity (V/C) ratios and corresponding Levels of Service (LOS) at six study intersections. The remaining two roundabout intersections were analyzed using methodologies outlined in the Highway Capacity Manual (HCM) in order to determine the Delays and corresponding Levels of Service.

Additionally, a review of construction traffic and the proposed routes to and from the project site was completed in order to determine any construction-related impacts. Separate queuing analyses were also conducted at the freeway off-ramps within the project vicinity, at the proposed project access at Hasley Canyon Road, and at the project's internal access gates. Specifically, the HCM methodology was used in order to determine the Delays, Levels of Service, and the 95th percentile vehicle queue lengths at these locations.

A review also was conducted of Los Angeles County Metropolitan Transportation Authority freeway and intersection monitoring stations to determine if a Congestion Management Program (CMP) transportation impact assessment analysis is required for the proposed project. As part of this review, existing transit routes within the project vicinity were identified and any potential impacts caused by the proposed project were analyzed.

[1] County of Los Angeles' *Traffic Impact Analysis Report Guidelines*, January 1, 1997.
[2] *2010 Congestion Management Program*, Los Angeles County Metropolitan Transportation Authority, 2010.



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MAP SOURCE: RAND MCNALLY & COMPANY

● STUDY INTERSECTION

FIGURE 1-1
VICINITY MAP

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This study (i) presents existing traffic volumes, (ii) includes existing traffic volumes with the forecast net new traffic volumes from the proposed project, (iii) recommends mitigation measures, where necessary, (iv) forecasts future cumulative traffic volumes with the proposed project, (v) determines future forecast with project-related impacts, and (vi) recommends mitigation measures, where necessary.

1.1 Study Area

Upon coordination with LACDPW Traffic and Lighting Division staff, eight study intersections have been identified for evaluation during the weekday morning and afternoon peak hours. The eight study intersections provide local access to the study area and define the extent of the boundaries for this traffic impact analysis. Further discussion of the existing street system and study area is provided in Section 4.0.

The general location of the project in relation to the study locations and surrounding street system is presented in *Figure 1–1*. The traffic analysis study area is generally comprised of those locations which have the greatest potential to experience significant traffic impacts due to the proposed project as defined by the Lead Agency. In the traffic engineering practice, the study area generally includes those intersections that are:

a. Immediately adjacent or in close proximity to the project site;

b. In the vicinity of the project site that are documented to have current or projected future adverse operational issues; and

c. In the vicinity of the project site that are forecast to experience a relatively greater percentage of project-related vehicular turning movements (e.g., at freeway ramp intersections).

The locations selected for analysis were based on the above criteria, proposed Los Valles project peak hour vehicle trip generation, LACDPW staff recommendation, the anticipated distribution of project vehicular trips, and existing intersection/corridor operations.

2.0 PROJECT DESCRIPTION

2.1 Site Location

The site of the proposed Los Valles project is located north of the intersection of Del Valle Road and Hasley Canyon Road in the Castaic area of unincorporated Los Angeles County, California. The project site location and general vicinity are shown in *Figure 1–1*.

2.2 Existing Project Site

The existing project site is 430.4 acres of undeveloped land. Access to the existing project site is provided via unpaved driveways off Hasley Canyon Road along the proposed southerly property frontage.

2.3 Proposed Project Description

The Los Valles project proposes to construct 497 single-family homes on 153 acres of the 430.4 acres of land. Construction of the proposed project is anticipated to be completed by the year 2023. The site plan for the proposed project is illustrated in ***Figure 2–1***.

Vehicular access to the site will be provided via the construction of "A" Street north of Hasley Canyon Road, east of Del Valle Road. Additionally, the project proposes to extend Barcelona Road and Hayward Drive to connect to the project as northerly and easterly access points, respectively. Further discussion of the proposed project site access and circulation scheme is provided in Section 3.0.

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SOURCE: SITESCAPES LANDSCAPE ARCHITECTURE & PLANNING

FIGURE 2-1
PROJECT SITE PLAN

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3.0 SITE ACCESS AND CIRCULATION

The proposed site access scheme for the Los Valles project is displayed in *Figure 2–1*. A description of the proposed site access and circulation scheme is provided in the following subsections.

3.1 Vehicular Project Site Access

Vehicular access to the site will be provided via the construction of "A" Street north of Hasley Canyon Road, east of Del Valle Road. Additionally, the project proposes to extend Barcelona Road and Hayward Drive to connect to the project as northerly and easterly access points, respectively. Descriptions of the project site accesses are provided in the following paragraphs:

- *"A" Street Project Access*:

  The "A" Street project site access is located north side of Hasley Canyon Road, just east of Del Valle Road, along the project's southerly frontage. This street will provide access to the entire proposed project and will accommodate full vehicular access (i.e., left-turn and right-turn ingress and egress movements). It is anticipated that the project will improve Hasley Canyon Road along the project frontage as needed to provide a separate left-turn pocket on Hasley Canyon Road for eastbound traffic at this project access. Further discussion of Hasley Canyon Road is presented in Section 4.3. Additional review and analysis of the project's proposed site access on Hasley Canyon Road is presented in Section 13.0.

- *Easterly Project Access*:

  The easterly project site access is located along the proposed project site's eastern boundary. The project proposes to extend the existing Hayward Drive to provide access to the proposed project site. Hayward Drive would provide local access to the existing residential communities generally east of the project site. Only a minimal number of project-related trips are anticipated to use the Hayward Drive access (e.g., residents of the project visiting friends in the existing residential community to the east), and thus, would not adversely affect current operating conditions on Hayward Drive. Thus, no additional analysis is required regarding the project's effects on Hayward Drive.

- *Northerly Project Access:*

  The northerly project site access is located along the proposed project site's northern boundary. The project proposes to extend the existing Barcelona Road to provide access to the proposed project site. It is anticipated that some project-related trips may utilize the site's Barcelona Road access, for example, when traveling to and from the Castaic Middle School. Based on the relatively minimal number of project-related trips expected to use the Barcelona Road access, no adverse effects are expected, and thus, no additional analysis is required.

4.0 EXISTING STREET SYSTEM

4.1 Regional Highway System

Primary regional access is provided by the I-5 (Golden State) Freeway. A brief description of the freeway is provided in the following paragraph:

I-5 (Golden State) Freeway is a north-south freeway that spans the entirety of California. Four mainline travel lanes are provided in each direction along the I-5 Freeway near the study area. Northbound and southbound on and off-ramps are provided at Hasley Canyon Road.

4.2 Local Street System

Immediate access to the project site is provided via Hasley Canyon Road. The following study intersections were selected in consultation with LACDPW staff for analysis of potential impacts due to the proposed project:

1. Del Valle Road / Hasley Canyon Road
2. Commerce Center Drive / Hasley Canyon Road
3. Commerce Center Drive / Franklin Parkway
4. Commerce Center Drive / Henry Mayo Drive (SR 126)
5. The Old Road / Hillcrest Parkway
6. The Old Road / I-5 Freeway Southbound (SB) Ramps – Sedona Way
7. The Old Road – I-5 Freeway SB On-Ramp / Hasley Canyon Road
8. I-5 Freeway Northbound (NB) Ramps / Hasley Canyon Road

Five of the eight study intersections selected for analysis are presently controlled by traffic signals. Two of the remaining study intersections (Intersection No. 7 The Old Road – I-5 Freeway SB On-Ramp / Hasley Canyon Road and Intersection No. 8 I-5 Freeway Northbound (NB) Ramps / Hasley Canyon Road) are roundabouts. Intersection No. 1 Del Valle Road / Hasley Canyon Road is currently an unsignalized stop-controlled intersection. The existing lane configurations at the study intersections are displayed in ***Figure 4–1***.

4.3 Roadway Descriptions

A brief description of the important roadways in the project vicinity is provided in the following paragraphs:

Del Valle Road is a north-south Limited Secondary Highway which extends south from Hasley Canyon Road at the project site. One through travel lane is provided in each direction on Del Valle Road south of Hasley Canyon Road. The Del Valle Road and Hasley Canyon Road intersection is a "Tee" with the northbound approach stop controlled at Hasley Canyon Road. South of Hasley Canyon Road near the project site both curbs on the Del Valle Road are unimproved (no curb and gutter). Parking is generally permitted on both sides of Del Valle Road in the project vicinity with no parking restrictions posted. Del Valle Road is posted for a 40 miles per hour speed limit near the project site.

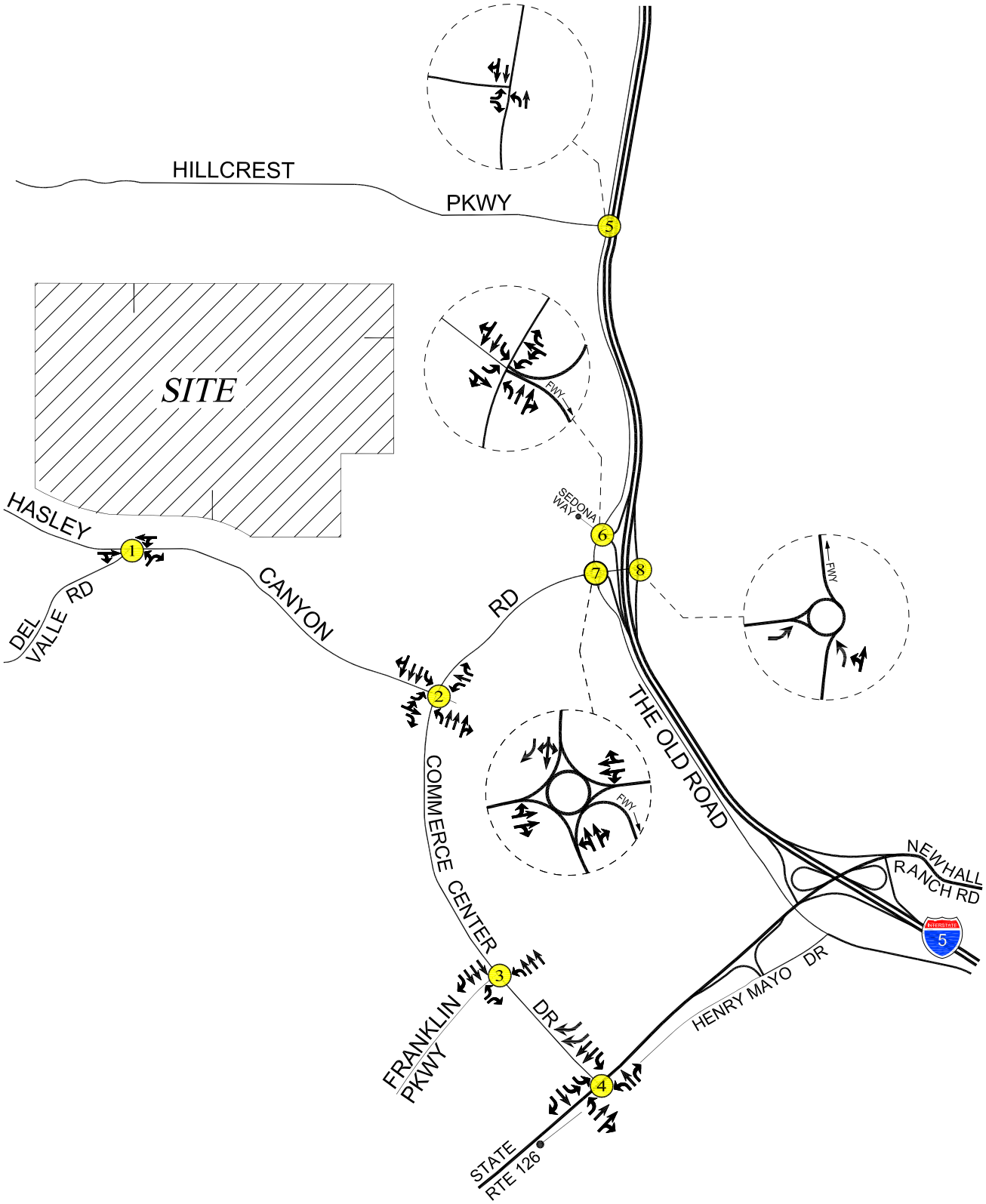

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FIGURE 4-1
EXISTING LANE CONFIGURATIONS

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Commerce Center Drive is a north-south Major Highway located just east of the project site. Commerce Center Drive extends from Hasley Canyon Road to the north to Henry Mayo Drive (SR-126) to the south. Three through travel lanes are provided in each direction on Commerce Center Drive in the project vicinity. Separate left-turn pockets are provided on Commerce Center Drive in each direction. Parking is prohibited on both sides of Commerce Center Drive in the project vicinity. Commerce Center Drive is posted for a 45 miles per hour speed limit near the project site.

The Old Road is a north-south Secondary Highway north of Hasley Canyon Road and a Major Class Highway south of Hasley Canyon Road. The Old Road is located east of the proposed project and runs parallel to the I-5 Freeway. Two through travel lanes are provided in each direction on The Old Road, except for the portion of The Old Road generally between Live Oak Road and Biscailuz Drive where one lane is provided in each direction. Separate left-turn pockets are provided on The Old Road. The Old Road intersection with Hasley Canyon Road is a roundabout. Parking is prohibited on both sides of The Old Road in the project vicinity. The Old Road is posted for a 55 miles per hour speed limit near the project site.

Hillcrest Parkway is an east-west Secondary Highway located just north of the project site. Hillcrest Parkway extends from Sloan Canyon Road to the west to The Old Road to the east. Two through travel lanes are provided in each direction on Hillcrest Parkway in the project vicinity with separate left-turn pockets provided in each direction. Parking is prohibited on both sides of Hillcrest Parkway in the project vicinity. Hillcrest Parkway is posted for a 50 miles per hour speed limit, except at the School Zone between Barcelona Road to the west to Park Vista Drive to the east.

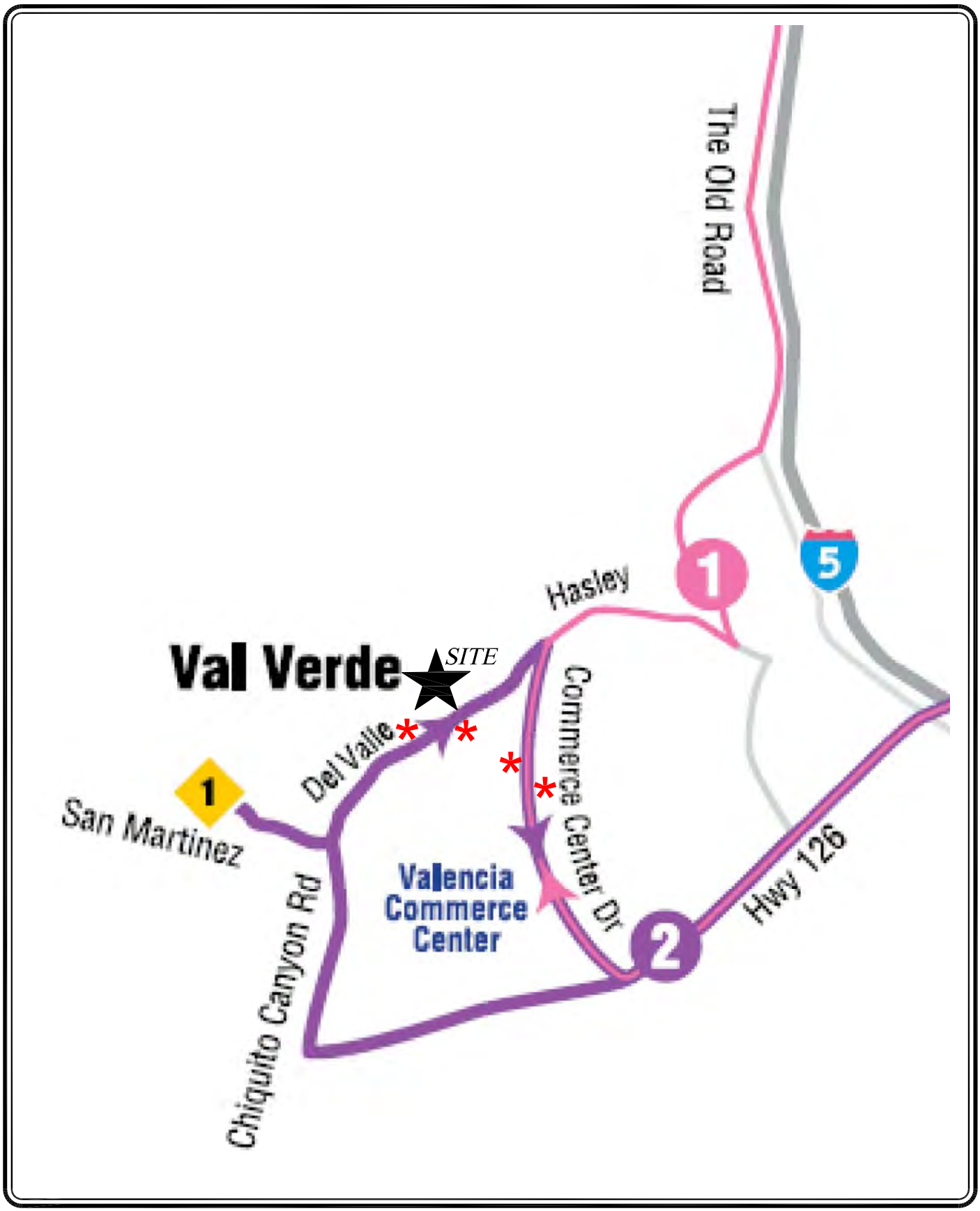
Hasley Canyon Road is an east-west Limited Secondary Highway west of Del Valle Road and a Secondary Highway east of Del Valle Road. Hasley Canyon Road borders the project site to the south and terminates to the east at the 1-5 Freeway NB Ramps. One through travel lane is provided in each directions on Hasley Canyon Road west of Del Valle Road and two through travel lanes are provided in each directions east of Del Valle Road near the project site. Near the project site, both curbs on Hasley Canyon Road are unimproved (no curb and gutter). Parking is prohibited on both sides of Hasley Canyon Road in the project vicinity. Hasley Canyon Road is posted for a 40 miles per hour speed limit west of Del Valle Road and a 45 miles per hour speed limit east of Del Valle Road near the project site.

Franklin Parkway is an east-west Local Street located south of the project site. Franklin Parkway extends from Wolcott Way to the west to Commerce Center Drive to the east. One through travel lane is provided in each direction east of Wolcott Way for approximately one mile. At this point, two through travel lanes are provided in each direction on Franklin Parkway and separate left-turn pockets are provided in each direction. Parking is prohibited on both sides of Franklin Parkway in the project vicinity. Franklin Parkway is posted for a 35 miles per hour speed limit.

Henry Mayo Drive (State Route 126) is an east-west Parkway which is located south of the project site and terminates just east of the I-5 Freeway, where it becomes Newhall Ranch Road. Two through travel lanes are provided in each direction on Henry Mayo Drive in the project vicinity with separate left-turn pockets. Parking is prohibited on both sides of Henry Mayo Drive in the project vicinity. Henry Mayo Drive is posted for a 60 miles per hour speed limit near the project site.

4.4 Public Bus Transit Service

Public bus transit service within the project study area is currently provided by City of Santa Clarita Transit, Routes 1 and 2. Routes 1 and 2 generally provide six buses per hour (three eastbound and three westbound) during both the AM and PM peak hours. The closest stops to the project site are near the intersections of Del Valle Road/Hasley Canyon Road and Commerce Center Drive/Industry Drive. The existing bus stop locations are shown in ***Figure 4–2***.



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MAP SOURCE: SANTA CLARITA TRANSIT

* BUS STOP LOCATION

FIGURE 4-2

EXISTING PUBLIC TRANSIT ROUTES

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5.0 TRAFFIC COUNTS

Manual traffic counts of vehicular turning movements were conducted at each of the study intersections during the weekday morning and afternoon commuter period to determine the peak hour traffic volume. The manual traffic counts at the study intersections were conducted from 7:00 AM to 9:00 AM to determine the AM peak commuter hour and from 4:00 to 6:00 PM to determine the PM peak commuter hour. Traffic volumes at the study intersections show the typical peak periods between 7:00 and 9:00 AM generally associated with the peak morning commuter hours and 4:00 and 6:00 PM generally associated with the afternoon commuter hours.

The weekday AM and PM peak period manual counts of vehicle movements at the study intersections are summarized in ***Table 5–1***. The existing traffic volumes at the study intersections during the AM and PM peak hours are shown in ***Figures 5–1 and 5–2***, respectively. Summary data worksheets of the manual traffic counts at the study intersections are contained in ***Appendix A***.

Table 5-1
EXISTING TRAFFIC VOLUMES [1]

27-Dec-12

NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR BEGAN	AM PEAK HOUR VOLUME	PM PEAK HOUR BEGAN	PM PEAK HOUR VOLUME
1	Del Valle Road/ Hasley Canyon Road	09/12/2012	NB	7:30	198	4:30	120
			SB		0		0
			EB		164		99
			WB		168		311
2	Commerce Center Drive/ Hasley Canyon Road	09/12/2012	NB	7:30	141	4:15	625
			SB		761		400
			EB		370		250
			WB		54		53
3	Commerce Center Drive/ Franklin Parkway	09/12/2012	NB	7:30	1,377	4:15	335
			SB		335		1,105
			EB		79		346
			WB		0		0
4	Commerce Center Drive/ Henry Mayo Drive (SR-126)	09/12/2012	NB	7:15	125	4:15	118
			SB		313		1,261
			EB		676		879
			WB		1,873		983
5	The Old Road/ Hillcrest Parkway	09/12/2012	NB	7:30	521	4:45	708
			SB		365		238
			EB		987		381
			WB		0		0
6	The Old Road/ I-5 Freeway SB Ramps - Sedona Way	09/12/2012	NB	7:30	465	5:00	792
			SB		1,022		463
			EB		316		114
			WB		127		86
7	The Old Road - I-5 Freeway SB On-Ramp/ Hasley Canyon Road	09/12/2012	NB	7:30	274	4:30	295
			SB		550		265
			EB		647		865
			WB		947		1,086
8	I-5 Freeway NB Ramps/ Hasley Canyon Road	09/12/2012	NB	7:30	956	4:45	1,140
			SB		0		0
			EB		62		127
			WB		0		0

[1] Counts conducted by The Traffic Solution

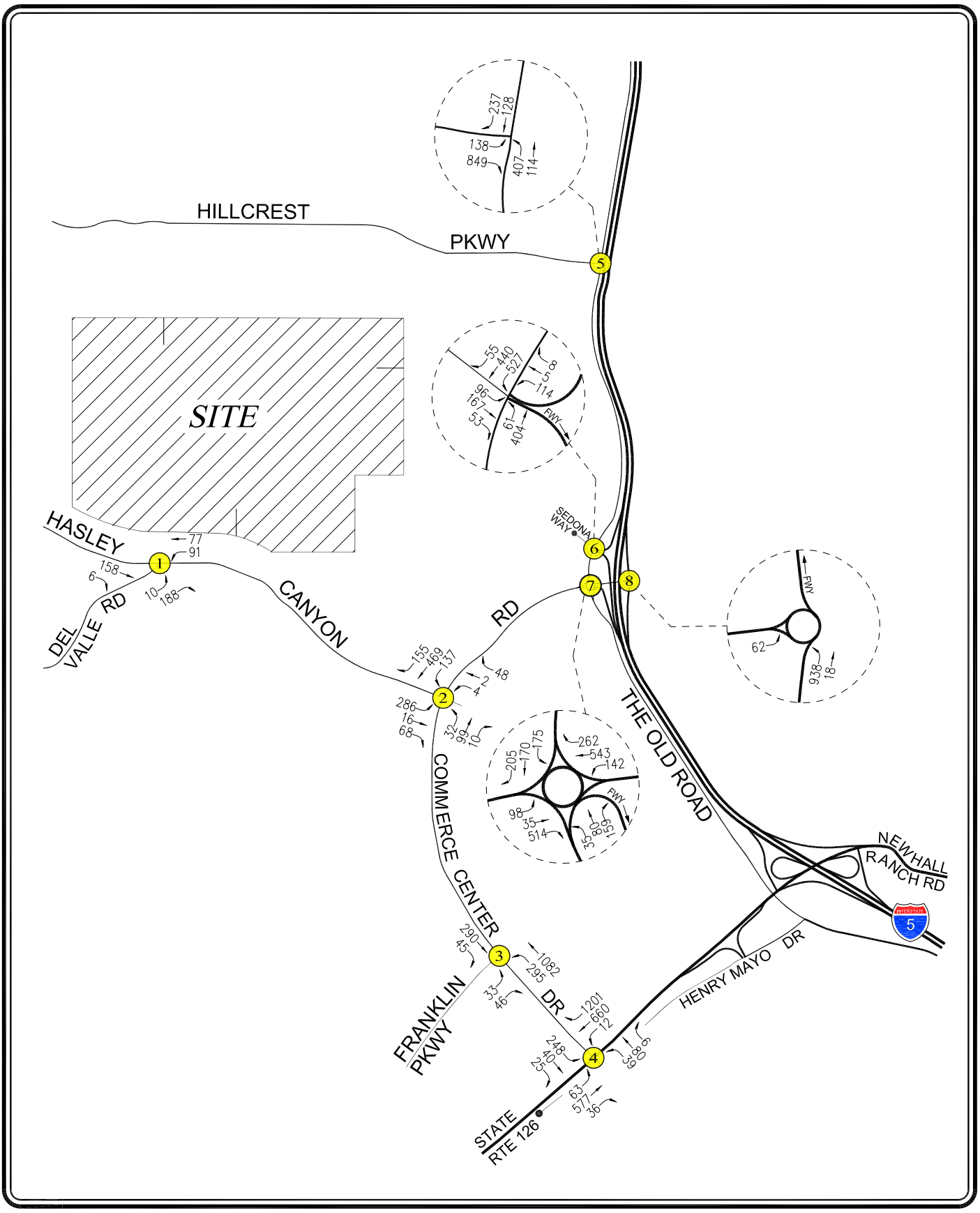

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FIGURE 5-1

EXISTING TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

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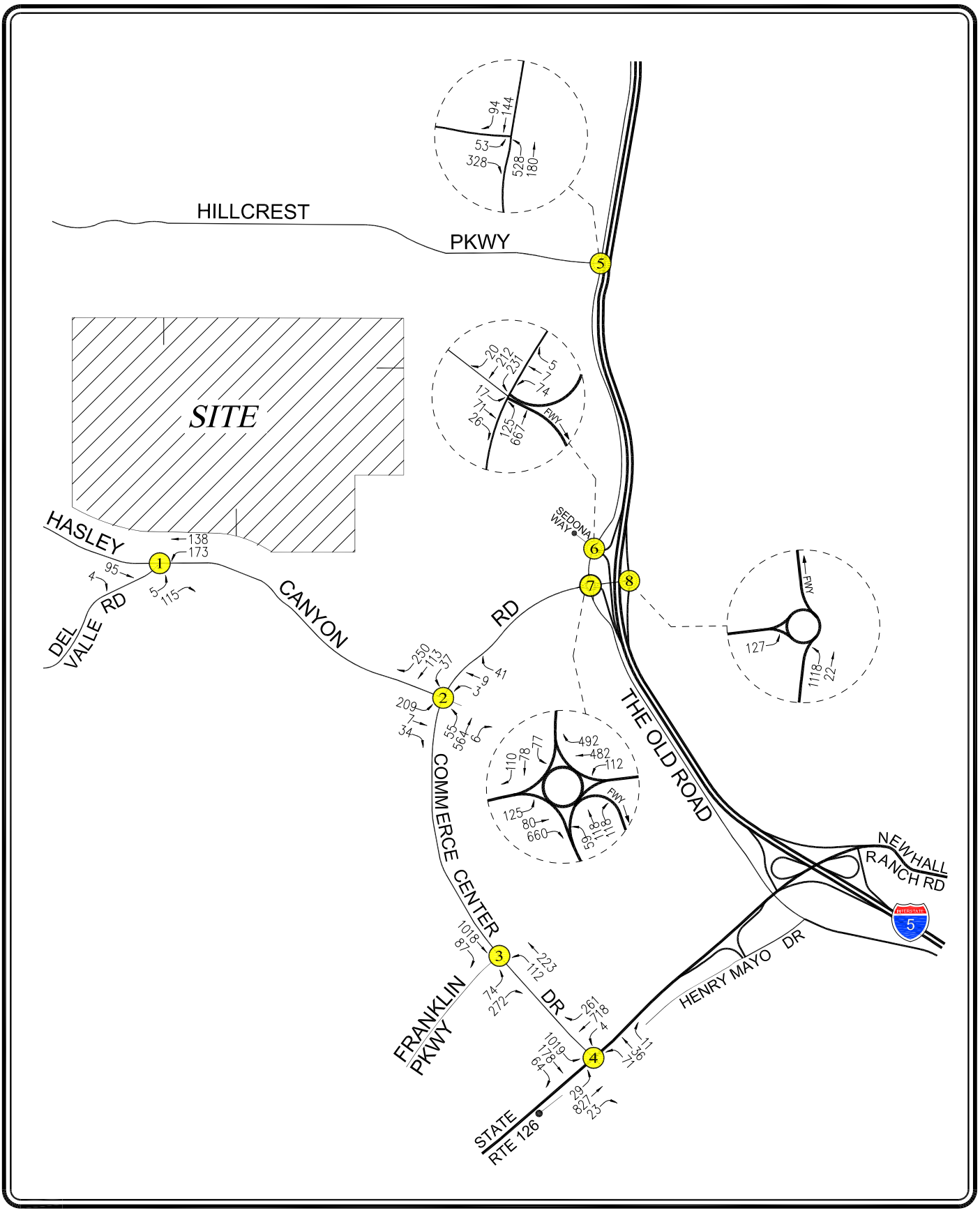

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FIGURE 5-2
EXISTING TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR

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6.0 CUMULATIVE DEVELOPMENT PROJECTS

The forecast of future pre-project conditions was prepared in accordance with procedures outlined in Section 15130 of the CEQA Guidelines. Specifically, the CEQA Guidelines provide two options for developing the future traffic volume forecast:

> "(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the [lead] agency, or
>
> (B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency."

Accordingly, the traffic analysis utilizes option "A" outlined in CEQA Guidelines for purposes of developing the future pre-project traffic volume forecast.

6.1 Related Projects

A forecast of on-street traffic conditions prior to occupancy of the proposed project was prepared by incorporating the potential trips associated with other known development projects (related projects) in the area. With this information, the potential impact of the proposed project can be evaluated within the context of the cumulative impact of all ongoing development. The related projects research was based on information on file at the County of Los Angeles Department of Regional Planning and the City of Santa Clarita. The County's traffic study guidelines document requires consideration of related project located within 1.5 miles of the project site. However, for this traffic analysis, a larger radius was considered in identifying related project which could add traffic through the study intersections. The list of related projects that was determined by LLG to be applicable in the project site area is presented in ***Table 6–1***. The location of the related projects is shown in ***Figure 6–1***.

TABLE 6-1
RELATED PROJECTS LIST AND TRIP GENERATION

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
LOS ANGELES COUNTY RELATED PROJECTS [1]												
LAC 1	PM069961 31050 Burlwood Drive	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 2	TR069987 30406 Romero Canyon Road	Proposed	Single Family Detached Housing	9 DU	[3]	86	2	5	7	6	3	9
LAC 3	PM070839 30469 Sloan Canyon Road	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 4	Pitchess Detention Center 29330 The Old Road	Proposed	Prison	1,156 Beds	[4]	1,156	14	8	22	5	21	26
LAC 5	87360 28908 Avenue Paine, Suite A	Proposed	General Office Remove General Office	1,998 GSF (724) GSF	[5]	22 (8)	3 (1)	0 0	3 (1)	1 0	2 (1)	3 (1)
LAC 6	87360 28305 Livingston Avenue	Proposed	General Office	400 GSF	[5]	4	1	0	1	0	1	1
LAC 7	R2005-03755 31949 N. Castaic Road	Proposed	Shopping Center	5,510 GLSF	[6]	237	4	2	6	10	11	21
LAC 8	R2005-03755 31953 N. Castaic Road	Proposed	Shopping Center	4,000 GLSF	[6]	172	2	2	4	7	8	15
LAC 9	Tapia Ranch (TR053822) East of I-5 / North of Pitchess	Proposed	Single Family Detached Housing	405 DU	[3]	3,876	76	228	304	258	151	409
LAC 10	Landmark Village (Phases 1 + 2 + 3) East of Chiquito Canyon Road / South of SR-126	Proposed	Residential Non-Commercial Commercial	1,444 DU 1,040,000 SF	[7] [7] [7]	12,174 1,142 28,568	173 195 1,363	718 150 309	890 345 1,672	758 61 1,018	412 68 1,847	1,170 129 2,865
LAC 11	Tesoro del Valle Phases B, C, D West of Casa Luna Place / North of Avenida Rancho Tesoro	Partially Built	Single Family Detached Housing	239 DU	[3]	2,287	45	134	179	152	89	241
LAC 12	PM069788 28718 San Francisquito Canyon Road	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 13	Burnam Project (VTTM 53189) West of San Francisquito Creek / North of Copper Hill Drive	Approved	Single Family Detached Housing	45 DU	[3]	431	9	25	34	28	17	45
LAC 14	TR045433-02 West of The Old Road / South of Valencia Boulevard	Proposed	Single Family Detached Housing	9 DU	[3]	86	2	5	7	6	3	9
LAC 15	Alara Links at Westridge Apartments 25330 Silver Aspen Way	Proposed	Apartment	230 DU	[8]	1,530	23	94	117	93	50	143
LAC 16	Six Flags Magic Mountain 26101 Magic Mountain Parkway	Proposed	Amusement Park Improvements			Nom.	Nom.	Nom.	Nom.	Nom.	Nom.	Nom.
LAC 17	TR052455 West Creek Park	Approved	Single Family Detached Housing	7 DU	[3]	67	1	4	5	4	3	7

TABLE 6-1 (Continued)
RELATED PROJECTS LIST AND TRIP GENERATION

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
LAC 18	PM069664 Burlwood Drive at Hasley Canyon Road	Proposed	Single Family Detached Housing	2 DU	[3]	19	1	1	2	1	1	2
LAC 19	Panda Express Restaurant (PM064825) 31970 Castaic Road	Built	Fast-Food Restaurant with Drive-Through			Nom.	Nom.	Nom.	Nom.	Nom.	Nom.	Nom.
LAC 20	PM067785 30995 Stone Creek Road	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 21	PM071059 28456 Sloan Canyon Road	Proposed	Single Family Detached Housing	3 DU	[3]	29	1	1	2	2	1	3
LAC 22	TR069708 North of San Martinez Road / South of Hasley Canyon	Proposed	Single Family Detached Housing	100 DU	[3]	957	19	56	75	64	37	101
\LAC 23	TR071603 East of Hidden Hills Drive / North of Copperhill Drive	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 24	Castaic Area High School Romero Canyon Road / North of Barringer Road	Proposed	High School	1,600 Students	[9]	2,736	457	215	672	98	110	208
LAC 25	Santa Clarita Valley Facilities Foundation Sloan Canyon Road / Hasley Canyon Road	Proposed	Single Family Detached Housing	34 DU	[3]	325	7	19	26	21	13	34
LAC 26	Mission Village South of SR-126 at Commerce Center Drive	Proposed	Residential Non-Residential	4,412 DU 1,555,100 SF	[10] [10]	31,235 27,217	459 2,242	1,786 578	2,245 2,820	1,822 941	1,035 2,128	2,857 3,069
CITY OF SANTA CLARITA RELATED PROJECTS [11]												
SC 1	Rye Canyon Business Park Northeast corner of Rye Canyon Road at Newhall Ranch Road	Partially Built	Business Park	4,400,000 sf	-	-	-	-	-	-	-	-
SC 2	Golden Valley Ranch (TR 52414) Newly annexed development area southeast of SR-14 and north of Placerita Canyon Road	Partially Built	Single Family Detached Housing Commercial	498 DU 618,759 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 3	Whittaker Bermite /Porta Bella Project (TR 51599) West of Golden Valley Road, south of Soledad Canyon Road, and east of San Fernando Road	Proposed	Single Family Detached Housing Commercial	2,911 DU 609,832 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 4	Riverpark (TR 53425) Eastern terminus of Newhall Ranch Road, east of Bouquet Canyon Road, north of Soledad Canyon Road and the Santa Clara River	Proposed	Single Family Detached Housing Commercial	1,089 DU 16,000 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 5	North Valencia Specific Plan No. II (MC 04-205) Along the east side of San Francisquito Creek, north of Newhall Ranch Road, south of Decoro Drive, east of Rye Canyon Road, and west of McBean Parkway	Built	Single Family Detached Housing Commercial	1,900 DU 210,000 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 6	Keystone/Synergy Project (TR 60258) South of Bouquet Canyon Road, adjacent to the RiverPark project	Proposed	Single Family Detached Housing Commercial	499 DU 30,476 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 7	Downtown Newhall Specific Plan Downtown Newhall area along San Fernando Road	Approved	Single Family Detached Housing Commercial	1,092 DU 1,107,000 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 8	North Newhall Specific Plan Along San Fernando Road in Newhall	Proposed	Single Family Detached Housing Commercial	775 DU 450,000 sf	- -	- -	- -	- -	- -	- -	- -	- -

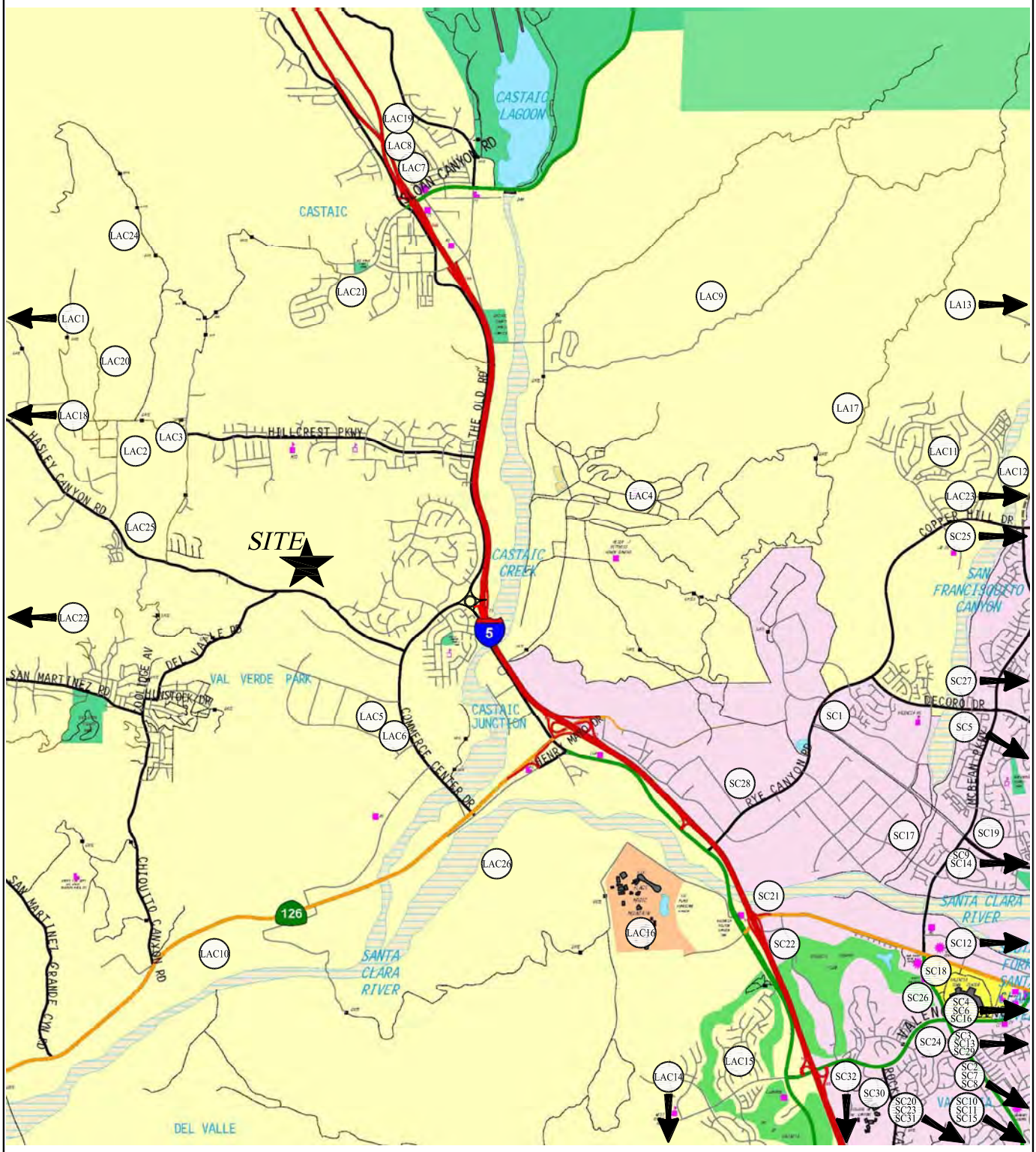
Table 6-1 (Continued)
RELATED PROJECTS LIST AND TRIP GENERATION

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
SC 9	Stetson Ranch (TR 49621) East of Sand Canyon Road at the northern terminus of Gary and Marilyn Drives	Built	Single Family Detached Housing	265 DU	-	-	-	-	-	-	-	-
SC 10	DR Horton (TR 48892) Northeast corner of Sierra Highway and Golden Valley Road	Built	Single Family Detached Housing	148 DU	-	-	-	-	-	-	-	-
SC 11	Centex Homes (TR 61811) Located north of Golden Valley Road, west of Sierra Highway	Built	Single Family Detached Housing	52 DU	-	-	-	-	-	-	-	-
SC 12	Soledad Village Project (MC 04-444) North of Soledad Canyon Road, south of Santa Clara River; east of Bouquet Canyon Road	Under Construction	Single Family Detached Housing Commercial	315 DU 8,000 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 13	Friendly Valley Association 11 (TR 52385) North of Sierra Highway and east of Via Princessa	Built	Single Family Detached Housing	43 DU	-	-	-	-	-	-	-	-
SC 14	Soledad Circle Estates South of Soledad Canyon Road at Penlon Court	Approved	Single Family Detached Housing	147 DU	-	-	-	-	-	-	-	-
SC 15	Gate King (TR 50283) Southern Santa Clarita, west of SR-14 and Sierra Highway, south of San Fernando Road	Approved	Commercial	4,200,000 sf	-	-	-	-	-	-	-	-
SC 16	Centre Pointe Business Park (TR 42670) South of Soledad Canyon road, east of Bouquet Canyon Road, west of Golden Valley Road	Built	Business Park	2,300,000 sf	-	-	-	-	-	-	-	-
SC 17	North Valencia Specific Plan No. I South of Newhall Ranch Road, north of Magic Mountain Parkway, east of Rye Canyon Road, west of Bouquet Canyon Road	Built	Commercial	803,000 sf	-	-	-	-	-	-	-	-
SC 18	Valencia Town Center Expansion Northeast corner of Valencia Boulevard and McBean Parkway	Built	Shopping Center	491,860 sf	-	-	-	-	-	-	-	-
SC 19	Bridgeport Market Place Northeast corner of McBean Parkway and Newhall Ranch Road	Built	Shopping Center	160,000 sf	-	-	-	-	-	-	-	-
SC 20	Henry Mayo Newhall Memorial Master Plan (MC 04-325) 23845 West McBean Parkway	Under Construction	Commercial	600,000 sf	-	-	-	-	-	-	-	-
SC 21	Tourney North Magic Mountain Parkway west of The Old Road and I-5	Built	Commercial	450,000 sf	-	-	-	-	-	-	-	-
SC 22	Tourney South Wayne Mills Place east of I-5	Built	Commercial	165,000 sf	-	-	-	-	-	-	-	-
SC 23	Chinque Terra Office Park On Sierra Highway between Dockweiler Drive and San Fernando Road	Proposed	Office Park	90,900 sf	-	-	-	-	-	-	-	-
SC 24	Facey Medical Building 26357 McBean Parkway	Built	Medical-Dental Office	79,000 sf	-	-	-	-	-	-	-	-
SC 25	HH Seco II LLC (MC 01-317) Southwest corner of Seco Canyon Road and Copperhill Drive	Built	Commercial	40,000 sf	-	-	-	-	-	-	-	-
SC 26	VTC Square Northwest corner of McBean Parkway and Valencia Boulevard	Approved	Commercial	12,350 sf	-	-	-	-	-	-	-	-

Table 6-1 (Continued)
RELATED PROJECTS LIST AND TRIP GENERATION

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
SC 27	Rodgers Development Master Case 02-232 Northeast corner of Bouquet Canyon Road and Plum Canyon Road	Built	Commercial	34,000 sf	-	-	-	-	-	-	-	-
SC 28	ADI 25575 Rye Canyon Road	Proposed	Manufacturing	110,000 sf	-	-	-	-	-	-	-	-
SC 29	Soledad Office Center 17901 Soledad Canyon Road	Proposed	Medical-Dental Office	100,000 sf	-	-	-	-	-	-	-	-
SC 30	College of the Canyons Expansion South of Valencia Boulevard and West of Rockwell Canyon Road	Built	Junior/Community College	180,000 sf	-	-	-	-	-	-	-	-
SC 31	Master's College Master Plan and TM 66503 21726 Placerita Canyon Road	Approved	University/College	42	-	-	-	-	-	-	-	-
SC 32	UCLA Film Archives North of McBean Parkway and west of Rockwell Canyon Road	Under Construction	Warehouse	368,730 sf	-	-	-	-	-	-	-	-
SC 33	Wiley Canyon Road/Via Princessa Bridge (South fork) Crosses South Fork of Santa Clara River in the city of Santa Clarita	Built	Bridge	N/A	-	-	-	-	-	-	-	-
SC 34	Saugus Water Reclamation Plant Near Bouquet Canyon Road, discharges to Santa Clara River	Built	Utilities	N/A	-	-	-	-	-	-	-	-
						114,538	**5,103**	**4,350**	**9,453**	**5,371**	**6,015**	**11,386**

[1] Source: Los Angeles County Department of Regional Planning.
Trip Generation for the related projects are based on ITE "Trip Generation", 8th Edition, 2008 (as referenced in the Project Data Source column), unless otherwise noted.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 210 (Single Family Detached Housing) trip generation average rates.
[4] Source: Los Angeles County Sheriff's Department
[5] ITE Land Use Code 710 (General Office) trip generation average rates.
[6] ITE Land Use Code 820 (Shopping Center) trip generation average rates.
[7] Source: River Village Traffic Impact Analysis, Prepared By Austin-Foust Associates, September 2004
[8] ITE Land Use Code 220 (Apartment) trip generation average rates.
[9] ITE Land Use Code 530 (High School) trip generation average rates.
[10] Source: Mission Village Draft Environmental Impact Report, May 2011
[11] Source: City of Santa Clarita
Related Projects in the City of Santa Clarita are not expected to send trips through study intersections, therefore, no Trip Generation for these projects is provided.



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MAP SOURCE: RAND MCNALLY & COMPANY

★ PROJECT SITE

(XX) RELATED PROJECT

FIGURE 6-1
LOCATION OF RELATED PROJECTS

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

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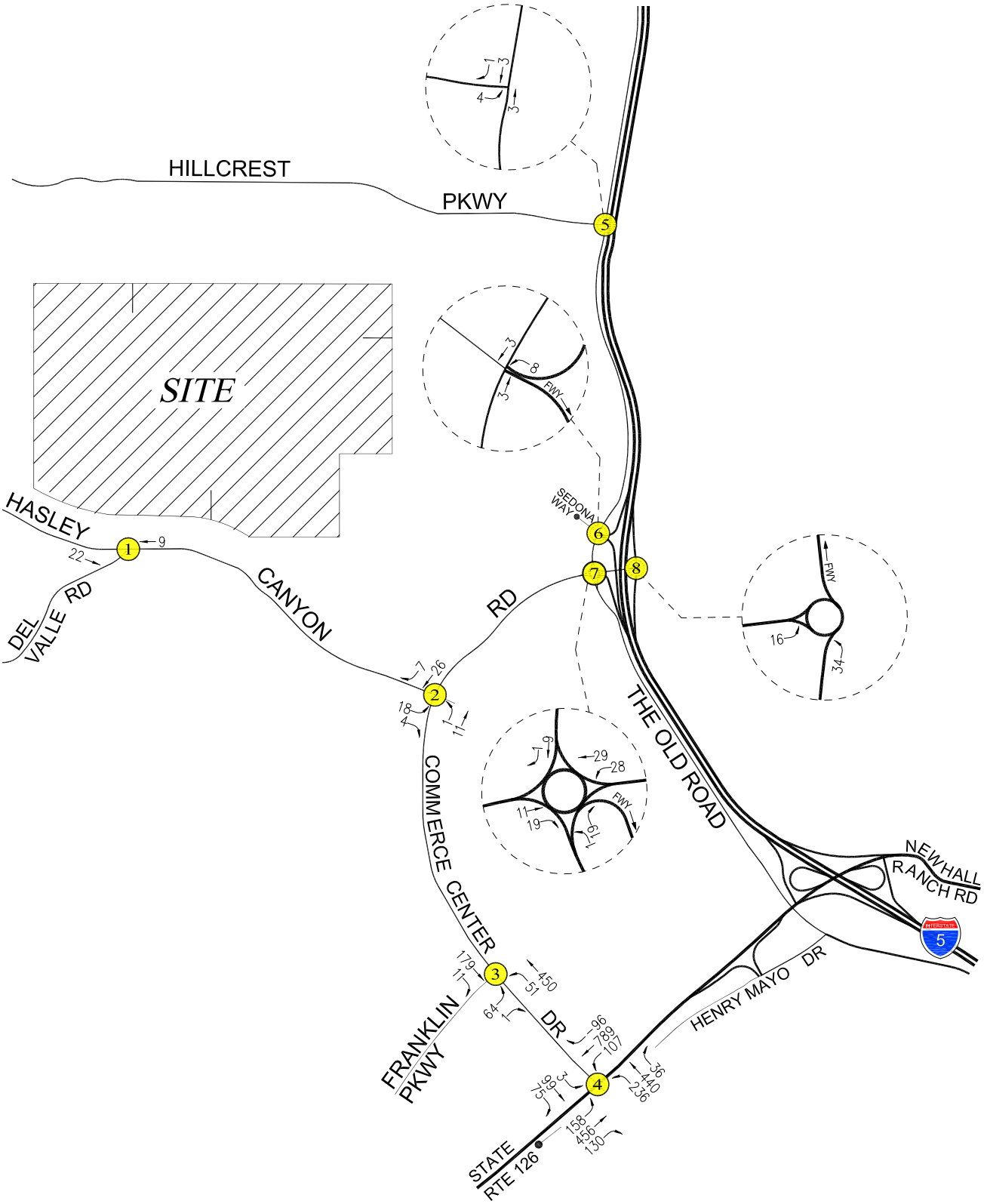
Traffic volumes expected to be generated by the related projects were calculated using rates provided in the Institute of Transportation Engineers' (ITE) *Trip Generation* manual[3]. The related projects' respective traffic generation for the weekday AM and PM peak hours, as well as on a daily basis for a typical weekday, is summarized in *Table 6–1*.

Related projects traffic volumes were distributed and assigned to the adjacent street system based on the following considerations:

- The related project's proximity to major traffic corridors (i.e., Hasley Canyon Road, The Old Road, Commerce Center Drive, Henry Mayo Drive, etc.);
- Expected localized traffic flow patterns based on adjacent roadway channelization and presence of traffic signals;
- Existing intersection traffic volumes;
- Ingress/egress availability at the related project site; and
- Nearby population and employment centers as well as adjacent residential neighborhoods;

The distribution of the related projects traffic volumes to the study intersections during the weekday AM and PM peak hours are displayed in ***Figures 6–2*** and ***6–3***, respectively.

[3] Institute of Transportation Engineers *Trip Generation* manual, 8th Edition, Washington, D.C., 2008.



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INTERSECTION NUMBER

FIGURE 6-2

RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

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LOS VALLES PROJECT

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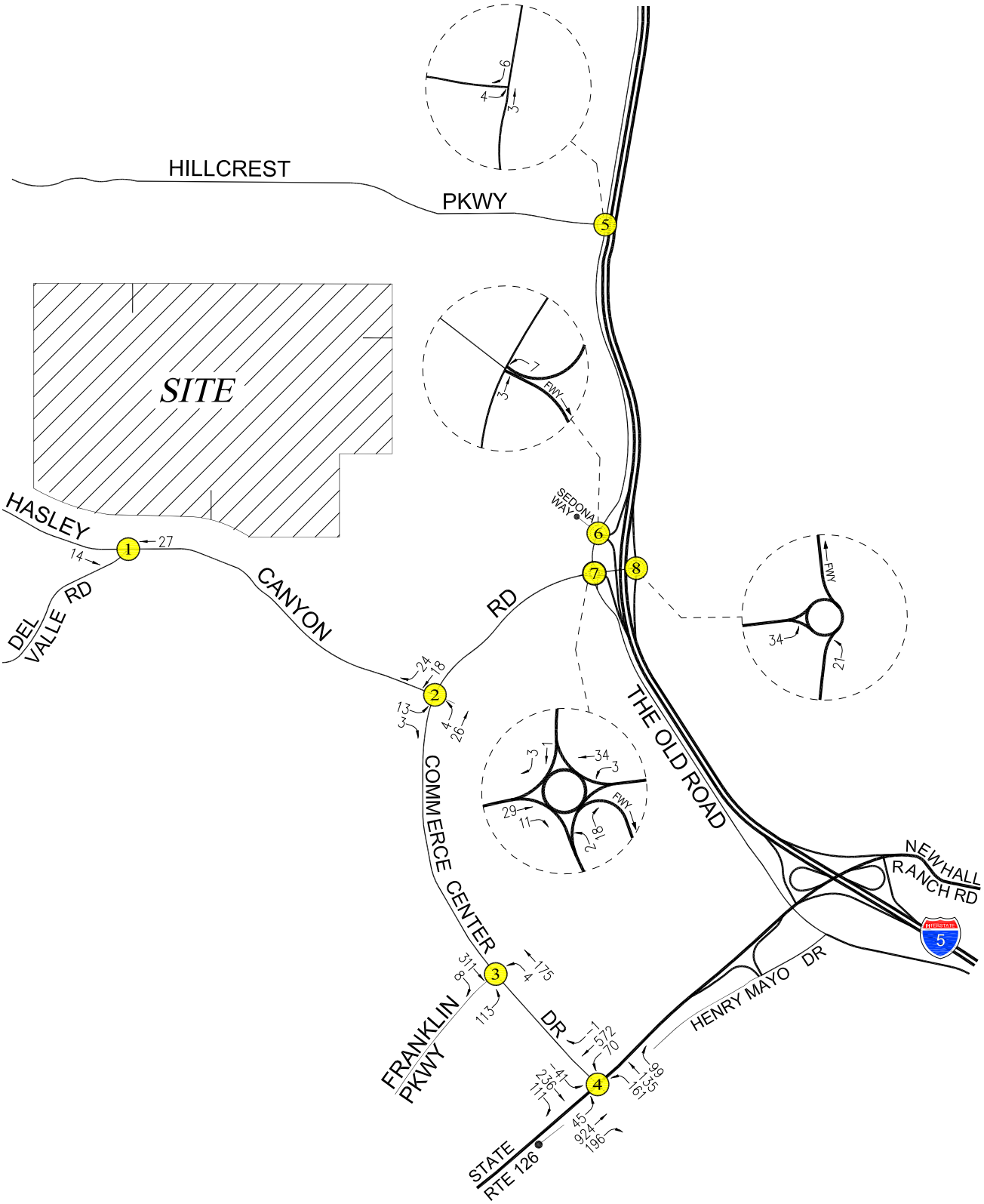

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INTERSECTION NUMBER

FIGURE 6-3

RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

7.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the Los Valles project, a multi-step process has been utilized. The first step is trip generation, which estimates the total arriving and departing traffic volumes on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

The second step of the forecasting process is trip distribution, which identifies the origins and destinations of inbound and outbound project traffic volumes. These origins and destinations are typically based on demographics and existing/anticipated travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and project traffic assignments developed, the impact of the proposed project is isolated by comparing operational (i.e., Levels of Service) conditions at the selected key intersections using existing and expected future traffic volumes without and with forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the project's impacts identified.

7.1 Project Traffic Generation

Traffic volumes expected to be generated by the proposed Los Valles project during the weekday AM and PM peak hours, as well as on a daily basis, were estimated using rates published in the ITE *Trip Generation* manual. Traffic volumes expected to be generated by the proposed project were based upon rates per dwelling-unit. The following trip generation rate was used to forecast the traffic volumes expected to be generated by the project land use component:

- Homes: ITE Land Use Code 210 (Single-Family Detached Housing) trip generation average rates were used to forecast the traffic volumes expected to be generated by the Single-Family Homes of the proposed Los Valles project.

The trip generation forecast for the proposed project is summarized in ***Table 7–1***.

Table 7-1
PROJECT TRIP GENERATION [1]

19-Jun-13

LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Detached Housing [3]	497 DU	4,756 [3]	93	280	373	316	186	502
NET INCREASE		**4,756**	**93**	**280**	**373**	**316**	**186**	**502**

[1] Source: ITE "Trip Generation", 8th Edition, 2008.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 210 (Single Family Detached Housing) trip generation average rates.
- Daily Trip Rate: 9.57 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.75 trips/dwelling unit; assume 25% inbound/75% outbound
- PM Peak Hour Trip Rate: 1.01 trips/dwelling unit; 63% inbound/37% outbound

The trip generation forecast for the proposed project was submitted for review and approval by LACDPW staff. As presented in *Table 7–1*, the proposed project is expected to generate 373 net new vehicle trips (93 inbound trips and 280 outbound trips) during the AM peak hour. During the PM peak hour, the proposed project is expected to generate 502 net new vehicle trips (316 inbound trips and 186 outbound trips). Over a 24-hour period, the proposed project is forecast to generate a net increase of 4,756 daily trip ends (approximately 2,378 inbound trips and 2,378 outbound trips) during a typical weekday.

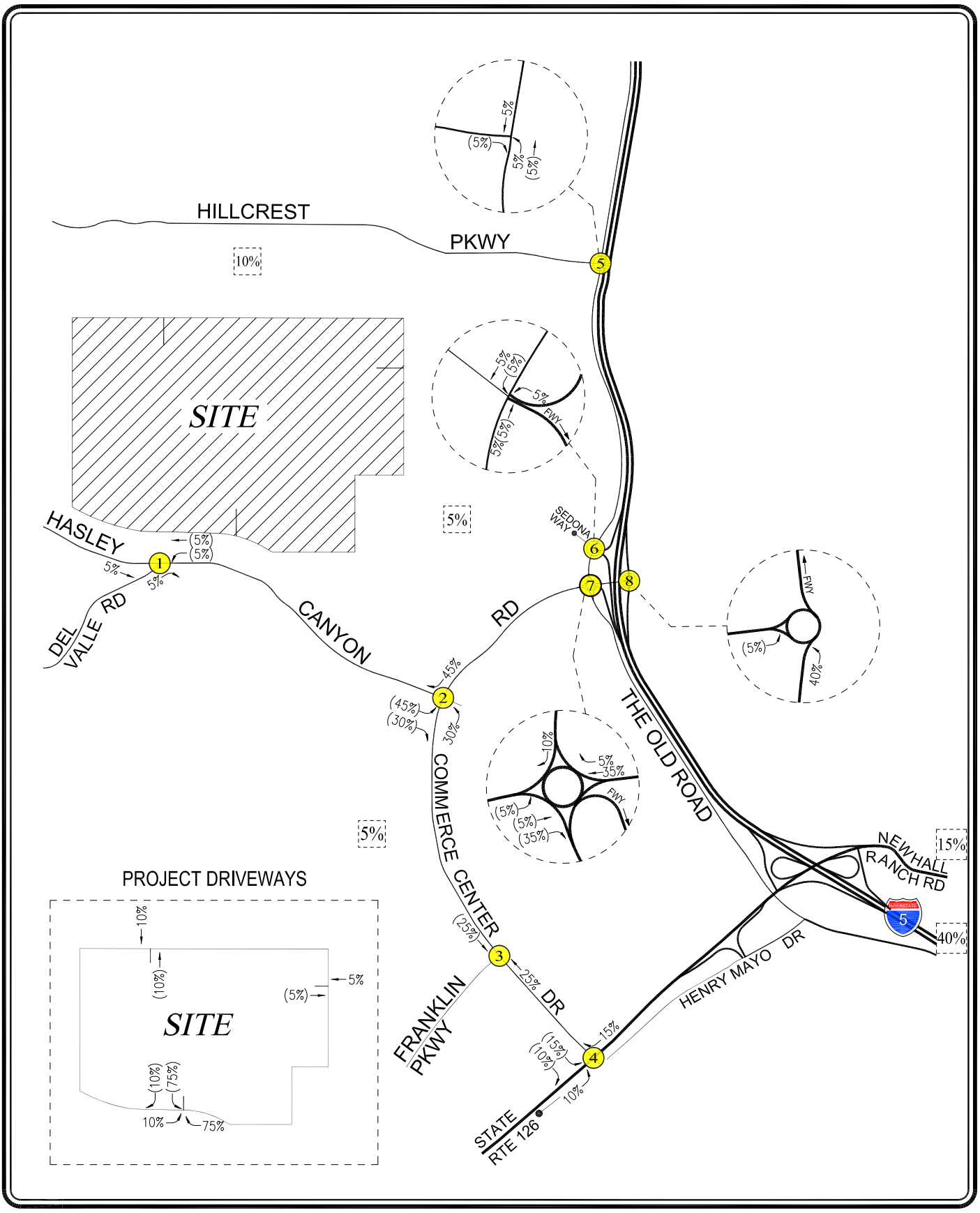
7.2 Project Traffic Distribution and Assignment

Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- The site's proximity to major traffic corridors (i.e., Hasley Canyon Road, The Old Road, Commerce Center Drive, Henry Mayo Drive, etc.);
- Expected localized traffic flow patterns based on adjacent roadway channelization and presence of traffic signals;
- Existing intersection traffic volumes;
- Ingress/egress availability at the project site assuming the site access and circulation scheme described in Section 3.0;
- Nearby population and employment centers as well as adjacent residential neighborhoods; and
- Input from LACDPW staff.

The traffic distribution patterns for the proposed project are presented in ***Figure 7–1***. As shown on *Figure 7–1*, nearly all (i.e., 85%) of the project-related vehicle trips are forecast to use the Hasley Canyon Road access for purposes of entering and exiting the project site. This is a reasonable expectation as Hasley Canyon Road would provide project residents with the most direct access to the local street system (including local employment, shopping and recreational opportunities), as well as the regional roadway network (e.g., the I-5 interchange at Hasley Canyon Road and State Route 126 at Commerce Center Drive). Some project-related trips may use the Barcelona Road and Hayward Drive access points, primarily when visiting other nearby residences. Also, some project residents may use Barcelona Road to access the Castaic Middle School and Castaic Elementary School located along Hillcrest Drive to the north.

The forecast net new weekday AM and PM peak hour project traffic volumes at the study intersections associated with the proposed project are presented in ***Figures 7–2*** and ***7–3***, respectively. The traffic volume assignments presented in *Figures 7–2* and *7–3* reflect the traffic distribution characteristics shown in *Figure 7–1* and the project traffic generation forecast presented in *Table 7–1*.



XX = INBOUND PERCENTAGES
(XX) = OUTBOUND PERCENTAGES

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FIGURE 7-1
PROJECT TRIP DISTRIBUTION

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

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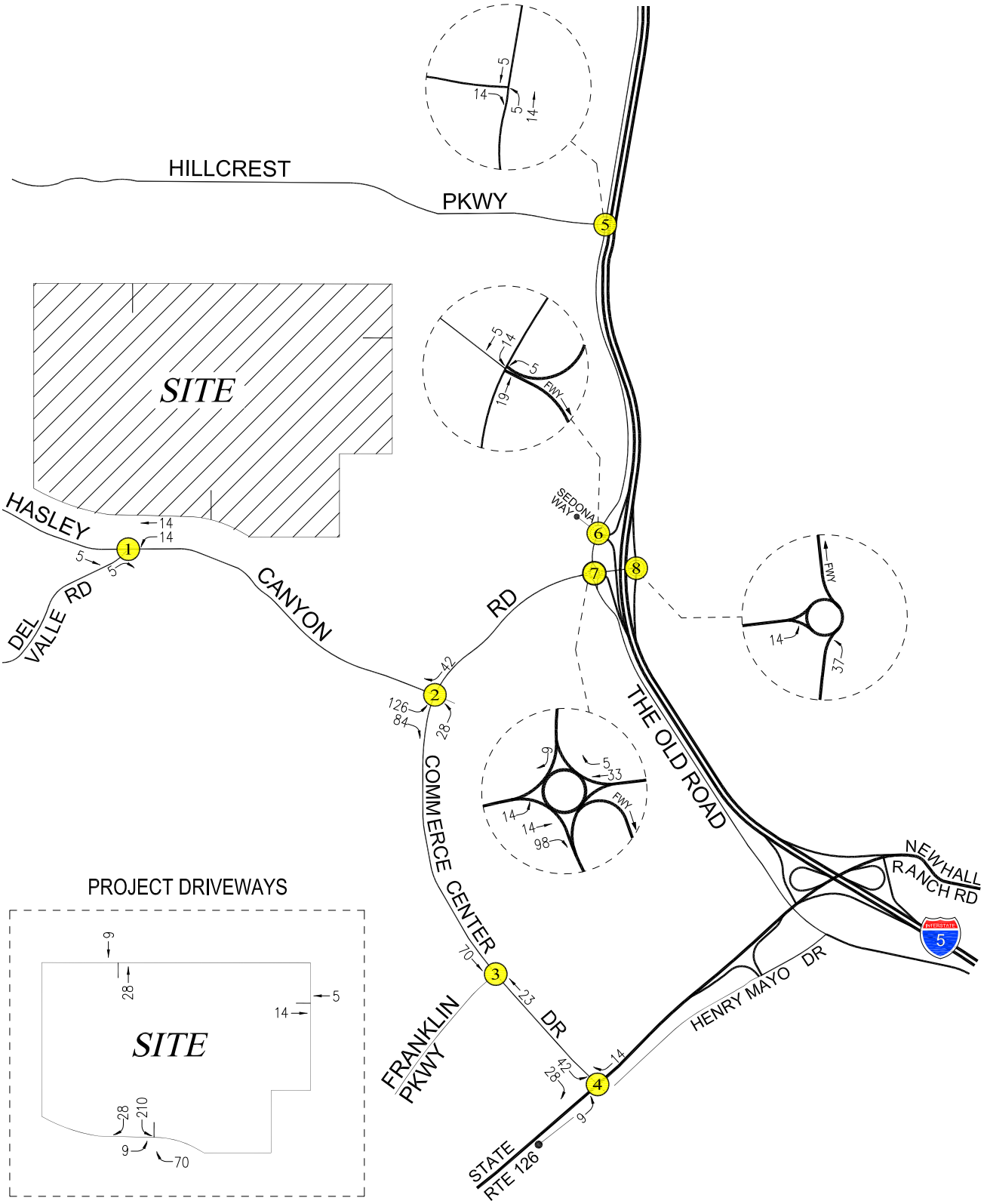

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INTERSECTION NUMBER

FIGURE 7-2
PROJECT TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR

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LOS VALLES PROJECT

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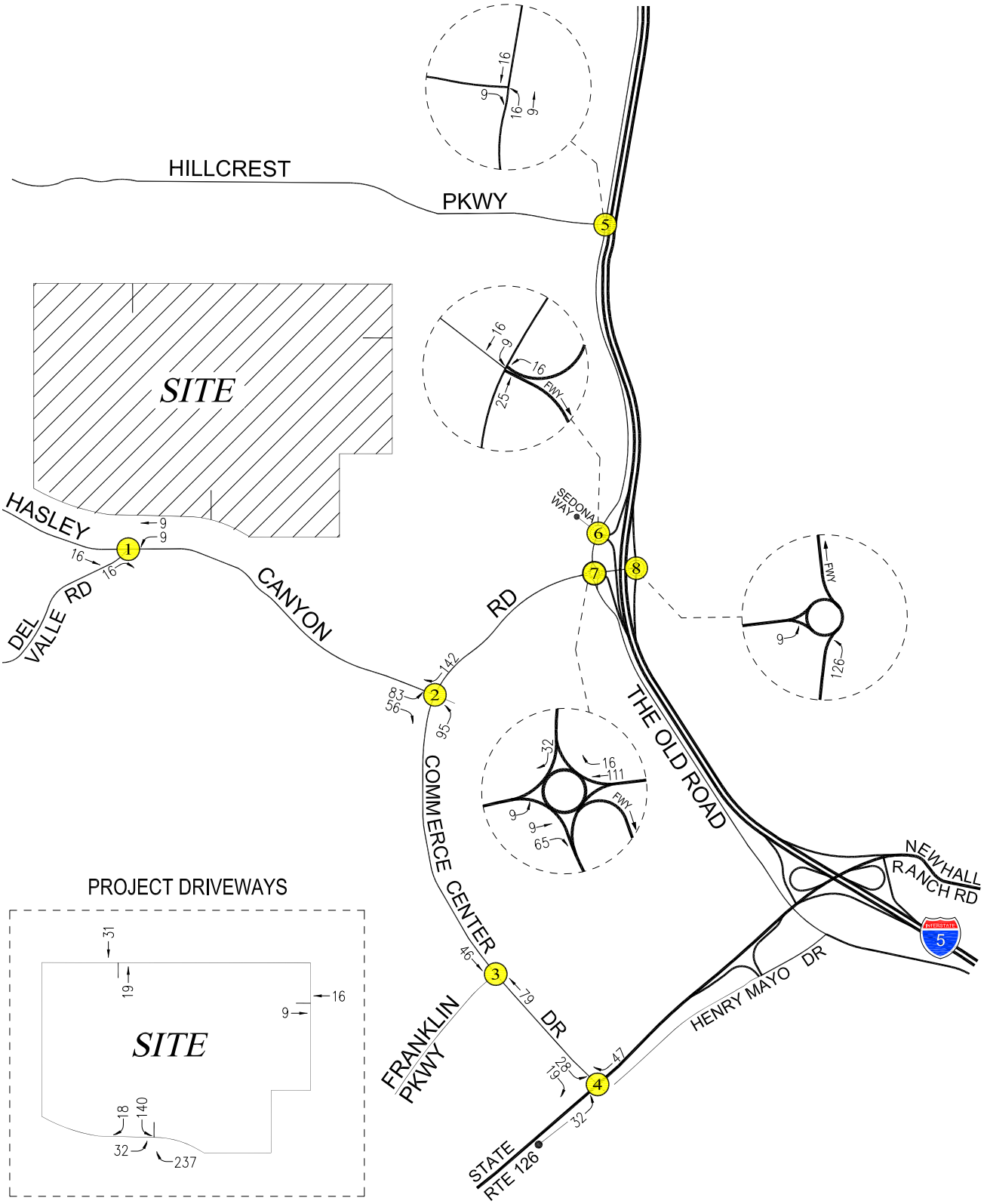

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FIGURE 7-3
PROJECT TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR

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LOS VALLES PROJECT

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8.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

The five signalized study intersections as well as the unsignalized intersection at Del Valle Road/Hasley Canyon Road were evaluated using the Intersection Capacity Utilization (ICU) method of analysis based on the County's traffic study guidelines. Specifically, the ICU method was used to determine Volume-to-Capacity ratios and corresponding Levels of Service at the six study intersections as the ICU method is used for traffic analysis purposes. The two roundabout intersections were evaluated using the Highway Capacity Manual (HCM) method of analysis based on the County's traffic study guidelines to determine the Delay and corresponding Levels of Service at the two roundabout study intersections.

8.1 Impact Criteria and Thresholds

The relative impact of the added project traffic volumes to be generated by the proposed project during the AM and PM peak hours was evaluated based on analysis of future operating conditions at the study intersections, without and with the proposed project. The previously discussed capacity analysis procedures were utilized to evaluate the future *v/c* relationships and service level characteristics at each study intersection.

The significance of the potential impacts of project generated traffic was identified using the traffic impact criteria set forth in County of Los Angeles' *Traffic Impact Analysis Report Guidelines*, January 1, 1997. According to the County's published traffic study guidelines, the impact is considered significant if the project-related increase in the *v/c* ratio equals or exceeds the thresholds presented in ***Table 8–1***.

Table 8-1
COUNTY OF LOS ANGELES
INTERSECTION IMPACT THRESHOLD CRITERIA

Final *v/c*	**Level of Service**	**Project Related Increase in *v/c***
> 0.71 - 0.80	C	equal to or greater than 0.04
> 0.81 - 0.90	D	equal to or greater than 0.02
> 0.91	E or F	equal to or greater than 0.01

The County's Sliding Scale Method requires mitigation of project traffic impacts whenever traffic generated by the proposed development causes an increase of the analyzed intersection *v/c* ratio by an amount equal to or greater than the values shown above.

8.2 Traffic Impact Analysis Scenarios

Pursuant to LACDPW's traffic study, Level of Service calculations have been prepared for the following scenarios for the study intersections:

(a) Existing (2012) conditions.

(b) Existing (2012) conditions with completion and occupancy of the project.

(c) Future (2023) conditions with completion and occupancy of the project and related projects.

(d) Condition (c) with implementation of regional traffic mitigation measures, where necessary.

The traffic volumes for each new condition were added to the volumes in the prior condition to determine the change in capacity utilization at the study intersections.

9.0 COUNTY OF LOS ANGELES TRAFFIC ANALYSIS

The traffic impact analysis prepared for the study intersections using the ICU or HCM methodology and application of the County of Los Angeles significant traffic impact criteria is summarized in ***Table 9–1***. The ICU and HCM data worksheets for the analyzed intersections are contained in ***Appendix B***.

9.1 Existing Conditions

9.1.1 *Existing Conditions*

As indicated in column [1] of *Table 9–1*, all of the eight study intersections are presently operating at LOS C or better during the weekday AM and PM peak hours under existing conditions.

The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 5–1* and *5–2*, respectively.

9.1.2 *Existing With Project Conditions*

As shown in column [2] of *Table 9–1*, application of the County's threshold criteria to the "Existing With Project" scenario indicates that the proposed project is not expected to create significant impacts at the study intersections. Incremental, but not significant, impacts are noted at the study intersections and all study intersections are expected to continue to operate at LOS C or better during the weekday AM and PM peak hours with the addition of project traffic, as presented in *Table 9–1*.

The existing with project traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in ***Figure 9–1 and 9–2***, respectively**.**

Table 9-1
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

16-May-14

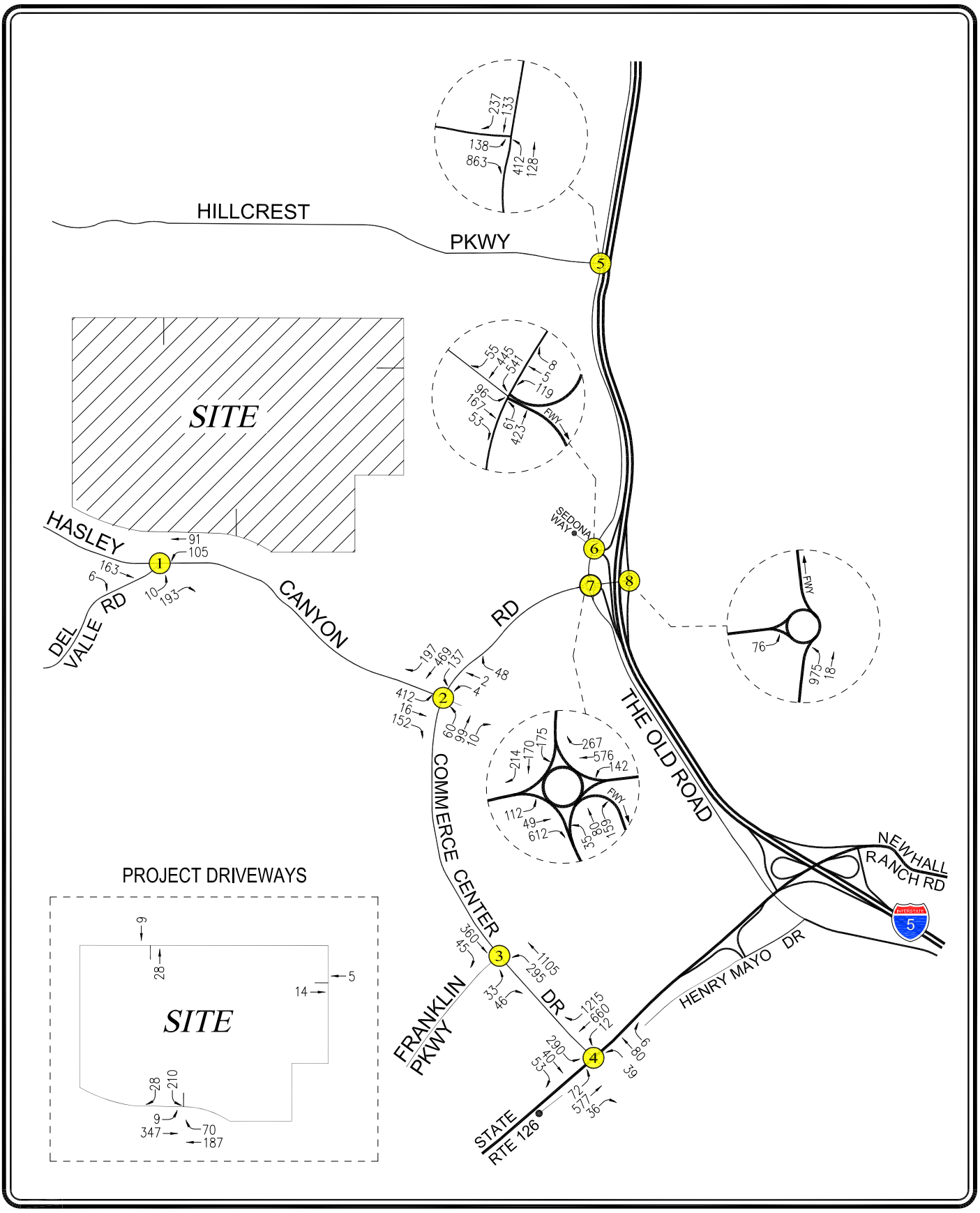
NO.	INTERSECTION	PEAK HOUR	[1] EXISTING V/C or Delay	[1] EXISTING LOS	[2] EXISTING W/ PROPOSED PROJECT V/C or Delay	[2] EXISTING W/ PROPOSED PROJECT LOS	[2] CHANGE V/C [(2)-(1)]	[2] SIGNIF. IMPACT	[3] YEAR 2023 W/ RELATED PROJECTS V/C or Delay	[3] YEAR 2023 W/ RELATED PROJECTS LOS	[3] CHANGE V/C [(3)-(1)]	[3] SIGNIF. IMPACT	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE V/C or Delay	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE LOS	[4] CHANGE V/C [(4)-(1)]	[4] MITI-GATED
1	Del Valle Road/	AM	0.383	A	0.398	A	0.015	NO	0.412	A	0.029	NO	---	---	---	---
	Hasley Canyon Road	PM	0.369	A	0.391	A	0.022	NO	0.408	A	0.039	NO	---	---	---	---
2	Commerce Center Drive/	AM	0.379	A	0.449	A	0.070	NO	0.463	A	0.084	NO	---	---	---	---
	Hasley Canyon Road	PM	0.340	A	0.426	A	0.086	NO	0.442	A	0.102	NO	---	---	---	---
3	Commerce Center Drive/	AM	0.374	A	0.388	A	0.014	NO	0.489	A	0.115	NO	---	---	---	---
	Franklin Parkway	PM	0.552	A	0.562	A	0.010	NO	0.629	B	0.077	NO	---	---	---	---
4	Commerce Center Drive/	AM	0.482	A	0.502	A	0.020	NO	1.123	F	0.641	YES	[B]	---	---	YES
	Henry Mayo Drive (SR-126)	PM	0.744	C	0.754	C	0.010	NO	1.218	F	0.474	YES	[B]	---	---	YES
4A	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.635	B	---	---
	SR-126 Westbound Ramps	PM	---	---	---	---	---	---	---	---	---	---	0.502	A	---	---
4B	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.418	A	---	---
	Henry Mayo Drive	PM	---	---	---	---	---	---	---	---	---	---	0.389	A	---	---
5	The Old Road/	AM	0.745	C	0.755	C	0.010	NO	0.756	C	0.011	NO	---	---	---	---
	Hillcrest Parkway	PM	0.538	A	0.553	A	0.015	NO	0.557	A	0.019	NO	---	---	---	---
6	The Old Road/	AM	0.733	C	0.749	C	0.016	NO	0.753	C	0.020	NO	---	---	---	---
	I-5 Freeway SB Ramps - Sedona Way	PM	0.539	A	0.558	A	0.019	NO	0.561	A	0.022	NO	---	---	---	---
7	The Old Road - I-5 Freeway SB On-Ramp/	AM	9.88	A	11.71	B	1.83	NO	13.03	B	3.15	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	11.32	A	13.44	B	2.12	NO	14.03	B	2.71	NO	---	---	---	---
8	I-5 Freeway NB Ramps/	AM	7.92	A	8.27	A	0.35	NO	8.62	A	0.70	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	9.92	A	11.47	B	1.55	NO	12.22	B	2.30	NO	---	---	---	---

[A] According to Los Angeles County Department of Public Works "Traffic Impact Analysis Report Guidelines, " January 1997, a transportation impact on an intersection shall be deemed significant in accordance with the following table:

Final V/C	LOS	Project Related Increase in V/C
> 0.71 - 0.80	C	equal to or greater than 0.04
> 0.81 - 0.90	D	equal to or greater than 0.02
> 0.91	E,F	equal to or greater than 0.01

[B] Cumulative mitigation will result in the intersection of Commerce Center Drive and Henry Mayo Drive (SR-126) to be a grade-separated intersection under future conditions. See Intersection Nos. 4A and 4B.

[C] Roundabout Intersection. Delay shown in seconds per vehicle.



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INTERSECTION NUMBER

FIGURE 9-1

EXISTING WITH PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

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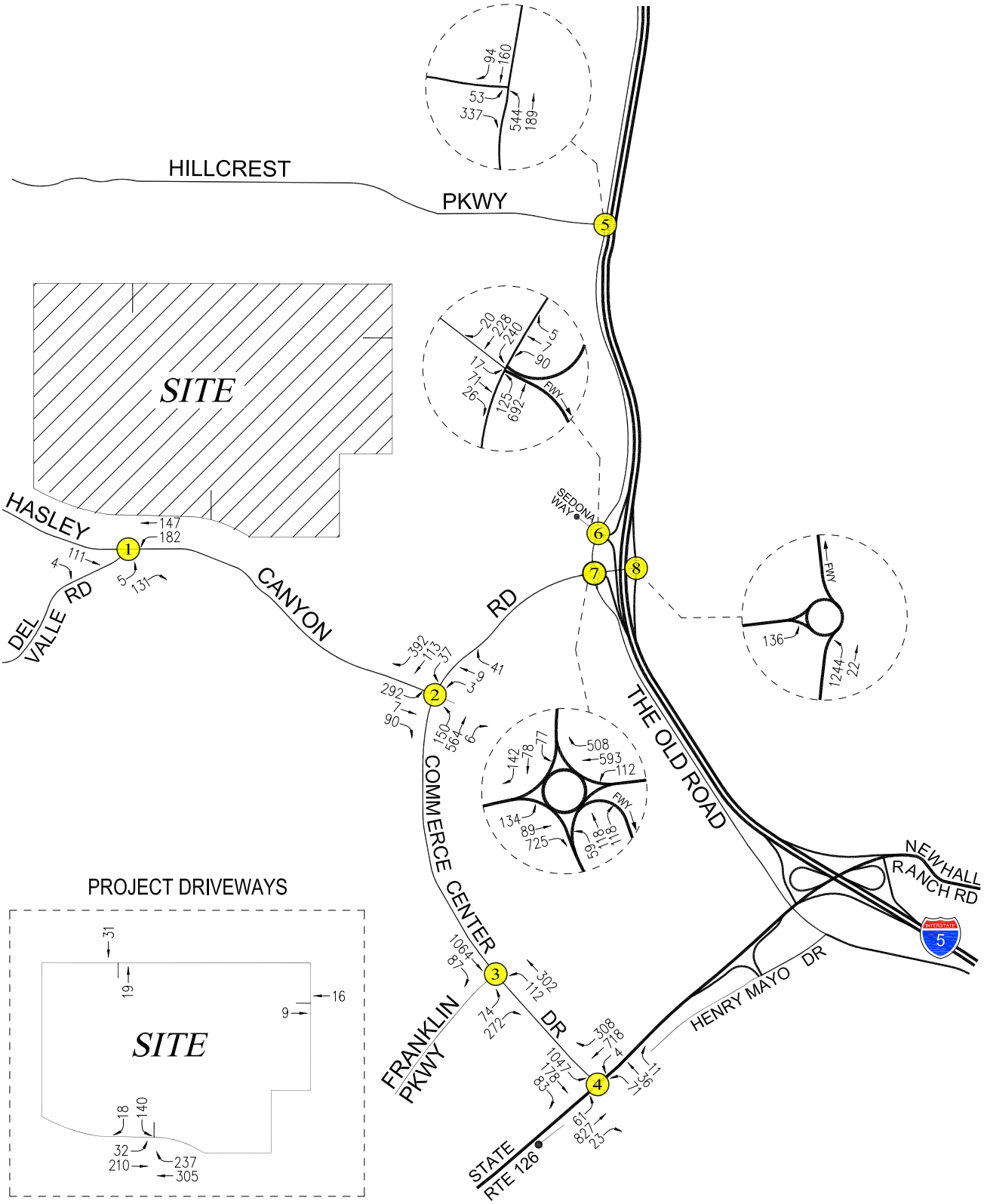

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FIGURE 9-2

EXISTING WITH PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

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9.2 Future Conditions

9.2.1 *Future Cumulative With Project Conditions*

The future cumulative with project conditions were forecast based on the addition of traffic generated by the project plus completion and occupancy of related projects. As shown in column [3] of *Table 9–1*, application of the County's threshold criteria to the "With Related Projects" scenario indicates that combined effects of the proposed project and related projects would cause significant traffic impacts at one intersection:

- Intersection No. 4: Commerce Center Drive/Henry Mayo Drive (SR-126)
    - AM peak hour v/c increases +0.641
    - PM peak hour v/c increases +0.474

Incremental, but not significant, impacts are noted at the remaining study intersections. The future cumulative with project (existing, project, and related projects) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in ***Figures 9–3 and 9–4***, respectively.

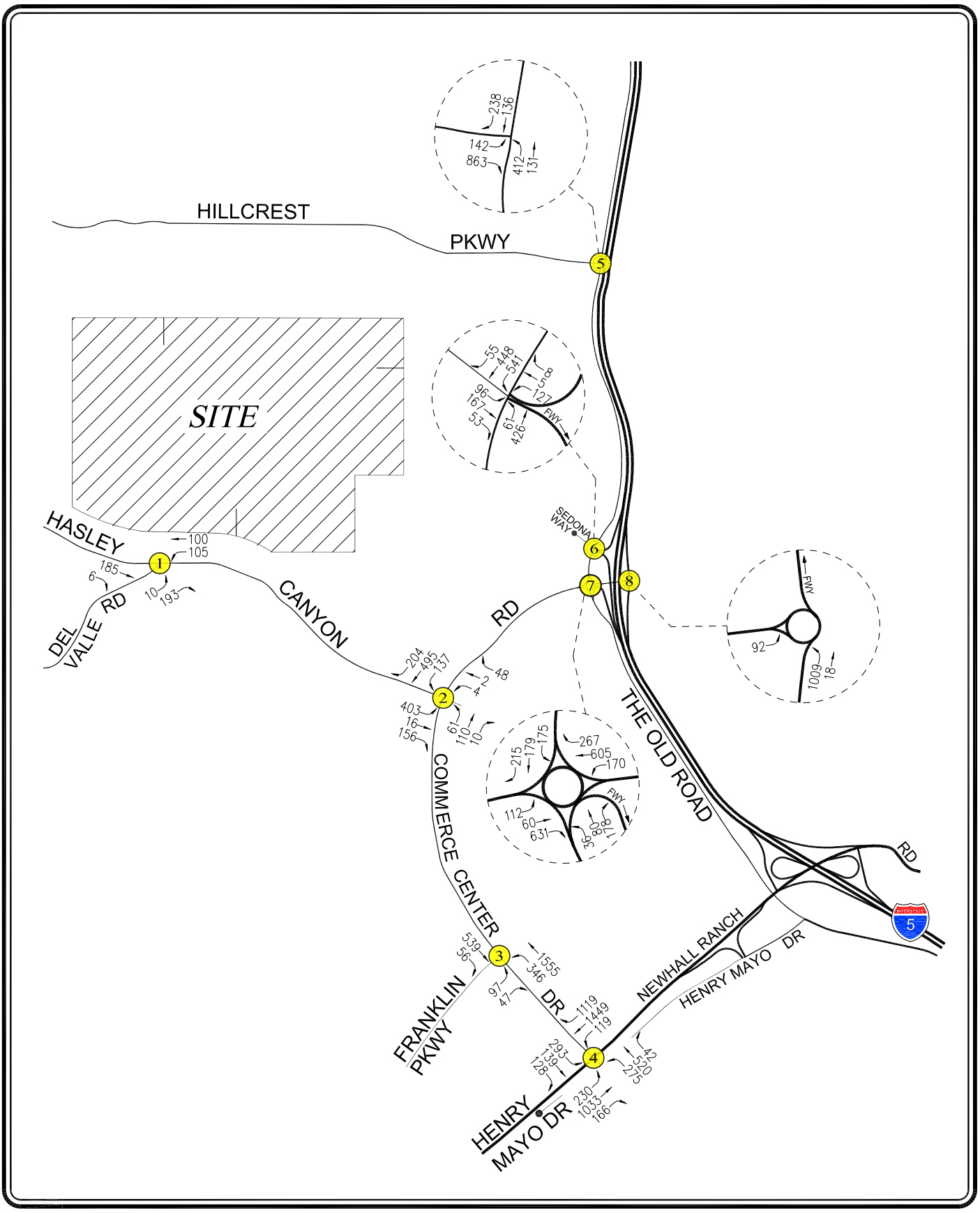

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FIGURE 9-3
FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR
LOS VALLES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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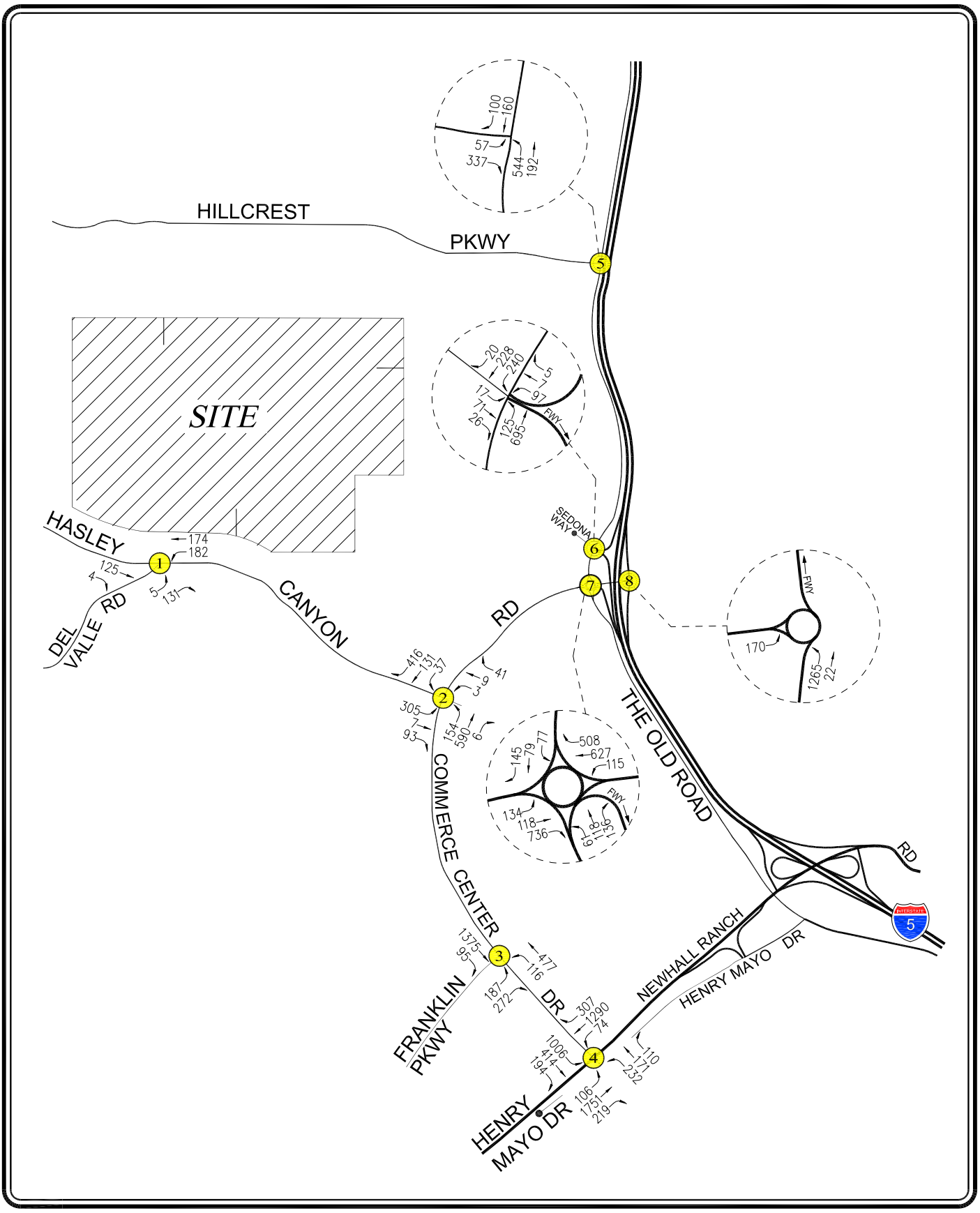

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FIGURE 9-4
FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
LOS VALLES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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10.0 MITIGATION MEASURES

10.1 Commerce Center Drive/Henry Mayo Drive (SR-126)

The County's Bridge and Major Thoroughfare Construction Fee District Report (February 2011) states that Henry Mayo Drive (State Route 126) would be widened from two to four through lanes in each direction in the vicinity of the Commerce Center Drive intersection. Additionally, a full-movement, grade separated interchange at this intersection is proposed under the County's report. The following two intersections comprise the Commerce Center Drive at SR-126 grade separated interchange:

- Intersection No. 4A: Commerce Center Drive at SR-126 Westbound Ramps
- Intersection No. 4B: Commerce Center Drive at Henry Mayo Drive

The proposed lane configurations of the new intersections are illustrated in ***Figure 10–1***. As the ICU calculations based on the current lane configurations at the Commerce Center Drive/SR-126 intersection would no longer apply, ICU calculations were prepared for the two future intersections listed above. As shown in column [4] of *Table 9–1*, Intersection Nos. 4A and 4B will both operate at LOS B or better during the weekday AM and PM peak hours. Thus, the measure would mitigate the cumulative traffic impact to a level of insignificance. The future cumulative with grade separated interchange traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in ***Figures 10–2 and 10–3***, respectively.

According to Los Angeles County Department of Public Works, construction of the project is currently underway. Additionally, the County has stated that the grade separation project is fully funded and thus, no additional "fair share" fees are required from the Los Valles project beyond the residential project's payment of applicable fees to the Castaic Bridge & Major Thoroughfare District.

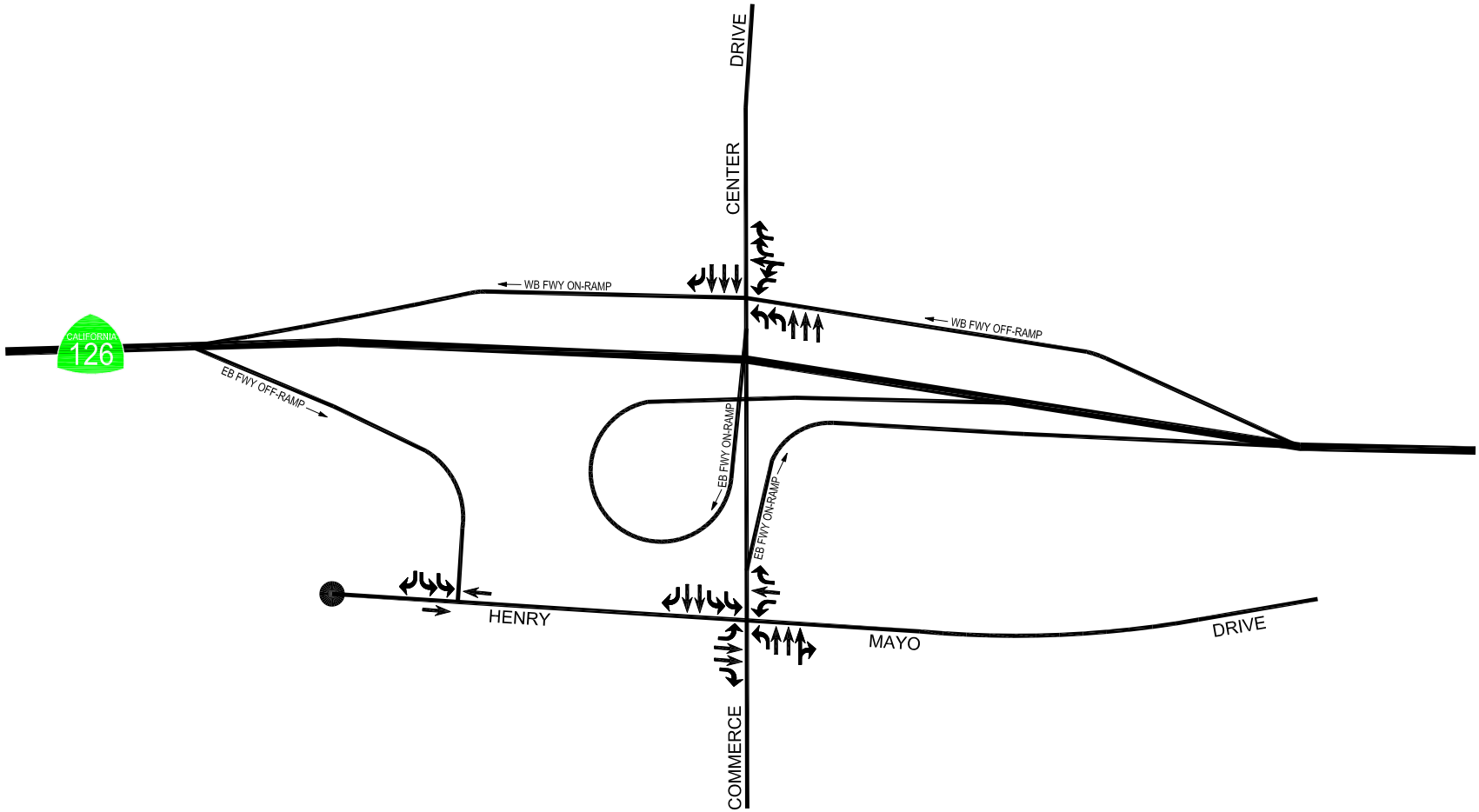

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FIGURE 10-1
FUTURE LANE CONFIGURATIONS

STATE ROUTE 126 RAMPS AT COMMERCE CENTER DRIVE

LOS VALLES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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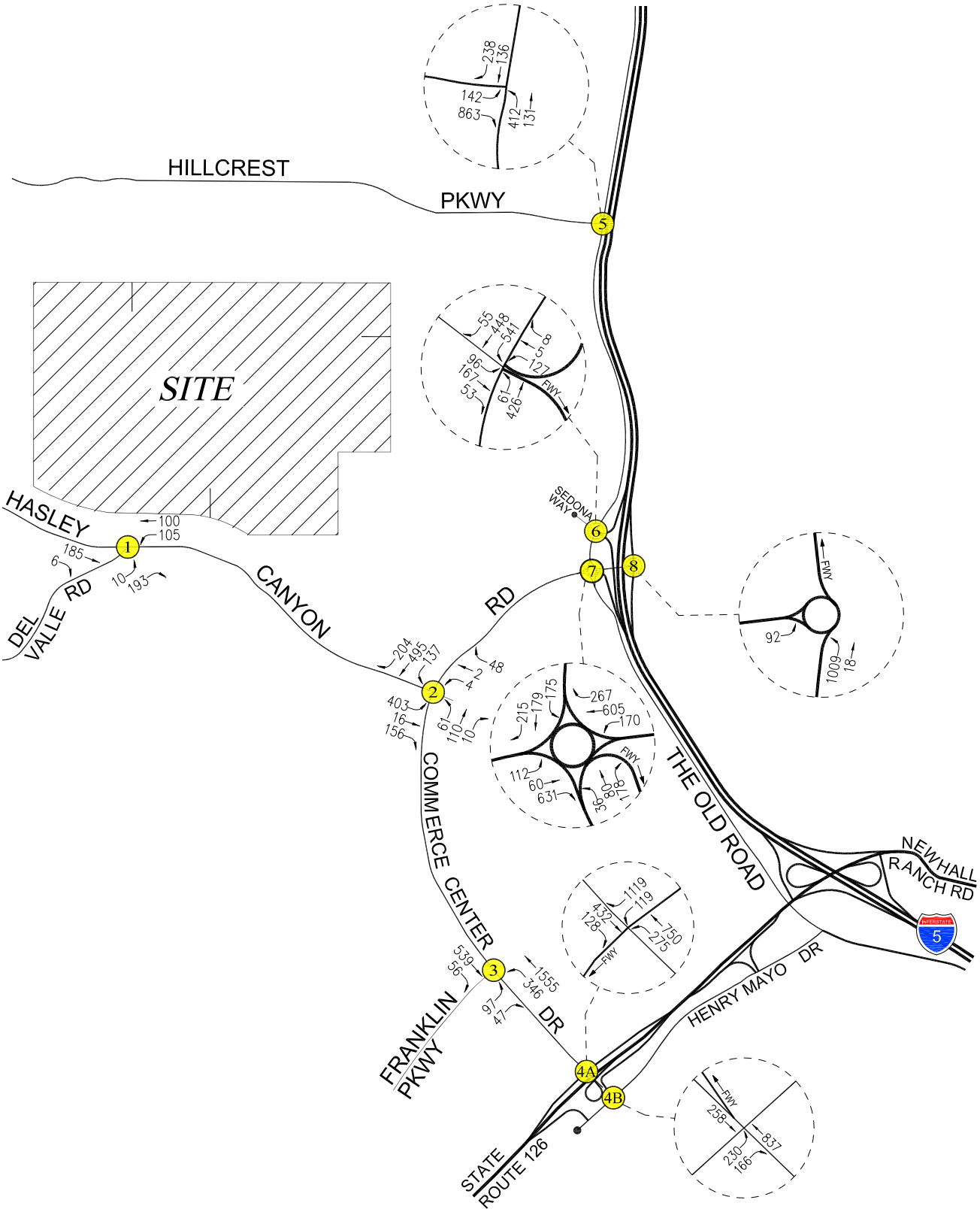

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INTERSECTION NUMBER

FIGURE 10-2
FUTURE WITH GRADE SEPARATED INTERCHANGE TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR
LOS VALLES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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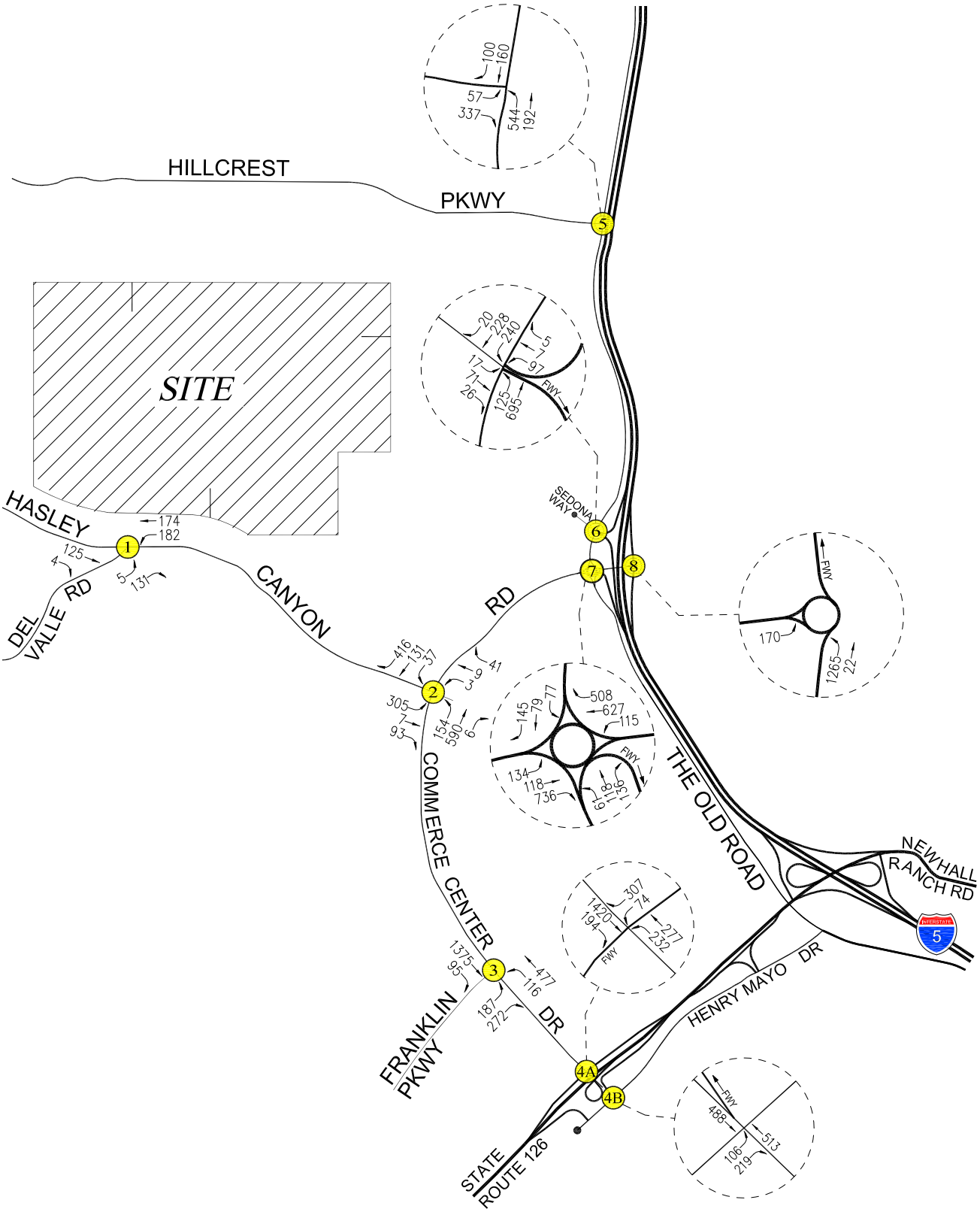

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INTERSECTION NUMBER

FIGURE 10-3
FUTURE WITH GRADE SEPARATED INTERCHANGE TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
LOS VALLES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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11.0 CONSTRUCTION TRAFFIC IMPACT ASSESSMENT

In addition to the traffic impact study, a construction traffic impact analysis was prepared in order to assess the potential impacts to the street system during the construction period of the proposed Los Valles project. A description of the anticipated construction-related activities was obtained from the Applicant. The description also included construction worker trips, on-site equipment operation, and off-site truck traffic generation. The following sections summarize the anticipated construction schedule and construction assumptions, as well as the construction traffic impact analysis prepared for the study intersections.

11.1 Construction Programming

Construction Schedule

Construction of the Los Valles project is scheduled for completion by the year 2023. Based on information obtained from the Applicant, construction is scheduled to occur Monday through Friday from 7:00 AM to 5:00 PM from November to February, and from 7:00 AM to 7:00 PM from March to October.

Construction Assumptions

In order to minimize potential conflicts between construction activity and through traffic in the vicinity of the project site, a Construction Management Plan will be developed and would be finalized prior to the initiation of construction. The plan will identify all traffic control measures, delineators, and signs required to be implemented by the construction contractor throughout the duration of construction activity. In order to avoid any impacts to the surrounding neighborhoods, construction truck traffic will follow Hasley Canyon Road directly to and from the project site, similar to the project trip distribution shown in *Figure 7–1*. This is a reasonable assumption as Hasley Canyon Road would provide construction trucks with the most direct access to the regional roadway network (e.g., the I-5 interchange at Hasley Canyon Road and State Route 126 at Commerce Center Drive).

Construction worker parking is anticipated to be provided on-site. The Construction Management Plan will include a Construction Workers' Parking Plan that will identify the location of on-site construction worker parking. The specific details and extent of associated staging of construction equipment and materials will also be included in that plan. Traffic control personnel would be stationed full-time at the job site entrance and exit on Hasley Canyon Road to designate truck routes.

11.2 Construction Trip Generation

Construction Truck Traffic

It is assumed that heavy construction equipment would be located on-site during the peak construction activities and would therefore not travel to and from the project site on a daily basis. Truck trips would be generated off-site during the building construction periods.

Construction Worker Traffic

It is anticipated that a maximum of 100 construction workers will remain on-site throughout the day during the peak construction phase. The number of construction worker vehicles is estimated using an average vehicle ridership (AVR) of 1.135 persons per vehicle, as provided in the South Coast Air Quality Management District CEQA Air Quality Handbook. From this information, it is anticipated that construction worker would therefore generate 88 vehicle trips (100 workers / 1.135 AVR). Accordingly, it is estimated that approximately 176 vehicle trips per day (i.e., 88 inbound trips and 88 outbound trips) would be generated by the construction workers during the peak construction phase at the project site.

Based on the anticipated construction schedule, most construction workers are expected to arrive at the project site between 6:00 AM and 7:00 AM (i.e., before the morning commuter peak hours) and most are expected to depart after 5:00 PM (which may coincide with the afternoon commuter peak hours). Construction workers are not all likely to arrive at the construction site within the same hour nor would they all leave the site at the same time. However, it has been conservatively assumed as a "worst case" that all the workers (i.e., 88 vehicles) will arrive during the morning peak commuter hour and that all the workers (i.e., 88 vehicles) will depart in a single hour during the afternoon peak commuter hour.

11.3 Summary of Construction Traffic Impacts

The number of vehicles forecast to be generated during peak construction activities (i.e., vehicle trips attributable with construction workers) is estimated to be 176 trips throughout the day, with approximately 88 vehicle trips occurring during the AM peak hour and 88 vehicle trips occurring during the PM peak hour. The number of trips generated during peak construction activities is significantly lower than the forecast daily and commuter peak hour operational traffic associated with the project as provided in Section 7.0 of this Traffic Study. Thus, based on the relatively low number of generated construction-related vehicle trips as compared to the project, traffic impacts due to construction activities are forecast to be less than significant at the study intersections during the weekday AM and PM peak hours. The Applicant's Construction Management Plan will provide for truck staging areas and designate appropriate travel routes to access the site.

12.0 FREEWAY OFF-RAMP QUEUING ANALYSIS

A vehicle queuing analysis was conducted at the freeway off-ramps in the project vicinity that are expect to accommodate project-related traffic. The following freeway off-ramps in the project vicinity are expected to be utilized by project related traffic:

- I-5 Freeway SB Off-Ramp – Sedona Way / The Old Road
- I-5 Freeway NB Off-Ramp / Hasley Canyon Road
- SR-126 WB Off-Ramp / Commerce Center Drive (future)
- SR-126 EB Off-Ramp / Henry Mayo Drive (west of Commerce Center Drive) (future)

As previously mentioned in Section 10.1, a full-movement grade separated interchange is to be constructed near the intersection of Commerce Center Drive at SR-126. Upon completion, separate westbound and eastbound freeway off-ramps will provide access to Commerce Center Drive and Henry Mayo Drive. Vehicles traveling westbound on SR-126 may exit via an off-ramp directly onto Commerce Center Drive. Similarly, vehicles traveling eastbound on SR-126 may exit via an off-ramp just west of Commerce Center Drive directly onto Henry Mayo Drive.

The Highway Capacity Manual (HCM) methodology was used in order to estimate the 95th percentile queue length[4] at the off-ramp locations under the "Future Cumulative with Project" condition. The 95th percentile vehicle queue length calculates the length, expressed in number of vehicles, expected to be queued for a specific movement during the analyzed time period. Specifically, the 95th percentile queue means that the number of queued vehicles will be at or less than the calculated value for 95 percent of the time during the period evaluated (e.g., AM and PM peak hour). This value is typically used by traffic engineers for roadway design and analysis in order to ensure that adequate storage lengths are provided. A summary of these results is presented in ***Table 12–1***.

As shown in *Table 12–1*, a 95th percentile vehicle queue of approximately 3 vehicles in the AM peak hour and 2 vehicles in the PM peak hour is expected at The Old Road/I-5 Freeway SB Off-Ramp – Sedona Way. For vehicles utilizing the I-5 Freeway NB Off-Ramp at Hasley Canyon Road, the 95th percentile queue length is expected to be less than one vehicle during both the AM and PM peak hours. The short queue length is due mainly to the roundabout geometry at this off-ramp location, since vehicles exiting the freeway must yield to opposing traffic before entering the intersection but rarely need to come to a complete stop. The expected conflicting future volumes in both the AM and PM peak hours are low enough such that any off-ramp queuing would rarely occur. For both the I-5 SB Off-Ramp and NB Off-Ramp, the available storage is more than adequate to accommodate the forecast 95th percentile queue.

[4]In a letter dated January 16, 2014, the California Department of Transportation (Caltrans) requested evaluation of vehicle queues at freeway ramps using 85th percentile values. For the queuing analysis provided herein, however, the 95th percentile values are used based on the output provided by the Highway Capacity software. In addition, the 95th percentile values are more conservative (worst case) as the resultant queue values would be exceeded only 5% of the time during the analyzed peak hour (as compared to 15% of the time for 85th percentile queue values).

Table 12-1
FREEWAY OFF-RAMP QUEUEING ANALYSIS [A]
AM AND PM PEAK HOURS

FREEWAY RAMP	PEAK HOUR	YEAR 2023 FUTURE CUMULATIVE WITH PROJECT			
				QUEUE ANALYSIS [D]	
		DELAY [B]	LOS [C]	PEAK VEHICLE QUEUE	STORAGE PROVIDED
I-5 Freeway SB Off-Ramp - Sedona Way / The Old Road	AM PM	23.2 16.8	C B	2.8 1.6	28 28
I-5 Freeway NB Off-Ramp / Hasley Canyon Road	AM PM	3.6 3.9	A A	0.1 0.1	70 70
SR-126 WB Off-Ramp / Commerce Center Drive	AM PM	22.5 12.5	C B	14.4 5.6	33 33
SR-126 EB Off-Ramp / Henry Mayo Drive Drive (w/o Commerce Center Drive)	AM PM	nom. nom.	A A	1.0 0.7	14 14

nom. = nominal

[A] Analysis based on the Highway Capacity Manual 2010, operational analysis methodologies.

[B] Approach delay reported in seconds per vehicle.

[C] Intersection Levels of Service were based on the following criteria:

Signalized Control Delay (s/veh)	LOS	Unsignalized Control Delay (s/veh)
<= 10	A	<= 10
> 10-20	B	> 10-15
> 20-35	C	> 15-25
> 35-55	D	> 25-35
> 55-80	E	> 35-50
> 80	F	> 50

[D] Vehicle queue (95th percentile) and storage length provided are measured in number of vehicles.

For vehicles utilizing the SR-126 WB Off-Ramp at Commerce Center Drive, the 95th percentile vehicle queue is expected to be approximately 14 vehicles in the AM peak hour and six vehicles in the PM peak hour. The relatively long queue in the morning is due mainly to the volume of vehicles turning westbound right onto northbound Commerce Center Drive in order to access the various business and office parks along this roadway. The forecast vehicle queue can be accommodated by the proposed vehicle storage on the westbound off-ramp. At the SR-126 EB Off-Ramp/Henry Mayo Drive (west of Commerce Center Drive), the 95th percentile queue length is expected to be approximately one vehicle during both the AM and PM peak hours. The expected conflicting future volumes traveling westbound or eastbound on Henry Mayo Drive in both the AM and PM peak hours are low enough such that any off-ramp queuing would rarely occur.

In summary, the freeway off-ramps located within the project vicinity are expected to operate at acceptable parameters and are not expected to adversely affect the adjacent mainline freeway under future conditions with project traffic and related project traffic.

13.0 HASLEY CANYON ROAD SITE ACCESS ANALYSIS

The project's proposed Hasley Canyon Road site access was evaluated using the Highway Capacity Manual (HCM) methodology for stop-controlled intersections. The HCM methodology was used to determine: 1) the estimated delay for motorists turning left into the site access from eastbound Hasley Canyon Road, as well as exiting the site (left or right-turns) onto Hasley Canyon Road; 2) the corresponding Levels of Service related to the estimated motorist delay; and 3) the estimated 95th percentile vehicle queue for left-turn traffic movements into the site from Hasley Canyon Road and exiting traffic movements from the site. The 95th percentile vehicle queue length calculates the length, expressed in number of vehicles, expected to be queued for a specific movement during the analyzed time period. Specifically, the 95th percentile queue means that the number of queued vehicles will be at or less than the calculated value for 95 percent of the time during the period evaluated (e.g., AM and PM peak hour). This value is typically used by traffic engineers for roadway design and analysis in order to ensure that adequate storage lengths are provided.

A summary of these results is presented in ***Table 13–1***. At the project's Hasley Canyon Road access, it is anticipated that this intersection would be improved to provide two through traffic lanes in each direction on Hasley Canyon Road, as well as a separate lane for left-turn movements from eastbound Hasley Canyon Road. It is anticipated that the exiting (southbound) traffic movements would be accommodated in two lanes (one for left-turns and one for right-turns).

As shown in *Table 13–1*, in the Existing + Project condition, the left-turn inbound movements from eastbound Hasley Canyon Road during the weekday AM and PM peak hours are expected to operate at very good LOS A conditions with the 95th percentile queue estimated at less than one vehicle. Thus, motorists turning left into the site would experience little or no delay. For the outbound traffic movements during the AM and PM peak hours in the Existing + Project condition, acceptable LOS C conditions are forecast, with a 95th percentile vehicle queue of approximately 2.6 vehicles in the AM peak hour and 1.8 vehicles in the PM peak hour.

Similarly, in the Future + Project condition, LOS A conditions are expected to continue for the left-turn inbound movements from eastbound Hasley Canyon Road during the AM and PM peak hours, with only minimal vehicle queuing. Also, acceptable LOS C conditions are forecast for the outbound traffic movements during the AM and PM peak hours, with 95th percentile queuing of 2.7 vehicles during the AM peak hour and 1.9 vehicles during the PM peak hour.

In summary, the project's main access at Hasley Canyon Road is forecast to operate within acceptable parameters for motorists to and from the project site and is not expected to adversely impact through traffic on Hasley Canyon Road.

Table 13-1
HASLEY CANYON ROAD PROJECT DRIVEWAY ANALYSIS [A]
AM AND PM PEAK HOURS

PEAK HOUR	YEAR 2012 EXISTING + PROJECT						YEAR 2023 FUTURE + PROJECT					
	LEFT-TURN IN			OUTBOUND			LEFT-TURN IN			OUTBOUND		
	DELAY [B]	LOS [C]	QUEUE [D]	DELAY [B]	LOS [C]	QUEUE [D]	DELAY [B]	LOS [C]	QUEUE [D]	DELAY [B]	LOS [C]	QUEUE [D]
AM	7.7	A	0.02	18.7	C	2.56	7.8	A	0.02	19.7	C	2.72
PM	8.6	A	0.10	18.9	C	1.75	8.7	A	0.10	20.2	C	1.90

[A] Intersection analysis based on the Highway Capacity Manual 2010, operational analysis methodologies.
[B] Control delay reported in seconds per vehicle.
[C] Unsignalized Intersection Levels of Service were based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-15	B
> 15-25	C
> 25-35	D
> 35-50	E
> 50	F

[D] Vehicle queue length (95th percentile) measured in number of vehicles.

14.0 INTERNAL PROJECT GATE ANALYSIS

A separate queuing analysis at the proposed project's internal gates was conducted in addition to the analysis of the Hasley Canyon Road Site Access. As shown in *Figure 2–1*, the project proposes the installation of five access-controlled gates within the project site that will serve approximately 378 homes. As noted on *Figure 2–1*, three of the gates will be generally located north of Barcelona Road (labeled West, Central and East) and two of the gates will be generally located south of Barcelona Road (labeled North and South). The purpose of the queuing analysis was to determine whether sufficient vehicle storage is provided for arriving traffic between the proposed gate location and the closest intersection (i.e., so as to ensure that vehicles waiting at the gate do not queue back into the intersection).

In preparing the queuing analysis, the number of dwelling units that each gate will serve was estimated based on their relative location to the primary vehicular access at Hasley Canyon Road and the general proximity of the homes to each gate. As shown in ***Table 14–1***, it is assumed that the number of units served by each gates will range from 22 dwelling units (North Gate) to 120 dwelling units (Central Gate) based on the proximity of each dwelling unit to an access gate and the overall project trip distribution pattern. It is noted that these estimates were made for analysis purposes as, for example residents north of Barcelona Road will be able to access their homes via the West, Central and East gates.

As previously outlined in Section 7.1 of this report, the proposed project is anticipated to generate 373 vehicle trips (93 inbound trips and 280 outbound trips) during the AM peak hour and 502 vehicle trips (316 inbound trips and 186 outbound trips) during the PM peak hour. Thus, for this analysis, the PM peak hour inbound vehicular traffic was used to determine potential vehicle queues at the gates as it represents the highest amount of arriving traffic (e.g., residents returning home from work). Based on the ITE Trip Generation rates, 0.64 inbound trips per dwelling unit are forecast during the PM peak hour. Using this trip rate, the inbound vehicle trips at each gate were calculated for the PM peak hour, as presented in *Table 14–1*. As the ITE rates forecast vehicle trips over one hour, the total inbound trips during the PM peak hour were divided by 60 in order to calculate the number of vehicles per minute that will arrive at each gate. Multiplying this average arrival by two approximates the 95th percentile confidence level of a Poisson distribution (which is typically used, for example, by traffic engineers in planning the lengths of left and right-turn pockets at intersections).

The maximum required queue length at each gate was calculated and compared to the vehicle storage length provided at each location. As *Table 14–1* shows, the inbound vehicle storage provided at each gate exceeds the forecast peak vehicle queue at each location. Therefore, the proposed vehicle storage at each gate location internal to the project is deemed adequate to accommodate the forecast peak queue of vehicles.

Table 14-1
INTERNAL PROJECT GATES QUEUING ANALYSIS
PM PEAK HOUR

GATE	APPROX. NO. OF UNITS SERVED	PEAK HOUR INBOUND TRIPS [A]	QUEUE ANALYSIS [B]	
			PEAK VEHICLE QUEUE	STORAGE PROVIDED
North	22	14	0.5	11
South	88	56	1.9	9
West	110	70	2.3	7
Central	120	77	2.6	8
East	38	24	0.8	8

[A] Trips are one-way traffic movements, entering or leaving.
ITE Land Use Code 210 (Single Family Detached Housing) trip generation average rates.
PM Peak Hour Trip Rate: 0.64 trips/dwelling unit.
[B] Vehicle queue (95th percentile) and storage length provided are measured in number of vehicles.

15.0 CONGESTION MANAGEMENT PROGRAM TRAFFIC IMPACT ASSESSMENT

The Congestion Management Program (CMP) is a state-mandated program that was enacted by the California State Legislature with the passage of Proposition 111 in 1990. The program is intended to address the impact of local growth on the regional transportation system.

As required by the 2010 Congestion Management Program for Los Angeles County, a Traffic Impact Assessment (TIA) has been prepared to determine the potential impacts on designated monitoring locations on the CMP highway system. The analysis has been prepared in accordance with procedures outlined in the *2010 Congestion Management Program for Los Angeles County*, County of Los Angeles Metropolitan Transportation Authority, 2010.

According to Section D.9.1 (Appendix D, page D-6) of the 2010 CMP manual, the criteria for determining a significant transportation impact is listed below:

> "A significant transportation impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity (V/C $\geq$ 0.02), causing or worsening LOS F (V/C > 1.00)."

The CMP impact criteria apply for analysis of both intersection and freeway monitoring locations.

15.1 Intersections

The CMP TIA guidelines require that intersection monitoring locations must be examined if the proposed project will add 50 or more trips during either the AM or PM weekday peak hours. The closest intersection monitoring locations are Chiquito Canyon Road/Henry Mayo Drive, which is approximately 3 miles southwest of the proposed project site and Magic Mountain Parkway/Valencia Boulevard, which is approximately 7 miles southeast of the proposed project site. Based on the distribution of project traffic presented in *Figures 7–2* and *7–3*, the proposed project will not add 50 or more trips during either the AM or PM weekday peak hours (i.e., of adjacent street traffic) to the CMP monitoring intersections in the project vicinity, which is stated in the CMP manual as the threshold criteria for a traffic impact assessment. Therefore, no further review of potential impacts to intersection monitoring locations that are part of the CMP highway system is required.

CMP INTERSECTION	PROJECT TRIPS AT INTERSECTION		PROJECT TRIPS ≥ 50?
	AM Peak Hour	PM Peak Hour	
#93 Henry Mayo Drive / Chiquito Canyon Road	27	41	No
#133 Magic Mountain Parkway / Valencia Boulevard	0	0	No

15.2 Freeways

The CMP TIA guidelines require that freeway monitoring locations must be examined if the proposed project will add 150 or more trips (in either direction) during either the AM or PM weekday peak periods. The closest freeway monitoring location is the I-5 Freeway north of SR-126. Based on the distribution of project traffic presented in *Figures 7–2* and *7–3*, the proposed project will not add 150 or more trips (in either direction) during either the AM or PM weekday peak hours to CMP freeway monitoring locations which is the threshold for preparing a traffic impact assessment, as stated in the CMP manual. Therefore, no further review of potential impacts to freeway monitoring locations that are part of the CMP highway system is required.

CMP FREEWAY SEGMENT	AM TRIPS		PM TRIPS		PROJECT TRIPS ≥ 150?
	NB	SB	NB	SB	
#1009 I-5 Freeway north of SR-126 (Henry Mayo Drive)	51	112	135	74	No

15.3 Transit Impact Review

As required by the *2010 Congestion Management Program for Los Angeles County*, a review has been made of the potential impacts of the project on transit service. As discussed in Subsection 4.4 herein, existing transit service is provided in the vicinity of the proposed Los Valles project.

The project trip generation, as shown in *Table 7–1*, was adjusted by values set forth in the CMP (i.e., person trips equal 1.4 times vehicle trips, and transit trips equal 3.5 percent of the total person trips) to estimate transit trip generation. Pursuant to the CMP guidelines, the proposed project is forecast to generate demand for 18 transit trips during the AM peak hour and 25 transit trip during the PM peak hour. Over a 24-hour period, the proposed project is forecast to generate demand for 233 daily transit trips. Therefore, the calculations are as follows:

- AM Peak Hour = 372 × 1.4 × 0.035 = 18 Transit Trips
- PM Peak Hour = 501 × 1.4 × 0.035 = 25 Transit Trips
- Daily Trips = 4,747 × 1.4 × 0.035 = 233 Transit Trips

As previously discussed, there is one bus transit line (Santa Clarita Transit Route 1/2) provided near the project site. The current service provides six buses per hour (three eastbound and three westbound) during the AM and PM peak hours. Thus, the project will generate approximately 3-4 additional transit riders per bus on average during the AM and PM peak hour. According to the *Santa Clarita Transportation Development Plan (November, 2006),* the existing transit demand is approximately 26 westbound/19 eastbound trips during the AM peak hours and 16 westbound/22 eastbound trips during the PM peak hours. Assuming a capacity of 60 passengers per bus, it is anticipated that the existing transit service in the project area will adequately accommodate the forecast increase of transit trips due to the project.

Thus, given the low number of project-generated transit trips, no project impacts on existing or future transit services in the project area are expected to occur as a result of the proposed project. It is further noted that the traffic analysis as evaluated herein related to potential impacts to the study intersections is highly conservative as it does not assume any reductions in project-related vehicle trips (e.g., as forecast in *Table 7–1*) due to trips that may otherwise be made via public transit.

16.0 CONCLUSIONS

This traffic impact analysis has been prepared to evaluate the potential impacts to the local street system due to the Los Valles project. Eight intersections were identified and analyzed in order to determine changes in operations following construction and occupancy of the proposed project. Application of the impact threshold criteria from the County of Los Angeles indicates that none of the eight study intersections would be significantly impacted by the forecast project traffic. Incremental but not significant impacts are noted at the study intersections evaluated in this analysis. As no significant impacts are expected due to the proposed project, no traffic mitigation measures are required or recommended for the study intersections.

The combined traffic effects due to the project and planned related projects may cause cumulative traffic impacts at one of the eight study intersections. The project is to construct a grade separation at the Commerce Center Drive / SR-126 intersection that will adequately mitigate the cumulative traffic impacts.

Additionally, separate queuing analyses of the freeway ramps near the project vicinity have determined that no significant impacts or delays would occur due to the project. No significant traffic impacts due to construction of the project are expected. In order to minimize any potential construction-related impacts to the neighboring communities, a Construction Management Plan will be implemented during all phases of construction.

APPENDIX A

MANUAL TRAFFIC COUNT DATA

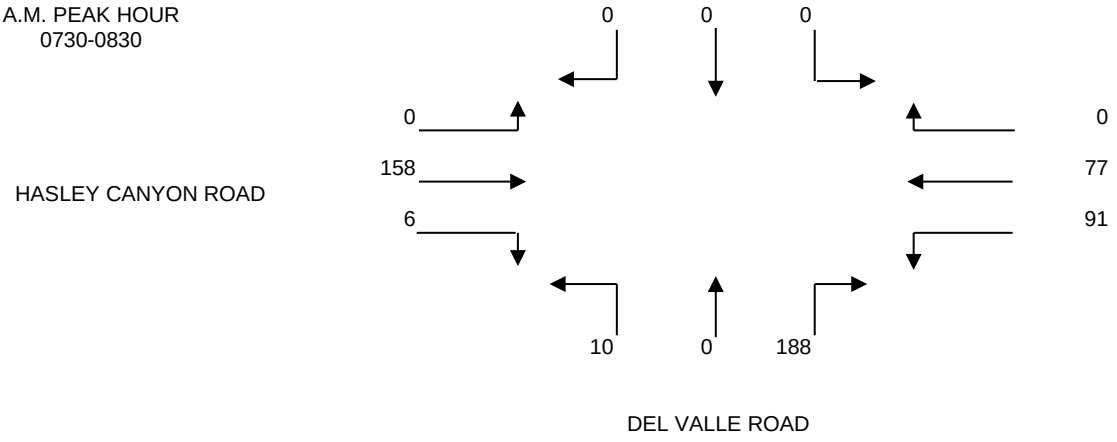
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION N/S DEL VALLE ROAD
E/W HASLEY CANYON ROAD
FILE NUMBER: 1-AM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0700-0715	0	0	0	0	13	11	30	0	1	2	25	0
0715-0730	0	0	0	0	9	7	59	0	2	3	49	0
0730-0745	0	0	0	0	18	12	61	0	6	2	50	0
0745-0800	0	0	0	0	11	19	63	0	2	2	33	0
0800-0815	0	0	0	0	23	25	36	0	1	1	30	0
0815-0830	0	0	0	0	25	35	28	0	1	1	45	0
0830-0845	0	0	0	0	19	21	39	0	3	1	34	0
0845-0900	0	0	0	0	12	18	23	0	0	0	30	0

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0700-0800	0	0	0	0	51	49	213	0	11	9	157	0	490
0715-0815	0	0	0	0	61	63	219	0	11	8	162	0	524
0730-0830	0	0	0	0	77	91	188	0	10	6	158	0	530
0745-0845	0	0	0	0	78	100	166	0	7	5	142	0	498
0800-0900	0	0	0	0	79	99	126	0	5	3	139	0	451

A.M. PEAK HOUR
0730-0830



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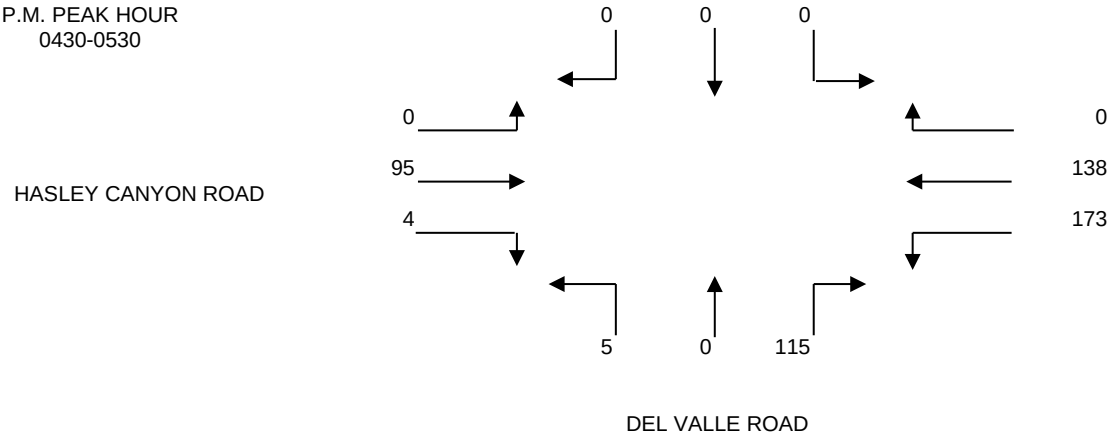
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION N/S DEL VALLE ROAD
E/W HASLEY CANYON ROAD
FILE NUMBER: 1-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0400-0415	0	0	0	0	29	49	15	0	3	3	16	0
0415-0430	0	0	0	0	35	30	20	0	1	0	22	0
0430-0445	0	0	0	0	24	46	25	0	4	1	25	0
0445-0500	0	0	0	0	45	51	24	0	0	2	23	0
0500-0515	0	0	0	0	40	42	28	0	0	0	24	0
0515-0530	0	0	0	0	29	34	38	0	1	1	23	0
0530-0545	0	0	0	0	25	46	21	0	0	1	22	0
0545-0600	0	0	0	0	44	60	34	0	1	2	13	0

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0400-0500	0	0	0	0	133	176	84	0	8	6	86	0	493
0415-0515	0	0	0	0	144	169	97	0	5	3	94	0	512
0430-0530	0	0	0	0	138	173	115	0	5	4	95	0	530
0445-0545	0	0	0	0	139	173	111	0	1	4	92	0	520
0500-0600	0	0	0	0	138	182	121	0	2	4	82	0	529

P.M. PEAK HOUR
0430-0530



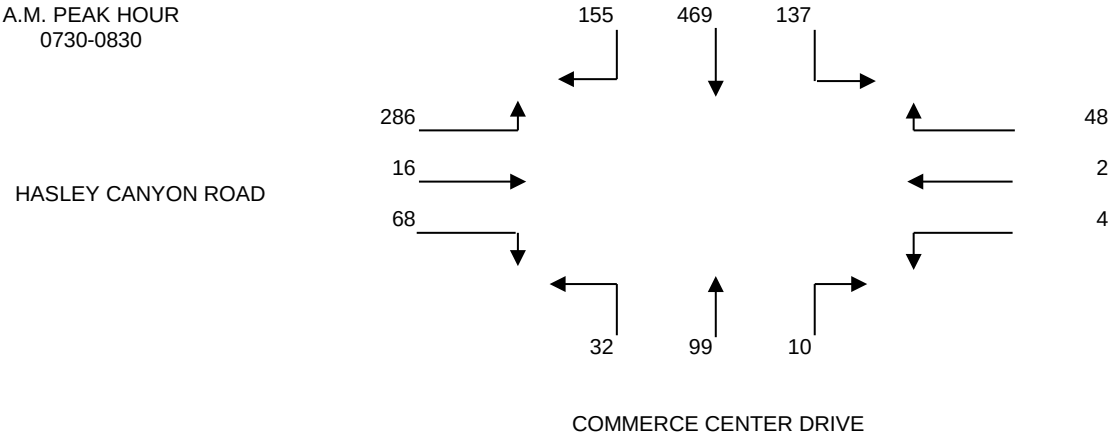
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION N/S COMMERCE CENTER DRIVE
E/W HASLEY CANYON ROAD
FILE NUMBER: 2-AM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0700-0715	9	79	6	2	0	0	0	7	3	11	2	32
0715-0730	15	105	7	3	0	0	2	13	6	19	3	89
0730-0745	28	112	13	5	0	0	1	20	7	14	1	104
0745-0800	29	133	38	7	0	0	2	21	7	19	2	94
0800-0815	56	106	32	15	0	2	2	20	9	13	5	35
0815-0830	42	118	54	21	2	2	5	38	9	22	8	53
0830-0845	29	68	53	25	4	3	2	39	3	10	7	53
0845-0900	23	59	24	34	7	2	0	23	1	11	9	43

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0700-0800	81	429	64	17	0	0	5	61	23	63	8	319	1070
0715-0815	128	456	90	30	0	2	7	74	29	65	11	322	1214
0730-0830	155	469	137	48	2	4	10	99	32	68	16	286	1326
0745-0845	156	425	177	68	6	7	11	118	28	64	22	235	1317
0800-0900	150	351	163	95	13	9	9	120	22	56	29	184	1201

A.M. PEAK HOUR
0730-0830



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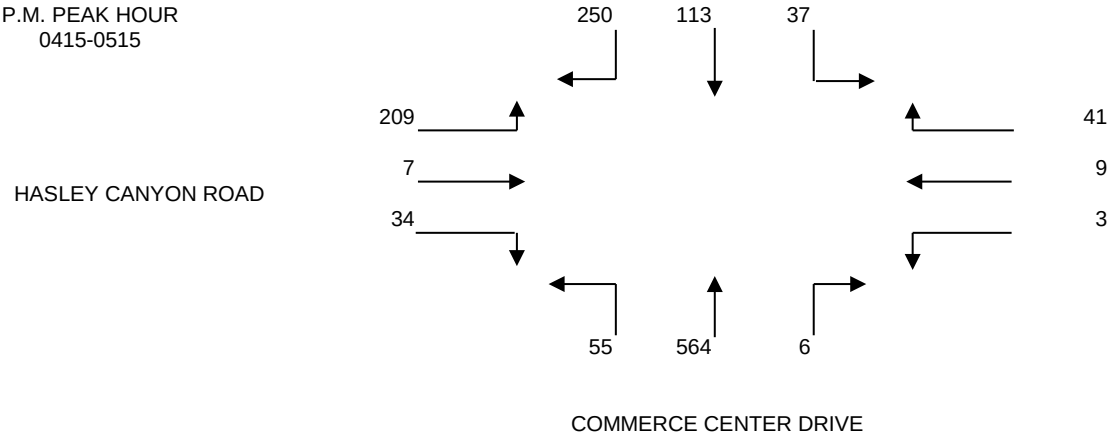
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION N/S COMMERCE CENTER DRIVE
E/W HASLEY CANYON ROAD
FILE NUMBER: 2-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0400-0415	62	28	4	6	2	0	0	95	8	6	1	39
0415-0430	52	33	6	9	3	0	0	109	10	9	1	45
0430-0445	54	36	8	8	3	1	3	198	13	9	1	58
0445-0500	79	24	12	9	2	1	0	102	13	10	2	43
0500-0515	65	20	11	15	1	1	3	155	19	6	3	63
0515-0530	56	15	5	8	1	1	0	101	12	8	3	65
0530-0545	64	13	10	4	2	3	4	94	9	7	0	34
0545-0600	67	8	5	5	1	1	2	60	11	4	0	40

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0400-0500	247	121	30	32	10	2	3	504	44	34	5	185	1217
0415-0515	250	113	37	41	9	3	6	564	55	34	7	209	1328
0430-0530	254	95	36	40	7	4	6	556	57	33	9	229	1326
0445-0545	264	72	38	36	6	6	7	452	53	31	8	205	1178
0500-0600	252	56	31	32	5	6	9	410	51	25	6	202	1085

P.M. PEAK HOUR
0415-0515



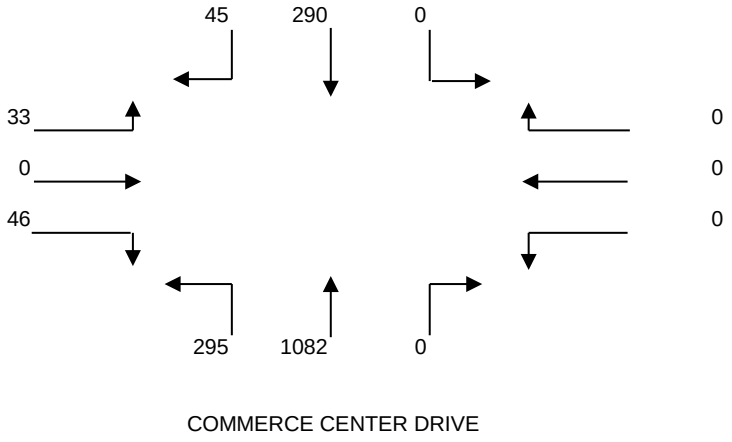
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION N/S COMMERCE CENTER DRIVE
E/W FRANKLIN PARKWAY
FILE NUMBER: 3-AM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0700-0715	2	34	0	0	0	0	0	113	29	14	0	2
0715-0730	5	46	0	0	0	0	0	217	64	13	0	4
0730-0745	12	105	0	0	0	0	0	250	82	13	0	6
0745-0800	16	65	0	0	0	0	0	352	105	12	0	11
0800-0815	9	56	0	0	0	0	0	238	57	15	0	6
0815-0830	8	64	0	0	0	0	0	242	51	6	0	10
0830-0845	5	80	0	0	0	0	0	178	30	5	0	5
0845-0900	4	55	0	0	0	0	0	189	20	10	0	7

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0700-0800	35	250	0	0	0	0	0	932	280	52	0	23	1572
0715-0815	42	272	0	0	0	0	0	1057	308	53	0	27	1759
0730-0830	45	290	0	0	0	0	0	1082	295	46	0	33	1791
0745-0845	38	265	0	0	0	0	0	1010	243	38	0	32	1626
0800-0900	26	255	0	0	0	0	0	847	158	36	0	28	1350

A.M. PEAK HOUR
0730-0830



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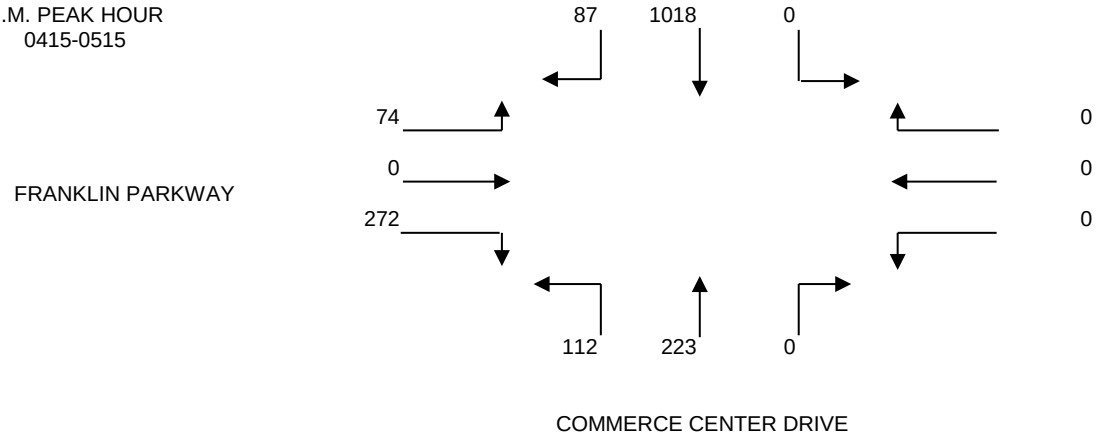
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION N/S COMMERCE CENTER DRIVE
E/W FRANKLIN PARKWAY
FILE NUMBER: 3-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0400-0415	16	190	0	0	0	0	0	53	22	59	0	15
0415-0430	18	189	0	0	0	0	0	61	25	42	0	17
0430-0445	23	315	0	0	0	0	0	50	39	89	0	20
0445-0500	28	202	0	0	0	0	0	64	28	50	0	13
0500-0515	18	312	0	0	0	0	0	48	20	91	0	24
0515-0530	10	208	0	0	0	0	0	36	13	49	0	16
0530-0545	10	237	0	0	0	0	0	36	12	32	0	10
0545-0600	9	165	0	0	0	0	0	30	6	22	0	8

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0400-0500	85	896	0	0	0	0	0	228	114	240	0	65	1628
0415-0515	87	1018	0	0	0	0	0	223	112	272	0	74	1786
0430-0530	79	1037	0	0	0	0	0	198	100	279	0	73	1766
0445-0545	66	959	0	0	0	0	0	184	73	222	0	63	1567
0500-0600	47	922	0	0	0	0	0	150	51	194	0	58	1422

P.M. PEAK HOUR
0415-0515



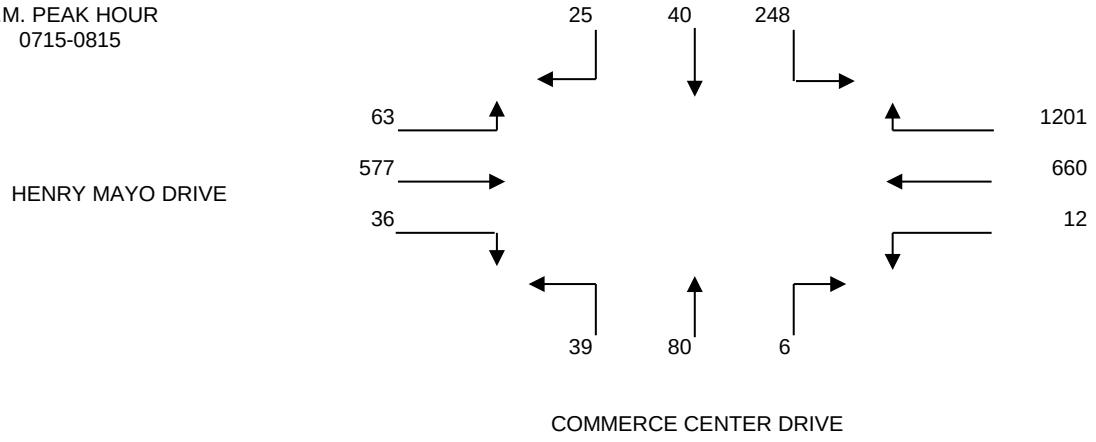
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION N/S COMMERCE CENTER DRIVE
E/W HENRY MAYO DRIVE
FILE NUMBER: 4-AM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0700-0715	8	4	46	155	165	4	1	14	12	3	141	7
0715-0730	8	6	40	256	160	5	1	18	12	7	149	10
0730-0745	8	13	83	277	187	3	1	20	10	10	156	16
0745-0800	5	14	65	378	155	1	3	24	7	7	134	23
0800-0815	4	7	60	290	158	3	1	18	10	12	138	14
0815-0830	8	8	48	264	149	4	0	14	7	6	142	12
0830-0845	6	11	61	180	158	8	2	14	7	7	134	11
0845-0900	5	5	63	157	130	4	1	7	13	11	142	10

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0700-0800	29	37	234	1066	667	13	6	76	41	27	580	56	2832
0715-0815	25	40	248	1201	660	12	6	80	39	36	577	63	2987
0730-0830	25	42	256	1209	649	11	5	76	34	35	570	65	2977
0745-0845	23	40	234	1112	620	16	6	70	31	32	548	60	2792
0800-0900	23	31	232	891	595	19	4	53	37	36	556	47	2524

A.M. PEAK HOUR
0715-0815



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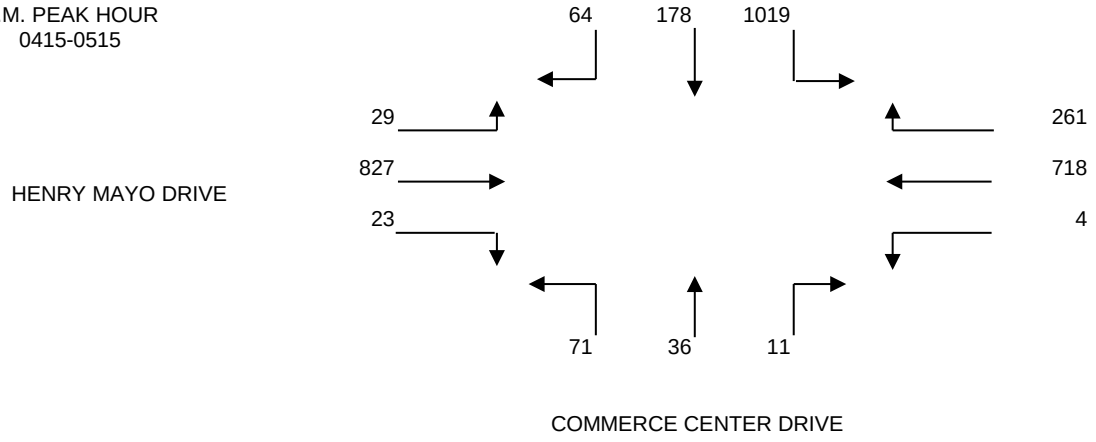
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION N/S COMMERCE CENTER DRIVE
E/W HENRY MAYO DRIVE
FILE NUMBER: 4-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0400-0415	11	23	199	58	194	3	4	12	23	3	211	9
0415-0430	11	20	196	62	183	0	4	10	20	5	202	10
0430-0445	19	61	286	73	174	0	5	10	15	8	213	9
0445-0500	16	39	228	74	188	0	2	7	22	6	220	6
0500-0515	18	58	309	52	173	4	0	9	14	4	192	4
0515-0530	12	26	227	43	164	2	1	8	17	6	209	6
0530-0545	12	19	234	34	132	2	6	5	13	8	192	7
0545-0600	11	11	154	21	140	4	3	5	5	3	209	8

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0400-0500	57	143	909	267	739	3	15	39	80	22	846	34	3154
0415-0515	64	178	1019	261	718	4	11	36	71	23	827	29	3241
0430-0530	65	184	1050	242	699	6	8	34	68	24	834	25	3239
0445-0545	58	142	998	203	657	8	9	29	66	24	813	23	3030
0500-0600	53	114	924	150	609	12	10	27	49	21	802	25	2796

P.M. PEAK HOUR
0415-0515



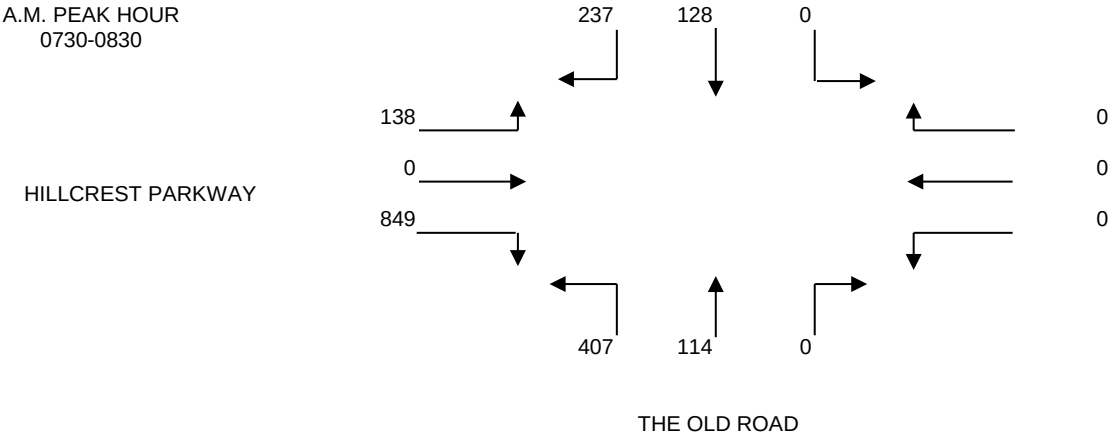
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION N/S THE OLD ROAD
E/W HILLCREST PARKWAY
FILE NUMBER: 5-AM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0700-0715	10	25	0	0	0	0	0	17	27	74	0	8
0715-0730	28	35	0	0	0	0	0	20	51	124	0	14
0730-0745	52	45	0	0	0	0	0	21	86	192	0	20
0745-0800	81	39	0	0	0	0	0	32	117	249	0	43
0800-0815	74	21	0	0	0	0	0	31	119	231	0	39
0815-0830	30	23	0	0	0	0	0	30	85	177	0	36
0830-0845	16	21	0	0	0	0	0	23	51	100	0	20
0845-0900	16	32	0	0	0	0	0	15	36	101	0	19

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0700-0800	171	144	0	0	0	0	0	90	281	639	0	85	1410
0715-0815	235	140	0	0	0	0	0	104	373	796	0	116	1764
0730-0830	237	128	0	0	0	0	0	114	407	849	0	138	1873
0745-0845	201	104	0	0	0	0	0	116	372	757	0	138	1688
0800-0900	136	97	0	0	0	0	0	99	291	609	0	114	1346

A.M. PEAK HOUR
0730-0830



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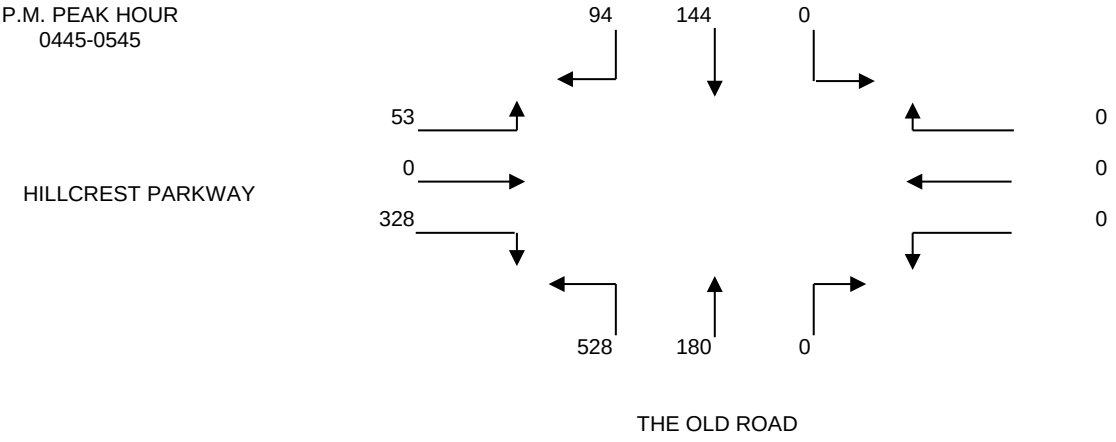
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION N/S THE OLD ROAD
E/W HILLCREST PARKWAY
FILE NUMBER: 5-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0400-0415	19	27	0	0	0	0	0	35	55	34	0	10
0415-0430	16	25	0	0	0	0	0	28	82	45	0	17
0430-0445	23	26	0	0	0	0	0	54	111	65	0	10
0445-0500	19	34	0	0	0	0	0	42	157	86	0	13
0500-0515	17	33	0	0	0	0	0	59	107	77	0	14
0515-0530	26	39	0	0	0	0	0	37	121	73	0	14
0530-0545	32	38	0	0	0	0	0	42	143	92	0	12
0545-0600	28	38	0	0	0	0	0	36	121	85	0	15

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0400-0500	77	112	0	0	0	0	0	159	405	230	0	50	1033
0415-0515	75	118	0	0	0	0	0	183	457	273	0	54	1160
0430-0530	85	132	0	0	0	0	0	192	496	301	0	51	1257
0445-0545	94	144	0	0	0	0	0	180	528	328	0	53	1327
0500-0600	103	148	0	0	0	0	0	174	492	327	0	55	1299

P.M. PEAK HOUR
0445-0545



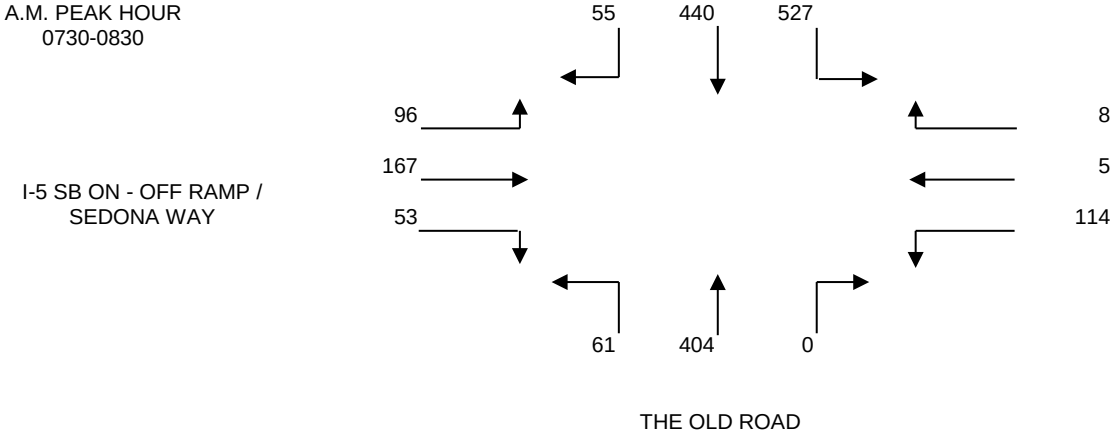
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION N/S THE OLD ROAD
E/W I-5 SB ON-OFF RAMP / SEDONA WAY
FILE NUMBER: 6-AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
0700-0715	1	41	45	0	5	17	0	27	3	4	14	0
0715-0730	0	53	95	0	3	24	0	42	5	8	44	11
0730-0745	5	133	156	1	0	29	0	89	10	14	52	18
0745-0800	14	125	133	1	3	39	0	122	19	19	43	35
0800-0815	20	105	132	3	1	29	0	107	17	13	41	29
0815-0830	16	77	106	3	1	17	0	86	15	7	31	14
0830-0845	9	65	78	5	2	22	0	58	19	14	36	4
0845-0900	9	53	61	8	3	22	0	46	12	7	32	3

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
0700-0800	20	352	429	2	11	109	0	280	37	45	153	64	1502
0715-0815	39	416	516	5	7	121	0	360	51	54	180	93	1842
0730-0830	55	440	527	8	5	114	0	404	61	53	167	96	1930
0745-0845	59	372	449	12	7	107	0	373	70	53	151	82	1735
0800-0900	54	300	377	19	7	90	0	297	63	41	140	50	1438

A.M. PEAK HOUR
0730-0830



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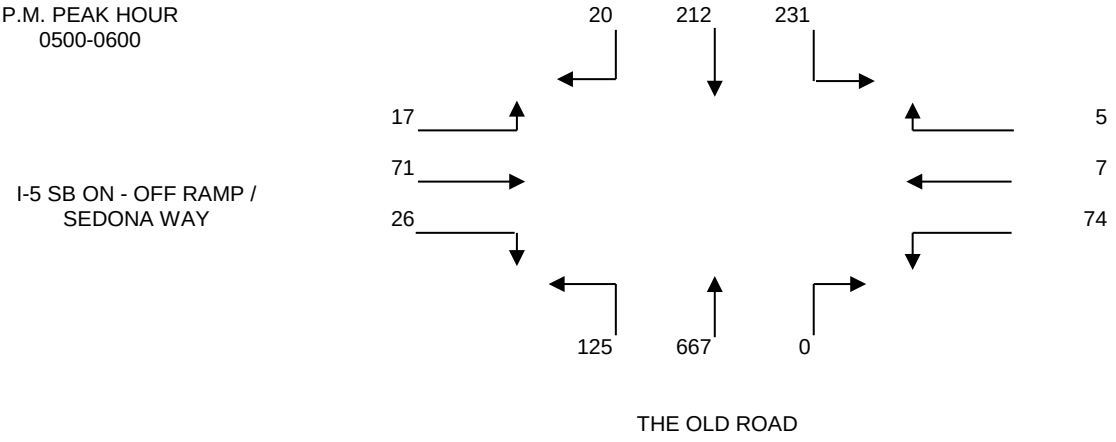
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 12, 2012
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION N/S THE OLD ROAD
E/W I-5 SB ON - OFF RAMP / SEDONA WAY
FILE NUMBER: 6-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0400-0415	4	39	36	1	2	22	1	129	29	9	13	3
0415-0430	7	41	45	0	3	15	0	136	34	6	28	4
0430-0445	4	38	46	2	7	18	1	139	27	7	22	1
0445-0500	8	36	60	0	3	22	0	166	26	8	16	4
0500-0515	7	48	63	1	2	14	0	154	34	7	16	5
0515-0530	7	59	65	1	3	23	0	186	41	6	11	2
0530-0545	4	53	46	3	1	23	0	161	25	4	22	7
0545-0600	2	52	57	0	1	14	0	166	25	9	22	3

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0400-0500	23	154	187	3	15	77	2	570	116	30	79	12	1268
0415-0515	26	163	214	3	15	69	1	595	121	28	82	14	1331
0430-0530	26	181	234	4	15	77	1	645	128	28	65	12	1416
0445-0545	26	196	234	5	9	82	0	667	126	25	65	18	1453
0500-0600	20	212	231	5	7	74	0	667	125	26	71	17	1455

P.M. PEAK HOUR
0500-0600



INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 19, 2012
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION N/S THE OLD ROAD
E/W I-5 SB ON RAMP / HASLEY CANYON ROAD
FILE NUMBER: 7-AM

15 MINUTE TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0700-0715	30	21	24	2	1	30	71	28	1	0	10	2	10	7	0	12	70	11	3	0
0715-0730	27	38	34	0	3	39	101	52	0	0	20	5	9	7	0	8	115	14	10	0
0730-0745	33	44	52	1	1	54	139	51	0	0	37	5	16	8	0	13	131	8	23	0
0745-0800	59	53	56	1	1	75	143	41	0	0	43	10	29	12	0	19	134	8	37	0
0800-0815	52	37	33	3	2	87	140	24	0	0	29	7	21	6	0	13	103	10	25	0
0815-0830	61	36	28	1	3	46	121	25	1	0	24	4	14	9	0	16	85	9	13	0
0830-0845	49	20	24	1	2	34	119	20	0	0	15	6	14	13	1	11	99	9	19	0
0845-0900	47	21	22	2	2	39	91	14	1	0	23	7	11	6	0	9	93	13	12	0

1 HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTALS
0700-0800	149	156	166	4	6	198	454	172	1	0	110	22	64	34	0	52	450	41	73	0	2152
0715-0815	171	172	175	5	7	255	523	168	0	0	129	27	75	33	0	53	483	40	95	0	2411
0730-0830	205	170	169	6	7	262	543	141	1	0	133	26	80	35	0	61	453	35	98	0	2425
0745-0845	221	146	141	6	8	242	523	110	1	0	111	27	78	40	1	59	421	36	94	0	2265
0800-0900	209	114	107	7	9	206	471	83	2	0	91	24	60	34	1	49	380	41	69	0	1957

SBR	SBT	SBL	SBU	WBR	WBT	WBL	WBU	NBR	NBT	NBL	NBU	EBR	EBT	EBL	EBU
205	**170**	**175**	**7**	**262**	**543**	**142**	**0**	**159**	**80**	**35**	**0**	**514**	**35**	**98**	**0**

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INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 19, 2012
PERIOD: 04:00 PM TO 06:00 PM
INTERSECTION N/S THE OLD ROAD
E/W I-5 SB ON RAMP / HASLEY CANYON ROAD
FILE NUMBER: 7-PM

15 MINUTE TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0400-0415	26	31	29	1	10	110	91	25	0	0	22	9	27	19	1	6	103	26	28	0
0415-0430	25	23	22	3	11	106	116	27	0	0	21	9	18	16	0	10	120	22	20	2
0430-0445	28	16	13	3	7	119	136	20	0	0	17	9	24	17	0	16	191	29	28	2
0445-0500	20	11	11	2	5	108	130	29	0	0	17	11	25	10	0	13	125	18	40	0
0500-0515	33	26	10	3	9	135	101	30	0	0	21	7	30	16	0	6	167	21	29	0
0515-0530	29	25	28	7	10	130	115	33	0	0	28	8	39	16	1	11	131	12	28	0
0530-0545	20	33	29	2	10	138	126	31	0	0	19	11	38	9	0	5	110	20	37	0
0545-0600	14	24	26	2	5	130	117	23	0	0	14	7	23	9	0	8	77	15	26	0

1 HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTALS
0400-0500	99	81	75	9	33	443	473	101	0	0	77	38	94	62	1	45	539	95	116	4	2385
0415-0515	106	76	56	11	32	468	483	106	0	0	76	36	97	59	0	45	603	90	117	4	2465
0430-0530	110	78	62	15	31	492	482	112	0	0	83	35	118	59	1	46	614	80	125	2	2545
0445-0545	102	95	78	14	34	511	472	123	0	0	85	37	132	51	1	35	533	71	134	0	2508
0500-0600	96	108	93	14	34	533	459	117	0	0	82	33	130	50	1	30	485	68	120	0	2453

SBR	SBT	SBL	SBU	WBR	WBT	WBL	WBU	NBR	NBT	NBL	NBU	EBR	EBT	EBL	EBU
110	**78**	**77**	**31**	**492**	**482**	**112**	**0**	**118**	**118**	**59**	**1**	**660**	**80**	**125**	**2**

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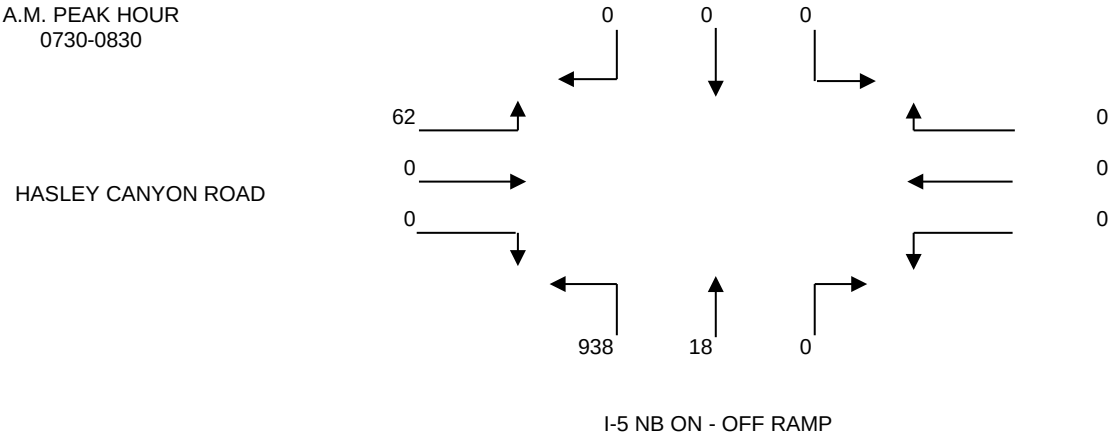
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: LOS VALLES - CITY OF CASTAIC
DATE: WEDNESDAY, SEPTEMBER 19, 2012
PERIOD: 07:00 AM TO 09:00 AM
INTERSECTION N/S I-5 NB ON - OFF RAMP
E/W HASLEY CANYON ROAD
FILE NUMBER: 8-AM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0700-0715	0	0	0	0	0	0	0	6	129	0	0	9
0715-0730	0	0	0	0	0	0	0	2	193	0	0	14
0730-0745	0	0	0	0	0	0	0	6	237	0	0	15
0745-0800	0	0	0	0	0	0	0	4	283	0	0	23
0800-0815	0	0	0	0	0	0	0	2	217	0	0	14
0815-0830	0	0	0	0	0	0	0	6	201	0	0	10
0830-0845	0	0	0	0	0	0	0	3	167	0	0	20
0845-0900	0	0	0	0	0	0	0	2	166	0	0	23

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0700-0800	0	0	0	0	0	0	0	18	842	0	0	61	921
0715-0815	0	0	0	0	0	0	0	14	930	0	0	66	1010
0730-0830	0	0	0	0	0	0	0	18	938	0	0	62	1018
0745-0845	0	0	0	0	0	0	0	15	868	0	0	67	950
0800-0900	0	0	0	0	0	0	0	13	751	0	0	67	831

A.M. PEAK HOUR
0730-0830



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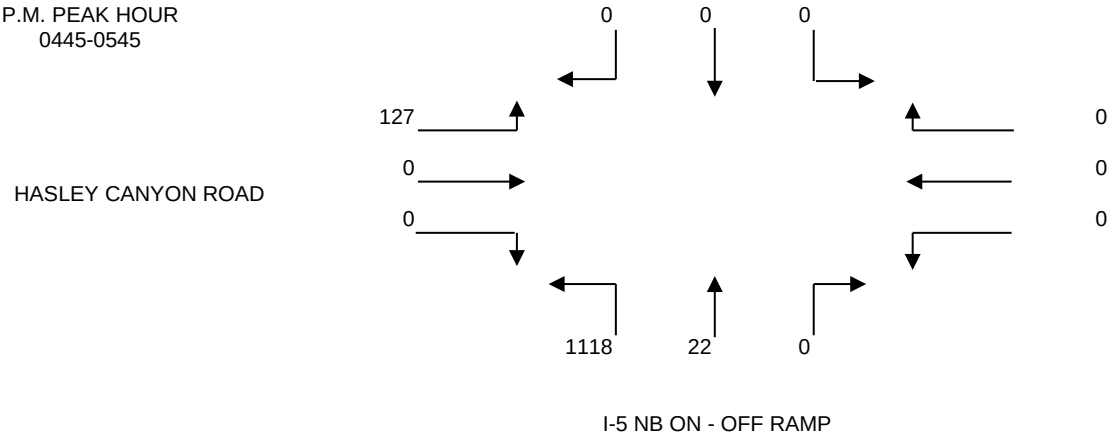
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		LLG - PASADENA
PROJECT:		LOS VALLES - CITY OF CASTAIC
DATE:		WEDNESDAY, SEPTEMBER 19, 2012
PERIOD:		04:00 PM TO 06:00 PM
INTERSECTION	N/S	I-5 NB ON - OFF RAMP
	E/W	HASLEY CANYON ROAD
FILE NUMBER:		8-PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0400-0415	0	0	0	0	0	0	0	8	238	0	0	39
0415-0430	0	0	0	0	0	0	0	4	236	0	0	35
0430-0445	0	0	0	0	0	0	0	8	273	0	0	45
0445-0500	0	0	0	0	0	0	0	7	280	0	0	30
0500-0515	0	0	0	0	0	0	0	6	273	0	0	30
0515-0530	0	0	0	0	0	0	0	5	270	0	0	24
0530-0545	0	0	0	0	0	0	0	4	295	0	0	43
0545-0600	0	0	0	0	0	0	0	6	284	0	0	25

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0400-0500	0	0	0	0	0	0	0	27	1027	0	0	149	1203
0415-0515	0	0	0	0	0	0	0	25	1062	0	0	140	1227
0430-0530	0	0	0	0	0	0	0	26	1096	0	0	129	1251
0445-0545	0	0	0	0	0	0	0	22	1118	0	0	127	1267
0500-0600	0	0	0	0	0	0	0	21	1122	0	0	122	1265

P.M. PEAK HOUR
0445-0545



APPENDIX B

ICU AND LEVELS OF SERVICE EXPLANATION
ICU/HCS DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS

INTERSECTION CAPACITY UTILIZATION (ICU) DESCRIPTION

Level of Service is a term used to describe prevailing conditions and their effect on traffic. Broadly interpreted, the Levels of Service concept denotes any one of a number of differing combinations of operating conditions which may occur as a roadway is accommodating various traffic volumes. Level of Service is a qualitative measure of the effect of such factors as travel speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

Six Levels of Service, A through F, have been defined in the 1965 *Highway Capacity Manual*, published by the Transportation Research Board. Level of Service A describes a condition of free flow, with low traffic volumes and relatively high speeds, while Level of Service F describes forced traffic flow at low speeds with jammed conditions and queues which cannot clear during the green phases.

The Intersection Capacity Utilization (ICU) method of intersection capacity analysis has been used in our studies. It directly relates traffic demand and available capacity for key intersection movements, regardless of present signal timing, The capacity per hour of green time for each approach is calculated based on the methods of the *Highway Capacity Manual*. The proportion of total signal time needed by each key movement is determined and compared to the total time available (100 percent of the hour). The result of summing the requirements of the conflicting key movements plus an allowance for clearance times is expressed as a decimal fraction. Conflicting key traffic movements are those opposing movements whose combined green time requirements are greatest.

The resulting ICU represents the proportion of the total hour required to accommodate intersection demand volumes if the key conflicting traffic movements are operating at capacity. Other movements may be operating near capacity, or may be operating at significantly better levels. The ICU may be translated to a Level of Service as tabulated below.

The Levels of Service (abbreviated from the *Highway Capacity Manual*) are listed here with their corresponding ICU and Load Factor equivalents. Load Factor is that proportion of the signal cycles during the peak hour which are fully loaded; i.e. when all of the vehicles waiting at the beginning of green are not able to clear on that green phase.

Intersection Capacity Utilization Characteristics

Level of Service	Load Factor	Equivalent ICU
A	0.0	0.00 - 0.60
B	0.0 - 0.1	0.61 - 0.70
C	0.1 - 0.3	0.71 - 0.80
D	0.3 - 0.7	0.81 - 0.90
E	0.7 - 1.0	0.91 - 1.00
F	Not Applicable	Not Applicable

SERVICE LEVEL A
There are no loaded cycles and few are even close to loaded at this service level. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.

SERVICE LEVEL B
This level represents stable operation where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.

SERVICE LEVEL C
At this level stable operation continues. Loading is still intermittent but more frequent than at Level B. Occasionally drivers may have to wait through more than one red signal indication and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.

SERVICE LEVEL D
This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak hour, but enough cycles with lower demand occur to permit periodic clearance of queues, thus preventing excessive backups. Drivers frequently have to wait through more than one red signal. This level is the lower limit of acceptable operation to most drivers.

SERVICE LEVEL E
This represents near capacity and capacity operation. At capacity (ICU = 1.0) it represents the most vehicles that the particular intersection can accommodate. However, full utilization of every signal cycle is seldom attained no matter how great the demand. At this level all drivers wait through more than one red signal, and frequently through several.

SERVICE LEVEL F
Jammed conditions. Traffic backed up from a downstream location on one of the street restricts or prevents movement of traffic through the intersection under consideration.

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE	SIGNALIZED INTERSECTIONS	UNSIGNALIZED INTERSECTIONS*
"A"	Uncongested operations, all queues clear in a single-signal cycle. (Average stopped delay less than 10 seconds per vehicle; V/C less than or = 0.60).	Little or no delay. (Average delay of ≤ 10 seconds)
"B"	Uncongested operations, all queues clear in a single cycle. (Average delay of 10-20 seconds; V/C=0.61-0.70).	Short traffic delays. (Average delay of >10 and ≤15 secs.)
"C"	Light congestion, occasional backups on critical approaches. (Average delay of 20-35 seconds; V/C=0.71-0.80).	Average traffic delay. (Average delay of >15 and ≤25 secs.)
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. (Average delay of 35-55 seconds; V/C=0.81-0.90).	Long traffic delays for some approaches. (Average delay of >25 and ≤35 secs.)
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). (Average delay of 55-80 seconds; V/C=0.91-1.00).	Very long traffic delays for some approaches. (Average delay of >35 and ≤50 secs.)
"F"	Total breakdown, stop-and-go operation. (Average delay in excess of 80 seconds; V/C of 1.01 or greater).	Extreme traffic delays for some approaches (intersection may be blocked by external causes--delays >50 seconds).

* Level of Service refers to delays encountered by certain stop sign controlled approaches. Other approaches may operate with little delay.

Source: Transportation Research Board, Highway Capacity Manual, 2000.

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INTERSECTION CAPACITY UTILIZATION

Del Valle Road @ Hasley Canyon Road

N-S St:	Del Valle Road	Peak hr:	AM	Date:	03/04/2014
E-W St:	Hasley Canyon Road	Annual Growth:	0.00%	Date of Count:	2012
Project:	5-12-0009-1/Los Valles Project			Projection Year:	2023
File:	ICU-1				

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	10	0	0.006	0	10	0	0.006	0	10	0	0.006	0	10	0	0.006	0	10	0	0.006
Nb Thru	0	1600	0.124 *	0	0	1600	0.127 *	0	0	1600	0.127 *	0	0	1600	0.127 *	0	0	1600	0.127 *
Nb Right	188	0	-	5	193	0	-	0	193	0	-	0	193	0	-	0	193	0	-
Sb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Sb Thru	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000
Sb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	158	1600	0.103 *	5	163	1600	0.106 *	0	163	1600	0.106 *	22	185	1600	0.119 *	0	185	1600	0.119 *
Eb Right	6	0	-	0	6	0	-	0	6	0	-	0	6	0	-	0	6	0	-
Wb Left	91	0	0.057 *	14	105	0	0.066 *	0	105	0	0.066 *	0	105	0	0.066 *	0	105	0	0.066 *
Wb Thru	77	1600	0.105	14	91	1600	0.123	0	91	1600	0.123	9	100	1600	0.128	0	100	1600	0.128
Wb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.383				0.398				0.398				0.412				0.412
LOS			A				A				A				A				A

11:28 AM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Del Valle Road @ Hasley Canyon Road

N-S St:	Del Valle Road	Peak hr:	PM	Date:	03/04/2014
E-W St:	Hasley Canyon Road	Annual Growth:	0.00%	Date of Count:	2012
Project:	5-12-0009-1/Los Valles Project			Projection Year:	2023
File:	ICU-1				

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	5	0	0.003	0	5	0	0.003	0	5	0	0.003	0	5	0	0.003	0	5	0	0.003
Nb Thru	0	1600	0.075 *	0	0	1600	0.085 *	0	0	1600	0.085 *	0	0	1600	0.085 *	0	0	1600	0.085 *
Nb Right	115	0	-	16	131	0	-	0	131	0	-	0	131	0	-	0	131	0	-
Sb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Sb Thru	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000
Sb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Eb Thru	95	1600	0.062	16	111	1600	0.072	0	111	1600	0.072	14	125	1600	0.081	0	125	1600	0.081
Eb Right	4	0	-	0	4	0	-	0	4	0	-	0	4	0	-	0	4	0	-
Wb Left	173	0	0.108	9	182	0	0.114	0	182	0	0.114	0	182	0	0.114	0	182	0	0.114
Wb Thru	138	1600	0.194 *	9	147	1600	0.206 *	0	147	1600	0.206 *	27	174	1600	0.223 *	0	174	1600	0.223 *
Wb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.369				0.391				0.391				0.408				0.408
LOS			A				A				A				A				A

11:28 AM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ Hasley Canyon Road

N-S St:	Commerce Center Drive	Peak hr:	AM	Date:	05/08/2014
E-W St:	Hasley Canyon Road	Annual Growth:	0.00%	Date of Count:	2012
Project:	5-12-0009-1/Los Valles Project			Projection Year:	2023
File:	ICU-2				

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	32	1600	0.020 *	28	60	1600	0.038 *	0	60	1600	0.038 *	1	61	1600	0.038 *	0	61	1600	0.038 *
Nb Thru	99	4800	0.023	0	99	4800	0.023	0	99	4800	0.023	11	110	4800	0.025	0	110	4800	0.025
Nb Right	10	0	-	0	10	0	-	0	10	0	-	0	10	0	-	0	10	0	-
Sb Left	137	1600	0.086	0	137	1600	0.086	0	137	1600	0.086	0	137	1600	0.086	0	137	1600	0.086
Sb Thru	469	4800	0.130 *	0	469	4800	0.139 *	0	469	4800	0.139 *	26	495	4800	0.146 *	0	495	4800	0.146 *
Sb Right	155	0	-	42	197	0	-	0	197	0	-	7	204	0	-	0	204	0	-
Eb Left	286	2880	0.099 *	126	412	2880	0.143 *	0	412	2880	0.143 *	18	430	2880	0.149 *	0	430	2880	0.149 *
Eb Thru	16	0	0.000	0	16	0	0.000	0	16	0	0.000	0	16	0	0.000	0	16	0	0.000
Eb Right	68	1600	0.043	84	152	1600	0.095	0	152	1600	0.095	4	156	1600	0.098	0	156	1600	0.098
Wb Left	4	1600	0.003	0	4	1600	0.003	0	4	1600	0.003	0	4	1600	0.003	0	4	1600	0.003
Wb Thru	2	1600	0.001	0	2	1600	0.001	0	2	1600	0.001	0	2	1600	0.001	0	2	1600	0.001
Wb Right	48	1600	0.030 *	0	48	1600	0.030 *	0	48	1600	0.030 *	0	48	1600	0.030 *	0	48	1600	0.030 *
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.379				0.449				0.449				0.463				0.463
LOS			A				A				A				A				A

06:21 PM

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ Hasley Canyon Road

N-S St:	Commerce Center Drive	Peak hr:	PM	Date:	05/08/2014
E-W St:	Hasley Canyon Road	Annual Growth:	0.00%	Date of Count:	2012
Project:	5-12-0009-1/Los Valles Project			Projection Year:	2023
File:	ICU-2				

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	55	1600	0.034	95	150	1600	0.094 *	0	150	1600	0.094 *	4	154	1600	0.096 *	0	154	1600	0.096 *
Nb Thru	564	4800	0.119 *	0	564	4800	0.119	0	564	4800	0.119	26	590	4800	0.124	0	590	4800	0.124
Nb Right	6	0	-	0	6	0	-	0	6	0	-	0	6	0	-	0	6	0	-
Sb Left	37	1600	0.023 *	0	37	1600	0.023	0	37	1600	0.023	0	37	1600	0.023	0	37	1600	0.023
Sb Thru	113	4800	0.076	0	113	4800	0.105 *	0	113	4800	0.105 *	18	131	4800	0.114 *	0	131	4800	0.114 *
Sb Right	250	0	-	142	392	0	-	0	392	0	-	24	416	0	-	0	416	0	-
Eb Left	209	2880	0.073 *	83	292	2880	0.101 *	0	292	2880	0.101 *	13	305	2880	0.106 *	0	305	2880	0.106 *
Eb Thru	7	0	0.000	0	7	0	0.000	0	7	0	0.000	0	7	0	0.000	0	7	0	0.000
Eb Right	34	1600	0.021	56	90	1600	0.056	0	90	1600	0.056	3	93	1600	0.058	0	93	1600	0.058
Wb Left	3	1600	0.002	0	3	1600	0.002	0	3	1600	0.002	0	3	1600	0.002	0	3	1600	0.002
Wb Thru	9	1600	0.006	0	9	1600	0.006	0	9	1600	0.006	0	9	1600	0.006	0	9	1600	0.006
Wb Right	41	1600	0.026 *	0	41	1600	0.026 *	0	41	1600	0.026 *	0	41	1600	0.026 *	0	41	1600	0.026 *
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.340				0.426				0.426				0.442				0.442
LOS			A				A				A				A				A

06:21 PM

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ Franklin Parkway

N-S St: Commerce Center Drive
E-W St: Franklin Parkway
Project: 5-12-0009-1/Los Valles Project
File: ICU-3

Peak hr: AM
Annual Growth: 0.00%

Date: 03/04/2014
Date of Count: 2012
Projection Year: 2023

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	295	1600	0.184 *	0	295	1600	0.184 *	0	295	1600	0.184 *	51	346	1600	0.216 *	0	346	1600	0.216 *
Nb Thru	1082	4800	0.225	23	1105	4800	0.230	0	1105	4800	0.230	450	1555	4800	0.324	0	1555	4800	0.324
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	290	4800	0.060 *	70	360	4800	0.075 *	0	360	4800	0.075 *	179	539	4800	0.112 *	0	539	4800	0.112 *
Sb Right	45	1600	0.028	0	45	1600	0.028	0	45	1600	0.028	11	56	1600	0.035	0	56	1600	0.035
Eb Left	33	1600	0.021	0	33	1600	0.021	0	33	1600	0.021	64	97	1600	0.061	0	97	1600	0.061
Eb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	46	1600	0.029 *	0	46	1600	0.029 *	0	46	1600	0.029 *	1	47	1600	0.029	0	47	1600	0.029
Wb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000
Wb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.374				0.388				0.388				0.489				0.489
LOS			A				A				A				A				A

11:31 AM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ Franklin Parkway

N-S St: Commerce Center Drive
E-W St: Franklin Parkway
Project: 5-12-0009-1/Los Valles Project
File: ICU-3

Peak hr: PM
Annual Growth: 0.00%

Date: 03/04/2014
Date of Count: 2012
Projection Year: 2023

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	112	1600	0.070 *	0	112	1600	0.070 *	0	112	1600	0.070 *	4	116	1600	0.073 *	0	116	1600	0.073 *
Nb Thru	223	4800	0.046	79	302	4800	0.063	0	302	4800	0.063	175	477	4800	0.099	0	477	4800	0.099
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	1018	4800	0.212 *	46	1064	4800	0.222 *	0	1064	4800	0.222 *	311	1375	4800	0.286 *	0	1375	4800	0.286 *
Sb Right	87	1600	0.054	0	87	1600	0.054	0	87	1600	0.054	8	95	1600	0.059	0	95	1600	0.059
Eb Left	74	1600	0.046	0	74	1600	0.046	0	74	1600	0.046	113	187	1600	0.117	0	187	1600	0.117
Eb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	272	1600	0.170 *	0	272	1600	0.170 *	0	272	1600	0.170 *	0	272	1600	0.170 *	0	272	1600	0.170 *
Wb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Wb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.552				0.562				0.562				0.629				0.629
LOS			A				A				A				B				B

11:31 AM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ Henry Mayo Drive (SR126)

N-S St:	Commerce Center Drive	Peak hr:	AM	Date:	03/04/2014
E-W St:	Henry Mayo Drive (SR126)	Annual Growth:	0.00%	Date of Count:	2012
Project:	5-12-0009-1/Los Valles Project			Projection Year:	2023
File:	ICU-4				

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	39	1600	0.024	0	39	1600	0.024	0	39	1600	0.024	236	275	1600	0.172				
Nb Thru	80	1600	0.050 *	0	80	1600	0.050 *	0	80	1600	0.050 *	440	520	1600	0.325 *				
Nb Right	6	1600	0.004	0	6	1600	0.004	0	6	1600	0.004	36	42	1600	0.026				
Sb Left	248	2880	0.086 *	42	290	2880	0.101 *	0	290	2880	0.101 *	3	293	2880	0.102 *				
Sb Thru	40	1600	0.025	0	40	1600	0.025	0	40	1600	0.025	99	139	1600	0.087		**Grade Separated**		
Sb Right	25	1600	0.016	28	53	1600	0.033	0	53	1600	0.033	75	128	1600	0.080		**Interchange**		
Eb Left	63	1600	0.039 *	9	72	1600	0.045 *	0	72	1600	0.045 *	158	230	1600	0.144 *				
Eb Thru	577	3200	0.192	0	577	3200	0.192	0	577	3200	0.192	456	1033	3200	0.375				
Eb Right	36	0	-	0	36	0	-	0	36	0	-	130	166	0	-				
Wb Left	12	1600	0.008	0	12	1600	0.008	0	12	1600	0.008	107	119	1600	0.074				
Wb Thru	660	3200	0.206 *	0	660	3200	0.206 *	0	660	3200	0.206 *	789	1449	3200	0.453 *				
Wb Right [3]	1201	320000	0.004	14	1215	320000	0.004	0	1215	320000	0.004	-96	1119	320000	0.003				
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.482				0.502				0.502				1.123				0.100
LOS			A				A				A				F				A

11:31 AM

**Key conflicting movement as a part of ICU*
1 Counts conducted The Traffic Solution
2 Capacity expressed in veh/hour of green
3 Westbound approach has dual free-flow right-turn lanes.

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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ Henry Mayo Drive (SR126)

N-S St:	Commerce Center Drive	Peak hr:	PM	Date:	03/04/2014
E-W St:	Henry Mayo Drive (SR126)	Annual Growth:	0.00%	Date of Count:	2012
Project:	5-12-0009-1/Los Valles Project			Projection Year:	2023
File:	ICU-4				

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	71	1600	0.044	0	71	1600	0.044	0	71	1600	0.044	161	232	1600	0.145				
Nb Thru	36	1600	0.023 *	0	36	1600	0.023 *	0	36	1600	0.023 *	135	171	1600	0.107 *				
Nb Right	11	1600	0.007	0	11	1600	0.007	0	11	1600	0.007	99	110	1600	0.069				
Sb Left	1019	2880	0.354 *	28	1047	2880	0.364 *	0	1047	2880	0.364 *	-41	1006	2880	0.349 *				
Sb Thru	178	1600	0.111	0	178	1600	0.111	0	178	1600	0.111	236	414	1600	0.259		**Grade Separated**		
Sb Right	64	1600	0.040	19	83	1600	0.052	0	83	1600	0.052	111	194	1600	0.121		**Interchange**		
Eb Left	29	1600	0.018	32	61	1600	0.038	0	61	1600	0.038	45	106	1600	0.066				
Eb Thru	827	3200	0.266 *	0	827	3200	0.266 *	0	827	3200	0.266 *	924	1751	3200	0.616 *				
Eb Right	23	0	-	0	23	0	-	0	23	0	-	196	219	0	-				
Wb Left	4	1600	0.003 *	0	4	1600	0.003 *	0	4	1600	0.003 *	70	74	1600	0.046 *				
Wb Thru	718	3200	0.224	0	718	3200	0.224	0	718	3200	0.224	572	1290	3200	0.403				
Wb Right [3]	261	320000	0.001	47	308	320000	0.001	0	308	320000	0.001	-1	307	320000	0.001				
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.744				0.754				0.754				1.218				0.100
LOS			C				C				C				F				A

11:31 AM

**Key conflicting movement as a part of ICU*
1 Counts conducted The Traffic Solution
2 Capacity expressed in veh/hour of green
3 Westbound approach has dual free-flow right-turn lanes.

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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ SR-126 Westbound Ramps

N-S St: Commerce Center Drive
E-W St: SR-126 Westbound Ramps
Project: 5-12-0009-1/Los Valles Project
File: ICU-4A

Peak hr: AM
Annual Growth: 0.00%
Date: 05/16/2014
Date of Count: 2012
Projection Year: 2023

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC			2023 W/PROJECT SITE TRAFFIC				2023 W/RELATED PROJECTS				2023 GRADE SEPARATED INTERCHANGE			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	275	2880	0.095 *
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	750	4800	0.156
Nb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	432	4800	0.090 *
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	128	1600	0.080
Eb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000 *
Eb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	119	2880	0.041
Wb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	1119	3200	0.350 *
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.100			0.100				0.100				0.100				0.635
LOS			A			A				A				A				B

01:51 PM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

LINSCOTT, LAW & GREENSPAN, ENGINEERS
20931 Burbank Boulevard, Suite C, Woodland Hills, CA 91367
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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ SR-126 Westbound Ramps

N-S St: Commerce Center Drive
E-W St: SR-126 Westbound Ramps
Project: 5-12-0009-1/Los Valles Project
File: ICU-4A

Peak hr: PM
Annual Growth: 0.00%
Date: 05/16/2014
Date of Count: 2012
Projection Year: 2023

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC			2023 W/PROJECT SITE TRAFFIC				2023 W/RELATED PROJECTS				2023 GRADE SEPARATED INTERCHANGE			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	232	2880	0.081 *
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	277	4800	0.058
Nb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	1420	4800	0.296 *
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	194	1600	0.121
Eb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	74	2880	0.026
Wb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	307	3200	0.096
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.100			0.100				0.100				0.100				0.502
LOS			A			A				A				A				A

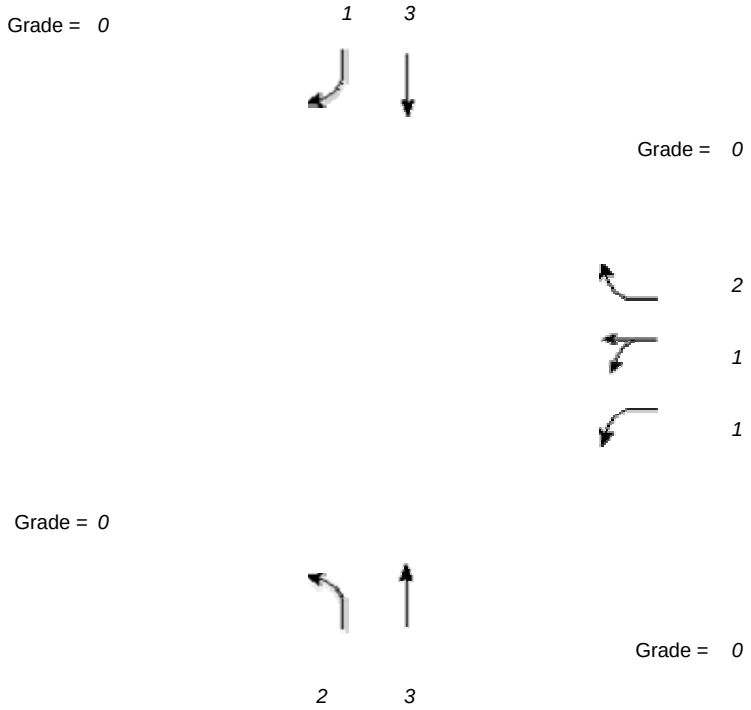
01:51 PM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

LONG REPORT

General Information		Site Information	
Analyst	*JST*	Intersection	*4A*
Agency or Co.	*LLG Engineers*	Area Type	*All other areas*
Date Performed	*2/24/2014*	Jurisdiction	*LA County*
Time Period	*AM*	Analysis Year	*2023 Cumulative plus Project*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)				*119*	*0*	*1119*	*275*	*750*			*431*	*128*
% Heavy Veh				*2*	*2*	*2*	*2*	*2*			*2*	*2*
PHF				*1.00*	*1.00*	*1.00*	*1.00*	*1.00*			*1.00*	*1.00*
Actuated (P/A)				*A*	*A*	*A*	*A*	*A*			*A*	*A*
Startup Lost Time				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
ExtenSion of Effective Green				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Arrival type				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Unit Extension				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/Hour												
Bus Stops/Hour				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Pedestrian Timing	*3.2*			*3.2*			*3.2*			*3.2*		

	WB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = *46.0*	G = *0.0*	G = *0.0*	G = *0.0*	G = *6.0*	G = *8.0*	G = *0.0*	G = *0.0*
	Y = *3*	Y = *0*	Y = *0*	Y = *0*	Y = *3*	Y = *3*	Y = *0*	Y = *0*
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *69.0*		

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *5-12-0009-1 / Los Valles Project*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume				*119*	*0*	*1119*	*275*	*750*			*431*	*128*
PHF				*1.00*	*1.00*	*1.00*	*1.00*	*1.00*			*1.00*	*1.00*
Adjusted Flow Rate				*119*	*0*	*1119*	*275*	*750*			*431*	*128*
Lane Group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Adjusted Flow Rate				*119*	*0*	*1119*	*275*	*750*			*431*	*128*
Proportion of LT or RT		--		*0.000*	--	*1.000*	*1.000*	--	*0.000*		--	*1.000*
Saturation Flow Rate												
Base Satflow				*1900*	*1900*	*1900*	*1900*	*1900*			*1900*	*1900*
Number of Lanes				*1*	*1*	*2*	*2*	*3*			*3*	*1*
f_W				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_{HV}				*0.980*	*0.980*	*0.980*	*0.980*	*0.980*			*0.980*	*0.980*
f_g				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_p				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_{bb}				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_a				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_{LU}				*1.000*	*1.000*	*0.885*	*0.971*	*0.908*			*0.908*	*1.000*
f_{LT}			--	*0.950*	*1.000*	--	*0.950*	*1.000*	--		*1.000*	--
Secondary f_{LT}			--			--			--			--
f_{RT}	--			--	*1.000*	*0.850*	--	*1.000*		--	*1.000*	*0.850*
f_{Lpb}			--	*1.000*	*1.000*	--	*1.000*	*1.000*	--		*1.000*	--
f_{Rpb}	--			--	*1.000*	*1.000*	--	*1.000*		--	*1.000*	*1.000*
Adjusted Satflow				*1770*	*1863*	*2803*	*3437*	*5074*			*5074*	*1583*
Secondary Adjusted Satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane Group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Adjusted Flow Rate				*119*	*0*	*1119*	*275*	*750*			*431*	*128*
Satflow Rate				*1770*	*1863*	*2803*	*3437*	*5074*			*5074*	*1583*
Lost Time				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Green Ratio				*0.67*	*0.67*	*0.67*	*0.09*	*0.25*			*0.12*	*0.12*
Lane Group Capacity				*1180*	*1242*	*1869*	*299*	*1250*			*588*	*184*
v/c Ratio				*0.10*	*0.00*	*0.60*	*0.92*	*0.60*			*0.73*	*0.70*
Flow Ratio				*0.07*	*0.00*	*0.40*	*0.08*	*0.15*			*0.08*	*0.08*
Critical Lane Group				*N*	*N*	*Y*	*Y*	*N*			*Y*	*N*
Sum Flow Ratios	*0.56*											
Lost Time/Cycle	*9.00*											
Critical v/c Ratio	*0.65*											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane Group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Adjusted Flow Rate				*119*	*0*	*1119*	*275*	*750*			*431*	*128*
Lane Group Capacity				*1180*	*1242*	*1869*	*299*	*1250*			*588*	*184*
v/c Ratio				*0.10*	*0.00*	*0.60*	*0.92*	*0.60*			*0.73*	*0.70*
Green Ratio				*0.67*	*0.67*	*0.67*	*0.09*	*0.25*			*0.12*	*0.12*
Uniform Delay d_1				*4.1*	*3.8*	*6.4*	*31.3*	*23.0*			*29.5*	*29.3*
Delay Factor k				*0.11*	*0.11*	*0.19*	*0.44*	*0.19*			*0.29*	*0.26*
Incremental Delay d_2				*0.0*	*0.0*	*0.5*	*32.0*	*0.8*			*4.7*	*10.9*
PF Factor				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Control Delay				*4.1*	*3.8*	*6.9*	*63.3*	*23.8*			*34.2*	*40.2*
Lane Group LOS				*A*	*A*	*A*	*E*	*C*			*C*	*D*
Approach Delay				*6.6*			*34.4*			*35.6*		
Approach LOS				*A*			*C*			*D*		
Intersection Delay	*22.5*			Intersection LOS						*C*		

SUPPLEMENTAL UNIFORM DELAY WORKSHEET FOR LEFT TURNS FROM EXCLUSIVE LANES WITH PROTECTED AND PERMITTED PHASES

General Information

Project Description *5-12-0009-1 / Los Valles Project*

v/c Ratio Computation

	EB	WB	NB	SB
Cycle Length, C (s)	*69.0*			
Prot. Phase Eff. Green Interval, g (s)				
Opposed Queue Eff. Green Interval, g_q (s)				
Unopposed green interval, g_u (s)				
Red Time, r(s)				
Arrival Rate, q_a (veh/s)				
Protected Phase Departure Rate, s_p (veh/s)				
Perm. Phase Departure Rate, s_s (veh/s)				
X_{perm}				
X_{prot} (N/A for Lagging Left-turns)				

Uniform Queue Size and Delay Computations

Queue at Start of Green Arrow, Q_a				
Queue at Start of Unsaturated Green, Q_u				
Residual Queue, Q_r				
Uniform Delay, d_1				

Uniform Queue Size and Delay Equations

	Case	Q_a	Q_u	Q_r	d_1
If X_{perm} <= 1.0 & X_{prot} <= 1.0	1	$q_a r$	$q_a g_q$	0	$[0.5/(q_a C)][r Q_a + Q_a^2/(s_p - q_s) + g_q Q_u + Q_u^2/(s_s - q_a)$
If X_{perm} <= 1.0 & X_{prot} > 1.0	2	$q_a r$	$Q_r + q_a g_q$	$Q_a - g(s_p - q_a)$	$[0.5/(q_a C)][r Q_a + g(Q_a + Q_r) + g_q (Q_r + Q_u) + Q_u^2/(s_s - q_a)$
If X_{perm} > 1.0 & X_{prot} <= 1.0	3	$Q_r + q_a r$	$q_a g_q$	$Q_u - g_u(s_s - q_a)$	$[0.5/(q_a C)][g_q Q_u + g_u(Q_a + Q_r) + r(Q_r + Q_a) + Q_a^2/(s_p - q_a)$
If X_{perm} <= 1.0 (lagging lefts)	4	0	$q_a(r + g_q)$	0	$[0.5/(q_a C)][r + g_q)Q_u + Q_u^2/(s_s - q_a)$
If X_{perm} > 1.0 (lagging lefts)	5	$Q_u - g_u(s_s - q_a)$	$q_a(r + g_q)$	0	$[0.5/(q_a C)][r + g_q)Q_u + g_u(Q_u + Q_a) + Q_a^2/(s_p - q_a)$

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *5-12-0009-1 / Los Valles Project*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane Group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Initial Queue/Lane				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	*0.0*
Flow Rate/Lane				*119*	*0*	*1119*	*275*	*750*			*431*	*128*
Satflow/Lane				*1770*	*1863*	*1584*	*1770*	*1862*			*1862*	*1583*
Capacity/Lane				*1180*	*1242*	*1869*	*299*	*1250*			*588*	*184*
Flow Ratio				*0.1*	*0.0*	*0.4*	*0.1*	*0.1*			*0.1*	*0.1*
v/c Ratio				*0.10*	*0.00*	*0.60*	*0.92*	*0.60*			*0.73*	*0.70*
I Factor				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Arrival Type				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Platoon Ratio				*1.00*	*1.00*	*1.00*	*1.00*	*1.00*			*1.00*	*1.00*
PF Factor				*1.00*	*1.00*	*1.00*	*1.00*	*1.00*			*1.00*	*1.00*
Q_1				*0.8*	*0.0*	*6.7*	*2.7*	*4.7*			*2.9*	*2.4*
k_B				*0.6*	*0.7*	*0.6*	*0.2*	*0.4*			*0.2*	*0.2*
Q_2				*0.1*	*0.0*	*0.9*	*1.2*	*0.5*			*0.6*	*0.5*
Q Average				*0.9*	*0.0*	*7.6*	*3.9*	*5.2*			*3.5*	*2.8*

Percentile Back of Queue (95th percentile)

$f_{B\%}$				*2.1*	*2.1*	*1.9*	*2.0*	*1.9*			*2.0*	*2.0*
BOQ, $Q_{\%}$				*1.8*	*0.0*	*14.4*	*7.8*	*10.1*			*7.0*	*5.7*

Queue Storage Ratio

Q Spacing				*25.0*	*25.0*	*25.0*	*25.0*	*25.0*			*25.0*	*25.0*
Q Storage				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Average R_Q												
95% $R_{Q\%}$												

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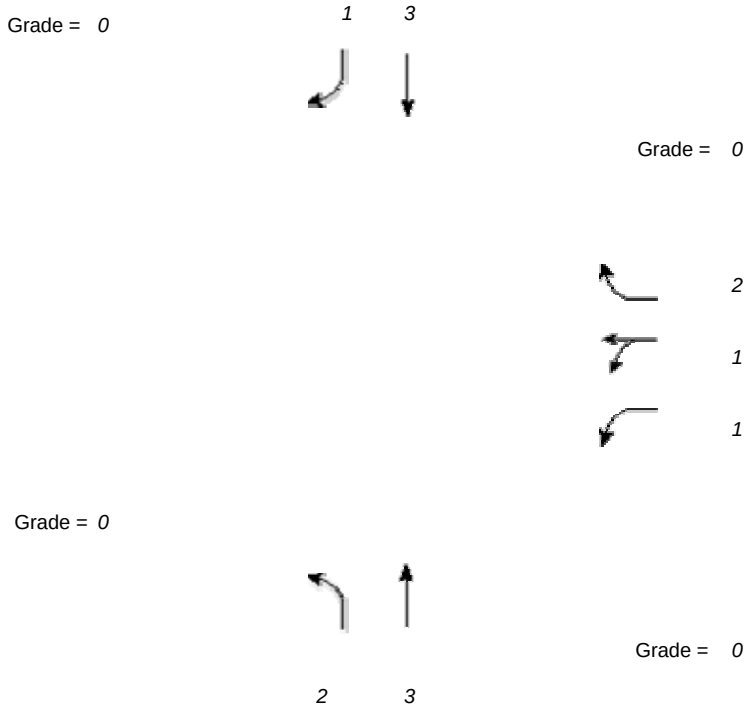
LONG REPORT

General Information		Site Information	
Analyst	*JST*	Intersection	*4A*
Agency or Co.	*LLG Engineers*	Area Type	*All other areas*
Date Performed	*2/24/2014*	Jurisdiction	*LA County*
Time Period	*PM*	Analysis Year	*2023 Cumulative plus Project*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)				*74*	*0*	*307*	*232*	*277*			*1420*	*194*
% Heavy Veh				*2*	*2*	*2*	*2*	*2*			*2*	*2*
PHF				*1.00*	*1.00*	*1.00*	*1.00*	*1.00*			*1.00*	*1.00*
Actuated (P/A)				*A*	*A*	*A*	*A*	*A*			*A*	*A*
Startup Lost Time				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
ExtenSion of Effective Green				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Arrival type				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Unit Extension				*3.0*	*3.0*	*3.0*	*3.0*	*3.0*			*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width				*12.0*	*12.0*	*12.0*	*12.0*	*12.0*			*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/Hour												
Bus Stops/Hour				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Pedestrian Timing	*3.2*			*3.2*			*3.2*			*3.2*		

	WB Only	02	03	04	NB Only	Thru & RT	07	08
Timing	G = *13.8*	G = *0.0*	G = *0.0*	G = *0.0*	G = *6.1*	G = *31.1*	G = *0.0*	G = *0.0*
	Y = *3*	Y = *0*	Y = *0*	Y = *0*	Y = *3*	Y = *3*	Y = *0*	Y = *0*
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *60.0*		

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *5-12-0009-1 / Los Valles Project*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume				*74*	*0*	*307*	*232*	*277*			*1420*	*194*
PHF				*1.00*	*1.00*	*1.00*	*1.00*	*1.00*			*1.00*	*1.00*
Adjusted Flow Rate				*74*	*0*	*307*	*232*	*277*			*1420*	*194*
Lane Group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Adjusted Flow Rate				*74*	*0*	*307*	*232*	*277*			*1420*	*194*
Proportion of LT or RT		--		*0.000*	--	*1.000*	*1.000*	--	*0.000*		--	*1.000*

Saturation Flow Rate

Base Satflow				*1900*	*1900*	*1900*	*1900*	*1900*			*1900*	*1900*
Number of Lanes				*1*	*1*	*2*	*2*	*3*			*3*	*1*
f_W				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_{HV}				*0.980*	*0.980*	*0.980*	*0.980*	*0.980*			*0.980*	*0.980*
f_g				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_p				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_{bb}				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_a				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
f_{LU}				*1.000*	*1.000*	*0.885*	*0.971*	*0.908*			*0.908*	*1.000*
f_{LT}			--	*0.950*	*1.000*	--	*0.950*	*1.000*	--		*1.000*	--
Secondary f_{LT}			--			--			--			--
f_{RT}	--			--	*1.000*	*0.850*	--	*1.000*		--	*1.000*	*0.850*
f_{Lpb}			--	*1.000*	*1.000*	--	*1.000*	*1.000*	--		*1.000*	--
f_{Rpb}	--			--	*1.000*	*1.000*	--	*1.000*		--	*1.000*	*1.000*
Adjusted Satflow				*1770*	*1863*	*2803*	*3437*	*5074*			*5074*	*1583*
Secondary Adjusted Satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane Group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Adjusted Flow Rate				*74*	*0*	*307*	*232*	*277*			*1420*	*194*
Satflow Rate				*1770*	*1863*	*2803*	*3437*	*5074*			*5074*	*1583*
Lost Time				*2.0*	*2.0*	*2.0*	*2.0*	*2.0*			*2.0*	*2.0*
Green Ratio				*0.23*	*0.23*	*0.23*	*0.10*	*0.67*			*0.52*	*0.52*
Lane Group Capacity				*407*	*428*	*645*	*349*	*3400*			*2630*	*821*
v/c Ratio				*0.18*	*0.00*	*0.48*	*0.66*	*0.08*			*0.54*	*0.24*
Flow Ratio				*0.04*	*0.00*	*0.11*	*0.07*	*0.05*			*0.28*	*0.12*
Critical Lane Group				*N*	*N*	*Y*	*Y*	*N*			*Y*	*N*
Sum Flow Ratios	*0.46*											
Lost Time/Cycle	*9.00*											
Critical v/c Ratio	*0.54*											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane Group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Adjusted Flow Rate				*74*	*0*	*307*	*232*	*277*			*1420*	*194*
Lane Group Capacity				*407*	*428*	*645*	*349*	*3400*			*2630*	*821*
v/c Ratio				*0.18*	*0.00*	*0.48*	*0.66*	*0.08*			*0.54*	*0.24*
Green Ratio				*0.23*	*0.23*	*0.23*	*0.10*	*0.67*			*0.52*	*0.52*
Uniform Delay d_1				*18.6*	*17.8*	*20.0*	*26.0*	*3.5*			*9.7*	*7.9*
Delay Factor k				*0.11*	*0.11*	*0.11*	*0.24*	*0.11*			*0.14*	*0.11*
Incremental Delay d_2				*0.2*	*0.0*	*0.6*	*4.7*	*0.0*			*0.2*	*0.1*
PF Factor				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Control Delay				*18.8*	*17.8*	*20.5*	*30.7*	*3.5*			*9.9*	*8.1*
Lane Group LOS				*B*	*B*	*C*	*C*	*A*			*A*	*A*
Approach Delay				*20.2*			*15.9*			*9.7*		
Approach LOS				*C*			*B*			*A*		
Intersection Delay	*12.5*			Intersection LOS						*B*		

SUPPLEMENTAL UNIFORM DELAY WORKSHEET FOR LEFT TURNS FROM EXCLUSIVE LANES WITH PROTECTED AND PERMITTED PHASES

General Information

Project Description *5-12-0009-1 / Los Valles Project*

v/c Ratio Computation

	EB	WB	NB	SB
Cycle Length, C (s)	*60.0*			
Prot. Phase Eff. Green Interval, g (s)				
Opposed Queue Eff. Green Interval, g_q (s)				
Unopposed green interval, g_u (s)				
Red Time, r(s)				
Arrival Rate, q_a (veh/s)				
Protected Phase Departure Rate, s_p (veh/s)				
Perm. Phase Departure Rate, s_s (veh/s)				
X_{perm}				
X_{prot} (N/A for Lagging Left-turns)				

Uniform Queue Size and Delay Computations

Queue at Start of Green Arrow, Q_a				
Queue at Start of Unsaturated Green, Q_u				
Residual Queue, Q_r				
Uniform Delay, d_1				

Uniform Queue Size and Delay Equations

	Case	Q_a	Q_u	Q_r	d_1
If X_{perm} <= 1.0 & X_{prot} <= 1.0	1	$q_a r$	$q_a g_q$	0	$[0.5/(q_a C)][r Q_a + Q_a^2/(s_p - q_s) + g_q Q_u + Q_u^2/(s_s - q_a)$
If X_{perm} <= 1.0 & X_{prot} > 1.0	2	$q_a r$	$Q_r + q_a g_q$	$Q_a - g(s_p - q_a)$	$[0.5/(q_a C)][r Q_a + g(Q_a + Q_r) + g_q (Q_r + Q_u) + Q_u^2/(s_s - q_a)$
If X_{perm} > 1.0 & X_{prot} <= 1.0	3	$Q_r + q_a r$	$q_a g_q$	$Q_u - g_u(s_s - q_a)$	$[0.5/(q_a C)][g_q Q_u + g_u(Q_a + Q_r) + r(Q_r + Q_a) + Q_a^2/(s_p - q_a)$
If X_{perm} <= 1.0 (lagging lefts)	4	0	$q_a(r + g_q)$	0	$[0.5/(q_a C)][r + g_q)Q_u + Q_u^2/(s_s - q_a)$
If X_{perm} > 1.0 (lagging lefts)	5	$Q_u - g_u(s_s - q_a)$	$q_a(r + g_q)$	0	$[0.5/(q_a C)][r + g_q)Q_u + g_u(Q_u + Q_a) + Q_a^2/(s_p - q_a)$

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *5-12-0009-1 / Los Valles Project*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane Group				*L*	*LT*	*R*	*L*	*T*			*T*	*R*
Initial Queue/Lane				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*			*0.0*	*0.0*
Flow Rate/Lane				*74*	*0*	*307*	*232*	*277*			*1420*	*194*
Satflow/Lane				*1770*	*1863*	*1584*	*1770*	*1862*			*1862*	*1583*
Capacity/Lane				*407*	*428*	*645*	*349*	*3400*			*2630*	*821*
Flow Ratio				*0.0*	*0.0*	*0.1*	*0.1*	*0.1*			*0.3*	*0.1*
v/c Ratio				*0.18*	*0.00*	*0.48*	*0.66*	*0.08*			*0.54*	*0.24*
I Factor				*1.000*	*1.000*	*1.000*	*1.000*	*1.000*			*1.000*	*1.000*
Arrival Type				*3*	*3*	*3*	*3*	*3*			*3*	*3*
Platoon Ratio				*1.00*	*1.00*	*1.00*	*1.00*	*1.00*			*1.00*	*1.00*
PF Factor				*1.00*	*1.00*	*1.00*	*1.00*	*1.00*			*1.00*	*1.00*
Q_1				*1.0*	*0.0*	*2.5*	*1.9*	*0.6*			*5.8*	*1.8*
k_B				*0.3*	*0.3*	*0.3*	*0.2*	*0.6*			*0.5*	*0.5*
Q_2				*0.1*	*0.0*	*0.3*	*0.4*	*0.1*			*0.6*	*0.1*
Q Average				*1.1*	*0.0*	*2.8*	*2.3*	*0.6*			*6.4*	*1.9*

Percentile Back of Queue (95th percentile)

$f_{B\%}$				*2.1*	*2.1*	*2.0*	*2.0*	*2.1*			*1.9*	*2.0*
BOQ, $Q_{\%}$				*2.2*	*0.0*	*5.6*	*4.6*	*1.3*			*12.3*	*3.9*

Queue Storage Ratio

Q Spacing				*25.0*	*25.0*	*25.0*	*25.0*	*25.0*			*25.0*	*25.0*
Q Storage				*0*	*0*	*0*	*0*	*0*			*0*	*0*
Average R_Q												
95% $R_{Q\%}$												

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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ Henry Mayo Drive

N-S St:	Commerce Center Drive	Peak hr: AM	Date: 05/16/2014
E-W St:	Henry Mayo Drive	Annual Growth: 0.00%	Date of Count: 2012
Project:	5-12-0009-1/Los Valles Project		Projection Year: 2023
File:	ICU-4B		

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC			2023 W/PROJECT SITE TRAFFIC				2023 W/RELATED PROJECTS				2023 GRADE SEPARATED INTERCHANGE			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	1600	0.000
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	837	4800	0.174 *
Nb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	2880	0.000 *
Sb Thru	0	1600	0.000	0	0	0.000	0	0	1600	0.000	0	0	1600	0.000	0	258	3200	0.081
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	1600	0.000
Eb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	230	1600	0.144
Eb Thru	0	1600	0.000	0	0	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	3200	0.000
Eb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	166	1600	0.104
Wb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	1600	0.000
Wb Thru	0	1600	0.000	0	0	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000
Wb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	1600	0.000
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.100			0.100				0.100				0.100				0.418
LOS			A			A				A				A				A

01:53 PM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Commerce Center Drive @ Henry Mayo Drive

N-S St:	Commerce Center Drive	Peak hr: PM	Date: 05/16/2014
E-W St:	Henry Mayo Drive	Annual Growth: 0.00%	Date of Count: 2012
Project:	5-12-0009-1/Los Valles Project		Projection Year: 2023
File:	ICU-4B		

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC			2023 W/PROJECT SITE TRAFFIC				2023 W/RELATED PROJECTS				2023 GRADE SEPARATED INTERCHANGE			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	1600	0.000 *
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	513	4800	0.107
Nb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	2880	0.000
Sb Thru	0	1600	0.000	0	0	0.000	0	0	1600	0.000	0	0	1600	0.000	0	488	3200	0.153 *
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	1600	0.000
Eb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	106	1600	0.066
Eb Thru	0	1600	0.000	0	0	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	3200	0.000
Eb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	219	1600	0.137 *
Wb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	1600	0.000 *
Wb Thru	0	1600	0.000	0	0	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000
Wb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	1600	0.000
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.100			0.100				0.100				0.100				0.389
LOS			A			A				A				A				A

01:53 PM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*JST*	Intersection	*4C*
Agency/Co.	*LLG Engineers*	Jurisdiction	*LA County*
Date Performed	*2/24/2014*	Analysis Year	
Analysis Time Period	*AM*		

Project Description *5-12-0009-1 / Los Valles Project*	
East/West Street: *Henry Mayo Drive*	North/South Street: *SR-126 EB Off-Ramp*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				*396*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*396*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)		*0*			*0*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*T*			*T*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*T*			*T*	
v (veh/h)		*396*		*0*			*0*	
C (m) (veh/h)		*1636*		*246*			*246*	
v/c		*0.24*		*0.00*			*0.00*	
95% queue length		*0.95*		*0.00*			*0.00*	
Control Delay (s/veh)		*7.9*		*19.6*			*19.6*	
LOS		*A*		*C*			*C*	
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*JST*	Intersection	*4C*
Agency/Co.	*LLG Engineers*	Jurisdiction	*LA County*
Date Performed	*2/24/2014*	Analysis Year	
Analysis Time Period	*PM*		

Project Description *5-12-0009-1 / Los Valles Project*	
East/West Street: *Henry Mayo Drive*	North/South Street: *SR-126 EB Off-Ramp*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				*325*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*325*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)		*0*			*0*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*T*			*T*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*T*			*T*	
v (veh/h)		*325*		*0*			*0*	
C (m) (veh/h)		*1636*		*313*			*313*	
v/c		*0.20*		*0.00*			*0.00*	
95% queue length		*0.74*		*0.00*			*0.00*	
Control Delay (s/veh)		*7.7*		*16.5*			*16.5*	
LOS		*A*		*C*			*C*	
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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INTERSECTION CAPACITY UTILIZATION

The Old Road @ Hillcrest Parkway

N-S St: The Old Road
E-W St: Hillcrest Parkway
Project: 5-12-0009-1/Los Valles Project
File: ICU-5

Peak hr: AM
Annual Growth: 0.00%

Date: 05/01/2014
Date of Count: 2012
Projection Year: 2023

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	407	1600	0.254 *	5	412	1600	0.258 *	0	412	1600	0.258 *	0	412	1600	0.258 *	0	412	1600	0.258 *
Nb Thru	114	1600	0.071	14	128	1600	0.080	0	128	1600	0.080	3	131	1600	0.082	0	131	1600	0.082
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	128	3200	0.114 *	5	133	3200	0.116 *	0	133	3200	0.116 *	3	136	3200	0.117 *	0	136	3200	0.117 *
Sb Right	237	0	-	0	237	0	-	0	237	0	-	1	238	0	-	0	238	0	-
Eb Left	138	1600	0.086	0	138	1600	0.086	0	138	1600	0.086	4	142	1600	0.089	0	142	1600	0.089
Eb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right [3]	849	1600	0.276 *	14	863	1600	0.282 *	0	863	1600	0.282 *	0	863	1600	0.282 *	0	863	1600	0.282 *
Wb Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Wb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.745				0.755				0.755				0.756				0.756
LOS			C				C				C				C				C

02:40 PM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green
3 The eastbound right-turn lane has an overlapping phase with the northbound left-turn phase

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INTERSECTION CAPACITY UTILIZATION

The Old Road @ Hillcrest Parkway

N-S St:	The Old Road	Peak hr:	PM	Date:	05/01/2014
E-W St:	Hillcrest Parkway	Annual Growth:	0.00%	Date of Count:	2012
Project:	5-12-0009-1/Los Valles Project			Projection Year:	2023
File:	ICU-5				

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	528	1600	0.330 *	16	544	1600	0.340 *	0	544	1600	0.340 *	0	544	1600	0.340 *	0	544	1600	0.340 *
Nb Thru	180	1600	0.113	9	189	1600	0.118	0	189	1600	0.118	3	192	1600	0.120	0	192	1600	0.120
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	144	3200	0.074 *	16	160	3200	0.079 *	0	160	3200	0.079 *	0	160	3200	0.081 *	0	160	3200	0.081 *
Sb Right	94	0	-	0	94	0	-	0	94	0	-	6	100	0	-	0	100	0	-
Eb Left	53	1600	0.033	0	53	1600	0.033	0	53	1600	0.033	4	57	1600	0.036	0	57	1600	0.036
Eb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Right [3]	328	1600	0.000	9	337	1600	0.000	0	337	1600	0.000	0	337	1600	0.000	0	337	1600	0.000
Wb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.538				0.553				0.553				0.557				0.557
LOS			A				A				A				A				A

02:40 PM

**Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green
3 The eastbound right-turn lane has an overlapping phase with the northbound left-turn phase

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INTERSECTION CAPACITY UTILIZATION

The Old Road @ I-5 Freeway SB Ramps/Sedona Way

N-S St:	The Old Road	Peak hr:	AM	Date:	05/01/2014
E-W St:	I-5 Freeway SB Ramps/Sedona Way	Annual Growth:	0.00%	Date of Count:	2012
Project:	5-12-0009-1/Los Valles Project			Projection Year:	2023
File:	ICU-6				

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	61	1600	0.038	0	61	1600	0.038	0	61	1600	0.038	0	61	1600	0.038	0	61	1600	0.038
Nb Thru	404	3200	0.126 *	19	423	3200	0.132 *	0	423	3200	0.132 *	3	426	3200	0.133 *	0	426	3200	0.133 *
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	527	1600	0.329 *	14	541	1600	0.338 *	0	541	1600	0.338 *	0	541	1600	0.338 *	0	541	1600	0.338 *
Sb Thru	440	3200	0.155	5	445	3200	0.156	0	445	3200	0.156	3	448	3200	0.157	0	448	3200	0.157
Sb Right	55	0	-	0	55	0	-	0	55	0	-	0	55	0	-	0	55	0	-
Eb Left	96	1600	0.060	0	96	1600	0.060	0	96	1600	0.060	0	96	1600	0.060	0	96	1600	0.060
Eb Thru	167	1600	0.138 *	0	167	1600	0.138 *	0	167	1600	0.138 *	0	167	1600	0.138 *	0	167	1600	0.138 *
Eb Right	53	0	-	0	53	0	-	0	53	0	-	0	53	0	-	0	53	0	-
Wb Left	114	2880	0.040 *	5	119	2880	0.041 *	0	119	2880	0.041 *	8	127	2880	0.044 *	0	127	2880	0.044 *
Wb Thru	5	0	0.000	0	5	0	0.000	0	5	0	0.000	0	5	0	0.000	0	5	0	0.000
Wb Right	8	1600	0.005	0	8	1600	0.005	0	8	1600	0.005	0	8	1600	0.005	0	8	1600	0.005
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.733				0.749				0.749				0.753				0.753
LOS			C				C				C				C				C

02:42 PM

**Key conflicting movement as a part of ICU*
1 Counts conducted The Traffic Solution
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INTERSECTION CAPACITY UTILIZATION

The Old Road @ I-5 Freeway SB Ramps/Sedona Way

N-S St:	The Old Road	Peak hr:	PM	Date:	05/01/2014
E-W St:	I-5 Freeway SB Ramps/Sedona Way	Annual Growth:	0.00%	Date of Count:	2012
Project:	5-12-0009-1/Los Valles Project			Projection Year:	2023
File:	ICU-6				

	2012 EXIST. TRAFFIC			2012 W/PROJECT SITE TRAFFIC				2012 W/PROJECT MITIGATION				2023 W/RELATED PROJECTS				2023 W/REGIONAL MITIGATION			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
Nb Left	125	1600	0.078	0	125	1600	0.078	0	125	1600	0.078	0	125	1600	0.078	0	125	1600	0.078
Nb Thru	667	3200	0.208 *	25	692	3200	0.216 *	0	692	3200	0.216 *	3	695	3200	0.217 *	0	695	3200	0.217 *
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	231	1600	0.144 *	9	240	1600	0.150 *	0	240	1600	0.150 *	0	240	1600	0.150 *	0	240	1600	0.150 *
Sb Thru	212	3200	0.073	16	228	3200	0.078	0	228	3200	0.078	0	228	3200	0.078	0	228	3200	0.078
Sb Right	20	0	-	0	20	0	-	0	20	0	-	0	20	0	-	0	20	0	-
Eb Left	17	1600	0.011	0	17	1600	0.011	0	17	1600	0.011	0	17	1600	0.011	0	17	1600	0.011
Eb Thru	71	1600	0.061 *	0	71	1600	0.061 *	0	71	1600	0.061 *	0	71	1600	0.061 *	0	71	1600	0.061 *
Eb Right	26	0	-	0	26	0	-	0	26	0	-	0	26	0	-	0	26	0	-
Wb Left	74	2880	0.026 *	16	90	2880	0.031 *	0	90	2880	0.031 *	7	97	2880	0.034 *	0	97	2880	0.034 *
Wb Thru	7	0	0.000	0	7	0	0.000	0	7	0	0.000	0	7	0	0.000	0	7	0	0.000
Wb Right	5	1600	0.003	0	5	1600	0.003	0	5	1600	0.003	0	5	1600	0.003	0	5	1600	0.003
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.539				0.558				0.558				0.561				0.561
LOS			A				A				A				A				A

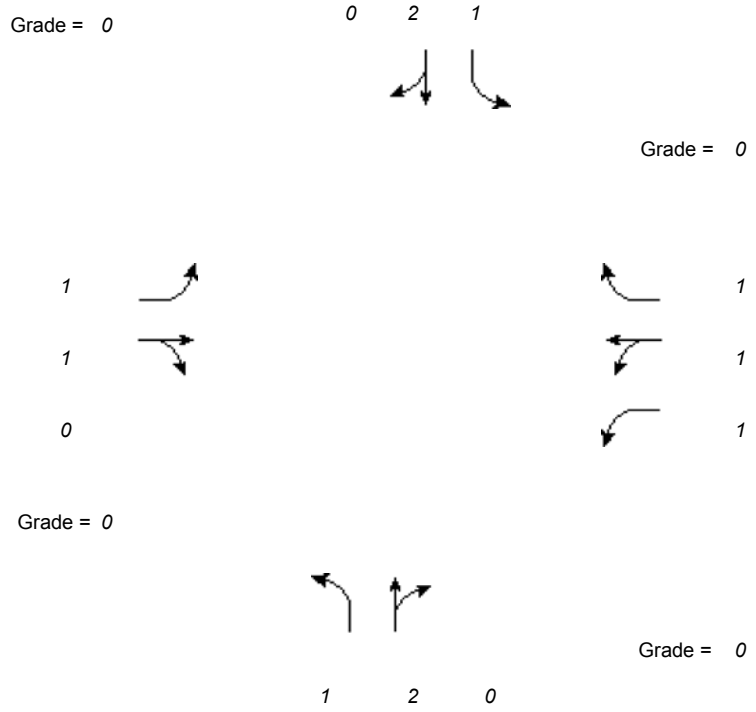
02:42 PM

**Key conflicting movement as a part of ICU*
1 Counts conducted The Traffic Solution
2 Capacity expressed in veh/hour of green

LONG REPORT

General Information		Site Information	
Analyst	*JST*	Intersection	*6*
Agency or Co.	*LLG Engineers*	Area Type	*All other areas*
Date Performed	*5/12/2014*	Jurisdiction	*LA County*
Time Period	*AM*	Analysis Year	*2023 Future Cumulative*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*96*	*167*	*53*	*127*	*5*	*8*	*61*	*426*	*0*	*541*	*448*	*55*
% Heavy Veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup Lost Time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
ExtenSion of Effective Green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*30*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/Hour												
Bus Stops/Hour	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Pedestrian Timing	*3.2*			*3.2*			*3.2*			*3.2*		

	EB Only	WB Only	03	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *10.1*	G = *5.0*	G = *0.0*	G = *0.0*	G = *5.8*	G = *17.5*	G = *11.6*	G = *0.0*
	Y = *3*	Y = *3*	Y = *0*	Y = *0*	Y = *3*	Y = *3*	Y = *3*	Y = *0*

Duration of Analysis (hrs) = *0.25*		Cycle Length C = *65.0*

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *5-12-0009-1 / Los Valles Project*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	96	167	53	127	5	8	61	426	0	541	448	55
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adjusted Flow Rate	96	167	53	127	5	8	61	426	0	541	448	25
Lane Group	L	TR		L	LT	R	L	TR		L	TR	
Adjusted Flow Rate	96	220		64	68	8	61	426		541	473	
Proportion of LT or RT	1.000	--	0.241	0.934	--	1.000	1.000	--	0.000	1.000	--	0.053

Saturation Flow Rate

Base Satflow	1900	1900		1900	1900	1900	1900	1900		1900	1900	
Number of Lanes	1	1	0	1	1	1	1	2	0	1	2	0
f_W	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_{HV}	0.980	0.980		0.980	0.980	0.980	0.980	0.980		0.980	0.980	
f_g	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_p	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_{bb}	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_a	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_{LU}	1.000	1.000		1.000	1.000	1.000	1.000	0.952		1.000	0.952	
f_{LT}	0.950	1.000	--	0.950	0.955	--	0.950	1.000	--	0.950	1.000	--
Secondary f_{LT}			--			--			--			--
f_{RT}	--	0.964		--	1.000	0.850	--	1.000		--	0.992	
f_{Lpb}	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
f_{Rpb}	--	1.000		--	1.000	1.000	--	1.000		--	1.000	
Adjusted Satflow	1770	1795		1770	1780	1583	1770	3547		1770	3519	
Secondary Adjusted Satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane Group	*L*	*TR*		*L*	*LT*	*R*	*L*	*TR*		*L*	*TR*	
Adjusted Flow Rate	*96*	*220*		*64*	*68*	*8*	*61*	*426*		*541*	*473*	
Satflow Rate	*1770*	*1795*		*1770*	*1780*	*1583*	*1770*	*3547*		*1770*	*3519*	
Lost Time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Green Ratio	*0.16*	*0.16*		*0.08*	*0.08*	*0.08*	*0.09*	*0.18*		*0.40*	*0.49*	
Lane Group Capacity	*275*	*279*		*136*	*137*	*122*	*158*	*633*		*716*	*1738*	
v/c Ratio	*0.35*	*0.79*		*0.47*	*0.50*	*0.07*	*0.39*	*0.67*		*0.76*	*0.27*	
Flow Ratio	*0.05*	*0.12*		*0.04*	*0.04*	*0.01*	*0.03*	*0.12*		*0.31*	*0.13*	
Critical Lane Group	*N*	*Y*		*N*	*Y*	*N*	*N*	*Y*		*Y*	*N*	
Sum Flow Ratios	*0.59*											
Lost Time/Cycle	*12.00*											
Critical v/c Ratio	*0.72*											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane Group	*L*	*TR*		*L*	*LT*	*R*	*L*	*TR*		*L*	*TR*	
Adjusted Flow Rate	*96*	*220*		*64*	*68*	*8*	*61*	*426*		*541*	*473*	
Lane Group Capacity	*275*	*279*		*136*	*137*	*122*	*158*	*633*		*716*	*1738*	
v/c Ratio	*0.35*	*0.79*		*0.47*	*0.50*	*0.07*	*0.39*	*0.67*		*0.76*	*0.27*	
Green Ratio	*0.16*	*0.16*		*0.08*	*0.08*	*0.08*	*0.09*	*0.18*		*0.40*	*0.49*	
Uniform Delay d_1	*24.5*	*26.4*		*28.7*	*28.8*	*27.8*	*27.9*	*24.9*		*16.6*	*9.6*	
Delay Factor k	*0.11*	*0.34*		*0.11*	*0.11*	*0.11*	*0.11*	*0.24*		*0.31*	*0.11*	
Incremental Delay d_2	*0.8*	*14.0*		*2.6*	*2.8*	*0.2*	*1.6*	*2.8*		*4.6*	*0.1*	
PF Factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Control Delay	*25.3*	*40.5*		*31.3*	*31.6*	*28.1*	*29.5*	*27.7*		*21.2*	*9.7*	
Lane Group LOS	*C*	*D*		*C*	*C*	*C*	*C*	*C*		*C*	*A*	
Approach Delay	*35.9*			*31.3*			*28.0*			*15.8*		
Approach LOS	*D*			*C*			*C*			*B*		
Intersection Delay	*23.2*			Intersection LOS						*C*		

SUPPLEMENTAL UNIFORM DELAY WORKSHEET FOR LEFT TURNS FROM EXCLUSIVE LANES WITH PROTECTED AND PERMITTED PHASES

General Information

Project Description *5-12-0009-1 / Los Valles Project*

v/c Ratio Computation

	EB	WB	NB	SB
Cycle Length, C (s)	*65.0*			
Prot. Phase Eff. Green Interval, g (s)				
Opposed Queue Eff. Green Interval, g_q (s)				
Unopposed green interval, g_u (s)				
Red Time, r(s)				
Arrival Rate, q_a (veh/s)				
Protected Phase Departure Rate, s_p (veh/s)				
Perm. Phase Departure Rate, s_s (veh/s)				
X_{perm}				
X_{prot} (N/A for Lagging Left-turns)				

Uniform Queue Size and Delay Computations

Queue at Start of Green Arrow, Q_a				
Queue at Start of Unsaturated Green, Q_u				
Residual Queue, Q_r				
Uniform Delay, d_1				

Uniform Queue Size and Delay Equations

	Case	Q_a	Q_u	Q_r	d_1
If X_{perm} <= 1.0 & X_{prot} <= 1.0	1	$q_a r$	$q_a g_q$	0	$[0.5/(q_a C)][rQ_a + Q_a^{2/(s_p - q_s)} + g_q Q_u + Q_u^{2/(s_s - q_a)}$
If X_{perm} <= 1.0 & X_{prot} > 1.0	2	$q_a r$	$Q_r + q_a g_q$	$Q_a - g(s_p - q_a)$	$[0.5/(q_a C)][rQ_a + g(Q_a + Q_r) + g_q (Q_r + Q_u) + Q_u^{2/(s_s - q_a)}$
If X_{perm} > 1.0 & X_{prot} <= 1.0	3	$Q_r + q_a r$	$q_a g_q$	$Q_u - g_u(s_s - q_a)$	$[0.5/(q_a C)][g_q Q_u + g_u(Q_a + Q_r) + r(Q_r + Q_a) + Q_a^{2/(s_p - q_a)}$
If X_{perm} <= 1.0 (lagging lefts)	4	0	$q_a(r + g_q)$	0	$[0.5/(q_a C)][r + g_q)Q_u + Q_u^{2/(s_s - q_a)}$
If X_{perm} > 1.0 (lagging lefts)	5	$Q_u - g_u(s_s - q_a)$	$q_a(r + g_q)$	0	$[0.5/(q_a C)][r + g_q)Q_u + g_u(Q_u + Q_a) + Q_a^{2/(s_p - q_a)}$

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *5-12-0009-1 / Los Valles Project*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane Group	*L*	*TR*		*L*	*LT*	*R*	*L*	*TR*		*L*	*TR*	
Initial Queue/Lane	*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*		*0.0*	*0.0*	
Flow Rate/Lane	*96*	*220*		*64*	*68*	*8*	*61*	*426*		*541*	*473*	
Satflow/Lane	*1770*	*1795*		*1770*	*1780*	*1583*	*1770*	*1862*		*1770*	*1848*	
Capacity/Lane	*275*	*279*		*136*	*137*	*122*	*158*	*633*		*716*	*1738*	
Flow Ratio	*0.1*	*0.1*		*0.0*	*0.0*	*0.0*	*0.0*	*0.1*		*0.3*	*0.1*	
v/c Ratio	*0.35*	*0.79*		*0.47*	*0.50*	*0.07*	*0.39*	*0.67*		*0.76*	*0.27*	
I Factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Arrival Type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Platoon Ratio	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	
PF Factor	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	
Q_1	*1.5*	*3.8*		*1.1*	*1.2*	*0.1*	*1.0*	*3.8*		*8.4*	*2.6*	
k_B	*0.3*	*0.3*		*0.2*	*0.2*	*0.2*	*0.2*	*0.3*		*0.5*	*0.5*	
Q_2	*0.1*	*0.9*		*0.1*	*0.2*	*0.0*	*0.1*	*0.6*		*1.4*	*0.2*	
Q Average	*1.7*	*4.7*		*1.3*	*1.3*	*0.1*	*1.2*	*4.3*		*9.7*	*2.8*	

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*2.0*	*2.0*		*2.1*	*2.1*	*2.1*	*2.1*	*2.0*		*1.8*	*2.0*	
BOQ, $Q_{\%}$	*3.5*	*9.2*		*2.6*	*2.8*	*0.3*	*2.4*	*8.5*		*18.0*	*5.7*	

Queue Storage Ratio

Q Spacing	*20.0*	*20.0*		*20.0*	*20.0*	*20.0*	*20.0*	*20.0*		*20.0*	*20.0*	
Q Storage	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Average R_Q												
95% $R_{Q\%}$												

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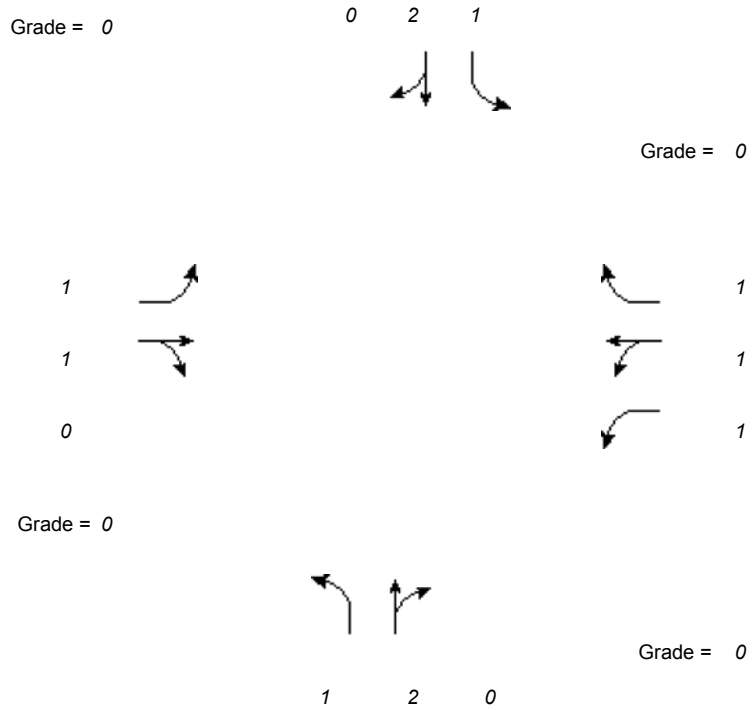
LONG REPORT

General Information		Site Information	
Analyst	*JST*	Intersection	*6*
Agency or Co.	*LLG Engineers*	Area Type	*All other areas*
Date Performed	*5/12/2014*	Jurisdiction	*LA County*
Time Period	*PM*	Analysis Year	*2023 Future Cumulative*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*17*	*71*	*26*	*97*	*7*	*5*	*125*	*695*	*0*	*240*	*228*	*20*
% Heavy Veh	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup Lost Time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
ExtenSion of Effective Green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*11*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/Hour												
Bus Stops/Hour	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Pedestrian Timing	*3.2*			*3.2*			*3.2*			*3.2*		

	EB Only	WB Only	03	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *5.3*	G = *5.2*	G = *0.0*	G = *0.0*	G = *5.9*	G = *2.7*	G = *15.9*	G = *0.0*
	Y = *3*	Y = *3*	Y = *0*	Y = *0*	Y = *3*	Y = *3*	Y = *3*	Y = *0*

Duration of Analysis (hrs) = *0.25*		Cycle Length C = *50.0*

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *5-12-0009-1 / Los Valles Project*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	17	71	26	97	7	5	125	695	0	240	228	20
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adjusted Flow Rate	17	71	26	97	7	5	125	695	0	240	228	9
Lane Group	L	TR		L	LT	R	L	TR		L	TR	
Adjusted Flow Rate	17	97		49	55	5	125	695		240	237	
Proportion of LT or RT	1.000	--	0.268	0.882	--	1.000	1.000	--	0.000	1.000	--	0.038

Saturation Flow Rate

Base Satflow	1900	1900		1900	1900	1900	1900	1900		1900	1900	
Number of Lanes	1	1	0	1	1	1	1	2	0	1	2	0
f_W	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_{HV}	0.980	0.980		0.980	0.980	0.980	0.980	0.980		0.980	0.980	
f_g	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_p	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_{bb}	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_a	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
f_{LU}	1.000	1.000		1.000	1.000	1.000	1.000	0.952		1.000	0.952	
f_{LT}	0.950	1.000	--	0.950	0.958	--	0.950	1.000	--	0.950	1.000	--
Secondary f_{LT}			--			--			--			--
f_{RT}	--	0.960		--	1.000	0.850	--	1.000		--	0.994	
f_{Lpb}	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
f_{Rpb}	--	1.000		--	1.000	1.000	--	1.000		--	1.000	
Adjusted Satflow	1770	1788		1770	1784	1583	1770	3547		1770	3526	
Secondary Adjusted Satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane Group	*L*	*TR*		*L*	*LT*	*R*	*L*	*TR*		*L*	*TR*	
Adjusted Flow Rate	*17*	*97*		*49*	*55*	*5*	*125*	*695*		*240*	*237*	
Satflow Rate	*1770*	*1788*		*1770*	*1784*	*1583*	*1770*	*3547*		*1770*	*3526*	
Lost Time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Green Ratio	*0.11*	*0.11*		*0.10*	*0.10*	*0.10*	*0.12*	*0.32*		*0.23*	*0.43*	
Lane Group Capacity	*188*	*190*		*184*	*186*	*165*	*209*	*1128*		*411*	*1523*	
v/c Ratio	*0.09*	*0.51*		*0.27*	*0.30*	*0.03*	*0.60*	*0.62*		*0.58*	*0.16*	
Flow Ratio	*0.01*	*0.05*		*0.03*	*0.03*	*0.00*	*0.07*	*0.20*		*0.14*	*0.07*	
Critical Lane Group	*N*	*Y*		*N*	*Y*	*N*	*N*	*Y*		*Y*	*N*	
Sum Flow Ratios	*0.42*											
Lost Time/Cycle	*12.00*											
Critical v/c Ratio	*0.55*											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane Group	*L*	*TR*		*L*	*LT*	*R*	*L*	*TR*		*L*	*TR*	
Adjusted Flow Rate	*17*	*97*		*49*	*55*	*5*	*125*	*695*		*240*	*237*	
Lane Group Capacity	*188*	*190*		*184*	*186*	*165*	*209*	*1128*		*411*	*1523*	
v/c Ratio	*0.09*	*0.51*		*0.27*	*0.30*	*0.03*	*0.60*	*0.62*		*0.58*	*0.16*	
Green Ratio	*0.11*	*0.11*		*0.10*	*0.10*	*0.10*	*0.12*	*0.32*		*0.23*	*0.43*	
Uniform Delay d_1	*20.2*	*21.1*		*20.6*	*20.7*	*20.1*	*20.9*	*14.5*		*17.1*	*8.6*	
Delay Factor k	*0.11*	*0.12*		*0.11*	*0.11*	*0.11*	*0.19*	*0.20*		*0.18*	*0.11*	
Incremental Delay d_2	*0.2*	*2.3*		*0.8*	*0.9*	*0.1*	*4.7*	*1.0*		*2.1*	*0.0*	
PF Factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Control Delay	*20.4*	*23.4*		*21.4*	*21.6*	*20.2*	*25.6*	*15.5*		*19.2*	*8.7*	
Lane Group LOS	*C*	*C*		*C*	*C*	*C*	*C*	*B*		*B*	*A*	
Approach Delay	*23.0*			*21.5*			*17.0*			*14.0*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*16.8*			Intersection LOS						*B*		

SUPPLEMENTAL UNIFORM DELAY WORKSHEET FOR LEFT TURNS FROM EXCLUSIVE LANES WITH PROTECTED AND PERMITTED PHASES

General Information

Project Description *5-12-0009-1 / Los Valles Project*

v/c Ratio Computation

	EB	WB	NB	SB
Cycle Length, C (s)	*50.0*			
Prot. Phase Eff. Green Interval, g (s)				
Opposed Queue Eff. Green Interval, g_q (s)				
Unopposed green interval, g_u (s)				
Red Time, r(s)				
Arrival Rate, q_a (veh/s)				
Protected Phase Departure Rate, s_p (veh/s)				
Perm. Phase Departure Rate, s_s (veh/s)				
X_{perm}				
X_{prot} (N/A for Lagging Left-turns)				

Uniform Queue Size and Delay Computations

Queue at Start of Green Arrow, Q_a				
Queue at Start of Unsaturated Green, Q_u				
Residual Queue, Q_r				
Uniform Delay, d_1				

Uniform Queue Size and Delay Equations

	Case	Q_a	Q_u	Q_r	d_1
If X_{perm} <= 1.0 & X_{prot} <= 1.0	1	$q_a r$	$q_a g_q$	0	$[0.5/(q_a C)][rQ_a + Q_a^{2/(s_p - q_s)} + g_q Q_u + Q_u^{2/(s_s - q_a)}$
If X_{perm} <= 1.0 & X_{prot} > 1.0	2	$q_a r$	$Q_r + q_a g_q$	$Q_a - g(s_p - q_a)$	$[0.5/(q_a C)][rQ_a + g(Q_a + Q_r) + g_q (Q_r + Q_u) + Q_u^{2/(s_s - q_a)}$
If X_{perm} > 1.0 & X_{prot} <= 1.0	3	$Q_r + q_a r$	$q_a g_q$	$Q_u - g_u(s_s - q_a)$	$[0.5/(q_a C)][g_q Q_u + g_u(Q_a + Q_r) + r(Q_r + Q_a) + Q_a^{2/(s_p - q_a)}$
If X_{perm} <= 1.0 (lagging lefts)	4	0	$q_a(r + g_q)$	0	$[0.5/(q_a C)][r + g_q)Q_u + Q_u^{2/(s_s - q_a)}$
If X_{perm} > 1.0 (lagging lefts)	5	$Q_u - g_u(s_s - q_a)$	$q_a(r + g_q)$	0	$[0.5/(q_a C)][r + g_q)Q_u + g_u(Q_u + Q_a) + Q_a^{2/(s_p - q_a)}$

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *5-12-0009-1 / Los Valles Project*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane Group	*L*	*TR*		*L*	*LT*	*R*	*L*	*TR*		*L*	*TR*	
Initial Queue/Lane	*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*		*0.0*	*0.0*	
Flow Rate/Lane	*17*	*97*		*49*	*55*	*5*	*125*	*695*		*240*	*237*	
Satflow/Lane	*1770*	*1788*		*1770*	*1784*	*1583*	*1770*	*1862*		*1770*	*1851*	
Capacity/Lane	*188*	*190*		*184*	*186*	*165*	*209*	*1128*		*411*	*1523*	
Flow Ratio	*0.0*	*0.1*		*0.0*	*0.0*	*0.0*	*0.1*	*0.2*		*0.1*	*0.1*	
v/c Ratio	*0.09*	*0.51*		*0.27*	*0.30*	*0.03*	*0.60*	*0.62*		*0.58*	*0.16*	
I Factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Arrival Type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Platoon Ratio	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	
PF Factor	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	
Q_1	*0.2*	*1.3*		*0.6*	*0.7*	*0.1*	*1.6*	*4.3*		*3.0*	*1.0*	
k_B	*0.2*	*0.2*		*0.2*	*0.2*	*0.2*	*0.2*	*0.4*		*0.3*	*0.4*	
Q_2	*0.0*	*0.2*		*0.1*	*0.1*	*0.0*	*0.3*	*0.6*		*0.4*	*0.1*	
Q Average	*0.2*	*1.5*		*0.7*	*0.8*	*0.1*	*1.9*	*4.9*		*3.4*	*1.1*	

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*2.1*	*2.1*		*2.1*	*2.1*	*2.1*	*2.0*	*2.0*		*2.0*	*2.1*	
BOQ, $Q_{\%}$	*0.5*	*3.0*		*1.4*	*1.6*	*0.1*	*3.9*	*9.5*		*6.7*	*2.3*	

Queue Storage Ratio

Q Spacing	*20.0*	*20.0*		*20.0*	*20.0*	*20.0*	*20.0*	*20.0*		*20.0*	*20.0*	
Q Storage	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Average R_Q												
95% $R_{Q\%}$												

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*JST*	Intersection	*7*
Agency or Co.	*LLG Engineers*	E/W Street Name	*Hasley Canyon Road*
Date Performed	*5/12/2014*	N/S Street Name	*The Old Road - I-5 SB On-Ramp*
Time Period	*AM*	Analysis Year	*2012 Existing*
Peak Hour Factor	*1.00*	Project ID	*5-12-0009-1/Los Valles Project*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*2*	*0*		*0*	*2*	*0*		*0*	*2*	*0*		*0*	*1*	*0*	
Lane Assignment	*LT*		*TR*		*LT*		*TR*		*LT*		*TR*				*LTR*	
Right-Turn Bypass	*None*				None				None				Non-Yielding			
Conflicting Lanes	*2*				2				2				2			
Volume (V), veh/h	*98*	*35*	*514*	*0*	*142*	*543*	*262*	*0*	*35*	*80*	*159*	*0*	*175*	*170*	*205*	*0*
Heavy Veh. Adj. (f_{HV}), %	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*4.2929*	*4.1129*	*5.1929*	*4.2929*	*4.1129*	*5.1929*	*4.2929*	*4.1129*	*5.1929*	*4.2929*	*4.1129*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*487*			*213*			*308*			*720*		
Exiting Flow (V_{ex}), pc/h	*369*			*578*			*440*			*826*		
Entry Flow (V_e), pc/h	*133*	*514*		*445*	*502*		*115*	*159*			*345*	*205*
Entry Volume veh/h	*133*	*514*		*445*	*502*		*115*	*159*			*345*	*205*

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h	*784*	*804*		*963*	*973*		*897*	*911*			*683*	
Capacity (c), veh/h	*784*	*804*		*963*	*973*		*897*	*911*			*683*	
v/c Ratio (X)	*0.17*	*0.64*		*0.46*	*0.52*		*0.13*	*0.17*			*0.51*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	*6.4*	*15.3*		*9.2*	*10.2*		*5.2*	*5.7*			*13.1*	*0.0*
Lane LOS	*A*	*C*		*A*	*B*		*A*	*A*			*B*	
Lane 95% Queue	*0.6*	*4.7*		*2.5*	*3.0*		*0.4*	*0.6*			*2.9*	
Approach Delay, s/veh	*13.43*			*9.71*			*5.48*			*8.19*		
Approach LOS, s/veh	*B*			*A*			*A*			*A*		
Intersection Delay, s/veh	*9.88*											
Intersection LOS	*A*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	7
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	The Old Road - I-5 SB On-Ramp
Time Period	AM	Analysis Year	2012 Existing + Project
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	2	0		0	2	0		0	2	0		0	1	0	
Lane Assignment	LT		TR		LT		TR		LT		TR				LTR	
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Volume (V), veh/h	112	49	612	0	142	576	267	0	35	80	159	0	175	170	214	0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	487			227			336			753		
Exiting Flow (V_{ex}), pc/h	383			611			459			924		
Entry Flow (V_e), pc/h	161	612		463	522		115	159			345	214
Entry Volume veh/h	161	612		463	522		115	159			345	214

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h	784	804		953	964		878	893			667	
Capacity (c), veh/h	784	804		953	964		878	893			667	
v/c Ratio (X)	0.21	0.76		0.49	0.54		0.13	0.18			0.52	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	6.8	21.0		9.7	10.8		5.4	5.8			13.6	0.0
Lane LOS	A	C		A	B		A	A			B	
Lane 95% Queue	0.8	7.3		2.7	3.3		0.5	0.6			3.0	
Approach Delay, s/veh	18.08			10.27			5.62			8.41		
Approach LOS, s/veh	C			B			A			A		
Intersection Delay, s/veh	11.71											
Intersection LOS	B											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	7
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	The Old Road - I-5 SB On-Ramp
Time Period	AM	Analysis Year	2023 Future Cumulative
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	2	0		0	2	0		0	2	0		0	1	0	
Lane Assignment	LT		TR		LT		TR		LT		TR				LTR	
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Volume (V), veh/h	112	60	631	0	170	605	267	0	36	80	178	0	175	179	215	0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	524			228			347			811		
Exiting Flow (V_{ex}), pc/h	413			641			459			980		
Entry Flow (V_e), pc/h	172	631		490	552		116	178			354	215
Entry Volume veh/h	172	631		490	552		116	178			354	215

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h	763	783		952	963		871	886			641	
Capacity (c), veh/h	763	783		952	963		871	886			641	
v/c Ratio (X)	0.23	0.81		0.51	0.57		0.13	0.20			0.55	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	7.2	24.7		10.3	11.5		5.4	6.1			15.1	0.0
Lane LOS	A	C		B	B		A	A			C	
Lane 95% Queue	0.9	8.6		3.0	3.8		0.5	0.7			3.4	
Approach Delay, s/veh	20.99			10.93			5.83			9.38		
Approach LOS, s/veh	C			B			A			A		
Intersection Delay, s/veh	13.03											
Intersection LOS	B											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	7
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	The Old Road - I-5 SB On-Ramp
Time Period	PM	Analysis Year	2012 Existing
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	2	0		0	2	0		0	2	0		0	1	0	
Lane Assignment	LT		TR		LT		TR		LT		TR				LTR	
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Volume (V), veh/h	125	80	660	0	112	482	492	0	59	118	118	0	77	78	110	0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	267			302			282			653		
Exiting Flow (V_{ex}), pc/h	275			541			735			850		
Entry Flow (V_e), pc/h	205	660		510	576		139	156			155	110
Entry Volume veh/h	205	660		510	576		139	156			155	110

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h	925	937		901	915		915	928			715	
Capacity (c), veh/h	925	937		901	915		915	928			715	
v/c Ratio (X)	0.22	0.70		0.57	0.63		0.15	0.17			0.22	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	6.1	16.0		11.9	13.5		5.4	5.5			7.5	0.0
Lane LOS	A	C		B	B		A	A			A	
Lane 95% Queue	0.8	6.1		3.6	4.6		0.5	0.6			0.8	
Approach Delay, s/veh	13.63			12.76			5.45			4.39		
Approach LOS, s/veh	B			B			A			A		
Intersection Delay, s/veh	11.32											
Intersection LOS	B											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	7
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	The Old Road - I-5 SB On-Ramp
Time Period	PM	Analysis Year	2012 Existing + Project
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	2	0		0	2	0		0	2	0		0	1	0	
Lane Assignment	LT		TR		LT		TR		LT		TR				LTR	
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Volume (V), veh/h	134	89	725	0	112	593	508	0	59	118	118	0	77	78	142	0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	267			311			300			764		
Exiting Flow (V_{ex}), pc/h	284			652			760			915		
Entry Flow (V_e), pc/h	223	725		570	643		139	156			155	142
Entry Volume veh/h	223	725		570	643		139	156			155	142

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h	925	937		895	909		902	916			662	
Capacity (c), veh/h	925	937		895	909		902	916			662	
v/c Ratio (X)	0.24	0.77		0.64	0.71		0.15	0.17			0.23	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	6.3	19.5		14.0	16.5		5.5	5.6			8.3	0.0
Lane LOS	A	C		B	C		A	A			A	
Lane 95% Queue	0.9	7.9		4.7	6.1		0.5	0.6			0.9	
Approach Delay, s/veh	16.39			15.30			5.54			4.31		
Approach LOS, s/veh	C			C			A			A		
Intersection Delay, s/veh	13.44											
Intersection LOS	B											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	7
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	The Old Road - I-5 SB On-Ramp
Time Period	PM	Analysis Year	2023 Future Cumulative
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	0	2	0		0	2	0		0	2	0		0	1	0	
Lane Assignment	LT		TR		LT		TR		LT		TR				LTR	
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Volume (V), veh/h	134	118	736	0	115	627	508	0	61	118	136	0	77	79	145	0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929	4.2929	4.1129	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	271			313			329			803		
Exiting Flow (V_{ex}), pc/h	331			688			760			930		
Entry Flow (V_e), pc/h	252	736		587	662		148	167			156	145
Entry Volume veh/h	252	736		587	662		148	167			156	145

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h	922	935		894	908		883	898			644	
Capacity (c), veh/h	922	935		894	908		883	898			644	
v/c Ratio (X)	0.27	0.79		0.66	0.73		0.17	0.19			0.24	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	6.7	20.4		14.7	17.5		5.7	5.9			8.6	0.0
Lane LOS	A	C		B	C		A	A			A	
Lane 95% Queue	1.1	8.3		5.1	6.6		0.6	0.7			0.9	
Approach Delay, s/veh	16.89			16.15			5.80			4.45		
Approach LOS, s/veh	C			C			A			A		
Intersection Delay, s/veh	14.03											
Intersection LOS	B											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	8
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	I-5 NB Ramps
Time Period	AM	Analysis Year	2012 Existing
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	1	0	0		0	0	0		1	1	0		0	0	0	
Lane Assignment			L						L		LT					
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2				1			
Volume (V), veh/h	62			0				0	938	18		0				0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	4.2929	4.1129	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	0			1018			62			938		
Exiting Flow (V_{ex}), pc/h	0			938			80			0		
Entry Flow (V_e), pc/h		62			18		449	507				
Entry Volume veh/h		62					449	507				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		1130			0		1079	1082			0	
Capacity (c), veh/h		1130			0		1079	1082			0	
v/c Ratio (X)		0.05					0.42	0.47				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.6					7.8	8.6				
Lane LOS		A			F		A	A			F	
Lane 95% Queue		0.2					2.1	2.6				
Approach Delay, s/veh	3.65						8.20					
Approach LOS, s/veh	A						A					
Intersection Delay, s/veh	7.92											
Intersection LOS	A											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	8
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	I-5 NB Ramps
Time Period	AM	Analysis Year	2012 Existing + Project
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	1	0	0		0	0	0		1	1	0		0	0	0	
Lane Assignment			L						L		LT					
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2				1			
Volume (V), veh/h	76			0				0	975	18		0				0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	4.2929	4.1129	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	0			1069			76			975		
Exiting Flow (V_{ex}), pc/h	0			975			94			0		
Entry Flow (V_e), pc/h		76			18		467	526				
Entry Volume veh/h		76					467	526				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		1130			0		1067	1071			0	
Capacity (c), veh/h		1130			0		1067	1071			0	
v/c Ratio (X)		0.07					0.44	0.49				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.8					8.2	9.0				
Lane LOS		A			F		A	A			F	
Lane 95% Queue		0.2					2.3	2.8				
Approach Delay, s/veh	3.75						8.61					
Approach LOS, s/veh	A						A					
Intersection Delay, s/veh	8.27											
Intersection LOS	A											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	8
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	I-5 NB Ramps
Time Period	AM	Analysis Year	2023 Future Cumulative
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	1	0	0		0	0	0		1	1	0		0	0	0	
Lane Assignment			L						L		LT					
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2				1			
Volume (V), veh/h	92			0				0	1009	18		0				0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	4.2929	4.1129	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	0			1119			92			1009		
Exiting Flow (V_{ex}), pc/h	0			1009			110			0		
Entry Flow (V_e), pc/h		92			18		483	544				
Entry Volume veh/h		92					483	544				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		1130			0		1055	1060			0	
Capacity (c), veh/h		1130			0		1055	1060			0	
v/c Ratio (X)		0.08					0.46	0.51				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.9					8.5	9.5				
Lane LOS		A			F		A	A			F	
Lane 95% Queue		0.3					2.4	3.0				
Approach Delay, s/veh	3.88						9.05					
Approach LOS, s/veh	A						A					
Intersection Delay, s/veh	8.62											
Intersection LOS	A											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	8
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	I-5 NB Ramps
Time Period	PM	Analysis Year	2012 Existing
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	1	0	0		0	0	0		1	1	0		0	0	0	
Lane Assignment			L						L		LT					
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2				1			
Volume (V), veh/h	127			0				0	1118	22		0				0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	4.2929	4.1129	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	0			1267			127			1118		
Exiting Flow (V_{ex}), pc/h	0			1118			149			0		
Entry Flow (V_e), pc/h		127			22		536	604				
Entry Volume veh/h		127					536	604				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		1130			0		1027	1034			0	
Capacity (c), veh/h		1130			0		1027	1034			0	
v/c Ratio (X)		0.11					0.52	0.58				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.2					9.9	11.2				
Lane LOS		A			F		A	B			F	
Lane 95% Queue		0.4					3.1	3.9				
Approach Delay, s/veh	4.15						10.56					
Approach LOS, s/veh	A						B					
Intersection Delay, s/veh	9.92											
Intersection LOS	A											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	JST	Intersection	8
Agency or Co.	LLG Engineers	E/W Street Name	Hasley Canyon Road
Date Performed	5/5/2014	N/S Street Name	I-5 NB Ramps
Time Period	PM	Analysis Year	2012 Existing + Project
Peak Hour Factor	1.00	Project ID	5-12-0009-1/Los Valles Project

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	1	0	0		0	0	0		1	1	0		0	0	0	
Lane Assignment			L						L		LT					
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2				1			
Volume (V), veh/h	136			0				0	1244	22		0				0
Heavy Veh. Adj. (f_{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians Crossing	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	4.2929	4.1129	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	0			1402			136			1244		
Exiting Flow (V_{ex}), pc/h	0			1244			158			0		
Entry Flow (V_e), pc/h		136			22		595	671				
Entry Volume veh/h		136					595	671				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		1130			0		1020	1027			0	
Capacity (c), veh/h		1130			0		1020	1027			0	
v/c Ratio (X)		0.12					0.58	0.65				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.2					11.3	13.1				
Lane LOS		A			F		B	B			F	
Lane 95% Queue		0.4					3.9	5.1				
Approach Delay, s/veh	4.22						12.25					
Approach LOS, s/veh	A						B					
Intersection Delay, s/veh	11.47											
Intersection LOS	B											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*JST*	Intersection	*8*
Agency or Co.	*LLG Engineers*	E/W Street Name	*Hasley Canyon Road*
Date Performed	*5/5/2014*	N/S Street Name	*I-5 NB Ramps*
Time Period	*PM*	Analysis Year	*2023 Future Cumulative*
Peak Hour Factor	*1.00*	Project ID	*5-12-0009-1/Los Valles Project*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*1*	*0*	*0*		*0*	*0*	*0*		*1*	*1*	*0*		*0*	*0*	*0*	
Lane Assignment			*L*						*L*		*LT*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				2				1			
Volume (V), veh/h	*170*			*0*				*0*	*1265*	*22*		*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*4.2929*	*4.1129*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*0*			*1457*			*170*			*1265*		
Exiting Flow (V_{ex}), pc/h	*0*			*1265*			*192*			*0*		
Entry Flow (V_e), pc/h		*170*			*22*		*605*	*682*				
Entry Volume veh/h		*170*					*605*	*682*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1130*			*0*		*995*	*1003*			*0*	
Capacity (c), veh/h		*1130*			*0*		*995*	*1003*			*0*	
v/c Ratio (X)		*0.15*					*0.61*	*0.68*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*4.5*					*12.1*	*14.2*				
Lane LOS		*A*			*F*		*B*	*B*			*F*	
Lane 95% Queue		*0.5*					*4.3*	*5.6*				
Approach Delay, s/veh	*4.50*						*13.24*					
Approach LOS, s/veh	*A*						*B*					
Intersection Delay, s/veh	*12.22*											
Intersection LOS	*B*											

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HASLEY CANYON ROAD SITE ACCESS

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*JST*	Intersection	
Agency/Co.	*LLG Engineers*	Jurisdiction	*LA County*
Date Performed	*5/12/2014*	Analysis Year	*2012 Existing + Project*
Analysis Time Period	*AM*		

Project Description *5-12-0009-1 Los Valles Project*

East/West Street: *Hasley Canyon Road* | North/South Street: *South Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*9*	*347*			*187*	*70*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*9*	*347*	*0*	*0*	*187*	*70*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*210*		*28*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*210*	*0*	*28*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*9*						*238*	
C (m) (veh/h)	*1320*						*497*	
v/c	*0.01*						*0.48*	
95% queue length	*0.02*						*2.56*	
Control Delay (s/veh)	*7.7*						*18.7*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--	*18.7*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*JST*	Intersection	
Agency/Co.	*LLG Engineers*	Jurisdiction	*LA County*
Date Performed	*5/12/2014*	Analysis Year	*2012 Existing + Project*
Analysis Time Period	*PM*		

Project Description *5-12-0009-1 Los Valles Project*

East/West Street: *Hasley Canyon Road* | North/South Street: *South Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*32*	*210*			*305*	*237*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*32*	*210*	*0*	*0*	*305*	*237*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*140*		*18*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*140*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*32*						*158*	
C (m) (veh/h)	*1037*						*415*	
v/c	*0.03*						*0.38*	
95% queue length	*0.10*						*1.75*	
Control Delay (s/veh)	*8.6*						*18.9*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--	*18.9*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*JST*	Intersection	
Agency/Co.	*LLG Engineers*	Jurisdiction	*LA County*
Date Performed	*5/12/2014*	Analysis Year	*2023 Future + Project*
Analysis Time Period	*AM*		

Project Description *5-12-0009-1 Los Valles Project*

East/West Street: *Hasley Canyon Road* | North/South Street: *South Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*9*	*369*			*195*	*70*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*9*	*369*	*0*	*0*	*195*	*70*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*210*		*28*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*210*	*0*	*28*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*9*						*238*	
C (m) (veh/h)	*1311*						*479*	
v/c	*0.01*						*0.50*	
95% queue length	*0.02*						*2.72*	
Control Delay (s/veh)	*7.8*						*19.7*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--	*19.7*					
Approach LOS	--	--	*C*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*JST*	Intersection	
Agency/Co.	*LLG Engineers*	Jurisdiction	*LA County*
Date Performed	*5/12/2014*	Analysis Year	*2023 Future + Project*
Analysis Time Period	*PM*		

Project Description *5-12-0009-1 Los Valles Project*

East/West Street: *Hasley Canyon Road*	North/South Street: *South Driveway*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*32*	*224*			*333*	*237*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*32*	*224*	*0*	*0*	*333*	*237*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*140*		*18*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*140*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*32*						*158*	
C (m) (veh/h)	*1013*						*392*	
v/c	*0.03*						*0.40*	
95% queue length	*0.10*						*1.90*	
Control Delay (s/veh)	*8.7*						*20.2*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--	*20.2*					
Approach LOS	--	--	*C*					

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APPENDIX C

TRAFFIC SIGNAL WARRANTS ANALYSIS WORKSHEETS
DEL VALLE ROAD / HASLEY CANYON ROAD
PROJECT SITE ACCESS / HASLEY CANYON ROAD

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 09/12/2012
CALC JST DATE 11/1/2013
CHK _____ DATE _____

DIST ____ CO ____ RTE ____ PM ____

Major St: Hasley Canyon Road — Critical Approach Speed 40 mph
Minor St: Del Valle Road — Critical Approach Speed _____ mph

Speed limit or critical speed on major street traffic > 40 mph..... ☑ or
In built up area of isolated community of < 10,000 population..... ☐ } RURAL (R)
☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES ☐ NO ☐
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												
	U	R	U	R									
APPROACH LANES	1		2 or More										Hour
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)									
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)									

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												
	U	R	U	R									
APPROACH LANES	1		2 or More										Hour
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)									
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)									

Combination of Conditions A & B SATISFIED YES ☐ NO ☐

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☐
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐

PART B Future Cumulative plus Project Conditions **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	4:30-5:30 PM	Hour
Both Approaches - Major Street		X	485	
Higher Approach - Minor Street	X		136	

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☒

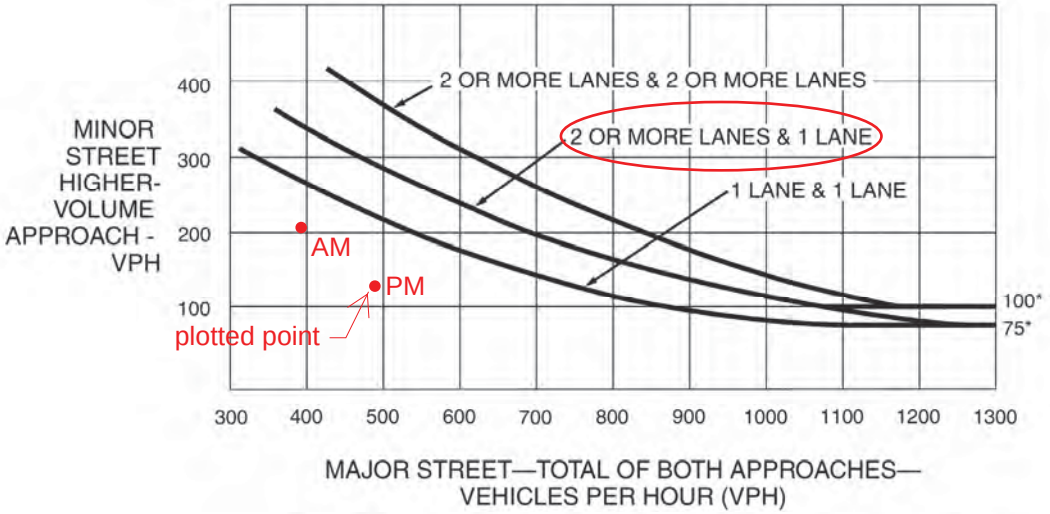
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 09/12/2012
CALC JST DATE 11/1/2013
CHK _____ DATE _____

DIST ____ CO ____ RTE ____ PM ____

Major St: Hasley Canyon Road — Critical Approach Speed 40 mph
Minor St: Project Driveway — Critical Approach Speed _____ mph

Speed limit or critical speed on major street traffic > 40 mph..... ☑ or
In built up area of isolated community of < 10,000 population..... ☐ } RURAL (R)
☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES ☐ NO ☐
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												Hour
	U	R	U	R									
APPROACH LANES	1		2 or More										
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)									
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)									

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES ☐ NO ☐
80% SATISFIED YES ☐ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												Hour
	U	R	U	R									
APPROACH LANES	1		2 or More										
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)									
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)									

Combination of Conditions A & B SATISFIED YES ☐ NO ☐

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☐
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**
(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☒	No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐

PART B Future Cumulative plus Project Conditions **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	4:30-5:30 PM	Hour
Both Approaches - Major Street		X	830	
Higher Approach - Minor Street	X		140	

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☒

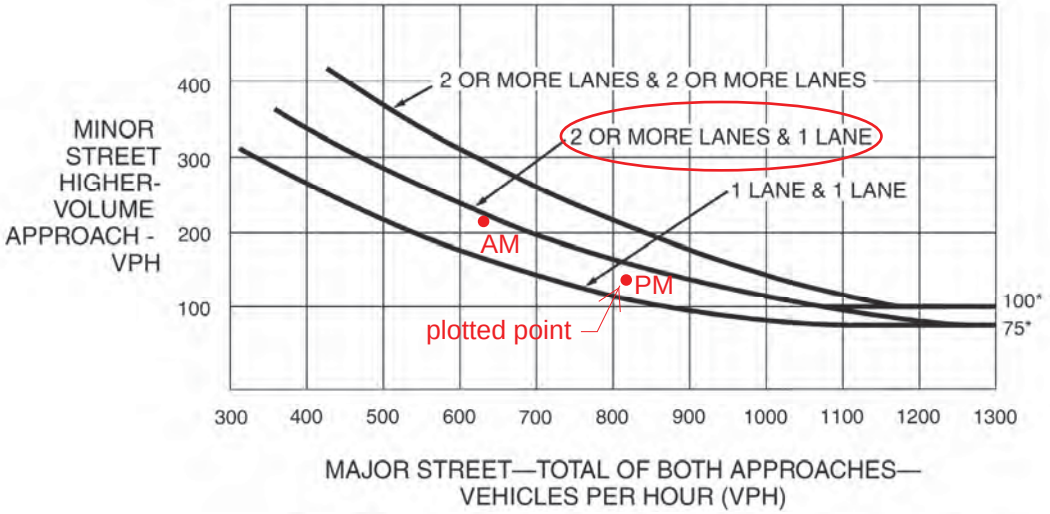
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

APPENDIX 5.14-2

Los Valles Hillcrest Parkway Supplemental Assessment

MEMORANDUM

To:	Susan Tebo Impact Sciences, Inc.	Date:	June 19, 2014
From:	David S. Shender, P.E. Jonathan S. Tio Linscott, Law & Greenspan, Engineers	LLG Ref:	5-12-0009-1
Subject:	**Los Valles Project – Hillcrest Parkway Supplemental Assessment**		

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This memorandum has been prepared by Linscott, Law & Greenspan, Engineers (LLG) to summarize a supplemental traffic assessment related to the proposed Los Valles project ("the Project") located in the Castaic area of Los Angeles County. The Project consists of the development of 497 single-family homes at the proposed project site located north of the intersection of Hasley Canyon Road and Del Valle Road. LLG previously prepared the traffic impact study for the Project dated May 20, 2014 (the "Traffic Study") which has been submitted and is currently under review by the County's Traffic and Lighting Division of the Department of Public Works. LLG has prepared this supplemental traffic assessment to evaluate the potential traffic impacts of the Project on Hillcrest Parkway, located to the north of the Project site. This analysis was prepared in response to concerns expressed by local residents at a recent Scoping meeting regarding current traffic operations along Hillcrest Parkway, primarily related to activity around local schools located along the roadway.

Based on the impact assessment contained herein, it is concluded that the proposed project is not expected to create adverse traffic impacts on Hillcrest Parkway during the morning and afternoon peak hours.

Project Description

The proposed Los Valles project site is located north of the intersection of Hasley Canyon Road and Del Valle Road in the Castaic Area of Los Angeles County. The Project proposes to construct 497 single-family homes on the existing 430.4 acres of undeveloped land. Vehicular access to the Project site will be provided via the construction of a new private street ("A" Street) which will intersect Hasley Canyon Road just east of Del Valle Road. As indicated in the Traffic Study, "A" Street will provide the primary vehicular access to the development site, accommodating approximately 85% of the vehicle trips generated by the Project. In addition, existing streets Barcelona Road and Hayward Drive will be extended to connect to the Project and provide secondary access to the north and east, respectively. Further discussion of the forecast use of the Project access roads is provided below. Construction of the Project is planned to be completed by the year 2023. The general vicinity of the Project is shown in ***Figure 1***.

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Project Trip Generation and Assignment

Traffic volumes expected to be generated by the Project during the weekday AM and PM peak hours, as well as on a daily basis, were estimated in the Traffic Study using rates provided in *Trip Generation*, 9th Edition, published by the Institute of Transportation Engineers (ITE) in 2012. The Project is forecast to generate 373 net new vehicle trips (93 inbound trips and 280 outbound trips) during the AM peak hour, 502 net new vehicle trips (316 inbound trips and 186 outbound trips) during the PM peak hour, and 4,756 daily trip ends (approximately 2,378 inbound trips and 2,378 outbound trips) during a typical weekday.

The weekday AM and PM commuter peak hour vehicle trips forecast to be generated by the Project were then distributed and assigned to the adjacent street system. As previously noted, approximately 85% of the Project-related vehicle trips are forecast to utilize the future "A" Street to access Hasley Canyon Road for purposes of entering and exiting the project site. This is a reasonable expectation as Hasley Canyon Road provides future Project residents and their visitors with the most direct access to the local street system (including local employment, shopping and recreational opportunities). In addition, "A" Street provides Project residents and their visitors with the most convenient access to the regional roadway network, including the I-5 Freeway interchange at Hasley Canyon Road, as well as State Route 126 at Commerce Center Drive.

Approximately 10% and 5% of the Project-related trips are estimated to use the Barcelona Road and Hayward Drive access points, respectively. Some project residents may use Barcelona Road to access the Castaic Middle School and Castaic Elementary School[1] located along Hillcrest Parkway to the north. Other project-related vehicle trips using Barcelona Road and Hayward Drive may be related to visits to other nearby residences.

As shown in Figure 7-2 in the Traffic Study, approximately 37 vehicle trips (9 inbound, 28 outbound) are forecast to utilize the Barcelona Road access point during the weekday AM peak hour. Also, approximately 19 vehicle trips (5 inbound, 14 outbound) are expected to utilize the Hayward Drive access point during the weekday AM peak hour.

[1] It is our understanding that elementary age students at the Project are expected to attend Live Oak Elementary School located at 27715 Saddleridge Way. The most direct travel route between the Project site and Live Oak Elementary School is via the Project's "A" Street access. Thus, Project-related vehicle trips to Castaic Elementary School are expected to be negligible.

Figure 7-3 in the Traffic Study indicates that approximately 50 vehicle trips (31 inbound, 19 outbound) are expected to use the Barcelona Road access point during the weekday PM peak hour. Also, 25 vehicle trips (16 inbound, 9 outbound) are forecast to use the Hayward Drive access point during the weekday PM peak hour.

Hillcrest Parkway Observations

As previously stated, Hillcrest Parkway is located to the north of the Project site. Hillcrest Parkway is classified as a Secondary Highway and currently provides two through travel lanes in each direction, separated by a two-way left-turn lane, with left-turn pockets provided at intersections.

As previously noted, concerns were expressed by local residents regarding the existing traffic operations at the two Castaic Union schools located along Hillcrest Parkway: Castaic Elementary School and Castaic Middle School. Castaic Elementary School, located at the southwest corner of the intersection of Park Vista Drive and Hillcrest Parkway, begins instruction at 8:00 AM and ends at 2:31 PM. Castaic Middle School, located southeast of the intersection of Barcelona Road and Hillcrest Parkway, begins instruction at 8:35 AM and ends at 3:18 PM.

Primary vehicular access to the Elementary School is provided along the west side of Park Vista Drive. The intersection of Park Vista Drive and Hillcrest Parkway, located at the northeast corner of the school, is controlled by a traffic signal and provides a separate westbound left-turn lane on Hillcrest Parkway, including a protected left-turn phase for vehicles proceeding onto southbound Park Vista Drive towards the school entrance and pick-up/drop-off area. Primary vehicular access to the Middle School is provided via one driveway located along the south side of Hillcrest Parkway. This driveway intersection with Hillcrest Parkway is currently unsignalized. A separate eastbound right-turn lane, as well as a westbound left-turn lane is provided on Hillcrest Parkway at the Middle School. Traffic leaving the school site onto Hillcrest Parkway is restricted to right-turns only.

LLG conducted observations at both schools during the morning student arrival and afternoon student departure periods in February 2014. At the Elementary School, it was observed that vehicles begin arriving at approximately 7:15 AM, with the majority of vehicles arriving at 7:45 AM. Similarly, at the Middle School, it was observed that vehicles begin arriving at approximately 8:00 AM, with the majority of vehicles arriving at 8:20 AM. During the morning arrival period at both schools, students are dropped-off primarily within the school site (i.e., not on adjacent streets). The separated start times between the two schools (i.e., 8:00 and 8:35 AM) assists in dispersing the peak traffic periods related to the student drop-off activity. Generally, traffic did not queue extensively onto the local street system during the drop-off period.

Prior to the afternoon dismissal period at the Elementary School, it was observed that vehicles begin to queue on-site and onto Park Vista Drive and other nearby residential streets at 2:00 PM in the areas shown in ***Figure 2***. Once the Elementary School students are dismissed at 2:31 PM, the vehicles that are queued along Park Vista Drive wait to enter the school site to pick up their students, while other students walk to the vehicles in the surrounding residential streets. Similarly, at the Middle School, vehicles were observed to queue along Hillcrest Parkway and park along Barcelona Road. When students are dismissed at 3:18 PM, some vehicles enter the Middle School site to pick up their students while others remain parked and wait for the students to walk to the vehicle parked on the adjacent streets. Most of the vehicles exiting the Middle School proceed east on Hillcrest Parkway.

Observations conducted along Hillcrest Parkway east of the schools (towards The Old Road) indicate that motorists exiting from the "side streets" (such as Yosemite Drive and Olympic Street) did not experience significant delay during the drop-off and pick-up periods.

Traffic Impact Assessment

As previously noted, the Project is forecast to add 37 net new vehicle trips (9 inbound trips and 28 outbound trips) during the AM peak hour to Barcelona Road, nearly all of which will likely utilize Hillcrest Parkway. During the AM peak hour, it is anticipated that many of the vehicle trips forecast to use Barcelona Road will have destinations to the Middle School. Under a "worst case" scenario, if all 28 "outbound" Project trips stopped at the Middle School during the AM peak hour, approximately nine (9) of these vehicles are expected to return back to the Project, with the remaining 19 vehicles continuing onto eastbound Hillcrest Parkway (for example, parents going onto to work, to shopping, and/or to drop-off children at other schools). As previously noted, the student drop-off at the Middle School is generally contained within the school site and does not adversely affect operations on Hillcrest Parkway or other streets. Thus, the additional traffic added by the Project to the Middle School drop-off operation (approximately one additional vehicle every two minutes on average during the peak hour) is not considered significant.

The forecast of vehicle trips due to the Project during the PM peak hour as provided in the Traffic Study primarily relates to the evening commuter peak hour (e.g., 5:00 – 6:00 PM). During the commuter PM peak hour, the Project is forecast to add 50 new vehicles trips (31 inbound trips and 19 outbound trips) to Barcelona Road (again, with nearly all vehicle trips expected to use Hillcrest Parkway). The Middle School peak period of traffic occurs approximately from 2:45 – 3:45 PM.

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If approximately half of the Project's commuter peak hour trip generation forecast were hypothetically applied to the Middle School peak hour of traffic, it would indicate that approximately 10 vehicles would leave the Project site during this period, destined to the Middle School. A portion of these 10 vehicles may arrive early and queue on Barcelona Road or Hillcrest Parkway near the school. Other Project-related vehicles may arrive later during the drop-off period and enter the Middle School site directly. The addition of a few vehicles (e.g. five or less) temporarily queuing on Barcelona Road or Hillcrest Parkway consistent with the current activity related to the Middle School student pick-up period is not expected to adversely affect traffic operations on these streets. Also, the addition of approximately one car every two minutes on average to Hillcrest Parkway during the Middle School pick-up peak hour would not adversely affect traffic operations on this roadway.

In summary, based on the relatively low contribution of traffic by the Project, no adverse traffic impacts are anticipated to Hillcrest Parkway, including operations related to drop-off and pick-up of students at the two Castaic Union schools. Field observations indicate that traffic operations during the student drop-off and pick-up periods are consistent to those found at nearly all neighborhood schools (i.e., short instances of relatively high inbound and outbound traffic). During the morning period, student drop-off generally occurs within the school sites. In the afternoon period, some vehicles queue on streets adjacent to the schools prior to the dismissal times, but this is short in duration. Overall, it is determined that the Project would not adversely affect traffic operations along Hillcrest Parkway, including during the school-related peak traffic periods.

Please contact us should you have any questions regarding this supplemental traffic analysis.

Attachments

cc: File

N

NOT TO SCALE

MAP SOURCE: GOOGLE MAPS

PROJECT SITE

SCHOOLS

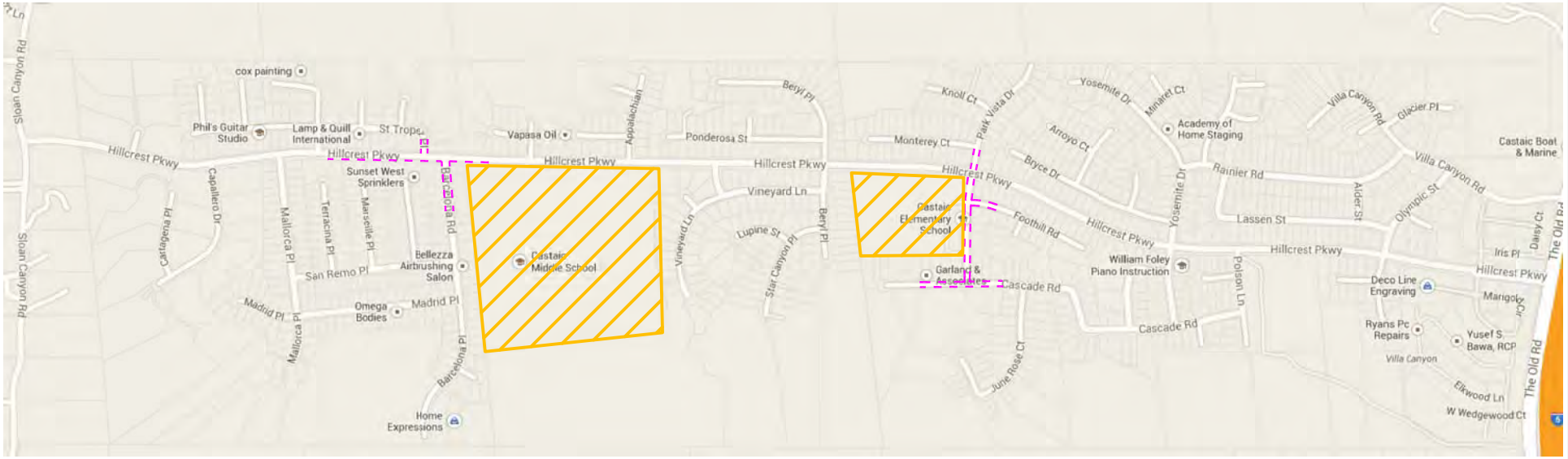
PROPOSED ROADWAYS

FIGURE 1
VICINITY MAP

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

o:\0009\hillcrest parkway\f1.dwg 03/14/2014 13:27:51 tio llg exhibits color.ctb



N

NOT TO SCALE

MAP SOURCE: GOOGLE MAPS

SCHOOLS

LOCATION OF VEHICLE QUEUING

FIGURE 2
HILLCREST PARKWAY VEHICLE QUEUING

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

o:\0009\hillcrest parkway\f2.dwg 03/14/2014 13:28:41 tio llg exhibits color.ctb

APPENDIX 5.14-3

Traffic Study Addendum - Los Valles Project

MEMORANDUM

To:	Jessica Kirchner Flores Impact Sciences, Inc.	Date:	September 30, 2015
From:	David S. Shender, P.E. Linscott, Law & Greenspan, Engineers	LLG Ref:	5-12-0009-1
Subject:	**Traffic Study Addendum – Los Valles Project**		

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As requested, this traffic study addendum has been prepared by Linscott, Law & Greenspan, Engineers (LLG) for the Los Valles project (the "Project") located on Hasley Canyon Road in the Castaic area of unincorporated Los Angeles County. As you recall, LLG previously prepared a traffic study for the Project[1] (the "Original Traffic Study") which was reviewed and approved by the Traffic and Lighting Division of Los Angeles County Department of Public Works. The Original Traffic Study evaluates the potential traffic impacts of the Project, as well as cumulative traffic impacts associated with proposed related development projects in the Project vicinity.

Since the preparation of the Original Traffic Study for the Project, new information has been received regarding an additional potential related development project in the area that was not included in the cumulative traffic analysis contained in the Original Traffic Study. This additional related project is known as the Valencia Commerce Center project (Vesting Tentative Parcel Map No. 18108) and is generally located in the vicinity of the Commerce Center Drive and Franklin Parkway intersection. Based on information provided to us, the Valencia Commerce Center project proposes the development of 2,568,033 square feet of industrial building floor area, and 754,961 square feet of business park building floor area.

As requested, the cumulative traffic analysis contained in the Original Traffic Study for the Project has been updated to incorporate the future traffic related to the Valencia Commerce Center project. Attached to this memorandum are the following tables and figures from the Original Traffic Study which have been updated to reflect the traffic analysis incorporating the Valencia Commerce Center project:

- Table 6-1, Related Projects List and Trip Generation (note that the Valencia Commerce Center project has been added to the list as project number LAC 27)
- Table 9-1, Summary of Volume to Capacity Ratios and Levels of Service
- Figure 6-1, Location of Related Projects

[1] *Traffic Impact Study – Los Valles Project*, Linscott, Law & Greenspan, Engineers, November 25, 2014.

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- Figures 6-2 and 6-3, Related Projects Traffic Volumes, AM and PM peak hours

- Figures 9-3 and 9-4, Future Cumulative With Project Traffic Volumes, AM and PM peak hours

- Figures 10-2 and 10-3, Future With Grade Separated Interchange Traffic Volumes, AM and PM peak hours

As previously noted, that cumulative traffic analysis has been updated to include the forecast traffic associated with the Valencia Commerce Center project. The results of this analysis are summarized in Table 9-1 attached.

The findings provided in Table 9-1 are consistent with the conclusions of the cumulative traffic analysis contained in the Original Traffic Study. That is, the Project is calculated to contribute to a cumulatively significant traffic impact at Intersection No. 3, Commerce Center Drive and State Route 126. As noted in the Original Traffic Study, the cumulative traffic impact can be mitigated through construction of the interchange grade separation project currently under construction at this intersection. This finding remains unchanged as part of the updated cumulative traffic analysis prepared to incorporate traffic from the Valencia Commerce Center project. As the grade separation project is fully funded, the County has not requested payment of any "fair share" fees from the Project. No additional review of the potential traffic impacts of the Project or cumulative traffic impacts is required.

Please let us know if there any questions regarding this addendum traffic analysis.

cc: File

TABLE 6-1
RELATED PROJECTS LIST AND TRIP GENERATION

29-Sep-15

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
LOS ANGELES COUNTY RELATED PROJECTS [1]												
LAC 1	PM069961 31050 Burlwood Drive	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 2	TR069987 30406 Romero Canyon Road	Proposed	Single Family Detached Housing	9 DU	[3]	86	2	5	7	6	3	9
LAC 3	PM070839 30469 Sloan Canyon Road	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 4	Pitchess Detention Center 29330 The Old Road	Proposed	Prison	1,156 Beds	[4]	1,156	14	8	22	5	21	26
LAC 5	87360 28908 Avenue Paine, Suite A	Proposed	General Office Remove General Office	1,998 GSF (724) GSF	[5]	22 (8)	3 (1)	0 0	3 (1)	1 0	2 (1)	3 (1)
LAC 6	87360 28305 Livingston Avenue	Proposed	General Office	400 GSF	[5]	4	1	0	1	0	1	1
LAC 7	R2005-03755 31949 N. Castaic Road	Proposed	Shopping Center	5,510 GLSF	[6]	237	4	2	6	10	11	21
LAC 8	R2005-03755 31953 N. Castaic Road	Proposed	Shopping Center	4,000 GLSF	[6]	172	2	2	4	7	8	15
LAC 9	Tapia Ranch (TR053822) East of I-5 / North of Pitchess	Proposed	Single Family Detached Housing	405 DU	[3]	3,876	76	228	304	258	151	409
LAC 10	Landmark Village (Phases 1 + 2 + 3) East of Chiquito Canyon Road / South of SR-126	Proposed	Residential Non-Commercial Commercial	1,444 DU 1,040,000 SF	[7] [7] [7]	12,174 1,142 28,568	173 195 1,363	718 150 309	890 345 1,672	758 61 1,018	412 68 1,847	1,170 129 2,865
LAC 11	Tesoro del Valle Phases B, C, D West of Casa Luna Place / North of Avenida Rancho Tesoro	Partially Built	Single Family Detached Housing	239 DU	[3]	2,287	45	134	179	152	89	241
LAC 12	PM069788 28718 San Francisquito Canyon Road	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 13	Burnam Project (VTTM 53189) West of San Francisquito Creek / North of Copper Hill Drive	Approved	Single Family Detached Housing	45 DU	[3]	431	9	25	34	28	17	45
LAC 14	TR045433-02 West of The Old Road / South of Valencia Boulevard	Proposed	Single Family Detached Housing	9 DU	[3]	86	2	5	7	6	3	9
LAC 15	Alara Links at Westridge Apartments 25330 Silver Aspen Way	Proposed	Apartment	230 DU	[8]	1,530	23	94	117	93	50	143
LAC 16	Six Flags Magic Mountain 26101 Magic Mountain Parkway	Proposed	Amusement Park Improvements			Nom.	Nom.	Nom.	Nom.	Nom.	Nom.	Nom.
LAC 17	TR052455 West Creek Park	Approved	Single Family Detached Housing	7 DU	[3]	67	1	4	5	4	3	7
LAC 18	PM069664 Burlwood Drive at Hasley Canyon Road	Proposed	Single Family Detached Housing	2 DU	[3]	19	1	1	2	1	1	2

TABLE 6-1 (Continued)
RELATED PROJECTS LIST AND TRIP GENERATION

29-Sep-15

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
LAC 19	Panda Express Restaurant (PM064825) 31970 Castaic Road	Built	Fast-Food Restaurant with Drive-Through			Nom.	Nom.	Nom.	Nom.	Nom.	Nom.	Nom.
LAC 20	PM067785 30995 Stone Creek Road	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 21	PM071059 28456 Sloan Canyon Road	Proposed	Single Family Detached Housing	3 DU	[3]	29	1	1	2	2	1	3
LAC 22	TR069708 North of San Martinez Road / South of Hasley Canyon	Proposed	Single Family Detached Housing	100 DU	[3]	957	19	56	75	64	37	101
\LAC 23	TR071603 East of Hidden Hills Drive / North of Copperhill Drive	Proposed	Single Family Detached Housing	4 DU	[3]	38	1	2	3	3	1	4
LAC 24	Castaic Area High School Romero Canyon Road / North of Barringer Road	Proposed	High School	1,600 Students	[9]	2,736	457	215	672	98	110	208
LAC 25	Santa Clarita Valley Facilities Foundation Sloan Canyon Road / Hasley Canyon Road	Proposed	Single Family Detached Housing	34 DU	[3]	325	7	19	26	21	13	34
LAC 26	Mission Village South of SR-126 at Commerce Center Drive	Proposed	Residential Non-Residential	4,412 DU 1,555,100 SF	[10] [10]	31,235 27,217	459 2,242	1,786 578	2,245 2,820	1,822 941	1,035 2,128	2,857 3,069
LAC 27	Valencia Commerce Center	Proposed	Industrial Park Business Park	2,568,033 SF 754,961 SF	[11] [12]	17,874 9,633	1,769 907	388 173	2,157 1,080	464 224	1,745 750	2,209 974
CITY OF SANTA CLARITA RELATED PROJECTS [13]												
SC 1	Rye Canyon Business Park Northeast corner of Rye Canyon Road at Newhall Ranch Road	Partially Built	Business Park	4,400,000 sf	-	-	-	-	-	-	-	-
SC 2	Golden Valley Ranch (TR 52414) Newly annexed development area southeast of SR-14 and north of Placerita Canyon Road	Partially Built	Single Family Detached Housing Commercial	498 DU 618,759 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 3	Whittaker Bermite /Porta Bella Project (TR 51599) West of Golden Valley Road, south of Soledad Canyon Road, and east of San Fernando Road	Proposed	Single Family Detached Housing Commercial	2,911 DU 609,832 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 4	Riverpark (TR 53425) Eastern terminus of Newhall Ranch Road, east of Bouquet Canyon Road, north of Soledad Canyon Road and the Santa Clara River	Proposed	Single Family Detached Housing Commercial	1,089 DU 16,000 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 5	North Valencia Specific Plan No. II (MC 04-205) Along the east side of San Francisquito Creek, north of Newhall Ranch Road, south of Decoro Drive, east of Rye Canyon Road, and west of McBean Parkway	Built	Single Family Detached Housing Commercial	1,900 DU 210,000 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 6	Keystone/Synergy Project (TR 60258) South of Bouquet Canyon Road, adjacent to the RiverPark project	Proposed	Single Family Detached Housing Commercial	499 DU 30,476 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 7	Downtown Newhall Specific Plan Downtown Newhall area along San Fernando Road	Approved	Single Family Detached Housing Commercial	1,092 DU 1,107,000 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 8	North Newhall Specific Plan Along San Fernando Road in Newhall	Proposed	Single Family Detached Housing Commercial	775 DU 450,000 sf	- -	- -	- -	- -	- -	- -	- -	- -

Table 6-1 (Continued)
RELATED PROJECTS LIST AND TRIP GENERATION

29-Sep-15

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
SC 9	Stetson Ranch (TR 49621) East of Sand Canyon Road at the northern terminus of Gary and Marilyn Drives	Built	Single Family Detached Housing	265 DU	-	-	-	-	-	-	-	-
SC 10	DR Horton (TR 48892) Northeast corner of Sierra Highway and Golden Valley Road	Built	Single Family Detached Housing	148 DU	-	-	-	-	-	-	-	-
SC 11	Centex Homes (TR 61811) Located north of Golden Valley Road, west of Sierra Highway	Built	Single Family Detached Housing	52 DU	-	-	-	-	-	-	-	-
SC 12	Soledad Village Project (MC 04-444) North of Soledad Canyon Road, south of Santa Clara River; east of Bouquet Canyon Road	Under Construction	Single Family Detached Housing Commercial	315 DU 8,000 sf	- -	- -	- -	- -	- -	- -	- -	- -
SC 13	Friendly Valley Association 11 (TR 52385) North of Sierra Highway and east of Via Princessa	Built	Single Family Detached Housing	43 DU	-	-	-	-	-	-	-	-
SC 14	Soledad Circle Estates South of Soledad Canyon Road at Penlon Court	Approved	Single Family Detached Housing	147 DU	-	-	-	-	-	-	-	-
SC 15	Gate King (TR 50283) Southern Santa Clarita, west of SR-14 and Sierra Highway, south of San Fernando Road	Approved	Commercial	4,200,000 sf	-	-	-	-	-	-	-	-
SC 16	Centre Pointe Business Park (TR 42670) South of Soledad Canyon road, east of Bouquet Canyon Road, west of Golden Valley Road	Built	Business Park	2,300,000 sf	-	-	-	-	-	-	-	-
SC 17	North Valencia Specific Plan No. I South of Newhall Ranch Road, north of Magic Mountain Parkway, east of Rye Canyon Road, west of Bouquet Canyon Road	Built	Commercial	803,000 sf	-	-	-	-	-	-	-	-
SC 18	Valencia Town Center Expansion Northeast corner of Valencia Boulevard and McBean Parkway	Built	Shopping Center	491,860 sf	-	-	-	-	-	-	-	-
SC 19	Bridgeport Market Place Northeast corner of McBean Parkway and Newhall Ranch Road	Built	Shopping Center	160,000 sf	-	-	-	-	-	-	-	-
SC 20	Henry Mayo Newhall Memorial Master Plan (MC 04-325) 23845 West McBean Parkway	Under Construction	Commercial	600,000 sf	-	-	-	-	-	-	-	-
SC 21	Tourney North Magic Mountain Parkway west of The Old Road and I-5	Built	Commercial	450,000 sf	-	-	-	-	-	-	-	-
SC 22	Tourney South Wayne Mills Place east of I-5	Built	Commercial	165,000 sf	-	-	-	-	-	-	-	-
SC 23	Chinque Terra Office Park On Sierra Highway between Dockweiler Drive and San Fernando Road	Proposed	Office Park	90,900 sf	-	-	-	-	-	-	-	-
SC 24	Facey Medical Building 26357 McBean Parkway	Built	Medical-Dental Office	79,000 sf	-	-	-	-	-	-	-	-
SC 25	HH Seco II LLC (MC 01-317) Southwest corner of Seco Canyon Road and Copperhill Drive	Built	Commercial	40,000 sf	-	-	-	-	-	-	-	-
SC 26	VTC Square Northwest corner of McBean Parkway and Valencia Boulevard	Approved	Commercial	12,350 sf	-	-	-	-	-	-	-	-

Table 6-1 (Continued)
RELATED PROJECTS LIST AND TRIP GENERATION

29-Sep-15

MAP NO.	PROJECT NAME/NUMBER ADDRESS/LOCATION	PROJECT STATUS	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
SC 27	Rodgers Development Master Case 02-232 Northeast corner of Bouquet Canyon Road and Plum Canyon Road	Built	Commercial	34,000 sf	-	-	-	-	-	-	-	-
SC 28	ADI 25575 Rye Canyon Road	Proposed	Manufacturing	110,000 sf	-	-	-	-	-	-	-	-
SC 29	Soledad Office Center 17901 Soledad Canyon Road	Proposed	Medical-Dental Office	100,000 sf	-	-	-	-	-	-	-	-
SC 30	College of the Canyons Expansion South of Valencia Boulevard and West of Rockwell Canyon Road	Built	Junior/Community College	180,000 sf	-	-	-	-	-	-	-	-
SC 31	Master's College Master Plan and TM 66503 21726 Placerita Canyon Road	Approved	University/College	42	-	-	-	-	-	-	-	-
SC 32	UCLA Film Archives North of McBean Parkway and west of Rockwell Canyon Road	Under Construction	Warehouse	368,730 sf	-	-	-	-	-	-	-	-
SC 33	Wiley Canyon Road/Via Princessa Bridge (South fork) Crosses South Fork of Santa Clara River in the city of Santa Clarita	Built	Bridge	N/A	-	-	-	-	-	-	-	-
SC 34	Saugus Water Reclamation Plant Near Bouquet Canyon Road, discharges to Santa Clara River	Built	Utilities	N/A	-	-	-	-	-	-	-	-
						142,045	**7,779**	**4,911**	**12,690**	**6,059**	**8,510**	**14,569**

[1] Source: Los Angeles County Department of Regional Planning.
Trip Generation for the related projects are based on ITE "Trip Generation", 8th Edition, 2008 (as referenced in the Project Data Source column), unless otherwise noted.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 210 (Single Family Detached Housing) trip generation average rates.
[4] Source: Los Angeles County Sheriff's Department
[5] ITE Land Use Code 710 (General Office) trip generation average rates.
[6] ITE Land Use Code 820 (Shopping Center) trip generation average rates.
[7] Source: River Village Traffic Impact Analysis, Prepared By Austin-Foust Associates, September 2004
[8] ITE Land Use Code 220 (Apartment) trip generation average rates.
[9] ITE Land Use Code 530 (High School) trip generation average rates.
[10] Source: Mission Village Draft Environmental Impact Report, May 2011
[11] ITE Land Use Code 130 (Industrial Park) trip generation average rates.
[12] ITE Land Use Code 770 (Business Park) trip generation average rates.
[13] Source: City of Santa Clarita
Related Projects in the City of Santa Clarita are not expected to send trips through study intersections, therefore, no Trip Generation for these projects is provided.

Table 9-1
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

30-Sep-15

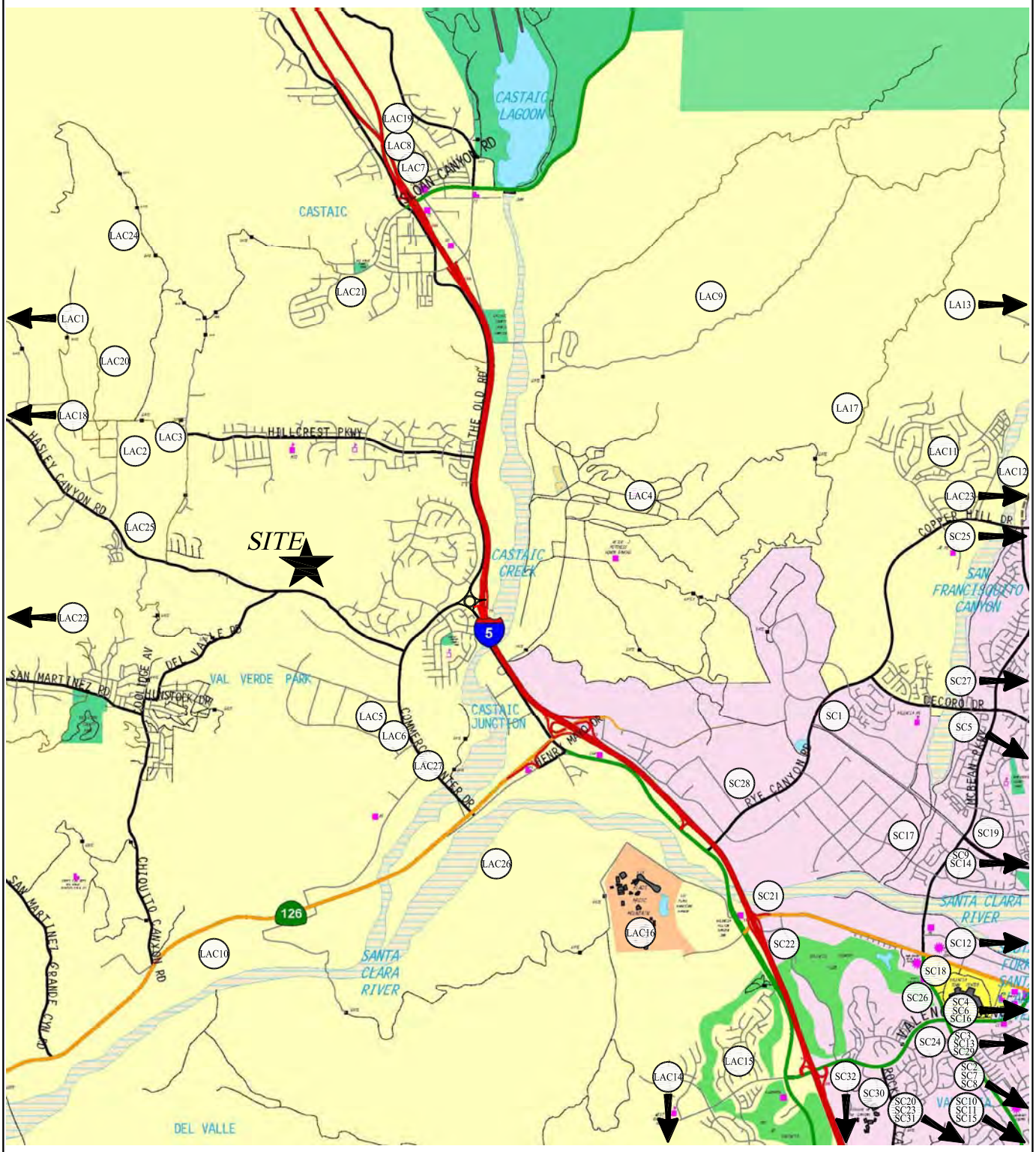
NO.	INTERSECTION	PEAK HOUR	[1] EXISTING V/C or Delay	[1] EXISTING LOS	[2] EXISTING W/ PROPOSED PROJECT V/C or Delay	[2] EXISTING W/ PROPOSED PROJECT LOS	[2] CHANGE V/C [(2)-(1)]	[2] SIGNIF. IMPACT	[3] YEAR 2023 W/ RELATED PROJECTS V/C or Delay	[3] YEAR 2023 W/ RELATED PROJECTS LOS	[3] CHANGE V/C [(3)-(1)]	[3] SIGNIF. IMPACT	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE V/C or Delay	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE LOS	[4] CHANGE V/C [(4)-(1)]	[4] MITI-GATED
1	Del Valle Road/	AM	0.383	A	0.398	A	0.015	NO	0.503	A	0.120	NO	---	---	---	---
	Hasley Canyon Road	PM	0.369	A	0.391	A	0.022	NO	0.494	A	0.125	NO	---	---	---	---
2	Commerce Center Drive/	AM	0.379	A	0.449	A	0.070	NO	0.502	A	0.123	NO	---	---	---	---
	Hasley Canyon Road	PM	0.340	A	0.426	A	0.086	NO	0.524	A	0.184	NO	---	---	---	---
3	Commerce Center Drive/	AM	0.374	A	0.388	A	0.014	NO	0.668	B	0.294	NO	---	---	---	---
	Franklin Parkway	PM	0.552	A	0.562	A	0.010	NO	0.836	D	0.284	NO	---	---	---	---
4	Commerce Center Drive/	AM	0.482	A	0.502	A	0.020	NO	1.285	F	0.803	NO	[B]	---	---	---
	Henry Mayo Drive (SR-126)	PM	0.744	C	0.754	C	0.010	NO	1.848	F	1.104	YES	[B]	---	---	YES
4A	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.635	B	---	---
	SR-126 Westbound Ramps	PM	---	---	---	---	---	---	---	---	---	---	0.502	A	---	---
4B	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.418	A	---	---
	Henry Mayo Drive	PM	---	---	---	---	---	---	---	---	---	---	0.389	A	---	---
5	The Old Road/	AM	0.745	C	0.755	C	0.010	NO	0.782	C	0.037	NO	---	---	---	---
	Hillcrest Parkway	PM	0.538	A	0.553	A	0.015	NO	0.575	A	0.037	NO	---	---	---	---
6	The Old Road/	AM	0.733	C	0.749	C	0.016	NO	0.766	C	0.033	NO	---	---	---	---
	I-5 Freeway SB Ramps - Sedona Way	PM	0.539	A	0.558	A	0.019	NO	0.580	A	0.041	NO	---	---	---	---
7	The Old Road - I-5 Freeway SB On-Ramp/	AM	9.88	A	11.71	B	1.83	NO	16.04	C	6.16	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	11.32	A	13.44	B	2.12	NO	15.35	C	4.03	NO	---	---	---	---
8	I-5 Freeway NB Ramps/	AM	7.92	A	8.27	A	0.35	NO	9.87	A	1.95	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	9.92	A	11.47	B	1.55	NO	13.17	B	3.25	NO	---	---	---	---

[A] According to Los Angeles County Department of Public Works "Traffic Impact Analysis Report Guidelines, " January 1997, a transportation impact on an intersection shall be deemed significant in accordance with the following table:

Pre-Project V/C	LOS	Project Related Increase in V/C
> 0.71 - 0.80	C	equal to or greater than 0.04
> 0.81 - 0.90	D	equal to or greater than 0.02
> 0.91	E,F	equal to or greater than 0.01

[B] Cumulative mitigation will result in the intersection of Commerce Center Drive and Henry Mayo Drive (SR-126) to be a grade-separated intersection under future conditions. See Intersection Nos. 4A and 4B.

[C] Roundabout Intersection. Delay shown in seconds per vehicle.



NOT TO SCALE

MAP SOURCE: RAND MCNALLY & COMPANY

PROJECT SITE

XX RELATED PROJECT

FIGURE 6-1
LOCATION OF RELATED PROJECTS

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

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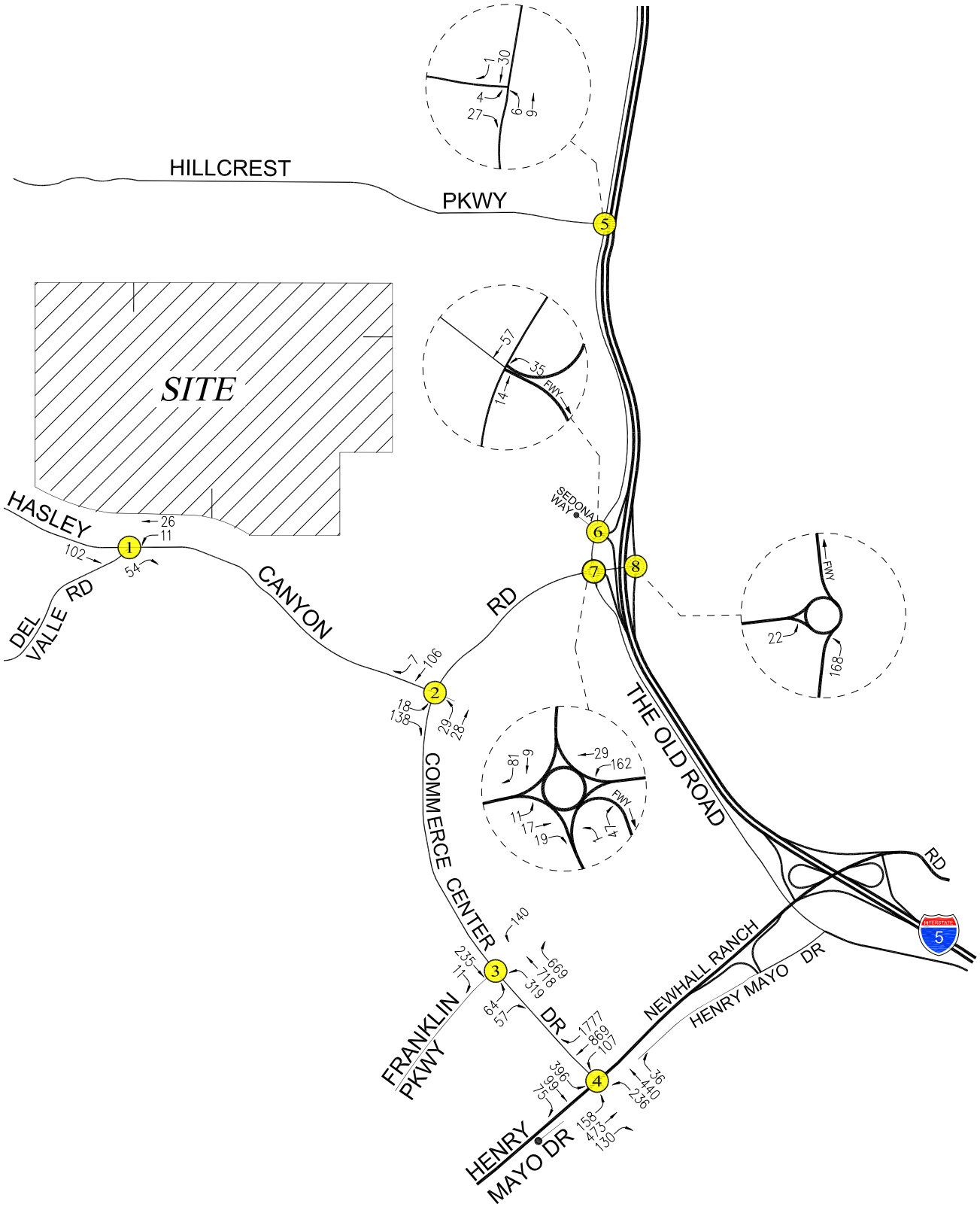

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NOT TO SCALE

INTERSECTION NUMBER

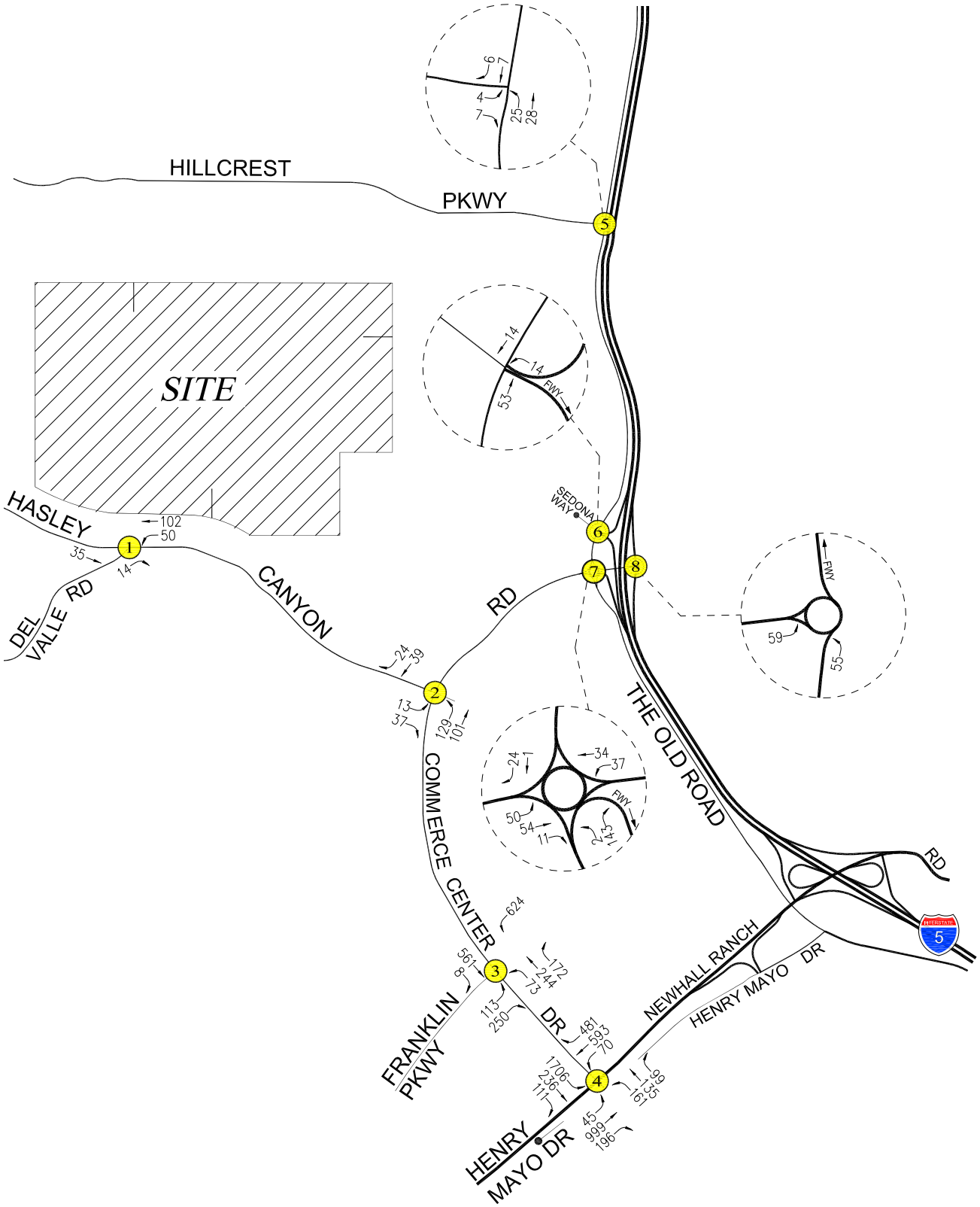
FIGURE 6-2

RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT



NOT TO SCALE

INTERSECTION NUMBER

FIGURE 6-3

RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

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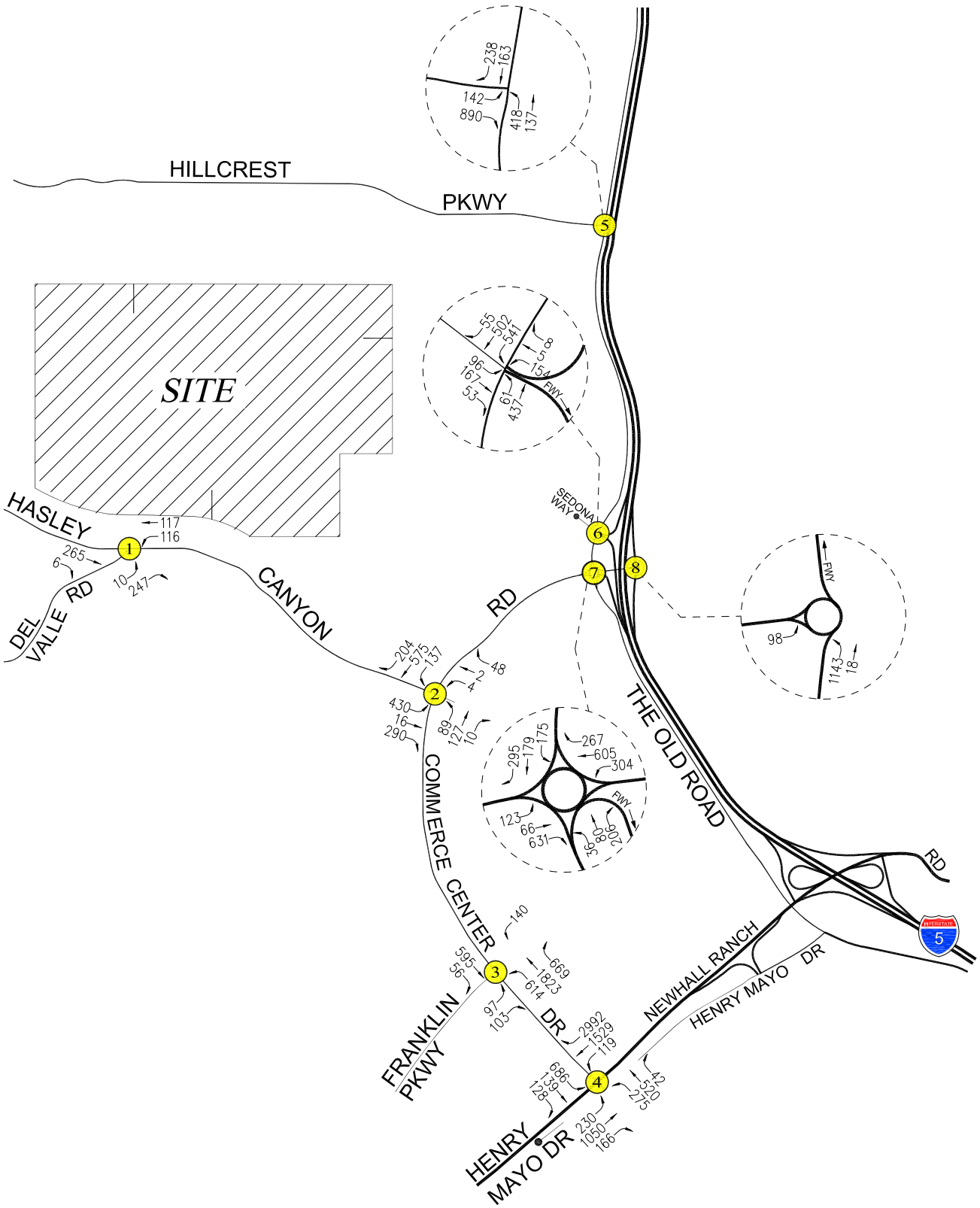

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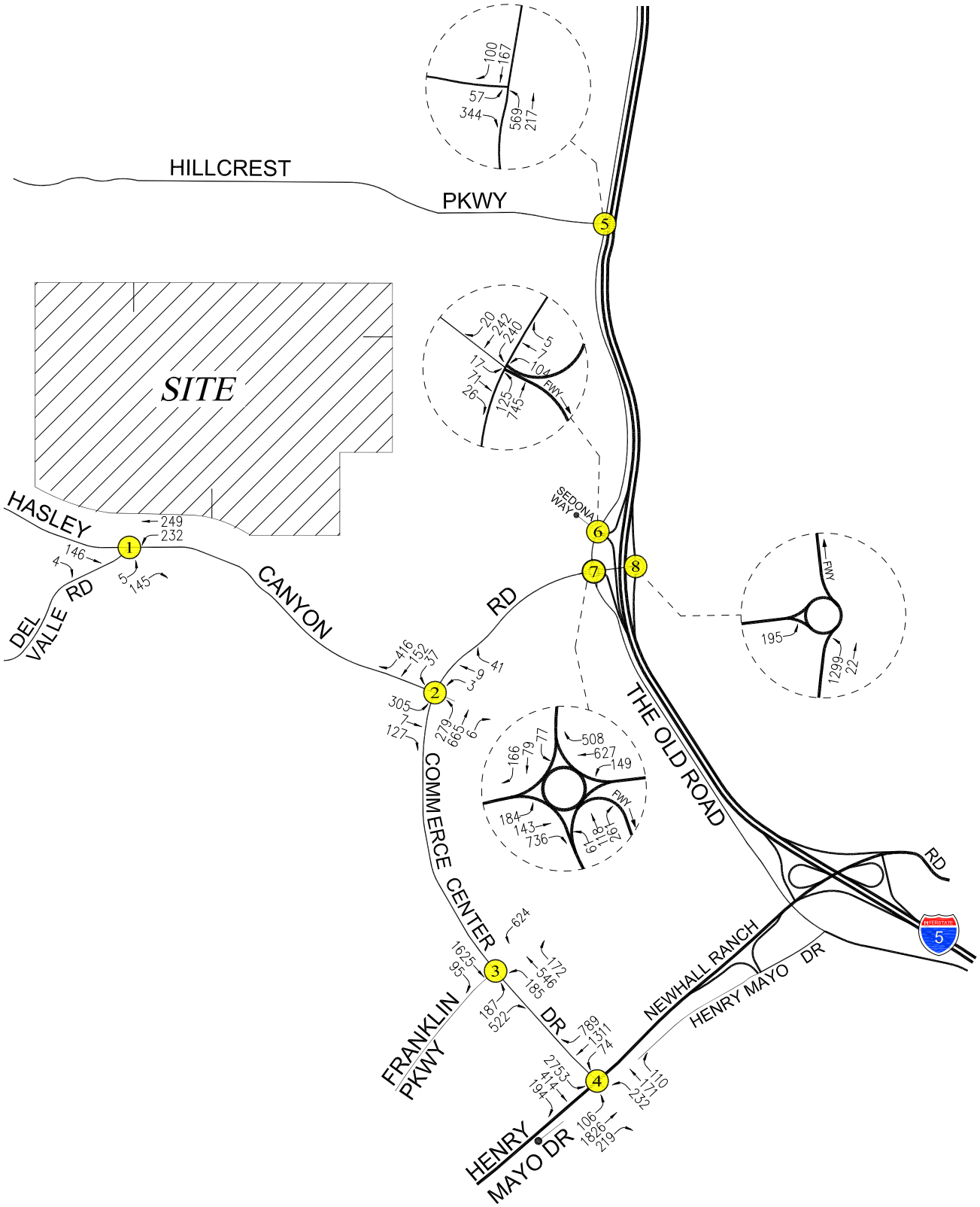
INTERSECTION NUMBER

FIGURE 9-3
FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR
LOS VALLES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers



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INTERSECTION NUMBER

FIGURE 9-4
FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
LOS VALLES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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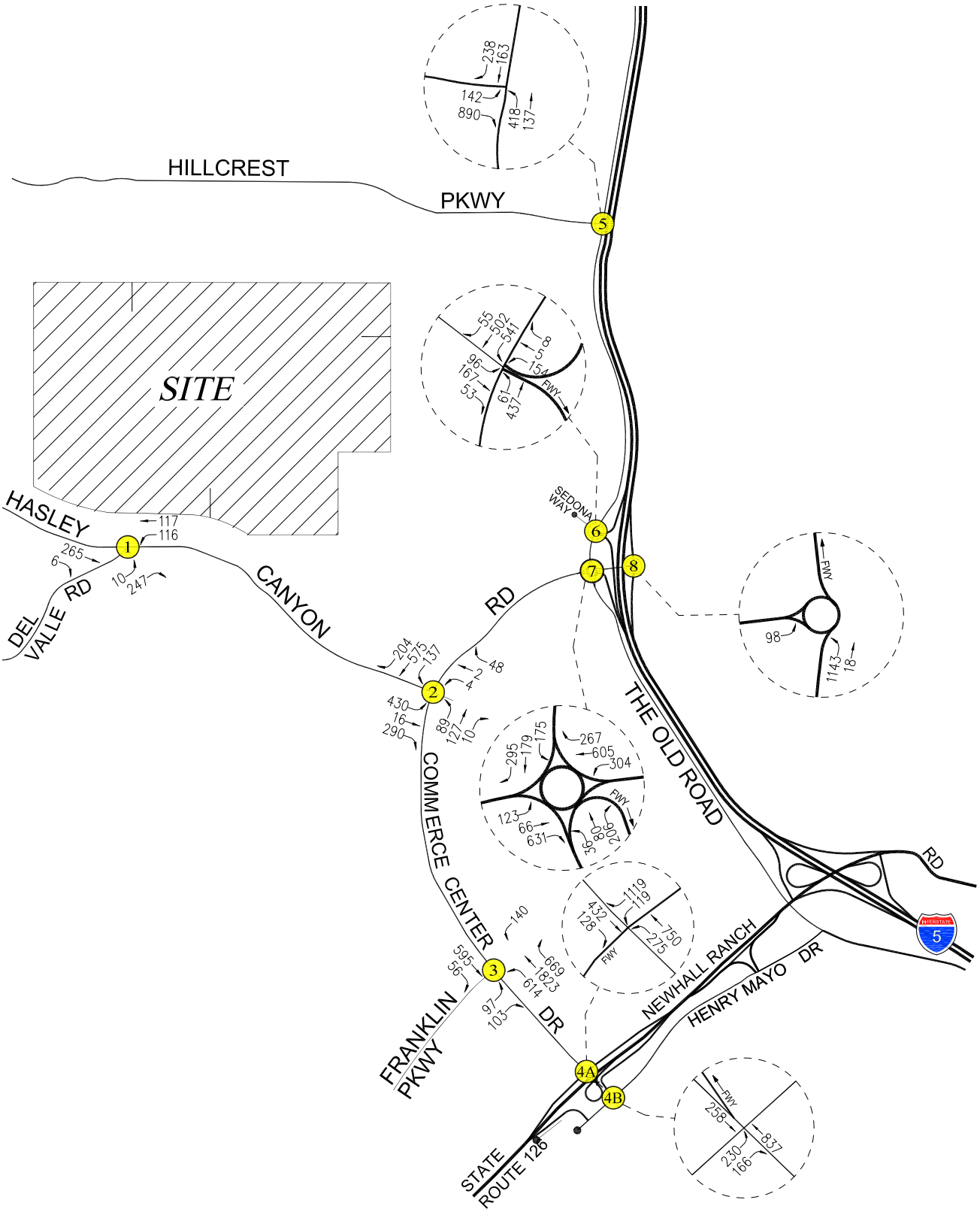

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INTERSECTION NUMBER

FIGURE 10-2
FUTURE WITH GRADE SEPARATED INTERCHANGE TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR
LOS VALLES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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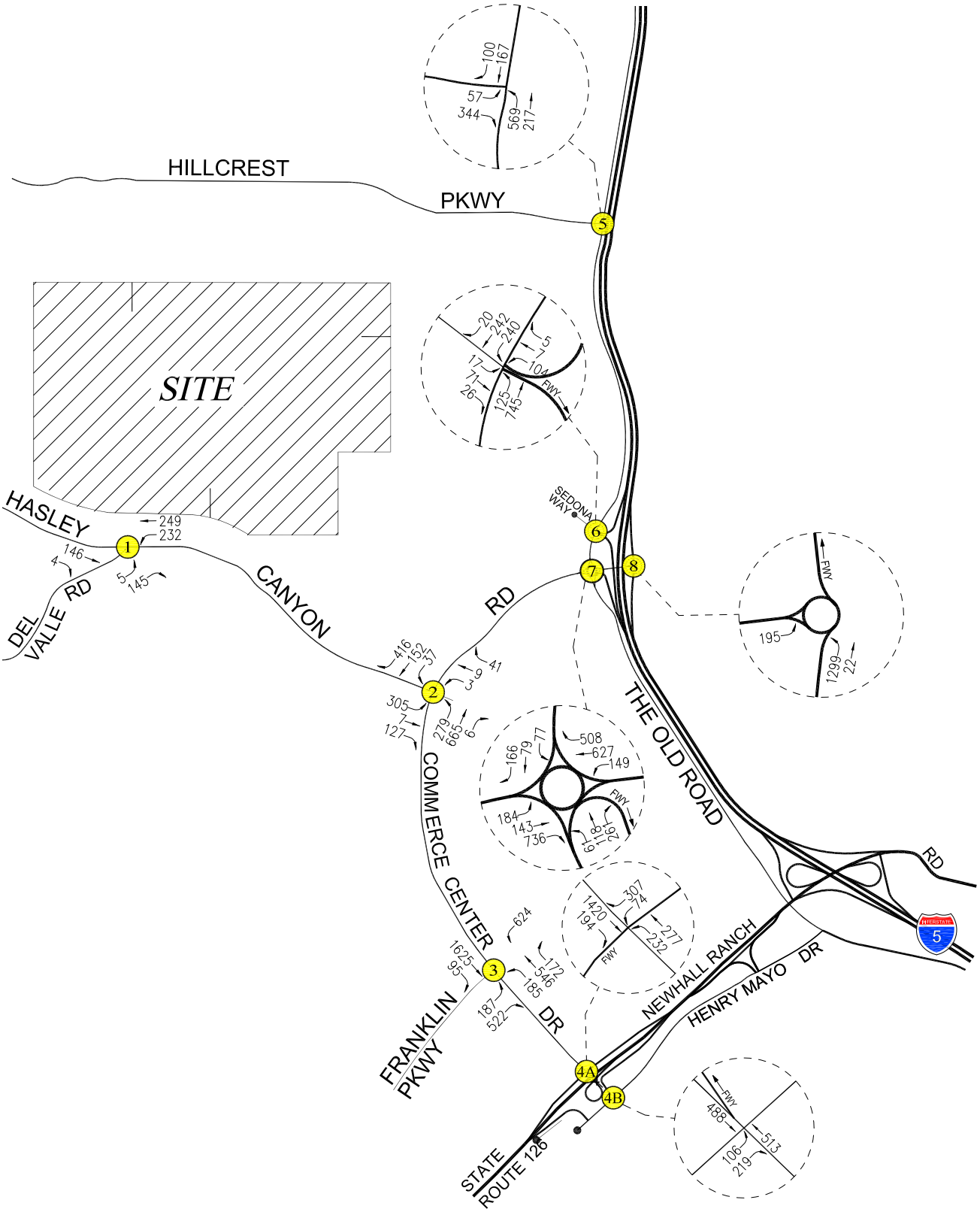

NOT TO SCALE

INTERSECTION NUMBER

FIGURE 10-3
FUTURE WITH GRADE SEPARATED INTERCHANGE TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
LOS VALLES PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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APPENDIX 5.15.1-1

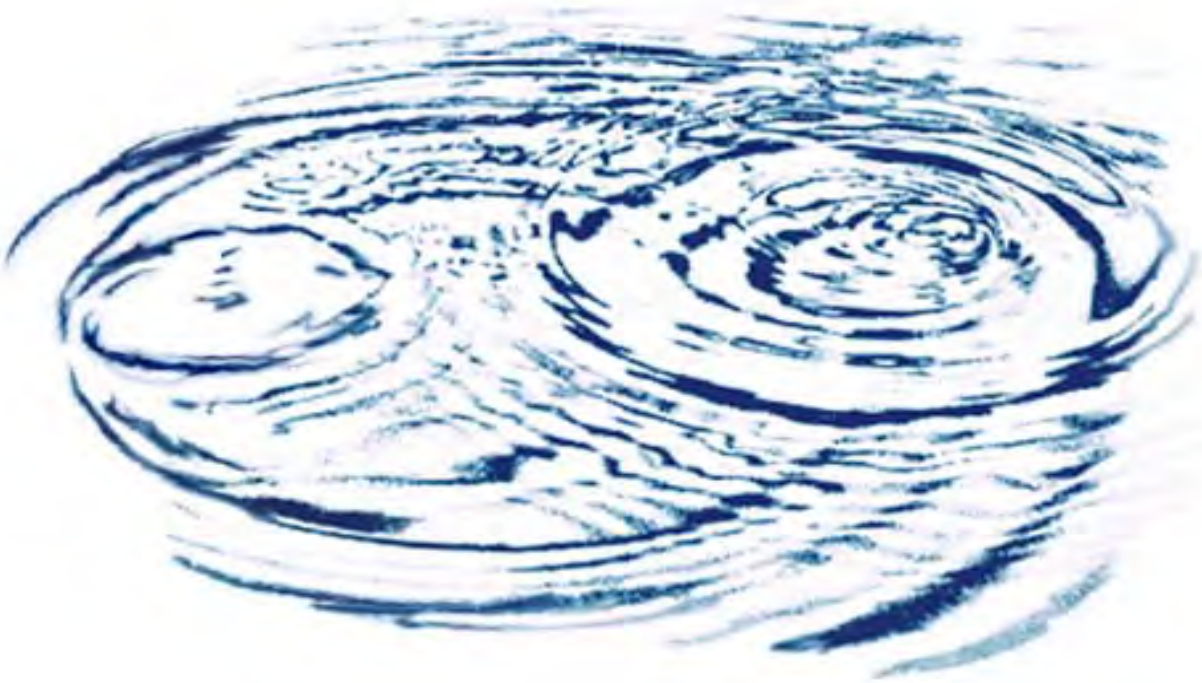
Water Supply Assessment

LOS ANGELES COUNTY WATERWORKS DISTRICT NO. 36

LOS VALLES PROJECT

WATER SUPPLY ASSESSMENT

MAY 2015



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Covina, CA San Rafael, CA Mesa, AZ

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Figure 2. Santa Clara River Valley East Groundwater Subbasin

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Appendix A. Irrigation Usage Estimates (Sitescapes)

Summary

The project is a 497 unit single-family residential community proposed to be developed on 430.4 acres of land owned by SFI Los Valles LLC (Applicant), in the community of Castaic, an unincorporated portion of Los Angeles County (Property). The Property is located north of Hasley Canyon Road near its intersection with Del Valle Road.[1] LACWWD36 is a retail water purveyor and is within the service area of Castaic Lake Water Agency (CLWA), which is a wholesaler providing water to four retailers in the Santa Clarita Valley.

The Property is located entirely within the boundaries of the Castaic Lake Water Agency and almost entirely within the boundaries of LACWWD36. As shown on Figure 1, a small portion of the Property is not within the boundary of any retail supplier and another small portion of the Property is within the service area boundaries of the Valencia Water Company. The Applicant has requested de-annexation from the Valencia Water Company boundaries and is preparing an application to the Los Angeles County Local Agency Formation Commission for an extension of the Sphere of Influence for LACWWD36 to include portions of the Property currently outside of the LACWWD36 boundaries and subsequent annexation of these areas into LACWWD36. For purposes of analysis, this Water Supply Assessment assumes that the entirety of the Property will be in the service area of LACWWD36 prior to occupancy of any homes at the Proposed Project.

The Applicant is proposing construction on the Property of a single-family residential development of 497 dwelling units on lot sizes averaging 12,500 square feet over

[1] The Property was subject to prior entitlement by the County of Los Angeles as a golf course and residential development of 209 homes. At the time of that entitlement (in 2002), the County determined that 769 acre feet of water would be required on an annual basis to meet potable and landscaping requirements of the prior project. In connection with those prior entitlements, the Applicant completed a water well and related structures and has dedicated that well and the surrounding land to LACWWD36.

approximately 111 acres[2], together with community amenities for residents and the public including a community recreation center controlled by a homeowner's association and a public park, and containing approximately 144 acres of irrigated areas (excluding private house lot pads) as further described in Appendix A (the Proposed Project). As further described below, overall water demand for the Proposed Project is estimated at 593 acre-feet per year (AFY) in normal years and 666 AFY in single and multiple dry years. However, the demand for water will begin with a demand for construction water only (approximately 40 AFY) and will increase gradually as the Proposed Project is constructed over the 5 to 7 years of anticipated buildout. Although buildout may occur at a later date due to market conditions or other issues, this Assessment conservatively assumes the Proposed Project will commence in 2015 and that the full demand of the Proposed Project for water will occur in 2020 in order to assure that water demand at each stage of the Proposed Project can be met.

The Property is currently entitled for 209 units of housing and a golf course, pursuant to 2002 approval by the County of Los Angeles of a vesting tentative tract map and various related entitlements (Previous Project). The Final Environmental Impact Report (EIR) for the Previous Project (certified in 2002) indicated total water demands for the Previous Project would be 769 AFY, and would be supplied through imported water sources provided by CLWA and from groundwater from the Saugus Formation, which are similar to the water supply sources for the Proposed Project.

The Proposed Project incorporates numerous features to reduce water usage, including a substantial amount of non-irrigated land area with a mix of low-intensity uses and a very efficient irrigation system with water demand requirements less than what a more typically landscaped residential community would require. As a result, despite the

[2] Based on an average lot size of 12,500 sq. ft., the total area for dwelling units is approximately 142 acres and includes an area of approximately 111 acres of house lot pads and an area of approximately 31 acres of privately owned irrigated slopes. Portions of the irrigated privately owned slopes are also included in the irrigation demand estimates associated with other sloped areas of the Project (discussed in Section 2.2). As a result, the projected water demand estimates for the Project conservatively include the privately owned slope water demands under both use descriptions.

increase in total housing units from 209 units to 497 units, the Proposed Project results in an estimated reduction in water demands in normal years of 176 AFY of water and 103 AFY[3] in dry years as compared with the Previous Project approved by the County in 2002. In addition, while the golf course and other landscaping in the Previous Project required 3.3 AFY of water per acre, the proposed irrigated areas for the Proposed Project require only 1.4 AFY of water per acre.[4]

The Proposed Project's water demands are anticipated to be wholly met through water provided by LACWWD36. This Assessment has been prepared to meet the requirements of California Water Code Division 6, Part 2.10, Sections 10910-10915 (Water Supply Planning to Support Existing and Planned Future Use) and Government Code 66473.7. The analysis relies upon the CLWA's 2010 Urban Water Management Plan (CLWA's 2010 UWMP) which is a planning document analyzing water supply and demand for the CLWA service area, including the LACWWD36 service area for a forty year period.[5]

As further described in the CLWA's 2010 UWMP, LACWWD36 currently meets its water demands by pumping groundwater from the Saugus Formation and through the purchase of imported water supplies from CLWA. Groundwater production pursuant to the groundwater operating plan and the Groundwater Management Plan (for the Santa Clara River Valley Groundwater Basin, East Subbasin) prepared by CLWA and adopted in 2003, allows LACWWD36 to meet its groundwater pumping requirements from the Saugus Formation. LACWWD36 can purchase treated imported water through its existing connection with CLWA. CLWA's water supply sources include California State Water Project water, Flexible Storage Accounts (with State Water Project contractors in

[3] Conservatively based on 769 AFY from the Previous Project (during normal years) less 666 AFY from the proposed Project (during dry years). A dry year analysis was not required at the time the Previous Project was approved.

[4] See Hasley Canyon Project Addendum to Final Environmental Impact Report (SCH#98071037), August 2002 (Addendum) at p. 5.

[5] LACWWD 36 is not required to prepare an UWMP because the District does not provide water to more than 3,000 customers or supply more than 3,000 acre feet (AF) of water annually; however , LACWWD 36 participated in the development of the Plan on an "ad-hoc" basis. CLWA's 2010 UWMP, p. 1-3.

Ventura County), water transfer agreements (with Buena Vista Water Storage District and Rosedale Rio-Bravo Water Storage District), groundwater banking programs (with Semitropic Water Storage District and Rosedale Rio-Bravo Water Storage District), and recycled water. These water supply sources available to CLWA provide reliability and flexibility and allow water purveyors within CLWA's service area, including LACWWD36, to meet all water demands. Additional water supplies available to other water purveyors within CLWA's service area, including groundwater from the Alluvial aquifer and recycled water, reduce overall demands for imported water supplies, which increases the imported water supplies available to LACWWD36 through CLWA.

In satisfaction of a condition of approval by the County of Los Angeles of the approved Previous Project, the Applicant provided LACWWD36 with a new groundwater production well in January 2012 that produces from the Saugus Formation. As a result of obtaining the well, groundwater from the Saugus Formation is now a source of water supply for LACWWD36 and LACWWD36 will supply groundwater to its customers, including the Proposed Project, as needed to meet water demand within its system, making use of an additional on-site well by the Proposed Project unnecessary.

Based on the demonstrated reliability of its water supply sources, and taking into account existing and planned future water uses (including relevant agricultural and manufacturing uses), LACWWD36 has sufficient, reliable, and sustainable water supplies to meet existing water demands and future growth, including the Proposed Project, during normal, single dry and multiple dry years, for a 20 year period.

1.0 Introduction

The Proposed Project would be constructed on approximately 430.4 acres of land (Property) in the community of Castaic, an unincorporated portion of Los Angeles County in the Santa Clarita Valley, north of Hasley Canyon Road near its intersection with Del Valle Road (See Figure 1). The Property is owned by SFI Los Valles, LLC (Applicant).

As shown in Figure 1, a majority of the Property is located within the Los Angeles County Waterworks District No. 36 (LACWWD36) service area. A small portion of the Property is not within the boundary of any retail supplier and another small portion of the Property is within the service area boundaries of the Valencia Water Company (VWC). The portion of the Project not within the boundary of any retail supplier Is proposed to be annexed into LACWWD36's service area. The portion of the Property within VWC is proposed to be de-annexed from VWC's service area and annexed into LACWWD36's service area. The Property is located entirely within Castaic Lake Water Agency's (CLWA) service area. CLWA is a regional agency providing wholesale deliveries of imported California State Water Project (SWP) water, wholesale recycled water supplies, and wastewater treatment, including to LACWWD36. Figure 2 shows the majority of CLWA's service area, LACWWD36's service area, and the Property.

The Proposed Project consists of a single-family residential development of 497 dwelling units on lot sizes averaging 12,500 square feet over approximately 111 acres, together with community amenities for residents and the public including a community recreation center controlled by a homeowner's association and a public park, and containing approximately 144 acres of irrigated areas (excluding private house lot pads) as further described in Appendix A. The Proposed Project incorporates numerous features to reduce water usage, including a substantial amount of non-irrigated land area with a mix of low-intensity uses and a very efficient irrigation system with water demand requirements less than what a more typically landscaped residential community would require. The Proposed Project includes a substantial amount of non-irrigated land

area (approximately 175 acres) which will be maintained in its existing, native condition and not require any water, including during the establishment period. In addition to the native area, the Proposed Project includes approximately 56 acres of transitional manufactured slope and approximately 8 acres of meadow space, which will be irrigated to establish the low water use plant materials but will thereafter require water only on an as-needed basis during the summer months. The proposed citrus grove and agricultural vineyard will represent both a distinctive aesthetic element and a very low-intensity use of water. These areas have been designed to minimize irrigation needs and will require relatively little water (approximate 0.27 AFY; See Section 2.2). The vineyard will feature a very efficient point-source irrigation system with root bubblers on each vine. Similarly, the orange grove will feature root bubblers at each tree and no additional plant material below. The parkway areas will be irrigated with an efficient drip system and planted with low water use groundcover and street trees in an effort to further reduce demand.

The Property is currently entitled for 209 units of housing and a golf course, pursuant to 2002 approval by the County of Los Angeles of a vesting tentative tract map and various related entitlements (Previous Project). The approved Previous Project had a total estimated water demand of 769 AFY, proposed to be supplied through imported water sources provided by CLWA and from groundwater from the Saugus Formation, which are similar to the water supply sources for the Proposed Project.[6] The Proposed Project consists of a residential development of 497 dwelling units on lot sizes averaging 12,500 square feet. Amenities for residents and the public include a community recreation center and seven privately maintained active/passive recreational lots (both controlled by a homeowner's association), a neighborhood park that could be dedicated to the County (with surrounding meadow space), 5 miles of pedestrian trails, a multi-use trail and vineyards, and accompanying infrastructure and public and private roadways. The Proposed Project utilizes the existing infrastructure and grading work of

[6] According to the August 2002 Addendum to the Final Impact Report (Addendum) for the Previous Project, at the time of the Previous Project approval, it was anticipated that 189 AFY of potable water would be provided by LACWWD36, with the remainder (580 AF), to be used for landscaping, pumped from the Saugus Formation from a privately owned well on the Property. (See Addendum). No distinction is made in the Addendum between normal and dry year demands.

the Previous Project to the maximum extent feasible. The Proposed Project is designed at a density of approximately 1.2 dwelling units per gross acre.

As discussed in Section 2.2, the total projected water demand for the Proposed Project, including residential, community recreation center and landscaping use, during normal year scenarios is 593 AFY, or 176 AFY less than the water demand approved for the Previous Project in 2002. During single and multiple dry year scenarios, the total water demand for the Proposed Project is estimated to increase to 666 AFY (or 103 AFY less than approved for the Previous Project), based on the proportionate increases in local water use from normal year water demands to single and multiple dry year water demands within CLWA's service area as presented in CLWA's 2010 UWMP. In addition, while the golf course and other landscaping in the Previous Project required 3.3 AFY of water per acre, the proposed irrigated areas for the Proposed Project require only 1.4 AFY of water per acre.

The water demands for the Proposed Project were estimated using a residential water use demand factor provided by LACWWD36 of approximately 0.83 AFY per metered connection, which is representative of water demand factors for similar existing residential units. The residential water use demand factor appears to be conservative when compared to the current average residential water use demand factor within LACWWD36's service area of approximately 0.76 AFY per metered connection, as identified in CLWA's 2010 UWMP. The Proposed Project's water demands are anticipated to be wholly met through water provided by LACWWD36.

The purpose of this Assessment is to evaluate and confirm LACWWD36's ability to provide all public utility water service to the Proposed Project. The reliability of existing and future water supplies available to LACWWD36 is based on regional and local groundwater and surface water management goals and implementation strategies, including supplemental imported water distribution programs, groundwater banking programs, and the use of recycled water. As discussed further in Section 1.2, this Assessment was prepared in accordance with the California Water Code Division 6,

Part 2.10, Sections 10910-10915 (Water Supply Planning to Support Existing and Planned Future Use) and Government Code 66473 (Water Supply Verification) and evaluates LACWWD36's available water supply sources and total projected water demands, including the water demands of the Proposed Project, in addition to existing and planned future uses (including relevant agricultural and manufacturing uses) through the year 2040.

1.1 LACWWD36 Service Area

LACWWD36 is a special district formed in 1963 pursuant to Division 16, County Waterworks District of the California Water Code. LACWWD36 provides water service to approximately 12 square miles within the Santa Clarita Valley, including the Hasley Canyon area and the unincorporated community of Val Verde (See Figure 1).

LACWWD36 is operated by the Los Angeles County Department of Public Works (LACDPW) and is governed by the Los Angeles County Board of Supervisors. As of 2013, LACWWD36 served approximately 4,700 people through approximately 1,350 metered connections[7]. LACWWD36 primarily obtains water supplies through purchase of imported water from CLWA and from a new 2,800 gallon per minute (gpm) well provided by the Applicant in January 2012 that produces groundwater from the Saugus Formation. A further discussion of LACWWD36's existing and projected sources of water supplies is provided in Section 3.0.

1.2 Water Supply Planning Provisions

Population growth in the State of California has resulted in additional water demand on water systems. The State legislature has enacted laws to ensure that the increased water demands are adequately addressed and that a firm source of water supply is available prior to approval of certain new developments. The regulations include

[7] Number of connections based on Los Angeles County Waterworks District website as of March 31, 2013

California Water Code Division 6, Part 2.10, Sections 10910-10915 (Water Supply Planning to Support Existing and Planned Future Use) and Government Code 66473.7, which are briefly described below. The provisions of the California Water Code and the Government Code seek to promote more collaborative planning between local water suppliers and cities and counties and require detailed information regarding water availability to be provided to city and county land use planners prior to approval of certain specified land use development projects.

This Water Supply Assessment was prepared pursuant to the requirements of the California Water Code and the Government Code and confirms that LACWWD36 has sufficient water supplies to meet the projected demands of the Proposed Project, in addition to existing and planned future uses. The Urban Water Management Plan (UWMP) is a foundational document for compliance with the California Water Code and the Government Code. The provisions of the California Water Code and the Government Code repeatedly identify the UWMP as a planning document that can be used by a water supplier to meet the standards set forth in both statutes. California Environmental Quality Act (CEQA) guidelines (Title 14, California Code of Regulations, Chapter 3, Article 7, Section 15083.5) contain similar provisions regarding consultation with water agencies for certain projects.

CLWA's 2010 UWMP (June 2011), prepared pursuant to California Water Code Division 6, Part 2.55, Section 10608 (Sustainable Water Use and Demand Reduction) and California Water Code Division 6, Part 2.6, Sections 10608-10656 (Urban Water Management Planning), describes future water demands and future availability of the water supply sources used by retail water agencies operating within CLWA's service area, including LACWWD36, Newhall County Water District (NCWD), Santa Clarita Water Division of CLWA (SCWD), and Valencia Water Company (VWC). Although LACWWD36 was not required by the California Water Code and Government Code to prepare an UWMP (and therefore participated as a cooperating agency in the CLWA 2010 UWMP), LACWWD36's current and projected future water demands and supplies

were identified in CLWA's 2010 UWMP based on LACWWD36's input. CLWA's 2010 UWMP was used together with additional information subsequently identified by LACWWD36 to prepare this Water Supply Assessment.

1.2.1 California Water Code (Sections 10910-10915)

Existing law requires every urban water supplier to identify, as part of its UWMP, the existing and planned sources of water available to the supplier. California Water Code Division 6, Part 2.10, Sections 10910-10915 requires an urban water supplier to include in its UWMP a description of all water supply projects and programs that may be undertaken to meet total projected water use over the next 20 years. If the water demands for the proposed developments have been accounted for in a recently adopted urban water management plan, the water supplier may incorporate information contained in that plan to satisfy certain requirements of a water supply assessment. The California Water Code requires the assessment to include, along with other information, an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the Proposed Project and the quantities of water received in prior years pursuant to those entitlements, rights, and contracts. The California Water Code also requires the public water system, or the city or county, as applicable, to submit its plans for acquiring additional water supplies if that entity concludes that water supplies are, or will be, insufficient.

1.2.2 Government Code 66473.7

Government Code 66473.7 requires written verification that a sufficient water supply is available as a condition to approval of certain tract maps. Sufficient water supply is the total water supply available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand of the Proposed Project, in addition to existing and planned future uses.

1.2.3 Consistency with City and County Planning Efforts

The CLWA's 2010 UWMP analyzed the consistency of the growth projections made by the water suppliers with the growth discussed in the One Valley One Vision Area Plan (OVOV), a joint planning effort by the City of Santa Clarita and Los Angeles County representing the build-out of the entire Santa Clarita Valley. OVOV was adopted by the County of Los Angeles as a community plan component of the County General Plan following approval of the CLWA's 2010 UWMP. OVOV is the governing community plan for the Property and the Proposed Project is consistent with the urban land use designation for the Property in OVOV.

The CLWA's 2010 UWMP noted that the overwhelming majority of the OVOV population is located in the CLWA service area, making it appropriate to compare the CLWA service area population projections to the OVOV projections.

> *"The OVOV projections and SCAG projections indicate a 1.6 to 1.8 percent annual growth rate of population for the Santa Clarita Valley. The purveyor projections of population growth are just slightly below that with a 1.5 percent annual growth rate. These population growth rates align with the annual rate of increase in the purveyors' projected water demands of 1.8 percent. Based on a detailed analysis of the OVOV Planning Area conducted by traffic analysis zones, County and City staff have determined that population of the Santa Clarita Valley at full build-out of the uses shown on the land use map of the Area Plan will be approximately 460,000 to 482,000 residents. County staff has also provided updated and adjusted 2010 and 2035 population projections using SCAG data for the unincorporated areas of CLWA's service area (using year 2000 Census base data). Based on these projections for the unincorporated area and SCAG's projections for the City, projections for the Santa Clarita Valley at full build-out are about 535,700 persons. The total population projected in this UWMP for the CLWA service area in 2050 is approximately 512,000 residents. The difference between this and OVOV projections may be due to some purveyors' master planning efforts taking a more conservative approach to ensure an adequate supply of water for all future uses."*

CLWA's 2010 UWMP, p. 2-14.

CLWA's 2010 UWMP projects overall population growth within its service area will grow approximately 1.5 to 1.6 percent annually over the next 25 to 50 years, similar to the population growth projections from OVOV and SCAG.[8]

As the Proposed Project is consistent with the land use designation for the Property in the OVOV (and is at lower density than permitted by OVOV and existing zoning), the reliability of water supplies for the Proposed Project discussed in this Assessment is consistent with the reliability of water supplies discussed in the One Valley One Vision Revised Draft Program Environmental Impact Report (OVOV EIR) for the Santa Clarita Valley. In adopting the OVOV EIR, the County concluded that there is adequate water to serve existing and future growth within the OVOV planning area, finding that adequate and reliable water supplies are available during normal, single-dry, and multiple-dry years to meet existing and projected water demands.

[8] Although CLWA's 2010 UWMP projects population growth within LACWWD36 will increase at a greater rate than the average population growth rate within CLWA's entire service area, the overall available water supplies projected by CLWA are based on the population growth rate in CLWA's entire service area.

2.0 Historical and Projected Water Demands (LACWWD36)

The following sections provide the historical and projected future water demands within LACWWD36's service area, including the Proposed Project. For the purposes of this Assessment, it is anticipated that the demand for water will begin with a demand for construction water only (approximately 40 AFY) and will increase gradually as the Proposed Project is constructed over the 5 to 7 years of anticipated buildout. It is anticipated that construction of the Proposed Project will begin in approximately 2015 and be completed within five years (i.e., by 2020). Although buildout may occur at a later date due to market conditions or other issues, this Assessment conservatively assumes the Proposed Project will commence in 2015 and that the full demand of the Proposed Project for water will occur in 2020 in order to assure that water demand at each stage of the Proposed Project can be met. This Assessment projects LACWWD36's water demands (including water demands from the Proposed Project) through the year 2040 (a period of at least 20 years).

2.1 Historical Water Demand

Table 1 provides LACWWD36's historical water demands within its service area. LACWWD36's total water demands have ranged from 453 AFY to approximately 1,406 AFY, with an average demand of approximately 960 AFY.

Table 1. LACWWD36's Historical Water Demands (AFY)

Year	Water Demands (AFY)		
	Imported Water [1]	Groundwater [2]	Total Demands
1993	465	0	465
1994	453	0	453
1995	477	0	477
1996	533	0	533
1997	785	0	785
1998	578	0	578
1999	654	0	654
2000	800	0	800
2001	907	0	907
2002	1,069	0	1,069
2003	1,175	0	1,175
2004	854	380	1,234
2005	857	343	1,200
2006	1,289	0	1,289
2007	1,406	0	1,406
2008	1,354	0	1,354
2009	1,243	0	1,243
2010	1,141	0	1,141
2011	1,172	0	1,172
2012	471	794	1,265
Average			960

Sources:

"2012 Santa Clarita Valley Water Report", June 2013, Luhdorff & Scalmanini Consulting Engineers

Notes:

[1] Imported water obtained from CLWA

[2] Groundwater (Alluvium) purchased from LA County Honor Farm in 2004 and 2005. As a condition of the approved Previous Project, LACWWD36 was provided a new 2,800 gpm Saugus Formation groundwater production well in January 2012.

2.2 Projected Future Water Demand

As shown in Table 2, the normal year water demand for the Proposed Project is 593 AFY. The water supplies for the Proposed Project, which include imported water provided by CLWA and groundwater from the Saugus Formation, are identical to the water supply sources as planned for the approved Previous Project. However, the quantities of the water demands met from the two water supply sources have been adjusted from the approved Previous Project to the Proposed Project.

Table 2. Total Project Water Demands (AFY)

Use Description	Number of Units or Approximate Acres	Average Water Demand (AFY)
Single Family Residential[1]	497	413
Ornamental Slopes[2]	26.2	50.1
Transitional Slopes (Non Public)[2]	17.1	32.8
Transitional Slopes (Manufactured)[2]	56.2	35.8
Citrus Grove[2]	4.2	0.03
Agriculture Vineyard[2]	9.1	0.24
Meadow Space[2]	8.5	5.1
Park Sites and Recreation Center[2, 3]	13.4	40.3
Parkway[2]	9.3	15.9
Total		**593**

Notes:

[1] Water Usage Factor of 0.83 ac-ft/unit provided by LACWWD36. The water usage factor for the single family residences is based on an average lot size of 12,500 sq. ft. which covers a total area of approximately 142 acres. The 142 acres include an area of approximately 111 acres of house lot pads and an area of approximately 31 acres of privately owned irrigated slopes. Portions of the irrigated privately owned slopes are also included in the irrigation demand estimates associated with other sloped areas in the table. As a result, the above projected water demand estimates for the Proposed Project conservatively include the privately owned slope water demands under both use descriptions.

[2] Irrigation demand estimates provided by Nathan Gipple at Sitescapes, Inc. (Irrigation demands are based on area, evapotranspiration rate, plant factor, conversion factor, and irrigation efficiency.) See Appendix A.

[3] The estimated water demand for Park Sites irrigation, based on a total area of 13.4 acres, is approximately 40.3 AFY. However, the estimated water demand for Park Sites and Recreation Center will be less because the Recreation Center will occupy a portion of the 13.4 acres of Park sites (due to the Recreation Center water demand being less than the landscape irrigation demand for an equivalent area of Park Site land). For conservative purposes, this Assessment incorporates the higher estimated water demand for the Recreation Center area.

CLWA's 2010 UWMP provides current and projected future water demands for purveyors within its service area, including LACWWD36, for the next twenty years (and through year 2050). The projected water demands in CLWA's 2010 UWMP were calculated based on: (1) urban per capita water use targets developed pursuant to Senate Bill SBX7-7 (Water Conservation Act of 2009) which requires urban water agencies within California to achieve a 20 percent reduction in urban per capita water use by December 31, 2020; and (2) population projections. Because LACWWD36 currently serves fewer than 3,000 end users (or service connections[9]) and provides less than 3,000 AFY of water, LACWWD36 is not bound to the requirements of SBX7-7. However, LACWWD36 expects continued implementation of conservation programs within its service area. LACWWD36's future water demands, including conservation, projected in CLWA's 2010 UWMP are presented in this Assessment.

The projected water demands for LACWWD36 identified in CLWA's 2010 UWMP incorporate water demands for the Previous Project for the Property. CLWA's 2010 UWMP includes 251 AFY[10] of residential water demand for LACWWD36 for the Previous Project. The remaining 518 AFY of water demands for the Previous Project (or 769 AFY – 251 AFY) were associated with the golf course demands. The water demands for the golf course are included in projected use of the Saugus Formation aquifer by agricultural and other users and are not included in the water demands for LACWWD36 because the demand was planned to be met by a privately owned well to be built on the Previous Project Property[11] (See Table 3-7[12] of CLWA's 2010 UWMP). As a result, 342 AFY (593 AFY – 251 AFY) of projected water demands from the Proposed Project were not specifically included in LACWWD36's future water demand presented in CLWA's 2010 UWMP. Table 3 provides the projected water demands for

[9] Pursuant to the California Department of Water Resources "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan", March 2011

[10] Written correspondence to CLWA regarding LACWWD36 UWMP projections, as provided by Greg Even with LACWWD36 staff in January 2014.

[11] The 518 AFY of projected golf course water demands for the Previous Project are accounted for in the groundwater operating plan (See Section 3.2) and Table 3-7 of the CLWA 2010 UWMP.

[12] See footnote (b) of Table 3-7 which indicates the water demand for the proposed Palmer Golf Course, which was the name of the golf course for the Previous Project, was included in the water demands for agricultural and other users but was anticipated to be met with supplies from the Saugus Formation aquifer from a private well.

LACWWD36's service area, which includes the total demands from the Project. As described in Section 2.0 above, for purposes of this Assessment it is conservatively assumed that the Proposed Project will be completed by 2020.

Table 3. Current and Projected LACWWD36 Water Demands (Based on UWMP) (AFY)

Year	Water Demands (AFY)	
	(Including Partial Project Water Demands) [1]	(Including Full Project Water Demands) [2]
2012	1,265	1,265
2015	1,584	1,584
2020	1,802	2,144
2025	2,146	2,488
2030	2,489	2,831
2035	2,833	3,175
2040	3,177	3,519

Notes:

[1] 2012 water demands based on "'2012 Santa Clarita Valley Water Report", June 2013, Luhdorff & Scalmanini Consulting Engineers. Projected water demands are based on CLWA's 2010 UWMP and include approximately 251 AFY of Proposed Project water demands beginning in 2015. Although it is not anticipated the Proposed Project will require 251 AF of water in 2015, for conservative purposes, the total water demands for LACWWD36 for 2015 as presented in CLWA's 2010 UWMP have not been reduced for this WSA.

[2] Proposed Project water demands are estimated at 593 AFY after full buildout and include water required for construction of the Proposed Project. It is anticipated Proposed Project construction will begin in 2015 and require 40 AFY for construction purposes, which is below the 251 AF of previously anticipated project water demands estimated in CLWA's 2010 UWMP. Excluding the 251 AFY of Proposed Project water demands incorporated in CLWA's 2010 UWMP, the remaining Proposed Project water demands are 342 AFY in normal years after completion of the Proposed Project.

3.0 Water Supply Sources

LACWWD36 currently obtains water supplies through purchase of imported water from CLWA and through production of groundwater supplies from the Saugus Formation aquifer. Table 1 shows the historical quantities of imported water and groundwater used by LACWWD36 to meet demands.

Water supplies currently and potentially available to LACWWD36 include the following:

- LACWWD36 purchases imported water supplies from CLWA. CLWA obtains imported water supplies from the SWP, Castaic Lake, and deliveries and/or transfers from other agencies. In addition, CLWA delivers recycled water for non-potable water uses within its service area. CLWA's 2002 Draft Recycled Water Master Plan, prepared by Kennedy/Jenks Consultants in May 2002, included recycled water demands for the golf course (Hasley Canyon Golf Course) included in the approved Previous Project on the Property. CLWA is currently updating its Recycled Water Master Plan. Based on discussion with CLWA it appears the updated Recycled Water Master Plan may not include plans to provide recycled water in the vicinity of the Property due to changes in anticipated demand for recycled water in the area. To be conservative in the evaluation of water supply source available, recycled water has not been included as a future water supply source through the year 2040 for LACWWD36 in this Assessment. Use of recycled water by other agencies to meet a portion of the overall water demands within CLWA's service area, reduces overall demands for imported water supplies, which increases the imported water supplies available to LACWWD36 through CLWA.

- LACWWD36's service area overlies the Santa Clara River Valley East Groundwater Subbasin of the Santa Clara River Valley Groundwater Basin. The groundwater basin is comprised of two aquifer systems: (1) the Alluvial aquifer and (2) the Saugus Formation. LACWWD36 currently produces groundwater

from the Saugus Formation through a new 2,800 gpm well, completed by the Applicant and dedicated to LACWWD36 in 2012. The new well is projected to pump additional groundwater to meet future water demands within its service area. LACWWD36 is not anticipated to produce groundwater from the Alluvial aquifer. However, use of groundwater from the Alluvial aquifer by other agencies to meet a portion of the overall water demands within CLWA's service area, reduces overall demands for imported water supplies, which increases the imported water supplies available to LACWWD36 through CLWA.

- During calendar years 2004 and 2005, LACWWD36 purchased 380 AF and 343 AF, respectively, of water from Los Angeles County Honor Farm (from groundwater produced from the Alluvial aquifer). Although it is not anticipated LACWWD36 will continue purchasing water from Los Angeles County Honor Farm, purchasing of this water demonstrates LACWWD36 ability to purchase and use water from others.

Additional information regarding LACWWD36's existing and potential sources of water supplies, as well as a discussion regarding the reliability of these supplies, is provided below.

3.1 Imported Water Supplies

As discussed previously, LACWWD36 can purchase imported water from CLWA. In addition to SWP water, CLWA has access to water from Flexible Storage Accounts in Castaic Lake, which are planned for, but are not limited to, use during dry years. CLWA also has access to deliveries of imported surface supply from the Buena Vista Water Storage District (BVWSD) and Rosedale Rio-Bravo Water Storage District (RRBWSD) in Kern County. CLWA wholesales these imported water supplies to its member agencies, including LACWWD36, NCWD, VWC, and SCWD.

According to Luhdorff and Scalmanini Consulting Engineers' (L&S) "14th Annual Santa Clarita Valley Water Report 2012" (L&S 2012 Report), dated June 2013, the total historical imported water supplies purchased by municipal purveyors and agricultural users from CLWA for the period from 1993 to 2012 has ranged from approximately 13,840 AFY to 47,205 AFY, with an average of approximately 31,840 AFY (See Table 4).

Table 4. Total Imported Water Supplies Purchased from CLWA (AFY)

Year	Total Purchases from Municipal Purveyors and Other Water Users (AFY)
1993	13,836
1994	14,700
1995	17,002
1996	18,873
1997	23,215
1998	20,266
1999	27,302
2000	32,582
2001	35,369
2002	41,763
2003	44,416
2004	47,205
2005	37,997
2006	40,048
2007	45,151
2008	41,705
2009	38,546
2010	30,578
2011	30,850
2012	35,442
Average	31,842

Source:

Luhdorff & Scalmanini "2012 Santa Clarita Valley Water Report", June 2013

3.1.1 SWP Water Supplies

CLWA contracts with the State of California, through the SWP, for the delivery of northern California water through the California Aqueduct. The SWP is a water storage and delivery system maintained and operated by the California Department of Water Resources (DWR). The SWP is a statewide water conveyance system that diverts and stores water in Northern and Central California and conveys water (including conveyance through the Sacramento-San Joaquin Delta region) to 29 water agencies throughout the State. The SWP has delivered water since the 1960's through a network of aqueducts, pumping stations and power plants. The original SWP conveyance facilities completed in the 1970s have not been expanded as originally planned and are not capable of delivering the full contracted entitlement for SWP water every year.

The San Francisco Bay -Sacramento River Delta area (Bay-Delta) is a part of the SWP water delivery system. The reliability of moving water through the Bay-Delta may be impacted by potential risks associated with endangered species, earthquakes, levee failure, and climate change. In order to mitigate these potential risks, State and federal resources and environmental protection agencies and a broad range of stakeholders are involved in a multiyear planning process referred to as the CALFED process to develop programs to greatly improve the capacity and reliability of the SWP and the environmental conditions of the Bay-Delta. The Bay-Delta cooperating agencies approved a Record of Decision in August 2000 for a Programmatic Environmental Impact Report/Impact Statement for a multi-year improvement program. The improvement program includes projects related to DWR's SWP conveyance capacity, water quality, and operation of the SWP. Those programs are undergoing thorough environmental review and public input is required.

The Bay Delta Conservation Plan (BDCP) grew out of the CALFED Bay-Delta Plan's Ecosystem Restoration Program Conservation Strategy. A draft BDCP was prepared through a collaboration of state, federal, and local water agencies, state and federal fish agencies, and a broad range of stakeholders. The BDCP identifies conservation

strategies, water flow, and habitat restoration actions in California's Sacramento-San Joaquin Delta. The goal of the BDCP is to provide for both species/habitat protection and improved reliability of water supplies. The administrative draft BDCP documents are available. The Public Draft BDCP and Public Draft Environmental Impact Report / Environmental Impact Statement are expected to be released for formal public review and comment in December 2013. The BDCP is intended to meet the standards of the Sacramento-San Joaquin Delta Reform Act of 2009, described below.

In November 2009, following more than three (3) years of BDCP planning, the State of California enacted the Sacramento-San Joaquin Delta Reform Act of 2009 (California Water Code Division 35) which provided for an independent state agency, the Delta Stewardship Council. Pursuant to that act, the Delta Stewardship Council developed a comprehensive management plan that provides more reliable water supply for California and protects and enhances the Delta ecosystem (through development and implementation of a Delta Plan). The Delta Stewardship Council adopted a final Delta Plan in May 2013 which is the comprehensive long-term management plan for the Delta to improve statewide water supply reliability and to protect the Delta. The Delta Stewardship Council also adopted a Programmatic Environmental impact Report (PEIR) on the Delta Plan in May 2013. The PEIR evaluates the potential impact of the Delta Plan and identifies mitigation measures. The Delta Stewardship Council is currently facing lawsuits challenging the certification of an EIR for the Delta Plan. However, the impact of the outcome of these lawsuits cannot be reasonably determined at this time.

DWR's "State Water Project Final Delivery Reliability Report 2011" (2011 Report), dated June 2012, indicates the delivery reliability of SWP water is approximately 60 percent, on average, over the next 20 years. The DWR report incorporated future impacts on water deliveries as a result of climate change and potential limited pumping of the SWP to protect salmon, smelt, and other species in the Sacramento-San Joaquin Delta and Central Valley areas, including operational restrictions of the biological opinions issued by the U.S. Fish and Wildlife Service (USFWS) in December 2008 and the National Marine Fisheries Service (NMFS) in June 2009 governing the SWP and Central Valley

Project (a Federal water storage and conveyance facility) operations. Although litigation has ensued regarding the biological opinions relied upon by the federal government in its determination,[13] DWR has taken these issues into account in its 2011 Report and has not subsequently indicated that its prior analysis of SWP reliability was rendered incorrect by the outcome of this litigation.

CLWA holds a long-term contract with DWR for SWP water. CLWA purchases SWP water and is a wholesale provider to SCWD, VWC, NRWC, and LACWWD36. SWP water is delivered to CLWA through the West Branch of the California Aqueduct. SWP water is treated, filtered, and disinfected at CLWA's Earl Schmidt Filtration Plant and Rio Vista Water Treatment Plant. CLWA provides treated SWP water through connections with each of the four purveyors.

CLWA currently has a contractual 'Table A' amount of 95,200 AFY of SWP water ('Table A' represents the maximum amount a contractor may request and is used to determine the contractor's proportional share of the available SWP water allocated and delivered to each SWP contractor. DWR determines the total amount of Table A water to be delivered on an annual basis based on contractor demands and projected available water supplies). CLWA's original Table A contract for 23,000 AF of SWP water was signed in 1960 and was later increased to 41,500 AF. In 1988, CLWA purchased an additional 12,700 AF of Table A water from Devil's Den Water District. In 1999, CLWA purchased an additional 41,000 AF of Table A water from Kern County Water Agency (KCWA) and Wheeler Ridge-Maricopa Water Storage District (WRMWSD), for a current total of 95,200 AFY.

As discussed previously, DWR's 2011 Report indicates the delivery reliability of SWP water is approximately 60 percent, on average, over the next 20 years. Additional SWP

[13] In *San Luis & Delta-Mendota Water Authority, et al v. Sally Jewell et al* (2014) DJDAR 3151, the 9th Circuit Court of Appeals upheld the biological opinions upon which the federal government had relied in imposing operational restrictions on pumping from the Delta, but required the Bureau of Reclamation to undertake NEPA review in conjunction with its adoption and implementation of the biological opinion. The matter was remanded to the District Court for further proceedings consistent with this ruling.

‘Article 21’ water (or water that SWP contractors may receive on a short-term basis, when available during wet months, in addition to their Table A water) may also be available during wet hydrologic periods on the SWP watershed. During periods of less SWP availability, water supplies to meet demands within CLWA’s service area be can obtained through increased use of Flexible Storage Account, groundwater pumping, and banking programs. These additional water supply sources are discussed below.

CLWA’s 2010 UWMP projects total SWP water supplies available to CLWA will range from 57,400 to 58,100 AFY, from 2015 to 2040, during normal years. In addition, total SWP water supplies available to CLWA, from 2015 to 2040, are projected to range from 9,100 to 11,900 AFY, during single dry years, and from 32,900 to 33,000 AFY, during multiple dry years. SWP water supplies projected in CLWA’s 2010 UWMP are based on DWR’s “State Water Project Delivery Reliability Report 2009” (2009 Report), dated August 2010. The future delivery reliability of SWP water projected in DWR’s 2009 Report is similar to the future delivery reliability of SWP water projected in DWR’s 2011 Report. For example, the long-term average reliability of SWP water deliveries is projected at approximately 60 percent in both the DWR’s 2009 Report and DWR’s 2011 Report.

The final SWP allocation for calendar year 2013 was 35 percent of requested water amounts. In addition, the final allocation was 65 percent in 2012 and 80 percent in 2011. Due to on-going drought conditions at the time this Assessment was prepared, , DWR established the 2014 SWP allocations at five (5) percent in April 2014, however, water agencies will not be able to access the water until after September 2014. DWR has typically released final allocation amounts for SWP water between February and June in recent years. I. In response to DWR’s January 2014 announcement that they were not anticipating any SWP deliveries in 2014, the Santa Clarita Valley Water Committee, whose members represent CLWA, the City of Santa Clarita, Los Angeles County and all four local water retail purveyors, adopted water conservation measures consistent with the region’s water conservation practices during February 2014. CLWA has indicated that as a result of advance water supply planning and a diverse portfolio of water

supplies, severe water use restrictions will not be necessary. CLWA's 2010 UWMP includes water shortage contingency planning (based on a Water Shortage Contingency Plan and a Drought Emergency Water Sharing Agreement prepared by CLWA and the retail purveyors) in the event local and regional water supplies are interrupted or reduced significantly as a result of droughts, earthquakes, and other disasters. CLWA and the retail water purveyors have developed various strategies in response to these potential emergencies, including four-stage rationing and demand reduction goals, mandatory prohibitions, and penalties for excessive use.

LACWWD36 currently receives imported water supplies through an existing pipeline that consists of 8-inch, 10-inch, and 12-inch diameter portions from its 6-inch connection with CLWA with a rated capacity of approximately 3,500 gpm. LACWWD36 has indicated that the Proposed Project would be required to install approximately 5,500 feet of new 16-inch diameter pipeline from an unused CLWA supply turnout to the existing 16-inch pipeline along Hasley Canyon Road, along with an associated new booster pump station, to supplement the District's capacity to deliver imported water supplies to the Property and other portions of LACWWD36's service area[14]. The upgraded pipeline will allow LACWWD36 to physically receive an additional amount of at least 800 AFY of imported water supplies. A portion of the increased water supply would be intended to make CLWA water available to the Proposed Project, which would allow LACWWD36 the ability to lessen its reliance on groundwater for the Proposed Project. The increase in the water main would also increase LACWWD36's ability to serve additional users. Based on the availability of SWP water as shown in CLWA's 2010 UWMP, an additional supply of 800 AFY of SWP water will be available to LACWW36 during normal, single dry, and multiple dry years when the upgraded pipeline capacity is completed. It is anticipated the upgraded pipeline will be installed prior to water deliveries to the Project. A summary of SWP water supplies available to LACWWD36, through CLWA, is provided in Section 4.0.

[14] Construction of a new larger pipeline will allow LACWWD36 to meet its projected water needs from stored water and State Water Project water, which could assist in reducing LACWWD36's reliance on groundwater. The construction of this new larger pipeline would allow LACWWD36 to gain access to water that CLWA already has, but that was previously not available to LACWWD36 due to pipeline capacity issues.

3.1.2 Flexible Storage Accounts

As part of its water supply contract with DWR, CLWA has access to a portion of the Castaic Lake's storage capacity, referred to as a Flexible Storage Account. The Flexible Storage Account allows CLWA to utilize up to 4,684 AF of the storage in Castaic Lake. CLWA is required to replace any amount withdrawn from Castaic Lake within five years. CLWA manages the Flexible Storage Account by replenishing/storing surplus SWP water into Castaic Lake, when available during normal and wet years, for use during dry years when SWP water is less available. In 2005, CLWA entered into an agreement with SWP contractor agencies in Ventura County for use of their Flexible Storage Account. These Flexible Storage Accounts allow CLWA access to an additional 1,376 AF of storage in Castaic Lake through the year 2015. Although it is anticipated the agreement for access to additional Flexible Storage Accounts will be extended beyond the 2015 term, CLWA's 2010 UWMP does not assume the additional Flexible Storage Accounts will be available beyond the year 2015.

CLWA's 2010 UWMP projects the water supplies from the Flexible Storage Accounts will not be required during normal years through the year 2040. CLWA's total water supplies from the Flexible Storage Accounts, from 2015 to 2040, are projected to range from 4,679 to 6,060 AFY, during single dry years, and from 1,170 to 1,510 AFY, during multiple dry years. As discussed previously, CLWA's 2010 UWMP projects a maximum amount of 4,684 AF will be available from the Flexible Storage Accounts after 2015. A summary of water supplies available to LACWWD36 from the Flexible Storage Accounts, through CLWA, is provided in Section 4.0.

3.1.3 Transfer Agreements

In 2007, CLWA entered into a long-term transfer agreement (2007 Water Acquisition Agreement) with BVWSD and RRBWSD in Kern County for up to 11,000 AFY of water. Both BVWSD and RRBWSD are member agencies of the Kern County Water Agency (KCWA), a SWP contractor, and each agency has a contract with KCWA for SWP Table A amounts. BVWSD and RRBWSD have jointly developed a program that provides a firm water supply (available in all water year types) and a water banking component. The firm water supply amount of 11,000 AFY is based on BVWSD's long-standing water rights to the Kern River. Under the transfer agreement, water from the Kern River is captured and stored as groundwater within BVWSD's service area. CLWA receives water under the transfer agreement through: (1) exchange of BVWSD's and RRBWSD's SWP Table A supplies or (2) direct delivery of Kern River water to the California Aqueduct via the Cross Valley Canal.

CLWA's 2010 UWMP projects the water supplies from the transfer agreement with BVWSD and RRBWSD will be 11,000 AFY during normal, single dry, and multiple dry years through the year 2040. A summary of water supplies available to LACWWD36 from the transfer agreement, through CLWA, is provided in Section 4.0.

3.2 Groundwater Supplies

According to the DWR's, "California's Groundwater, Bulletin 118" dated January 2006, the groundwater basin that underlies CLWA's service area is the Santa Clara River Valley East Groundwater Subbasin (East Subbasin) of the Santa Clara River Valley Groundwater Basin. The East Subbasin covers approximately 66,200 acres. According to CLWA's 2010 UWMP, the East Subbasin is comprised of two aquifer systems: (1) the Alluvium (or Alluvial aquifer) and (2) the Saugus Formation. The locations of these two aquifer systems are provided in Figure 2. The Alluvial aquifer and the Saugus Formation are not adjudicated and have not been identified as in overdraft or projected to be in overdraft by DWR in California's Groundwater, Bulletin 118. LACWWD36 can

exercise its appropriative rights to produce groundwater from the East Subbasin. There is no statutory procedure to establish the right to pump groundwater in California. In a basin that is not in overdraft, such as the East Subbasin, groundwater can be appropriated by producing groundwater and putting it to beneficial use. A further discussion of available groundwater supplies is provided below.

CLWA was required through Assembly Bill (AB) 134 (2001) to prepare a Groundwater Management Plan (GWMP) in accordance with the provisions of California Water Code Section 10753 ("Groundwater Management Plans). CLWA's GWMP, prepared by L&S, was adopted in 2003 and discusses and formalizes existing groundwater supply and water resource planning and management activities within CLWA's service area. CLWA's GWMP also includes a basin-wide monitoring program which provides data for annual reporting on East Subbasin groundwater supplies, water resources, and water supply yields.

The GWMP includes the following management objectives for the East Subbasin:

- Development of an integrated surface water, groundwater, and recycled water supply to meet existing and projected municipal, agricultural, and other water demands

- Assessment of groundwater basin conditions to determine operational yields incorporating local groundwater conjunctively with supplemental imported water supplies and recycled water to avoid groundwater overdraft

- Preservation of groundwater quality, including characterization and resolution of any groundwater contamination problems

- Preservation of interrelated surface water resources, including maintenance of surface water flows and non-degradation of surface water quality, resulting from groundwater management

Management of the existing groundwater supplies within CLWA's service area is based on an operating yield concept with ranges of annual pumping volumes to capture year to year fluctuations in both hydrologic conditions and water demands. The groundwater operating plan for the East Subbasin, discussed in the annual Santa Clarita Valley Water Reports, utilizes the operating yield concept. The groundwater operating plan for the East Subbasin was developed and analyzed over the last 25 years using historical groundwater data and modeling analyses to meet water requirements (municipal, agricultural, small domestic) while maintaining the East Subbasin in a sustainable condition (i.e. no long-term depletion of groundwater or interrelated surface water). The groundwater operating plan also addressed groundwater contamination issues in the East Subbasin. Although pumping can vary from year to year, the groundwater operating plan is based on the concept that increases in groundwater use during dry periods and increases in recharge during wet periods assure that the East Subbasin is adequately replenished over the long term. The GWMP, adopted in 2003, formalized the groundwater operating yield concept.

The implementation of the GWMP includes on-going preparation of an annual "Santa Clarita Valley Water Report" which provides information regarding water requirements and water supplies within the Santa Clarita Valley. In addition, an updated analysis of the East Subbasin was prepared in August 2009 ("Analysis of Groundwater Supplies and Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin," prepared by L&S and GSI Water Solutions, Inc.). The analysis presented the results of modeling the groundwater operating plan, including treatment of contaminated groundwater for municipal supply. The modeling analysis concluded the groundwater operating plan is sustainable and will not cause detrimental short or long term effects to the groundwater and surface water resources in the Santa Clarita Valley.

According to CLWA's 2010 UWMP, the existing groundwater operating plan indicates the following:

- Alluvial Aquifer: Pumping from the Alluvial aquifer is governed by local hydrologic conditions in the eastern Santa Clara River watershed. Pumping can range between 30,000 and 40,000 AFY during normal years. Due to hydrogeologic constraints in the eastern part of the Basin, pumping can range between 30,000 and 35,000 AFY during locally dry years.

- Saugus Formation: Pumping from the Saugus Formation is based on the availability of other water supplies, particularly from imported water supplies. During normal year conditions, Saugus Formation pumping ranges between 7,500 and 15,000 AFY. Planned dry-year pumping from the Saugus Formation ranges between 15,000 and 25,000 AFY. Pumping can increase to between 21,000 and 25,000 AFY if imported water deliveries are reduced for two consecutive years. Pumping can increase to between 21,000 and 35,000 AFY if imported water deliveries are reduced for three consecutive years. The increase in pumping, during dry years, would be followed by periods of reduced pumping, during normal years, to further enhance the effectiveness of natural recharge processes that recover water levels and groundwater storage volumes.

The Sustainable Groundwater Management Act, adopted in 2014, requires un-adjudicated groundwater basins designated as either Medium or High Priority to adopt a Groundwater Sustainability Plan by January 31, 2022. The Project overlies the Santa Clara River Valley East Groundwater Subbasin of the Santa Clara River Valley Groundwater Basin, which has been given a priority designation of “High”; consequently, the basin will be subject to the requirements of the Sustainable Groundwater Management Act. A primary objective of the Groundwater Sustainability Plan will be to establish management practices for the use of groundwater without causing undesirable results as defined by the legislation as chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degradation of quality, land subsidence, and the depletion of interconnected surface waters. Groundwater producers in the East Subbasin currently operate groundwater extractions in accordance with CLWA’s GWMP which establishes a Basin Yield for the Alluvial

aquifer and the Saugus Formation based on long-term sustainable yields. The GWMP currently incorporates the following water resources planning and management activities: groundwater level monitoring, water quality monitoring, groundwater production monitoring, subsidence monitoring, safe yield establishment, salinity management, water supply evaluation, conjunctive use operations, and groundwater contamination identification. These plan elements are consistent with those required to be addressed in the Groundwater Sustainability Plan; therefore, the implementation of a Groundwater Sustainability Plan is not anticipated to significantly change the use of groundwater as described in the GWMP and CLWA's 2010 UWMP.

3.2.1 Alluvial Aquifer

The Alluvial aquifer, which generally underlies the Santa Clara River and its tributaries to maximum depths of about 200 feet, covers approximately 16,000 acres. The Alluvial aquifer is comprised of interlayered and interfingered beds of gravel, sand, silt, and clay, with variable amounts of cobbles and boulders. According to DWR's Bulletin 118, the Alluvial aquifer has a groundwater storage capacity of approximately 201,000 AF.

As discussed previously, based on historical operations and groundwater modeling analyses, the estimated long-term sustainable yield of the Alluvial aquifer ranges from 30,000 to 40,000 AFY during normal years. During dry years, the estimated yield ranges from approximately 30,000 to 35,000 AFY.

The estimated yields include approximately 15,000 AFY of pumping from the Alluvial aquifer for current agricultural and other non-municipal water uses. It is anticipated the amount of pumping from the Alluvial aquifer for agricultural water supplies will decrease in the future, with an equivalent increase for municipal water supplies. The overall pumping from the Alluvial aquifer is intended to remain within the range of long-term sustainable yields.

Currently, NCWD, SCWD, and VWC produce groundwater from the Alluvial aquifer for municipal water supply. CLWA's 2010 UWMP estimates the total Alluvial aquifer pumping capacity of these three purveyors is approximately 42,000 gpm, or a full time capacity of approximately 67,000 AFY. Although the total capacity exceeds the range of long-term sustainable yields of the Alluvial aquifer, higher pumping capacities are intended to meet daily fluctuations within a water system resulting from maximum day and peak hour system demands.

According to the "2012 Santa Clarita Valley Water Report" (2012 L&S Report), dated June 2013, the total historical groundwater production from all users in the Alluvial aquifer has averaged approximately 38,200 AFY (See Table 5).

Table 5. Historical Alluvial Aquifer Production (Municipal, Agricultural, and Other)

Year	Production (AFY)
1993	30,126
1994	33,133
1995	34,464
1996	38,438
1997	39,599
1998	36,648
1999	43,406
2000	39,937
2001	37,589
2002	38,276
2003	33,599
2004	33,757
2005	38,648
2006	43,061
2007	38,773
2008	41,716
2009	39,986
2010	41,159
2011	40,748
2012	40,701
Average	38,188

Source:

Luhdorff & Scalmanini "2012 Santa Clarita Valley Water Report", June 2013

According to CLWA's 2010 UWMP, and consistent with the groundwater operating plan, the total groundwater production from the Alluvial aquifer by all users is projected to range from 38,100 AFY to 38,500 AFY, from 2015 to 2040, during normal years. Total groundwater production from the Alluvial aquifer is projected at approximately 34,850 AFY from 2015 to 2040, during dry years.

Although LACWWD36 does not anticipate producing groundwater from the Alluvial aquifer, it is projected that water supplies from the Alluvial aquifer will continue to be

produced by other agencies. Use of groundwater from the Alluvial aquifer by other agencies to meet a portion of the overall water demands within CLWA's service area, reduces other agencies' demands for imported water supplies, which increases imported water supplies available to LACWWD36 through CLWA. A further discussion of water supplies from the Alluvial aquifer available to CLWA is provided in Section 4.0.

3.2.2 Saugus Formation

The Saugus Formation is a deep groundwater aquifer underlying the Alluvial aquifer with an area of approximately 55,500 acres. The Saugus Formation can be subdivided into two stratigraphic units. The upper portion of the Saugus Formation is up to 5,000 feet thick and consists of coarse-grained sand and gravel beds that form potential aquifer units. The lower portion of the Saugus Formation, known as the Sunshine Ranch Member, does not contain sufficient groundwater for municipal-supply purposes due to low permeability of fine-grained sediments. According to DWR's Bulletin 118, the Saugus Formation has a groundwater storage capacity of approximately 1.65 million AF.

Natural recharge to the Saugus Formation occurs in unconfined areas of the aquifer through deep percolation of rainfall and leakage from overlying portions of the Alluvial aquifer. Other recharge sources to the Saugus Formation include deep percolation of agricultural and landscape irrigation water.

As previously discussed, under the groundwater operating plan for the Saugus Formation, which is based on historical operations and groundwater modeling analysis, the Saugus Formation can supply water on a long-term sustainable basis in amounts ranging from 7,500 AFY to 15,000 AFY, during normal years, with intermittent increases to 25,000 AFY to 35,000 AFY during dry years. Short-term increases in production during dry-years would be followed by replenishment of aquifer storage during subsequent normal and wet periods when pumping is reduced.

Currently, LACWWD36, NCWD, SCWD, and VWC produce groundwater from the Saugus Formation for municipal water supply. CLWA's 2010 UWMP estimates the total Saugus Formation pumping capacity from NCWD, SCWD, and VWC is approximately 17,000 gpm, or a full time capacity of approximately 27,000 AFY. LACWWD36 completed construction of a new 2,800 gpm Saugus Formation groundwater production well in January 2012. Assuming a 40 percent operating factor (based on operations of approximately 18 hours per day for half of the year), the estimated production capacity from the new well is approximately 1,800 AFY. The total pumping capacity from the existing wells exceeds the planned production range from the Saugus Formation of 7,500 AFY to 15,000 AFY during normal years as described in the groundwater operating plan. Although the current capacity is sufficient in meeting current water demands (in combination with other sources), CLWA's 2010 UWMP projects up to 35,000 AFY of total water production from the Saugus Formation in the future during dry years. The existing well capacity would allow pumping above the normal year yield of 7,500 AFY to 15,000 AFY in a dry year, however, future construction of additional wells may be necessary to meet the projected use of up to 35,000 AFY of groundwater from the Saugus Formation during dry year periods through 2040. VWC currently owns several groundwater production wells which utilize treatment technology to remove perchlorate contamination from the Saugus Formation. Installation of new groundwater wells which incorporate similar treatment to remove perchlorate contamination from Saugus Formation groundwater can result in additional groundwater production capacity. LACWWD36's new Saugus Formation groundwater production well is not expected to be affected by perchlorate contamination.

According to the 2012 L&S Report, the total historical groundwater production from all users in the Saugus Formation has ranged from approximately 3,700 AFY to 12,000 AFY, with an average of approximately 7,100 AFY (See Table 6).

Table 6. Historical Saugus Formation Production (Municipal, Agricultural, and Other)

Year	Production (AFY)
1993	10,610
1994	12,025
1995	8,560
1996	8,186
1997	7,745
1998	5,555
1999	3,716
2000	4,080
2001	4,140
2002	5,160
2003	4,207
2004	6,503
2005	6,453
2006	7,312
2007	7,685
2008	6,918
2009	7,678
2010	8,092
2011	8,273
2012	8,719
Average	7,081

Source:

Luhdorff & Scalmanini "2012 Santa Clarita Valley Water Report", June 2013

Note:

2011 and 2012 production includes Saugus Formation groundwater produced and treated by CLWA to remove perchlorate contamination

According to CLWA's 2010 UWMP, the total groundwater production from the Saugus Formation by all users is projected to range from 11,500 to 12,500 AFY, from 2015 to 2040, during normal years. In addition, total groundwater production from the Saugus

Formation is projected to range from 25,000 to 35,000 AFY, during single dry years, and from 25,225 to 32,550 AFY, during multiple dry years.

CLWA's 2010 UWMP projected water supplies of up to 500 AFY, by the year 2015, and up to 1,000 AFY, by the year 2040, available from the Saugus Formation to LACWWD36 during dry years. CLWA's 2010 UWMP indicated LACWWD36 would install a groundwater well which would allow LACWWD36 to produce groundwater from the Saugus Formation. As discussed previously, as a condition of the approved Previous Project, LACWWD36 was provided a new Saugus Formation groundwater production well in January 2012 with an estimated production capacity of approximately 1,800 AFY. The capacity of the well allows LACWWD36 to produce the water supply quantities from the Saugus Formation of up to 1,000 AFY by the year 2040 projected in CLWA's 2010 UWMP, consistent with the groundwater operating plan and the adopted GWMP discussed above. A summary of water supplies from the Saugus Formation available to LACWWD36 is provided in Section 4.0.

3.3 Other Water Supplies from CLWA

A majority of the water demands in the Santa Clarita Valley are met through groundwater and imported SWP surface water and other imported water. Supplemental sources of water supply, including recycled water and water obtained through groundwater banking programs, enhance the reliability of CLWA's total water supplies in meeting overall water demands. These additional supplies are discussed below.

3.3.1 Recycled Water Supplies

CLWA has been supplying recycled water to customers for non-potable irrigation uses since 2003. Recycled water users within CLWA's service area include a golf course, roadway median strips, and other non-potable uses. CLWA obtains recycled water

supply from two water reclamation plants (WRPs) operated by the Santa Clarita Valley Sanitation District (the Valencia WRP and the Saugus WRP). Use of recycled water allows purveyors within CLWA's service area to reduce the amount of imported water and groundwater supplies needed to meet overall water demands. According to the 2012 L&S Report, recycled water deliveries within CLWA's service area over the past 10 years has ranged from 50 to 470 AFY, with an average of approximately 340 AFY (See Table 7).

Table 7. Recycled Water Deliveries within CLWA's Service Area

Year	Total Purchases (AFY)
2003	50
2004	420
2005	418
2006	419
2007	470
2008	311
2009	328
2010	336
2011	373
2012	301
Average	343

Source:

Luhdorff & Scalmanini "2012 Santa Clarita Valley Water Report", June 2013

In 1993, CLWA prepared a draft Reclaimed Water System Master Plan to deliver recycled water in the Santa Clarita Valley. Phase I of the plan was completed and CLWA began delivering recycled water in 2003. Phase I is expected to deliver up to 1,700 AFY of recycled water. The draft EIR for the Previous Project did not include use of recycled water for the project, however, in response to comments provided by CLWA on the draft EIR, the Final EIR for the Previous Project, dated November 2001, indicates the Project Conditions of Approval require a recycled water distribution system for the

project to be installed for use when LACWWD 36 makes recycled water available to the Previous Project site. As discussed previously, in 2002, CLWA prepared an updated Draft Recycled Water Master Plan which included up to 450 AFY of recycled water demands for the golf course (Hasley Canyon Golf Course) included in the approved Previous Project on the Property. Despite CLWA's 2002 Recycled Water Master Plan indicating an expected recycled water demand of up to 450 AFY, CLWA's 2010 UWMP projects deliveries of up to 50 AFY of recycled water to LACWWD36's service area during normal, single, and multiple dry years.

CLWA is currently updating its Recycled Water Master Plan. Based on discussion with CLWA it appears the Recycled Water Master Plan may recommend a recycled water system that will be smaller than that envisioned in the 2002 Recycled Water Master Plan. Plans to provide recycled water within LACWWD36's service area, including in the vicinity of the Property, are uncertain, due to changes in anticipated costs for a recycled water system of the size envisioned in the 2002 Recycled Water Master Plan. Because there is no recycled water supply in the vicinity of the Proposed Project and CLWA's updated Recycled Water Master Plan may not include providing recycled water in the Project area, recycled water has not been included as a future water supply source through the year 2040 for LACWWD36 in this Assessment. According to CLWA's 2010 UWMP, CLWA is projected to deliver up to a total of 22,800 AFY of recycled water within its service area to golf courses, landscaping, and other non-potable uses by the year 2050. Recycled water may not be available for use in certain portions of CLWA's service area, including potentially the Property. However, use of recycled water by other purveyors will reduce their need for potable water supplies (including groundwater and imported water supplies) which can be used in other areas of CLWA's service area, including at the Property, where recycled water may not be accessible.

3.3.2 Groundwater Banking Programs

Groundwater banking programs involve storing available SWP water supplies during wet years into groundwater basins. Water supplies can be stored directly through surface spreading or injection. Water supplies can also be stored indirectly by supplying available surface water to farmers for direct agricultural applications in-lieu of their pumping groundwater. During dry years, the stored groundwater is delivered to CLWA, via the California Aqueduct, or used by farmers in exchange for their surface water allocations. CLWA currently participates in groundwater banking programs, including the Semitropic Banking Program and the RRBWSD Banking Program.

Semitropic Water Storage District (Semitropic), located in the San Joaquin Valley in the northern part of Kern County, provides SWP water to farmers for agricultural uses. Semitropic's groundwater banking program includes approximately one million AF of available groundwater storage in which water can be stored during wet years. During dry years, Semitropic delivers its SWP water supplies, through the California Aqueduct, to its banking partners (including CLWA), and uses the stored groundwater to locally supply water to farmers. Beginning in 2002, CLWA entered into storage agreements with Semitropic allowing CLWA to recover up to 90 percent of any water stored through 2013. In April 2010, CLWA entered into an agreement with Semitropic extending the existing storage agreements by 10 years. As of 2012, the amount of banked water available to CLWA through Semitropic's groundwater banking program was 45,920 AF.

RRBWSD, also located in Kern County, developed a groundwater banking program (Water Banking and Exchange Program). In 2005, CLWA and RRBWSD entered into a long-term storage agreement which provides CLWA with a storage capacity of 100,000 AF and a withdrawal capacity of 20,000 AFY. As of 2012, the amount of banked water available to CLWA through RRBWSD's groundwater banking program was 100,000 AF.

Groundwater banking programs enhance the reliability of CLWA's water supplies during dry years, when SWP water deliveries are subject to reduction. CLWA's 2010 UWMP does not project any use of banked groundwater supplies during normal years. During dry years, CLWA is projected to receive up to 15,000 AFY and 20,000 AFY of banked groundwater from the Semitropic and RRBWSD groundwater banking programs, respectively. A summary of these water supplies available to LACWWD36, through CLWA, is provided in Section 4.0.

4.0 Projected Water Supplies and Demands

LACWWD36's sources of water supply are imported water purchased from CLWA and groundwater produced from the Saugus Formation.

4.1 CLWA Water Supplies

LACWWD36 purchases imported water supplies from CLWA. As discussed in Section 3.1, CLWA obtains imported water supplies from the SWP, Flexible Storage Accounts in Castaic Lake, and water transfers from BVWSD and RRBWSD (based on water rights to the Kern River). CLWA also provides supplemental sources of water supplies, including recycled water and water obtained through groundwater banking programs, which enhance the reliability of CLWA's water supplies in meeting overall water demands.

LACWWD36 currently receives imported water supplies through an existing pipeline that consists of 8-inch, 10-inch, and 12-inch diameter portions from its 6-inch connection with CLWA with a rated capacity of approximately 3,500 gpm. As discussed in Section 3.1.1, LACWWD36 has indicated that the Proposed Project would be required to upgrade and install approximately 5,500 feet of 16-inch diameter pipeline from the CLWA supply turnout to the existing 16-inch pipeline along Hasley Canyon Road, along with a new booster pump station, to supplement the District's capacity to deliver imported water supplies to the Project and other portions of LACWWD36's service area[15]. The upgraded pipeline will allow LACWWD36 to physically receive an additional amount of at least 800 AFY of imported water supplies. It is anticipated the upgraded pipeline will be installed prior to water deliveries to the Project.

[15] Construction of a new larger pipeline will allow LACWWD36 to meet its projected water needs from stored water and State Water Project water, which could assist in reducing LACWWD36's reliance on groundwater. The construction of this new larger pipeline would allow LACWWD36 to gain access to water that CLWA already has, but that was previously not available to LACWWD36 due to pipeline capacity issues.

As discussed previously, CLWA's 2002 Draft Recycled Water Master Plan included recycled water demands for the golf course (Hasley Canyon Golf Course) included in the approved Previous Project on the Property. CLWA is currently updating its Recycled Water Master Plan. Based on discussion with CLWA it appears the Recycled Water Master Plan may recommend a recycled water system that will be smaller than that envisioned in the 2002 Recycled Water Master Plan. Plans to provide recycled water within LACWWD36's service area, including in the vicinity of the Property, are uncertain, due to changes in anticipated costs for a recycled water system of the size envisioned in the 2002 Recycled Water Master Plan. Because there is no recycled water supply in the project's vicinity and CLWA's updated Recycled Water Master Plan may not include providing recycled water in the vicinity of the Property, recycled water has not been included as a future water supply source through the year 2040 for LACWWD36 in this Assessment. However, use of recycled water will reduce the need for potable water supplies (including groundwater and imported water supplies) which can be used in other areas of CLWA's service area, including the Property, where recycled water may not be accessible.

4.2 Groundwater Supplies

Purveyors within CLWA's service area produce groundwater from the Alluvial aquifer and the Saugus Formation. As discussed in Section 3.2, CLWA's 2010 UWMP and the existing groundwater operating plan indicate the long-term sustainable yield from the Alluvial aquifer ranges between 30,000 AFY and 40,000 AFY, during normal years, and between 30,000 AFY and 35,000 AFY, during locally dry years. The long-term sustainable yield from the Saugus Formation ranges between 7,500 AFY and 15,000 AFY, during normal years, and between 15,000 AFY and 35,000 AFY, during locally dry years.

LACWWD36 does not anticipate producing groundwater from the Alluvial aquifer. However, use of groundwater from the Alluvial aquifer by other agencies to meet a

portion of the overall water demands within CLWA's service area provides additional flexibility in the amount of imported water supplies available to LACWWD36 through CLWA.

As discussed in Section 3.2.2, LACWWD36 currently produces groundwater from the Saugus Formation through a well with a capacity of 2,800 gpm (or 1,800 AFY based on a 40 percent operating factor). CLWA's 2010 UWMP projected LACWWD36 would produce up to 1,000 AFY from the Saugus Formation by the year 2040 (during a single dry year). LACWWD36 has more than sufficient capacity to produce the projected water quantities from the Saugus Formation through its existing groundwater well.

4.3 Future Supplies

Tables 8 through 10, which are based on CLWA's 2010 UWMP, show projected water demands and sources of water supply for all purveyors within CLWA's service area, under future normal, single dry, and multiple dry year scenarios, from 2015 to 2040. As discussed in Section 2.0, construction of the Proposed Project is anticipated to commence in 2015 and be completed by 2020. The total water demand for the Project during normal year scenarios is 593 AFY. During single and multiple dry year scenarios, the total water demand for the Project is estimated to increase to 666 AFY, based on the proportionate increases in water use from normal to single and multiple dry year water demands within CLWA's service area as presented in CLWA's 2010 UWMP. Tables 8 through 10 include the total water demands for the Proposed Project during normal, single dry, and multiple dry year scenarios, of which 251 AFY were incorporated in CLWA's 2010 UWMP. The remaining water demands for the Proposed Project are included in LACWWD36's future water demands in this Assessment.

Purveyors within CLWA's service area have historically met all of their water demands with imported water, groundwater, and recycled water supplies. Although water supplies have historically been reliable, CLWA has prepared a Water Shortage Contingency Plan in its 2010 UWMP, pursuant to California Water Code Division 6, Part 2.10, Sections

10632 and Government Code 66473.7, that identifies actions that can be taken by purveyors to respond to a catastrophic interruption of water supply. Tables 8 through 10 show available water supplies within CLWA's service area allowing water purveyors to meet all water demand projections, including the Project, with an overall water surplus of at least 20,000 AFY, from 2015 to 2040 under normal, single dry, and multiple dry year scenarios.

Table 8. CLWA's Projected Demands and Supplies - Normal Years (AFY)

	2015	2020	2025	2030	2035	2040
Existing Supplies						
Alluvial Aquifer	24,000	24,000	24,000	25,000	25,000	25,000
Saugus Formation [1]	9,225	10,225	10,225	10,225	10,225	10,225
Recycled Water	325	325	325	325	325	325
Imported Water (SWP)	58,100	57,900	57,600	57,400	57,400	57,400
Imported Water (Flexible Storage Accounts)	0	0	0	0	0	0
Imported Water (Buena Vista-Rosedale)	11,000	11,000	11,000	11,000	11,000	11,000
Imported Water (Other) [2]	1,607	1,607	1,607	1,607	1,607	1,607
Banking Programs (Rosedale Rio-Bravo)	0	0	0	0	0	0
Banking Programs (Semitropic)	0	0	0	0	0	0
Banking Programs (Other) [3]	0	0	0	0	0	0
Total (Existing)	104,257	105,057	104,757	105,557	105,557	105,557
Planned Supplies						
Alluvial Aquifer	0	1,000	2,000	3,000	4,000	5,000
Saugus Formation [1]	1,375	1,375	1,375	1,375	1,375	1,375
Recycled Water [4]	975	2,675	5,175	7,725	10,225	13,725
Banking Programs	0	0	0	0	0	0
Total (Planned)	2,350	5,050	8,550	12,100	15,600	20,100
Total Supplies (Existing and Planned)	**106,607**	**110,107**	**113,307**	**117,657**	**121,157**	**125,657**
Total Demands (CLWA) [5]						
(Includes Portion of Project Demands) [6]	72,343	71,908	80,236	88,564	96,892	105,220
(Includes Entire Project Demands) [7]	72,343	72,250	80,578	88,906	97,234	105,562
CLWA Surplus (With Entire Project)	34,264	37,857	32,729	28,751	23,923	20,095

Source: CLWA's 2010 UWMP

Notes:

[1] CLWA's 2010 UWMP incorporates LACWWD36's Saugus Formation well, construction completed in January 2012, as a "Planned" supply

[2] Includes Newhall Land's water transfer supplies from Nickel Water in Kern County for VWC

[3] Includes Newhall Land's banked groundwater supplies from Semitropic for VWC

[4] Excludes 50 AFY of recycled water supplies for LACWWD36 (projected in CLWA's 2010 UWMP) beginning in 2020

[5] Based on water demand projections incorporating conservation from SBX7-7 requirements (recycled water reductions are excluded)

[6] Includes 251 AFY of Proposed Project water demands estimated in CLWA's 2010 UWMP (See Section 2.2) at full buildout. It is anticipated Proposed Project construction will begin in 2015 and require 40 AFY for initial construction purposes. It is assumed the 251 AFY of water demands included in 2015 incorporate the 40 AFY of water needed during initial construction of the Proposed Project.

[7] Includes an additional 342 AFY of water demands from the Proposed Project (See Section 2.2) at full buildout

Table 9. CLWA's Projected Demands and Supplies - Single Dry Years (AFY)

	2015	2020	2025	2030	2035	2040
Existing Supplies						
Alluvial Aquifer	20,300	20,250	20,200	21,050	21,050	21,025
Saugus Formation [1]	20,400	20,400	20,400	20,400	20,400	20,400
Recycled Water	325	325	325	325	325	325
Imported Water (SWP)	11,900	11,000	9,999	9,100	9,100	9,101
Imported Water (Flexible Storage Accounts)	6,060	4,680	4,681	4,679	4,680	4,680
Imported Water (Buena Vista-Rosedale)	11,000	11,000	11,000	11,000	11,000	11,000
Imported Water (Other) [2]	1,607	1,607	1,607	1,607	1,607	1,607
Banking Programs (Rosedale Rio-Bravo)	20,000	20,000	20,000	20,000	20,000	20,000
Banking Programs (Semitropic)	15,000	15,000	0	0	0	0
Banking Programs (Other) [3]	4,950	4,950	4,950	4,950	4,950	4,950
Total (Existing)	111,542	109,212	93,162	93,111	93,112	93,088
Planned Supplies						
Alluvial Aquifer	200	1,250	2,300	3,850	4,850	5,875
Saugus Formation [1]	3,700	13,700	13,700	13,700	13,700	13,700
Recycled Water [4]	975	2,675	5,175	7,725	10,225	13,725
Banking Programs	0	0	10,000	10,000	20,000	20,000
Total (Planned)	4,875	17,625	31,175	35,275	48,775	53,300
Total Supplies (Existing and Planned)	**116,417**	**126,837**	**124,337**	**128,386**	**141,887**	**146,388**
Total Demands (CLWA) [5]						
(Includes Portion of Project Demands) [6]	80,350	80,757	89,926	99,096	108,265	117,434
(Includes Entire Project Demands) [7]	80,350	81,172	90,341	99,511	108,680	117,849
CLWA Surplus (With Entire Project)	36,067	45,665	33,996	28,875	33,207	28,539

Source: CLWA's 2010 UWMP

Notes:

[1] CLWA's 2010 UWMP incorporates LACWWD36's Saugus Formation well, construction completed in January 2012, as a "Planned" supply

[2] Includes Newhall Land's water transfer supplies from Nickel Water in Kern County for VWC

[3] Includes Newhall Land's banked groundwater supplies from Semitropic for VWC

[4] Excludes 50 AFY of recycled water supplies for LACWWD36 (projected in CLWA's 2010 UWMP) beginning in 2020

[5] Based on water demand projections incorporating conservation from SBX7-7 requirements (recycled water reductions are excluded)

[6] Includes 251 AFY of Project water demands estimated in CLWA's 2010 UWMP (See Section 2.2) at full buildout. It is anticipated Proposed Project construction will begin in 2015 and require 40 AFY for initial construction purposes. It is assumed the 251 AFY of water demands included in 2015 incorporate the 40 AFY of water needed during initial construction of the Proposed Project.

[7] Includes an additional 415 AFY of water demands from the Proposed Project (See Section 2.2) at full buildout. Water demands during dry years are based on the proportions of normal water demands to multiple dry year water demands, as presented in CLWA's 2010 UWMP

Table 10. CLWA's Projected Demands and Supplies - Multiple Dry Years (AFY)

	2015	2020	2025	2030	2035	2040
Existing Supplies						
Alluvial Aquifer	20,425	20,425	20,425	21,825	21,825	21,825
Saugus Formation [1]	19,700	19,700	19,700	19,700	19,700	19,700
Recycled Water	325	325	325	325	325	325
Imported Water (SWP)	32,900	32,900	33,000	33,000	33,000	33,000
Imported Water (Flexible Storage Accounts)	1,510	1,170	1,170	1,170	1,170	1,170
Imported Water (Buena Vista-Rosedale)	11,000	11,000	11,000	11,000	11,000	11,000
Imported Water (Other) [2]	1,607	1,607	1,607	1,607	1,607	1,607
Banking Programs (Rosedale Rio-Bravo)	15,000	15,000	15,000	15,000	15,000	15,000
Banking Programs (Semitropic)	11,500	11,500	0	0	0	0
Banking Programs (Other) [3]	4,950	4,950	4,950	4,950	4,950	4,950
Total (Existing)	118,917	118,577	107,177	108,577	108,577	108,577
Planned Supplies						
Alluvial Aquifer	0	1,000	2,000	3,000	4,000	5,000
Saugus Formation [1]	4,625	11,950	11,950	11,950	11,950	11,950
Recycled Water [4]	975	2,675	5,175	7,725	10,225	13,725
Banking Programs	0	0	7,500	7,500	15,000	15,000
Total (Planned)	5,600	15,625	26,625	30,175	41,175	45,675
Total Supplies (Existing and Planned)	**124,517**	**134,202**	**133,802**	**138,752**	**149,752**	**154,252**
Total Demands (CLWA) [5]						
(Includes Portion of Project Demands) [6]	80,350	80,757	89,926	99,096	108,265	117,434
(Includes Entire Project Demands) [7]	80,350	81,172	90,341	99,511	108,680	117,849
CLWA Surplus (With Entire Project)	44,167	53,030	43,461	39,241	41,072	36,403

Source: CLWA's 2010 UWMP

Notes:

[1] CLWA's 2010 UWMP incorporates LACWWD36's Saugus Formation well, construction completed in January 2012, as a "Planned" supply

[2] Includes Newhall Land's water transfer supplies from Nickel Water in Kern County for VWC

[3] Includes Newhall Land's banked groundwater supplies from Semitropic for VWC

[4] Excludes 50 AFY of recycled water supplies for LACWWD36 (projected in CLWA's 2010 UWMP) beginning in 2020

[5] Based on water demand projections incorporating conservation from SBX7-7 requirements (recycled water reductions are excluded)

[6] Includes 251 AFY of Proposed Project water demands estimated in CLWA's 2010 UWMP (See Section 2.2) at full buildout. It is anticipated Proposed Project construction will begin in 2015 and require 40 AFY for initial construction purposes. It is assumed the 251 AFY of water demands included in 2015 incorporate the 40 AFY of water needed during initial construction of the Proposed Project.

[7] Includes an additional 415 AFY of water demands from the Proposed Project (See Section 2.2) at full buildout. Water demands during multiple dry years are based on the proportions of normal water demands to multiple dry year water demands, as presented in CLWA's 2010 UWMP

Based on CLWA's 2010 UWMP, Tables 11 through 13 show LACWWD36's projected water demands and sources of water supply, under future normal, single dry, and multiple dry year scenarios, from 2015 to 2040. LACWWD36 has historically met all of its water demands with imported water supplies purchased from CLWA, groundwater production, and purchases of Alluvial aquifer ground water from Los Angeles County Honor Farm. Tables 11 through 13 show available water supplies allowing LACWWD36 to meet all water demand projections, including the Project, from 2015 to 2040 under normal, single dry, and multiple dry year scenarios.

LACWWD36 can rely upon up to 1,000 AFY of groundwater production from the Saugus Formation, consistent with the groundwater operating plan. LACWWD36 can also rely on imported water purchased from CLWA. CLWA's water supply sources (including SWP water, Flexible Storage Accounts, water transfers, groundwater banking programs, and recycled water) provide reliability and flexibility allowing purveyors within CLWA's service area, including LACWWD36, to meet all water demands. As discussed previously, LACWWD36 is planning to upgrade the existing pipeline from its connection with CLWA to a 16-inch diameter pipeline which will allow LACWWD36 to receive at least 800 AFY more of imported water supplies than projected in CLWA's 2010 UWMP as available to LACWWD36.

Table 11. LACWWD36's Projected Demands and Supplies - Normal Years (AFY)

	2015	2020	2025	2030	2035	2040
Existing Supplies						
Alluvial Aquifer	0	0	0	0	0	0
Saugus Formation [1]	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0
Imported Water (SWP)	1,656	1,943	2,217	2,489	2,688	2,901
Imported Water (Flexible Storage Accounts)	0	0	0	0	0	0
Imported Water (Buena Vista-Rosedale)	325	375	450	500	525	575
Banking Programs (Rosedale Rio-Bravo)	0	0	0	0	0	0
Banking Programs (Semitropic)	0	0	0	0	0	0
Total (Existing)	1,981	2,318	2,667	2,989	3,213	3,476
Planned Supplies						
Alluvial Aquifer	0	0	0	0	0	0
Saugus Formation [1]	500	500	500	500	500	500
Recycled Water [2]	0	0	0	0	0	0
Banking Programs	0	0	0	0	0	0
Imported Water Supplies [3]	0	800	800	800	800	800
Total (Planned)	500	1,300	1,300	1,300	1,300	1,300
Total Supplies (Existing and Planned)	**2,481**	**3,618**	**3,967**	**4,289**	**4,513**	**4,776**
Total Demands (LACWWD36) [4]						
(Includes Portion of Project Demands) [5]	1,584	1,802	2,146	2,489	2,833	3,177
(Includes Entire Project Demands) [6]	1,584	2,144	2,488	2,831	3,175	3,519
Surplus (With Entire Project)						
LACWWD36	897	1,474	1,479	1,458	1,338	1,257
CLWA (Overall) [7]	34,264	37,857	32,729	28,751	23,923	20,095

Source: CLWA's 2010 UWMP

Notes:

[1] CLWA's 2010 UWMP incorporates LACWWD36's Saugus Formation well, construction completed in January 2012, as a "Planned" supply

[2] Excludes 50 AFY of recycled water supplies for LACWWD36 (projected in CLWA's 2010 UWMP) beginning in 2020

[3] Based on additional capacity of at least 800 AFY through installation of new 16-inch imported water connection with CLWA.

[4] Based on water demand projections incorporating conservation (recycled water reductions are excluded)

[5] Includes 251 AFY of Proposed Project water demands estimated in CLWA's 2010 UWMP (See Section 2.2) at full buildout. It is anticipated Proposed Project construction will begin in 2015 and require 40 AFY for initial construction purposes. It is assumed the 251 AFY of water demands included in 2015 incorporate the 40 AFY of water needed during initial construction of the Proposed Project.

[6] Includes an additional 342 AFY of water demands from the Proposed Project (See Section 2.2) at full buildout.

[7] CLWA overall projected surplus (See Table 8)

Table 12. LACWWD36's Projected Demands and Supplies - Single Dry Years (AFY)

	2015	2020	2025	2030	2035	2040
Existing Supplies						
Alluvial Aquifer	0	0	0	0	0	0
Saugus Formation [1]	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0
Imported Water (SWP)	405	436	440	444	468	499
Imported Water (Flexible Storage Accounts)	206	185	206	228	241	257
Imported Water (Buena Vista-Rosedale)	400	450	500	550	575	625
Banking Programs (Rosedale Rio-Bravo)	775	900	1,000	1,075	1,125	1,200
Banking Programs (Semitropic)	510	594	0	0	0	0
Total (Existing)	2,296	2,565	2,146	2,297	2,409	2,581
Planned Supplies						
Alluvial Aquifer	0	0	0	0	0	0
Saugus Formation [1]	500	825	875	925	975	1,000
Recycled Water [2]	0	0	0	0	0	0
Banking Programs	0	0	440	488	1,028	1,097
Imported Water Supplies [3]	0	800	800	800	800	800
Total (Planned)	500	1,625	2,115	2,213	2,803	2,897
Total Supplies (Existing and Planned)	**2,796**	**4,190**	**4,261**	**4,510**	**5,212**	**5,478**
Total Demands (LACWWD36) [4]						
(Includes Portion of Project Demands) [5]	1,579	2,020	2,407	2,794	3,181	3,568
(Includes Entire Project Demands) [6]	1,579	2,435	2,822	3,209	3,596	3,983
Surplus (With Entire Project)						
LACWWD36	1,217	1,755	1,439	1,301	1,616	1,495
CLWA (Overall) [7]	36,067	45,665	33,996	28,875	33,207	28,539

Source: CLWA's 2010 UWMP

Notes:

[1] CLWA's 2010 UWMP incorporates LACWWD36's Saugus Formation well, construction completed in January 2012, as a "Planned" supply

[2] Excludes 50 AFY of recycled water supplies for LACWWD36 (projected in CLWA's 2010 UWMP) beginning in 2020

[3] Based on additional capacity of at least 800 AFY through installation of new 16-inch imported water connection with CLWA.

[4] Based on water demand projections incorporating conservation (recycled water reductions are excluded)

[5] Includes 251 AFY of Proposed Project water demands estimated in CLWA's 2010 UWMP (See Section 2.2) at full buildout. It is anticipated Proposed Project construction will begin in 2015 and require 40 AFY for initial construction purposes. It is assumed the 251 AFY of water demands included in 2015 incorporate the 40 AFY of water needed during initial construction of the Proposed Project.

[6] Includes an additional 415 AFY of water demands from the Proposed Project (See Section 2.2) at full buildout. Water demands during dry years are based on the proportions of normal water demands to multiple dry year water demands, as presented in CLWA's 2010 UWMP

[7] CLWA overall projected surplus (See Table 9)

Table 13. LACWWD36's Projected Demands and Supplies - Multiple Dry Years (AFY)

	2015	2020	2025	2030	2035	2040
Existing Supplies						
Alluvial Aquifer	0	0	0	0	0	0
Saugus Formation [1]	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0
Imported Water (SWP)	1,117	1,278	1,423	1,592	1,691	1,801
Imported Water (Flexible Storage Accounts)	51	45	50	56	60	64
Imported Water (Buena Vista-Rosedale)	400	450	500	550	575	625
Banking Programs (Rosedale Rio-Bravo)	577	662	723	801	842	890
Banking Programs (Semitropic)	390	447	0	0	0	0
Total (Existing)	2,536	2,882	2,696	3,000	3,168	3,380
Planned Supplies						
Alluvial Aquifer	0	0	0	0	0	0
Saugus Formation [1]	500	750	800	825	850	875
Recycled Water [2]	0	0	0	0	0	0
Banking Programs	0	0	323	362	769	819
Imported Water Supplies [3]	0	800	800	800	800	800
Total (Planned)	500	1,550	1,923	1,987	2,419	2,494
Total Supplies (Existing and Planned)	**3,036**	**4,432**	**4,619**	**4,987**	**5,587**	**5,874**
Total Demands (LACWWD36) [4]						
(Includes Portion of Project Demands) [5]	1,579	2,020	2,407	2,794	3,181	3,568
(Includes Entire Project Demands) [6]	1,579	2,435	2,822	3,209	3,596	3,983
Surplus (With Entire Project)						
LACWWD36	1,457	1,997	1,797	1,778	1,991	1,891
CLWA (Overall) [7]	44,167	53,030	43,461	39,241	41,072	36,403

Source: CLWA's 2010 UWMP

Notes:

[1] CLWA's 2010 UWMP incorporates LACWWD36's Saugus Formation well, construction completed in January 2012, as a "Planned" supply

[2] Excludes 50 AFY of recycled water supplies for LACWWD36 (projected in CLWA's 2010 UWMP) beginning in 2020

[3] Based on additional capacity of at least 800 AFY through installation of new 16-inch imported water connection with CLWA.

[4] Based on water demand projections incorporating conservation (recycled water reductions are excluded)

[5] Includes 251 AFY of Proposed Project water demands estimated in CLWA's 2010 UWMP (See Section 2.2) at full buildout. It is anticipated Proposed Project construction will begin in 2015 and require 40 AFY for initial construction purposes. It is assumed the 251 AFY of water demands included in 2015 incorporate the 40 AFY of water needed during initial construction of the Proposed Project.

[6] Includes an additional 415 AFY of water demands from the Proposed Project (See Section 2.2) at full buildout. Water demands during multiple dry years are based on the proportions of normal water demands to multiple dry year water demands, as presented in CLWA's 2010 UWMP

[7] CLWA overall projected surplus (See Table 10)

As presented in Section 3.0, reliable access to imported water and groundwater supplies, as well as recycled water supplies, have allowed water producers within CLWA's service area to historically meet water demands, including during single and multiple dry years. Based on the demonstrated reliability of its water supply sources, and taking into account existing and planned future water uses (including relevant agricultural and manufacturing uses), LACWWD36 has sufficient, reliable, and sustainable water supplies to meet existing water demands and future growth, including the Project, during normal, single dry and multiple dry years, for twenty years.

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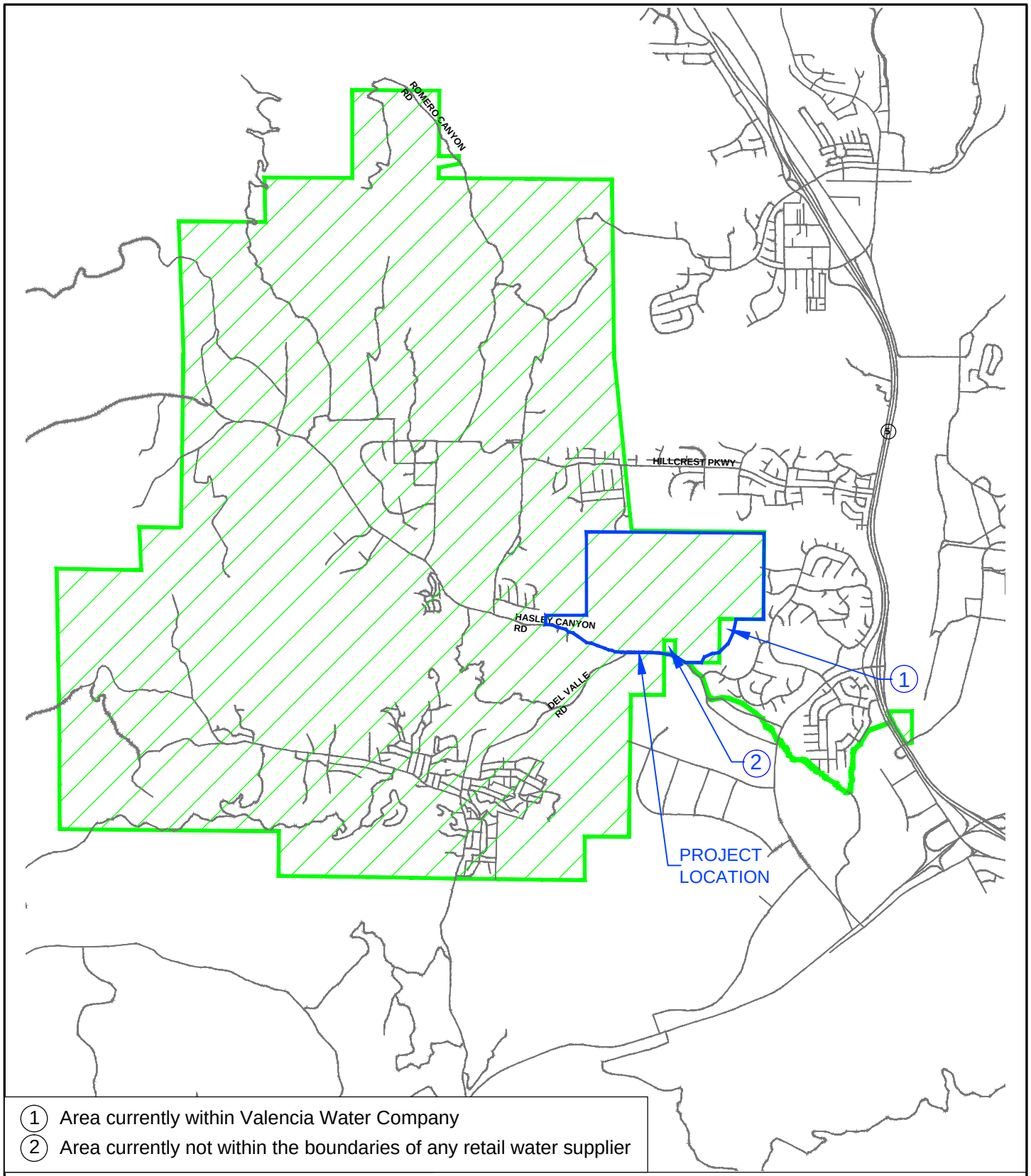
FIGURE 1



1 Area currently within Valencia Water Company

2 Area currently not within the boundaries of any retail water supplier

LEGEND : LOS ANGELES WATERWORKS DISTRICT NO. 36 SERVICE AREA BOUNDARY

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2651 W Guadalupe Rd., Suite A209
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N

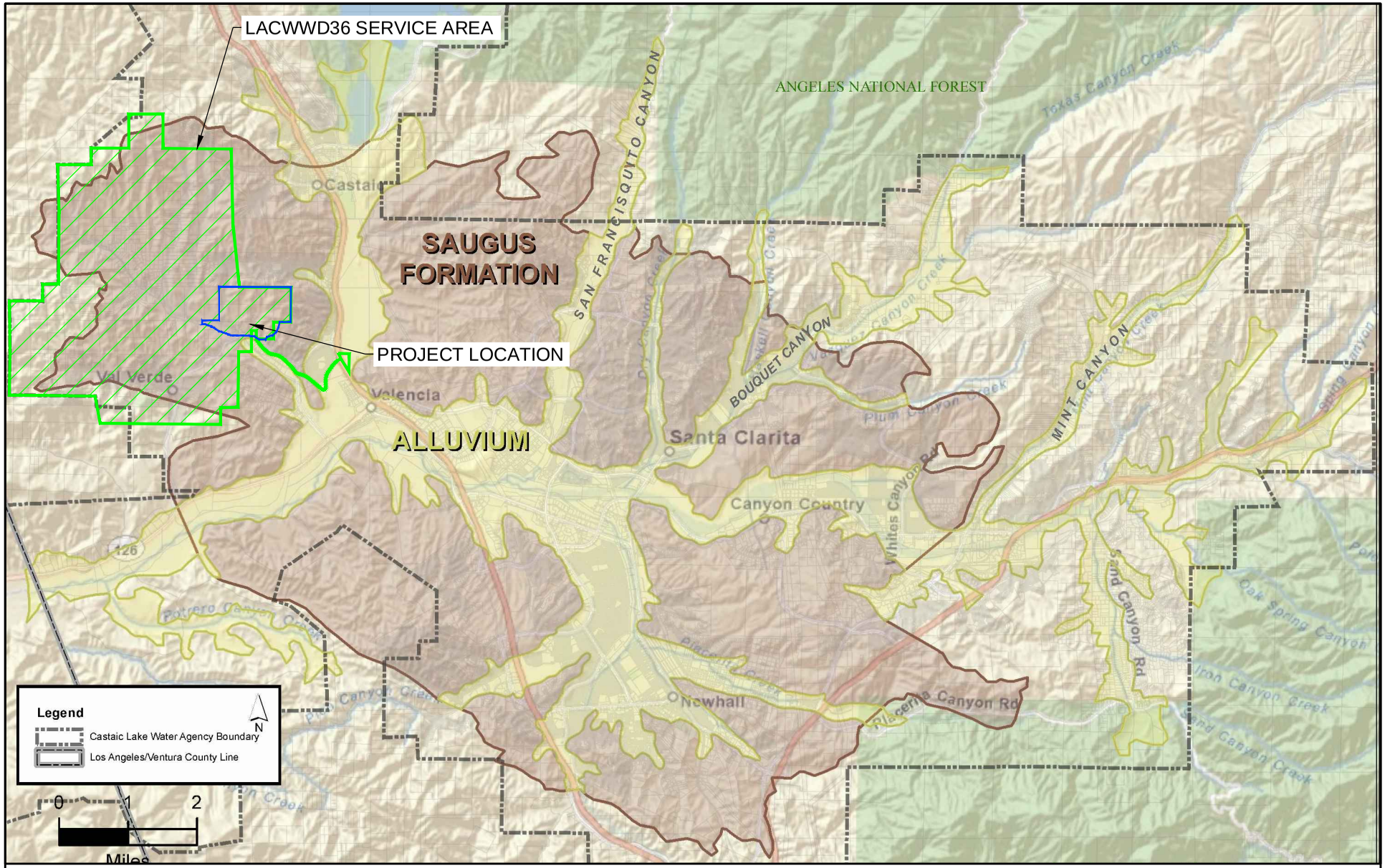
APPROXIMATE SCALE
2,000' 0 2,000'

WATER SUPPLY ASSESSMENT

PROJECT LOCATION

JOBS:\2440\WSA\Figures\FIGURE 1.DWG
JOBS:\2440-01.CTB

FIGURE 2



Source : Luhdorff & Scalmanini Consulting Engineers (from CLWA'S 2010 UWMP); Los Angeles County Department of Public Works

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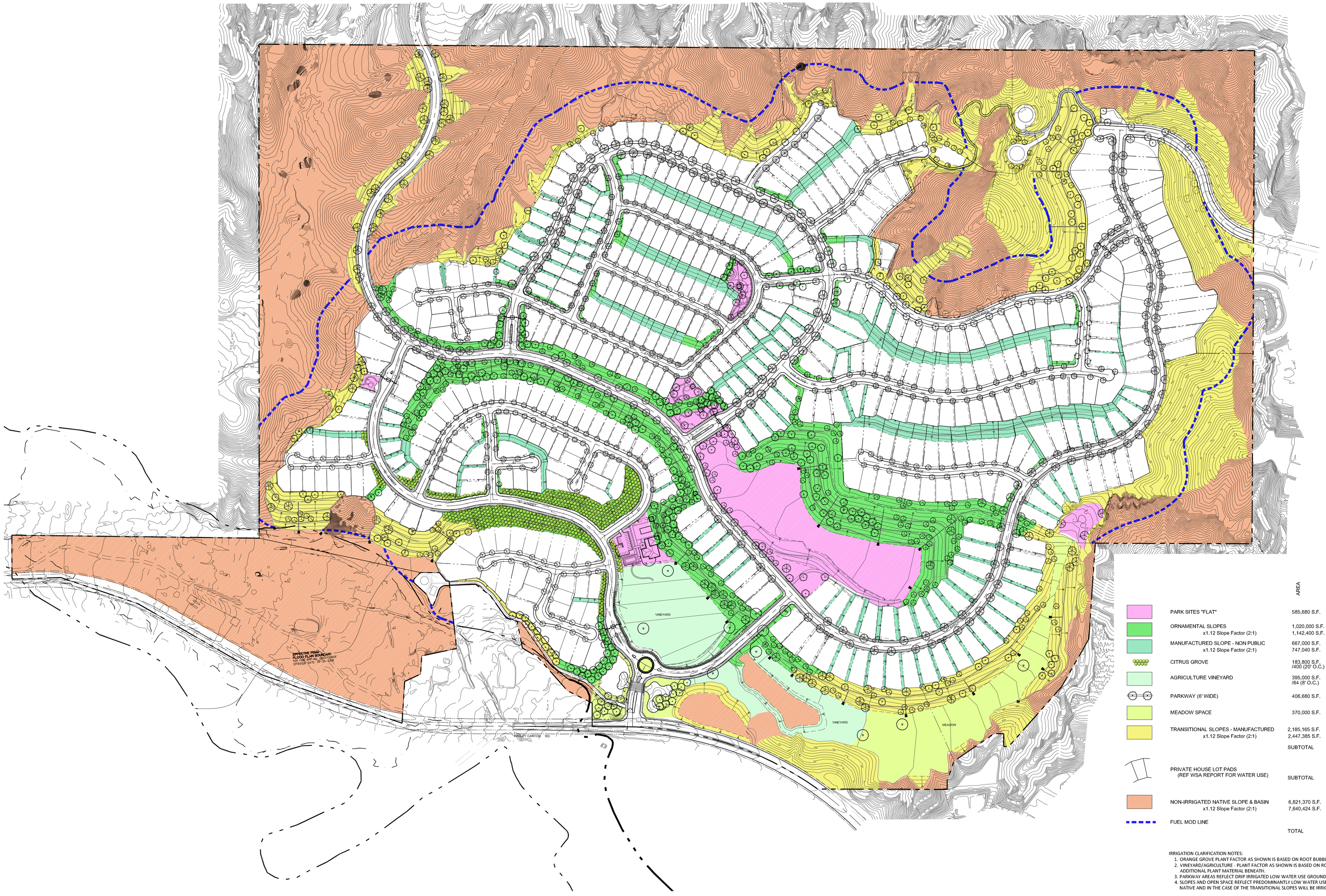
WATER SUPPLY ASSESSMENT

SANTA CLARA RIVER VALLEY EAST GROUNDWATER SUBBASIN

JOBS:\2440\WSA\Figures\FIGURE 2.DWG
JOBS:\2440-01.CTB

APPENDIX A



	AREA	X	EVAPOTRANSPIRATION RATE	X	PLANT FACTOR	X	CONV. FACTOR	/	IRR. EFFICIENCY		GALLONS PER YEAR	ACRE FEET PER YEAR
PARK SITES "FLAT"	585,680 S.F.	13.4 ACRES	61.5		.5		.62		.85	=	13,136,457.0	40.3
ORNAMENTAL SLOPES x1.12 Slope Factor (2:1)	1,020,000 S.F. 1,142,400 S.F.	26.2 ACRES	61.5		.3		.62		.80	=	16,334,891.0	50.1
MANUFACTURED SLOPE - NON PUBLIC x1.12 Slope Factor (2:1)	667,000 S.F. 747,040 S.F.	17.1 ACRES	61.5		.3		.62		.80	=	10,681,738.0	32.8
CITRUS GROVE	183,800 S.F. /400 (20' O.C.)	4.2 ACRES =459.55.F.	61.5		.5		.62		.90	=	9,733.74	0.03
AGRICULTURE VINEYARD	395,000 S.F. /64 (8' O.C.)	9.1 ACRES =6,171.88S.F.	61.5		.3		.62		.90	=	78,444.53	0.24
PARKWAY (6' WIDE)	406,680 S.F.	9.3 ACRES	61.5		.3		.62		.90	=	5,168,902.7	15.9
MEADOW SPACE	370,000 S.F.	8.5 ACRES	61.5		.1		.62		.85	=	1,659,776.4	5.1
TRANSITIONAL SLOPES - MANUFACTURED x1.12 Slope Factor (2:1)	2,185,165 S.F. 2,447,385 S.F.	56.2 ACRES	61.5		.1		.62		.80	=	11,664,848.0	35.8
	SUBTOTAL	144.0 ACRES									58,734,791.37	180.27
PRIVATE HOUSE LOT PADS (REF WSA REPORT FOR WATER USE)		111.0 ACRES										
	SUBTOTAL	255.0 ACRES										
NON-IRRIGATED NATIVE SLOPE & BASIN x1.12 Slope Factor (2:1)	6,821,370 S.F. 7,640,424 S.F.	175.4 ACRES										
FUEL MOD LINE												
	TOTAL	430.4 ACRES									58,734,791.37	180.27

IRRIGATION CLARIFICATION NOTES:

1. ORANGE GROVE PLANT FACTOR AS SHOWN IS BASED ON ROOT BUBBLERS AT EACH TREE (20' O.C.) AND NO ADDITIONAL PLANT MATERIAL BENEATH.
2. VINEYARD/AGRICULTURE - PLANT FACTOR AS SHOWN IS BASED ON ROOT BUBBLERS AT EACH VINE (8' O.C.) WATERED 6 MONTHS OUT OF THE YEAR AND NO ADDITIONAL PLANT MATERIAL BENEATH.
3. PARKWAY AREAS REFLECT DRIP IRRIGATED LOW WATER USE GROUNDCOVER AND STREET TREES.
4. SLOPES AND OPEN SPACE REFLECT PREDOMINANTLY LOW WATER USE PLANT MATERIAL, WHICH IN THE CASE OF THE OPEN SPACE WILL TRANSITION TO NATIVE AND IN THE CASE OF THE TRANSITIONAL SLOPES WILL BE IRRIGATED ONLY AS REQUIRED DURING THE HOTTEST MONTHS.

0' 100' 200' 400'

NORTH

LOS VALLES

IRRIGATION USAGE ESTIMATE

SITESCAPES
Landscape Architecture & Planning
3190-B2 Airport Loop Drive
Costa Mesa, CA 92626
Ronald Peterson, License # 3787
(949) 644-9370 FAX (714) 210-3140

JOB NO. 11-006 OCTOBER, 23, 2013
REV. APRIL 11, 2014

APPENDIX 5.15.1-2

Evaluation of System Hydraulics and Booster Pump Station Los Valles Development Project

STETSON
ENGINEERS INC.

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Phone: (626) 967-6202 • FAX: (626) 331-7065 • Web site: www.stetsonengineers.com

Northern California • Southern California • New Mexico • Arizona • Nevada • Colorado

Reply to: Covina

DRAFT

MEMORANDUM

TO: **Steve Wylder**
iStar Financial Inc.

FROM: **Stetson Engineers Inc.**

SUBJECT: **Evaluation of System Hydraulics and Booster Pump Station**
Los Valles Development Project

JOB NO.: **2485-01**

DATE: **April 10, 2015**

Stetson Engineers, Inc. (Stetson) previously prepared a memorandum entitled "Cost Estimate for District No. 36 Pipeline" in August 2014 to estimate the cost to construct the 16-inch diameter pipeline to connect Los Angeles County Waterworks District (District No. 36's) water distribution system to an existing, currently unused, turnout (LACWW36) from Castaic Lake Water Agency (CLWA) located at Sedona Way, as shown on Figure 1. Potential cost sharing scenarios with District No. 36 were also presented in the memorandum. Stetson was recently authorized by iStar Financial to evaluate the need for a booster pump station based on the available system hydraulics information from the CLWA connection and the required pressure at the connection point of the proposed 16-inch diameter pipeline on Hasley Canyon Road. This memorandum summarizes our preliminary evaluation of the system hydraulics through the existing 24-inch diameter Pitchess Pipeline starting at turnout LA-3 up to turnout LACWW36, then through the existing District 36 16-inch diameter pipeline on Old Road (from turnout LACWW36 towards Hasley Canyon Road), and finally through the proposed 16-inch diameter pipeline on Hasley Canyon Road, as shown on Figure I. The information from the hydraulic analysis was used to determine that a booster pump station is required. Potential locations for the booster pump station were reviewed and a preliminary recommendation is provided.

System Hydraulics

Existing 24-inch Diameter Pitchess Pipeline

According to CLWA staff, the available pressure at the connection point known as LA-3 on the Pitchess Pipeline is approximately 151 pounds per square inch (psi). The pipeline is approximately 5,000 feet (ft) in length from turnout LA-3 to the District No. 36 turnout at Sedona Way known as LACWW36, as shown on Figure 1. The ground elevation declines from approximately 1,064 ft mean sea level (MSL) at LA-3 to about 1,058 ft (MSL) at LACWW36. The friction losses through the 24-inch diameter 5,000 ft of Pitchess Pipeline are about 19 ft for a flow rate of 7,050 gpm. The estimated hydraulic grade line at LA-3 turnout is 1,411 ft (151 psig x 2.3 +1,064 ft = 1,411 ft). The estimated hydraulic grade at turnout LACWW36 is 1,392 ft (1,411-19 = 1,392), as shown in Figure 2.

Existing 16-inch Diameter District 36 Pipeline

This pipeline is approximately 1,040 ft in length and goes along The Old Road from Hasley Canyon Road to Sedona Way where a short connecting pipeline will need to be installed to connect to the District No. 36 turnout LACWW36, which is a 16-inch diameter connection. The friction losses through this stretch of 16-inch diameter pipeline is about 6.3 ft for the desired flow rate of 3,333 gpm requested during a meeting with District No. 36 staff on March 4, 2015.

Proposed Los Valles 16-inch Diameter Pipeline

The proposed Los Valles 16-inch diameter pipeline is approximately 5,700 ft in length and goes along Hasley Canyon Road to the existing 16-inch butterfly valve approximately 300 ft east of the intersection of Gibraltar Lane and Hasley Canyon Road. The friction losses for the proposed 16-inch diameter pipeline are about 34.8 ft for a flow rate of 3,333 gpm. The hydraulic grade line at the pipeline connection point near the intersection of Gibraltar and Hasley Canyon Road is approximately 1,351 (1,411-19-6.38-34.83) ft, as shown in Figure 2.

Evaluation of Need for Booster Station

The purpose of connecting the existing 24-inch Pitchess Pipeline to the existing 16-inch diameter pipeline near the intersection of Gibraltar Lane and Hasley Canyon Rd is to supply water to the existing 750,000-gallon reservoir located inside the Los Valles Development at approximate elevation of 1,600 ft. Figure 2 shows that the estimated available hydraulic grade at the pipeline connection point from the existing pressure provided at the connection point is about 1,351 ft after losses through the pipeline to this point. The available hydraulic grade of 1,351 ft is not sufficient to move water to the 750,000-gallon reservoir located at a level of 1,600 ft. Therefore a booster station will be required to move the water from Pitches Pipeline to the Los Valles Development reservoir.

Sizing of Booster Pump Station

A meeting was held between Stetson and District No. 36 staff on March 4, 2015 to confirm the capacity requirements for the proposed booster pumps. District No. 36 staff indicated the anticipated water storage requirement is 1.6 million gallons (MG) and that the proposed booster station shall be capable of filling the 1.6 MG in eight (8) hours, which equates to about 3,333 gallons per minute (gpm) (1,600,000 / 8 / 60). There is an existing 750,000-gallon reservoir within the Los Valles Development and a new 850,000-gallon reservoir will be constructed adjacent to the existing reservoir to provide the needed storage capacity. Based on this estimate, the preliminary design of the booster pump station would consist of three (3) booster pumps, with two (2) active and one (1) standby pump, each capable of producing approximately 1,660 gpm. A preliminary layout of the proposed booster pump station is shown on Figure 3. The size of the pump building would be 26 ft by 22 ft surrounded by a security fence with dimensions of 56 ft by 52 ft.

Potential Location of Booster Station

Based on the system hydraulics and the estimated footprint (56 ft x 52 ft) of the proposed booster pump station, three potential preliminary locations for the booster pump station have been identified, as shown on Figures 4, 5, and 6.

Option 1 is located at the Bank of America parking lot at the intersection of Sedona Way and The Old Road and would be located adjacent to turnout LACWW36 and water facilities owned by Valencia Water Company (VWC), as shown on Figure 4. Installation of the booster pump station as shown in Option 1 will require pumps with approximately 319 ft of Total Dynamic Head (TDH) (1,620 ft – 1,392 ft + 6.38 ft + 34.83 ft + 12.2 ft + 27.82 ft = 319 ft). The 16-inch diameter pipeline at the booster station discharge will be subjected to an approximate working pressure of 285 pounds per square inch (psig). During surge conditions the maximum pressure would be about 335 psig assuming the velocity of water at 5 ft/sec and 10 psig surge for every 1 ft/sec of water velocity.

Option 2 is located on undeveloped property near the intersection of Hasley Canyon Road and Gibraltar Lane, as shown on Figure 5. This proposed location is approximately 400 ft from the proposed 16-inch diameter pipeline connection. This option will require booster pumps with 319 ft TDH (1,620 ft – 1,351 ft + 12.2 ft + 37.2 ft = 319 ft). The discharge pipe will be subjected to a normal operating pressure of 213 psig with a maximum operating pressure of 263 psig during surge condition.

Option 3 is located near the entrance of the Los Valles Development adjacent to Hasley Canyon Road, as shown on Figure 6. This proposed location is approximately 2,000 ft from the proposed 16-inch diameter pipeline connection and approximately 6,200 ft to the existing 750,000-gallon reservoir. This option will require booster pumps of 319 ft TDH (1,620 ft – 1,339 ft + 37.82 ft = 319 ft). The discharge pipe will be subjected to a normal operating pressure of 186 psig. During surge the pipeline will be subjected to a pressure of 236 psig.

All three options will require the pumps to provide approximately 319 ft TDH. Option 1 will require use of space designated as parking area owned by commercial entities and may be difficult to acquire. The operating pressure of the pipeline will be high at 285 psig for Option 1. Option 2 will use an area that was undeveloped at the time current available aerial photographs were taken on Hasley Canyon Rd and may be easier to procure for the purpose of installation of the booster station. The operating pressure of the pipeline will be at 213 psig. Option 3 using the existing property within the Los Valles development area will have the pipeline operating at the lowest pressure of 186 psig, but may not be compatible with the current development plans.

The operating cost of the booster pumps will be the same for all the three options. The booster station location as indicated in Option 1 located near the existing turnout LAC2236 is not a good choice due to high operating pressure of the pipeline. The existing parking lot may not be available. Option 2 seems to be a feasible location; however, this option will require procurement of new land. Option 3 location for booster pumps will operate the pipeline at the lowest pressure compared to Option 1 or Option 2, but may have unacceptable impacts on the development.

Estimated Cost

The estimated construction cost of the proposed booster pump station based on our preliminary understanding is approximately $1.9 million, as detailed on Table 1, and includes 10 percent for engineering, 10 percent for construction management, and a 30 percent contingency. This cost estimate does not include procurement cost for land.

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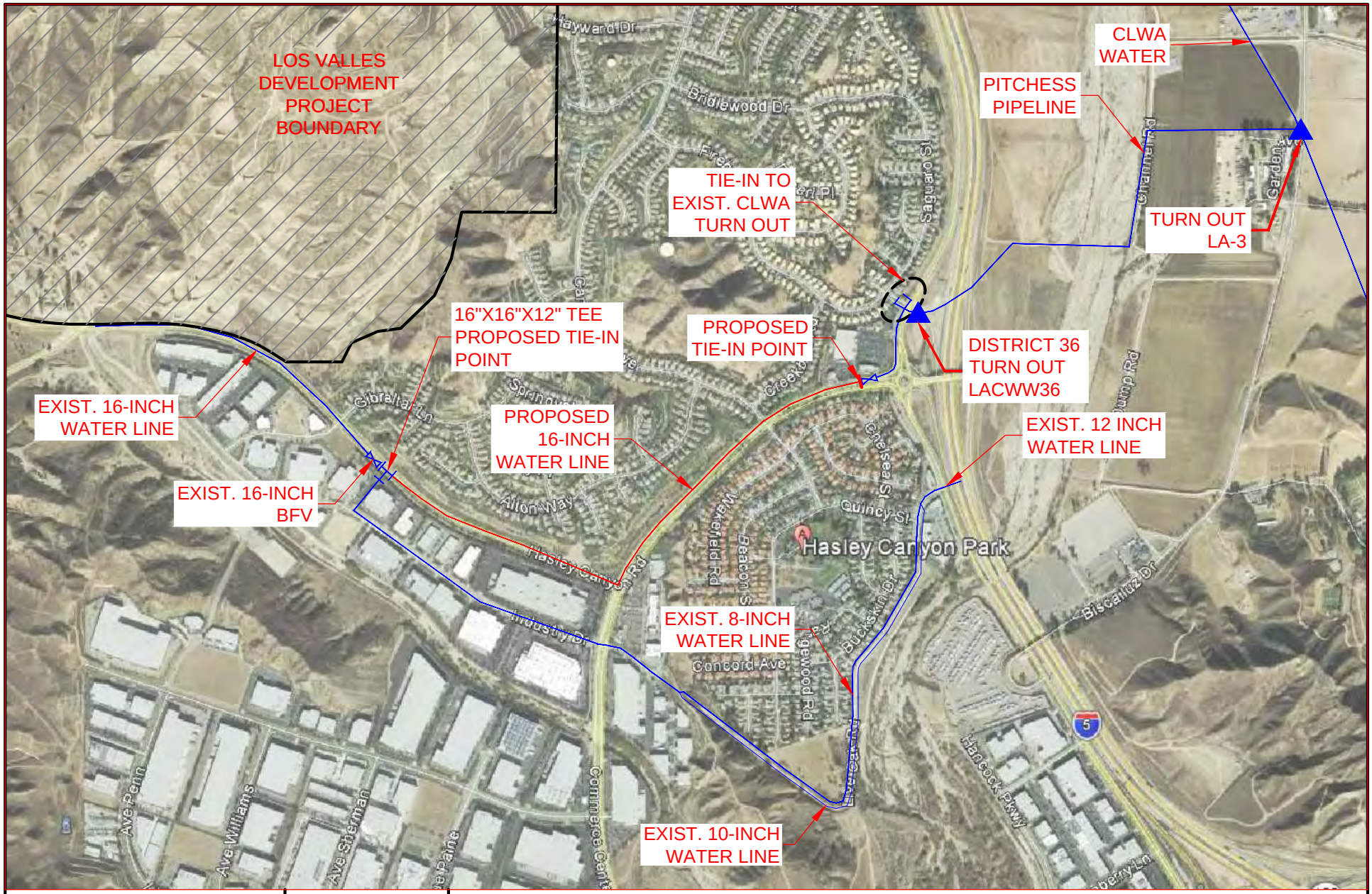
FIGURE 1



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N

APPROXIMATE SCALE
0 600' 1,200'

LOS VALLES DEVELOPMENT

SITE PLAN

J:\2485\01\Booster Station Study\Draft-Report-3-23-15\Autocad Files\FIGURE 1.dwg
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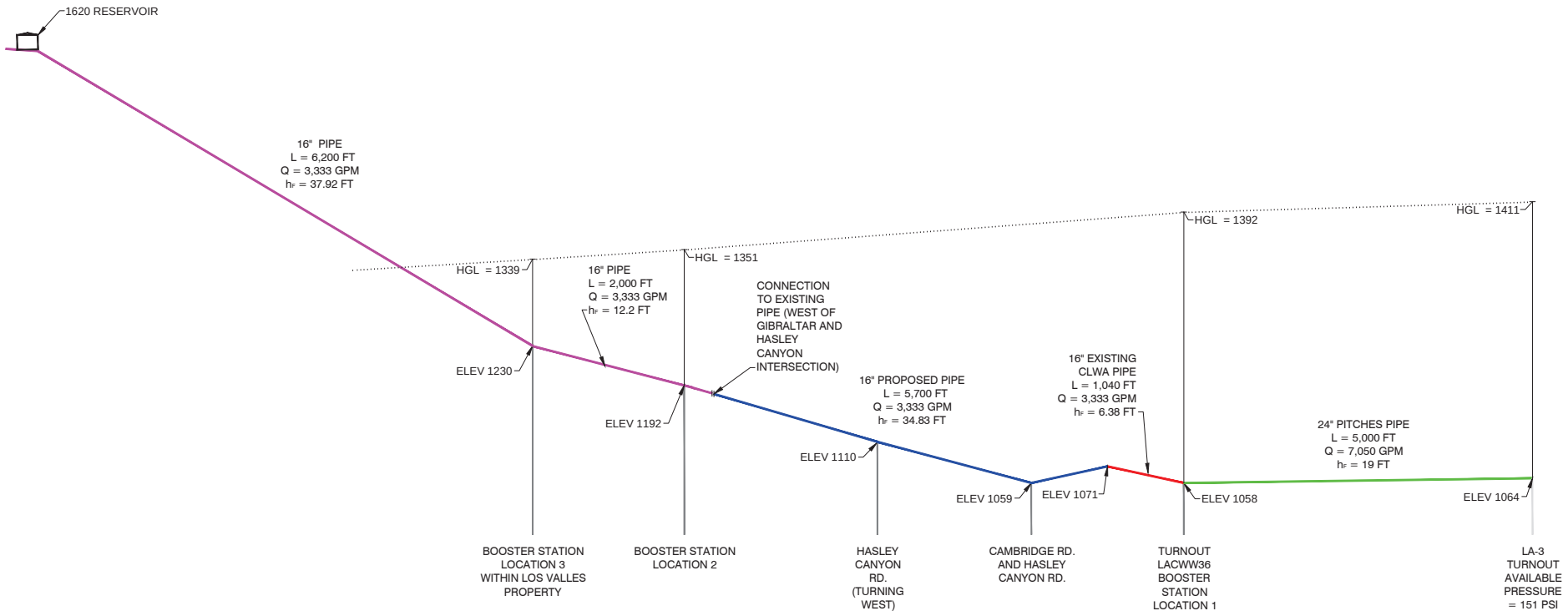

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Mesa Arizona 85202

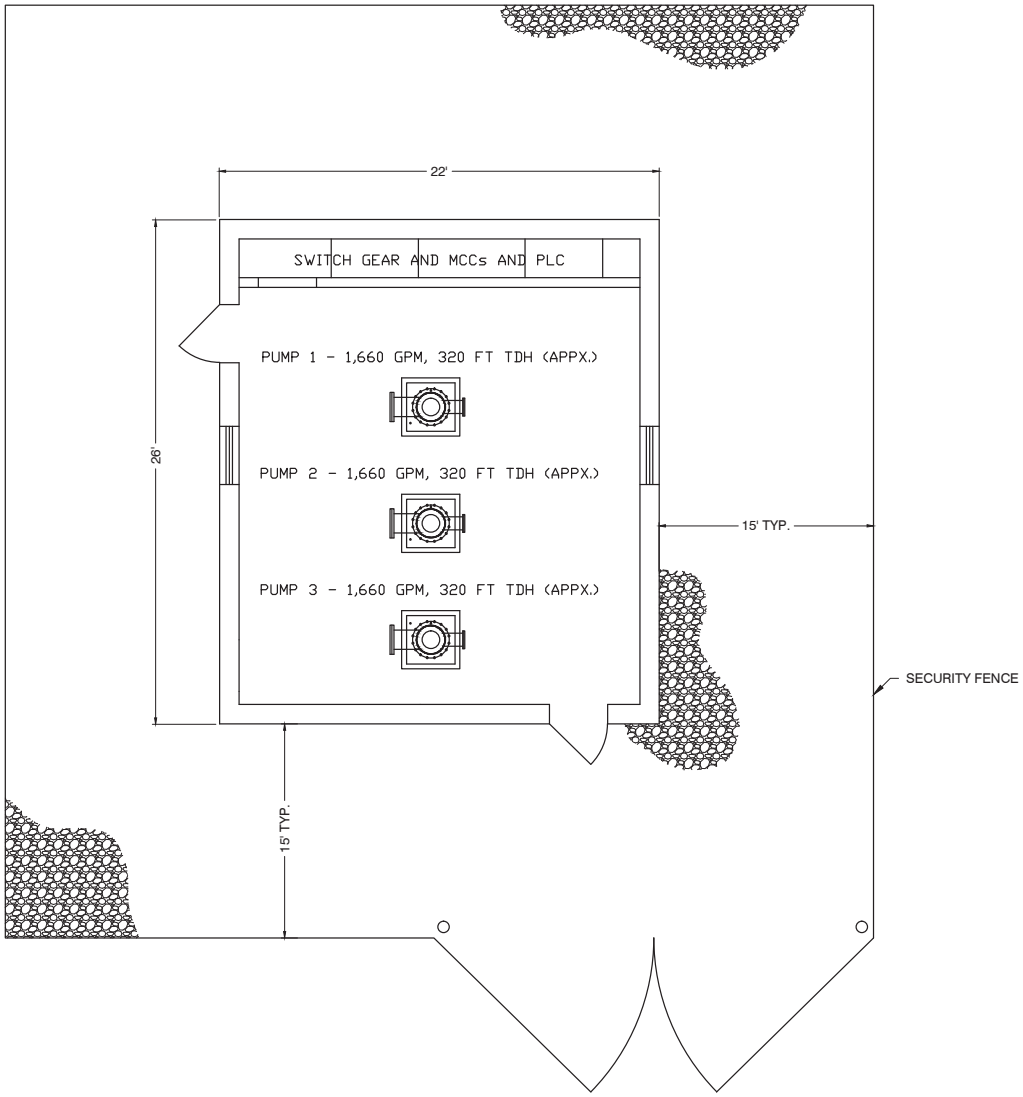
NOT TO SCALE

LOS VALLES DEVELOPMENT

BOOSTER STATION - HYDRAULIC PROFILE

FIGURE 2

J:\2485\01\Booster Station Study\Draft-Report-3-23-15\Autocad Files\FIGURE 2 HGL 040315.dwg



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LOS VALLES DEVELOPMENT

BOOSTER PUMP STATION - PRELIMINARY LAYOUT

FIGURE 3

J:\2485\01\Booster Station Study\Draft-Report-3-23-15\Autocad Files\FIGURE 3 Booster Station Layout 040715.dwg

FIGURE 4

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LOS VALLES DEVELOPMENT

BOOSTER STATION LOCATIONS - OPTION 1

J:\2485\01\Booster Station Study\Draft-Report-3-23-15\Autocad Files\FIGURE 4 5 6 Booster Location Options 1-3 031815.dwg
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FIGURE 5

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NOT TO SCALE

LOS VALLES DEVELOPMENT

BOOSTER STATION LOCATIONS - OPTION 2

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FIGURE 6

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NOT TO SCALE

LOS VALLES DEVELOPMENT

BOOSTER STATION LOCATIONS - OPTION 3

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TABLE 1
Los Valles Booster Pump Station Project

Engineers Estimate of Construction Cost

3/18/2015

ITEM NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	TOTAL PRICE
1	Furnish all labor, material and equipment to mobilize, demobilize, and provide cleanup of site: provide all bonds, insurance, and obtain all permits, (60% due at mobilization, 40% due at demobilization).	1	LS	$125,000	$125,000.00
	Site Work				
2	Site Grading: Site grading complete; including all overexcavation & recompaction; and compacted subgrade for paving areas	1	LS	$20,000	$20,000.00
3	Site Paving: Site paving, complete; including asphalt, and compacted base,	1	LS	$20,000	$20,000.00
4	PCC Curb and Gutter	1	LS	$10,000	$10,000.00
5	Fence & Gate	1	LS	$7,500	$7,500.00
	Booster Building				
6	Booster Station Building: Construct the booster building (26 ft x 22 ft) including, foundation including concrete encasement of pump cans, reinforced block walls, roof framing, roofing, complete :	1	LS	$250,000	$250,000.00
	Booster Pumps & Piping				
7	Pumps 1650 gpm, 420 ft TDH, 250 HP	3	EA	$75,000	$225,000.00
8	Piping	1	LS	$150,000	$150,000.00
9	Isolation Valves, pump control valves	1	LS	$40,000	$40,000.00
10	Flow Meter	1	EA	$15,000	$15,000.00
11	Flow Meter Vault	1	EA	$15,000	$15,000.00
	Electrical				
12	Install new electrical service including conduits and transformer pad.	1	LS	$30,000	$30,000.00
13	Supply and installation of Motor Control Center including three (3) VFD, dry type transformer,breakers switchboard	1	LS	$175,000	$175,000.00
14	Remote Telemetry Unit system including the enclosure	1	LS	$40,000	$40,000.00
15	Conduit, Wiring,lighting, security system	1	LS	$75,000	$75,000.00
	Subtotal				$1,197,500.00
	Contingency 30%				$359,250.00
	Total				**$1,556,750.00**
	Engineering 10%				$155,675.00
	Construction Management 10%				$155,675.00
	Total Estimate				**$1,868,100.00**

APPENDIX 5.15.2-1

County of Los Angeles Sanitation Districts Correspondence, July 29, 2013

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON CHAN
Chief Engineer and General Manager

July 29, 2013

Kathleen King
Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road, Suite C
Camarillo, CA 93012

Dear Ms. King:

Response to Request of Information for
the Preparation of the Los Valles Draft Environmental Impact Report

The County Sanitation Districts of Los Angeles County (Districts) received the above-referenced request for information for the proposed project on July 5, 2013. Regarding solid waste management for the above-mentioned project, the Districts offer the following general topical responses to the specific questions in your letter:

Topical Response 1:

The California Department of Resources Recycling and Recovery's (CalRecycle) website, http://www.calrecycle.ca.gov, contains information regarding solid waste disposal facilities. There are numerous public and private landfills and transfer stations in Los Angeles County that could potentially receive waste from the proposed project. The Puente Hills Landfill (PHLF), located at 13130 Crossroads Parkway South in the City of Industry, is the closest landfill operated by the Districts. The conditional use permit (CUP) for the PHLF authorizes the disposal of a maximum of 13,200 tons per day. The site currently receives approximately 7,235 tons per day of refuse, and disposal operations will continue under the CUP until November 1, 2013. The site will then stop accepting waste for disposal.

Other solid waste management facilities operated by the Districts that are available to the proposed project and offer recycling options include the Commerce Refuse-to-Energy Facility (CREF), the Downey Area Recycling and Transfer Facility (DART), the South Gate Transfer Station, and the Puente Hills Materials Recovery Facility (PHMRF). CREF is located at 5926 Sheila Street in the City of Commerce and is a transformation facility that is permitted to accept up to 1,000 tons per day, not to exceed 2,800 tons per week. CREF currently receives approximately 480 tons per day of refuse. DART is located at 9770 Washburn Road in the City of Downey. DART is a materials recovery/transfer facility that is permitted to accept up to 5,000 tons per day and currently receives approximately 305 tons per day of refuse. The South Gate Transfer Station is located at 9530 Garfield Avenue in the City of South Gate and is permitted to accept up to 1,000 tons per day of refuse and currently receives approximately 380 tons per day of refuse. The PHMRF is located at 2808 Workman Mill Road in the City of Whittier

and began operating in July 2005. The PHMRF is permitted to accept 4,400 tons per day, not to exceed 24,000 tons per week of municipal solid waste. The PHMRF currently receives approximately 140 tons per day of refuse.

Topical Response 2:

The latest comparison of daily disposal demand and available capacity is presented in the County of Los Angeles, Countywide Integrated Waste Management Plan (CIWMP) 2011 Annual Report, dated August 2012. The 2011 Annual Report analyzed nine different scenarios with various capacity options, including expansion of existing landfills, increase utilization of out-of-county capacity, increase in diversion rate, and utilization of alternative technology. Under Scenario I – Status Quo in Appendix E-4, the disposal capacity shortfall is expected to occur beginning in 2014 at 3,116 tpd, which is the worst-case scenario with landfill diversion remaining at the current level, no further landfill expansions, or implementation of alternative technologies. If landfill diversion continues to increase, alternative technologies are implemented, or any of the proposed landfill expansions are granted, the disposal capacity shortfall will occur well beyond 2014. Under Scenario IX – Best Case Scenario, where all solid waste management options considered become available, the County would have excess capacity of 6,232 tpd in 2014 and would not experience a disposal capacity shortfall in the 15-year planning period through 2026.

Table 1 indicates that the amount of waste disposed of in the Districts' landfills has decreased significantly since 2005 and the amounts remain below the permitted capacity of these facilities, and also well below the historical trend line.

Table 1: Summary of Disposal by Los Angeles County Jurisdictions*
Year Average (tpd-6) Trend (%)**

2005	46,409	
2006	38,727	-17%
2007	37,031	-4%
2008	33,758	-9%
2009	29,621	-12%
2010	28,010	-5%
2011	28,381	1%
2012	27,668	-3%

Overall Trend from 2005 through 2012: Decrease of 40 percent

* Source: Solid Waste Disposal Reports by Facilities, County of Los Angeles Department of Public Works (excludes import). It should be noted that fourth quarter disposal data at Chiquita Canyon Landfill was unavailable and the data above included an estimated fourth quarter disposal at the Chiquita Canyon Landfill equaled to the average of its first three quarters of 2012.

** tpd-6 = tons per day based on six days per week average, assuming 310 operating days in a year (2005-2012).

Topical Response 3:

Currently, there are seven major landfills permitted to accept solid waste in Los Angeles County; five are located in the metropolitan Los Angeles area, and two are located in the Antelope Valley. A major landfill is defined as a facility that is permitted to receive at least 500 tons of municipal solid waste (MSW) per day. Four sites are privately owned and operated, and three are operated by the Sanitation Districts. In addition, there are four minor landfills and two refuse-to-energy facilities in Los Angeles County. As noted in Table 1, Los Angeles County disposed of approximately 8.6 million tons or 27,668 tons per day of solid waste based on six operating days (tpd-6) at Class III landfills and transformation facilities located in and out of the County. Of this amount, approximately 78 percent, or 21,716 tpd-6, were handled by waste management facilities located within Los Angeles County.

Topical Response 4:

The California Integrated Waste Management Act, AB 939, requires cities to divert 50 percent of the waste stream away from land disposal. Furthermore, each jurisdiction must develop Source Reduction and Recycling Elements (SRREs) to identify the programs that they will use to achieve this goal. In general, the SREEs encourage recycling. The County of Los Angeles Department of Public Works, Environmental Programs Division (LACDPW-EPD) should also be contacted with regard to any site specific issues such as any commercial recycling programs that may be required.

The Districts recommend that occupants should be encouraged to recycle newspaper, glass containers, aluminum and bimetal cans, and plastic bottles. Recycling should be included in the design of the project by reserving space appropriate for the support of recycling, such as adequate storage areas and access for recycling vehicles. It is recommended that refuse collection contracts include provisions for collection of recyclables. In addition, all contractors should be urged to recycle construction and demolition wastes to the maximum extent feasible. It should be recognized that, even with recycling, adequate regional disposal capacity is needed to accommodate new developments. If you require additional information on materials recovery facilities or disposal, you should consult with LACDPW-EPD, the California Department of Resources Recycling and Recovery (CalRecycle), or their website http://www.calrecycle.ca.gov.

If you have any further questions regarding these responses or recycling options, please contact Nick Morell, Recycling Coordinator for the Districts, at (562) 908-4288, extension 2444.

Very truly yours,

Grace Robinson Chan

CR Salomon

Christopher R. Salomon
Supervising Engineer
Planning Section

CRS:NM:ddg

APPENDIX 5.15.3-1

County of Los Angeles Sanitation Districts Correspondence, August 13, 2013

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON CHAN
Chief Engineer and General Manager

August 13, 2013

Ref File No.: 2692363

Ms. Kathleen King, Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road, Suite C
Camarillo, CA 93012

Dear Ms. King:

Los Valles Residential Project

This is in reply to your email request for information with regards to the subject project, which was received by the County Sanitation Districts of Los Angeles County (Districts) on August 5, 2013. The proposed development is located within the jurisdictional boundaries of the Santa Clarita Valley Sanitation District. We offer the following comments regarding sewerage service:

1. The wastewater flow originating from the proposed project will discharge to a local sewer line, which is not maintained by the Districts, for conveyance to the Districts' Castaic Trunk Sewer, located in a private right of way northwest of the intersection of Hasley Canyon Road and The Old Road. This 15–inch diameter trunk sewer has a design capacity of 2.9 million gallons per day (mgd) and conveyed a peak flow of 2.5 mgd when last measured in 2012.

2. Availability of sewer capacity depends upon project size and timing of connection to the sewerage system. Because there are other proposed developments in the area, the availability of trunk sewer capacity should be verified as the project advances. Please submit a copy of the project's build-out schedule to the undersigned to ensure the project is considered when planning future sewerage system relief and replacement projects.

3. The District operates two water reclamation plants (WRPs), the Saugus WRP and the Valencia WRP, which provide wastewater treatment in the Santa Clarita Valley. These facilities are interconnected to form a regional treatment system known as the Santa Clarita Valley Joint Sewerage System (SCVJSS). The SCVJSS has a design capacity of 28.1 mgd and currently processes an average flow of 19.6 mgd.

4. For additional information regarding the District's wastewater treatment facilities, go to www.lacsd.org/wastewater/wwfacilities/default.asp.

5. The Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System or increasing the strength or quantity of wastewater attributable to a particular parcel or operation already connected. This connection fee is a capital facilities fee that is imposed in an amount sufficient to

Recycled Paper

construct an incremental expansion of the Sewerage System to accommodate the proposed project. Payment of a connection fee will be required before a permit to connect to the sewer is issued. For a copy of the Connection Fee Information Sheet, go to www.lacsd.org, Wastewater & Sewer Systems, Will Serve Program, and click on the appropriate link. For more specific information regarding the connection fee application procedure and fees, please contact the Connection Fee Counter at extension 2727.

6. In order for the Districts to conform to the requirements of the Federal Clean Air Act (CAA), the design capacities of the Districts' wastewater treatment facilities are based on the regional growth forecast adopted by the Southern California Association of Governments (SCAG). Specific policies included in the development of the SCAG regional growth forecast are incorporated into clean air plans, which are prepared by the South Coast and Antelope Valley Air Quality Management Districts in order to improve air quality in the South Coast and Mojave Desert Air Basins as mandated by the CCA. All expansions of Districts' facilities must be sized and service phased in a manner that will be consistent with the SCAG regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with the approved growth identified by SCAG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the Districts intend to provide this service up to the levels that are legally permitted and to inform you of the currently existing capacity and any proposed expansion of the Districts' facilities.

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Grace Robinson Chan

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar

DOC: #2698636.DSCV

APPENDIX 5.15.3-2

County of Los Angeles Sanitation Districts E-Mail Correspondence, August 22, 2013

From: Raza, Adriana <araza@lacsd.org>
Sent: Thursday, August 22, 2013 10:04 AM
To: Kathleen King
Subject: RE: Quick Question Regarding LA County wastewater
Attachments: Los_Valles_Residential_Project.pdf

Please accept the responses below marked in red.

From: Kathleen King [mailto:KKing@impactsciences.com]
Sent: Tuesday, August 20, 2013 5:26 PM
To: Raza, Adriana
Subject: RE: Quick Question Regarding LA County wastewater

Hi Adriana,

I do have a couple more questions as I am drafting the wastewater section for this EIR.

- Can you provide me with any existing gravity sewer mains which run parallel to the property, location at 28801 Hasley Canyon Road91384.

[Raza, Adriana] Attached you will find a copy of the original letter mailed to your attention. Paragraph 1 details the wastewater flow will be conveyed via local sewer lines to the Districts' Castaic Trunk Sewer, located in a private right of way northwest of the intersection of Hasley Canyon Road and The Old Road. This is the closest existing gravity trunk sewer directly east of the property.

- Can you provide the location (intersection) of the closest sewer lift station which would pump wastewater to the Valencia WRP?

[Raza, Adriana] The closest pumping plant to the project site would be the Castaic Pumping Plant, located on the east side of The Old Road south of Henry Mayo Drive, in Valencia.

- Can you provide a generation factor used by the County for Single family residences?

[Raza, Adriana] The generation factor used by the Districts' for Single family residences is 260 gallons per day.

Thanks again- Kathleen

From: Raza, Adriana [mailto:araza@lacsd.org]
Sent: Tuesday, August 20, 2013 7:35 AM
To: Kathleen King
Subject: RE: Quick Question Regarding LA County Waste Haulers

Good Morning Kathleen,

With regards to your question, I spoke with Nick Morell, who generally answers solid waste related inquiries. He mention we do not have this information available but, recommended you call Ms. Emiko Thompson in the Environmental Program Division of LA Public Works. It is not definite but, she may have this information available. Her number is (626) 458-3521.

Regards,
Adriana

From: Kathleen King [mailto:KKing@impactsciences.com]
Sent: Monday, August 19, 2013 4:14 PM
To: Raza, Adriana
Subject: Quick Question Regarding LA County Waste Haulers

Hi Adriana,
I hope the start of your week is going well. I had a quick question regarding solid waste disposal in LA County. Do you know the approximate number of waste haulers permitted by the County of LA Department of Health Services to collect residential, commercial, and industrial waste in unincorporated LA County for 2012, and if not for 2012 possibly 2011? Thank you for your assistance.

Best,

Kathleen

From: Raza, Adriana [mailto:araza@lacsd.org]
Sent: Monday, August 12, 2013 9:17 AM
To: Kathleen King
Subject: RE: Proposed Project in Santa Clarita Valley Region, LA County: Existing Conditions Request

Good Morning,

I'm actually working on completing the request today for my supervisor to review. Hopefully it should be routed to your attention by tomorrow morning. I know you are pressed for time, so if you like, I can send you a pdf copy of the document prior to mailing.

Adriana

From: Kathleen King [mailto:KKing@impactsciences.com]
Sent: Monday, August 12, 2013 7:51 AM
To: Raza, Adriana
Subject: RE: Proposed Project in Santa Clarita Valley Region, LA County: Existing Conditions Request

Good Morning Adriana,
I hope you had a good weekend. I wanted to check in with you and see if you had an update for the wastewater service letter request. Thanks again for your help and please let me know if you have any questions.

Best,
Kathleen

From: Raza, Adriana [mailto:araza@lacsd.org]
Sent: Monday, August 05, 2013 10:07 AM
To: Kathleen King
Subject: RE: Proposed Project in Santa Clarita Valley Region, LA County: Existing Conditions Request

Kathleen,

Can you please provide me with APN #'s for the site and a vicinity map?

Thank you,
Adriana

From: Kathleen King [mailto:KKing@impactsciences.com]
Sent: Monday, August 05, 2013 8:10 AM
To: Raza, Adriana
Subject: RE: Proposed Project in Santa Clarita Valley Region, LA County: Existing Conditions Request

Hi Adriana,
I wanted to check with your regarding an additional service letter request which was also sent to Bryan. I apologize for not mentioning it in advance, I thought it had been addressed to a different contact. I have attached the letter, it is the same project description however the questions relate to wastewater. If possible would you be able to respond to these questions, if the request should be sent to a different contact could you please provide me with his/her contact information. Lastly, if there is anyway the responses could be provided by the end of this week I would greatly appreciate it. Again, I apologize for my mistake and not mentioning this request earlier.

Thank you again and please feel free to email me if you have any questions,

Kathleen

From: Raza, Adriana [mailto:araza@lacsd.org]
Sent: Monday, August 05, 2013 7:04 AM
To: Kathleen King
Subject: RE: Proposed Project in Santa Clarita Valley Region, LA County: Existing Conditions Request

Hi Kathleen,

I apologize for the delayed response, I was off last Friday. Regarding the subject project, attached please find a pdf copy of the letter mailed to your attention August 29, 2013.

Regards,
Adriana

From: Kathleen King [mailto:KKing@impactsciences.com]
Sent: Sunday, August 04, 2013 1:45 PM
To: Raza, Adriana
Subject: RE: Proposed Project in Santa Clarita Valley Region, LA County: Existing Conditions Request

Hi Adriana,
Thank you again for the update last Monday. I was wondering if you are able to confirm whether the LSCSD letter has been mailed to Impact Sciences. If it is easier please feel free to email it directly to me.

Thank you again for your help,

Kathleen

From: Raza, Adriana [mailto:araza@lacsd.org]
Sent: Monday, July 29, 2013 1:59 PM

To: Kathleen King
Subject: RE: Proposed Project in Santa Clarita Valley Region, LA County: Existing Conditions Request

Hi Kathleen,

I spoke with Chris Salomon and he informed me the response is being prepared for signature, which likely means the draft response is in its final stages and hopefully should be sent out to you very soon.

Regards,
Adriana

From: Kathleen King [mailto:KKing@impactsciences.com]
Sent: Monday, July 29, 2013 8:34 AM
To: Raza, Adriana
Subject: Proposed Project in Santa Clarita Valley Region, LA County: Existing Conditions Request

Good Morning Adriana,
Thank you so much for calling me back this morning regarding my request for information from the LACSD. I have attached the original request letter. The letter is followed by a series of questions which will allow us to better determine the impacts the project might cause in the surrounding area, and will be included in the EIR. Please feel free to contact me if you have any questions regarding the project or questions. Thank you for your time and assistance.

Best,
Kathleen King
Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road, Suite C
Camarillo, CA. 93012
Office: (805) 437-1900
Cell: (323) 459-7942

APPENDIX 5.15.3-3

Los Valles Sewer Area Study

SEWER AREA
STUDY REPORT

FOR
REVISED
V.T.T.M. No. 052584
P.C. 11838 AS

Prepared for:

SFI LOS VALLES LLC
10960 Wilshire Blvd. Suite 1260
Los Angeles, CA 90024
(310) 315-5566

February, 2016

LAND DESIGN CONSULTANTS, INC.
Land Planning, Civil Engineering, Surveying & Environmental Services

2700 E. Foothill Blvd., Suite 200, Pasadena, California 91107 / 626 • 578•7000 Fax 626 • 578-7373

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Santa Clarita Valley Area Plan - Zoning Map

INTRODUCTION

The purpose of this report is to determine the capacity of existing sewer reaches from the proposed development project, Vesting Tentative Tract 052584 to the Sanitation District 32, Castaic trunk sewer. The revised project proposes 497 single-family residential units on the north of Hasley Canyon Road, located in the unincorporated Castaic area of Los Angeles County, approximately 4.5 miles from the City of Santa Clarita.

PROJECT DESCRIPTION

The project applicant, SFI Los Valles LLC, is proposing a new residential development in the northwesterly portion of the Santa Clarita Valley. The proposed 430.4-acre subject property, Vesting Tentative Tract 052584, is located west of Golden State Freeway 5, northerly of Hasley Canyon Road at Del Valle Road, between Gibraltar Lane and Sloan Canyon Road.

The project site is currently vacant and is designated as A-2-2 zoning under the existing Los Angeles County land use. The site has been partially graded for residential and golf course uses, but no development has ever been constructed. All improvement plans for that entitled development were approved and the project was annexed into the County Sanitation District.

Development of the new proposed 530-lot project includes:

1. 497 single-family residential lots totaling 143.94 acres,

2. 14 open-space lots totaling 167.7 acres,

3. Seven recreational lot totaling 44.3 acres,

4. One 7.93-acre public park,

5. A 1.55-acre water tank site,

6. Seven storm drain maintenance lots totaling 3.97 acres, and

7. Approximately 49.59 acres of both private and public street improvements.

Per project development, the minimum residential lot size will be 7,000 square feet. It is also anticipated that project grading will result in 5,000,000 cubic yards of cut and fill, which will be balanced on-site.

The wastewater generated for the proposed project will first discharge into a new local network of sewer lines at time of project build out, then into existing points of connections. The proposed sewer lines will be 8 inches in diameter and gravity flowed with varied slopes.

The proposed project is separated into 2 sewer study areas. The first study is to serve 474 residential units and discharge through Hasley Canyon Road to trunk sewer. The connection point for this first study is on Hasley Canyon Road at MH 14. The second study will serve the rest of the proposed project, 23 residential units and to discharge through Hayward Drive to trunk sewer. The connection point for this second study is located east of the proposed project site on Hayward Drive at MH 230.

SEWER CAPACITY ANALYSIS

Based on the L.A. County Department of Public Works Land Development Division's Sewer Area Study requirements, the existing sewer pipe reaches are flowing at maximum pipe capacity when they are all flowing 3 quarters-full for existing pipes with diameters 15 inches or larger. The as-built sewer plans (see Appendix D) were used to determine the slopes and pipe sizes for the study area and are listed in sewer area study tables and maps herein (see Appendix C). L.A. County Sewer Index Maps are also included for reference (see Appendix B).

All existing sewer pipes within the study area from the point of connection along Hasley Canyon Road to the sewer trunks were 15 inches in diameter or larger with varied slopes along the flow path. An existing pumping station is connected at reach No. 5, downstream of the project. The maximum pump flow rate is 6.3 cfs, which is used for the downstream reaches capacity analysis (see Appendix A). The existing sewer pipes at the point of connection at Hayward Drive are 8 inches in diameter with varied slopes as well. Both existing systems are feed into the existing Castaic Trunk Sewer located northwest of the intersection of Hasley Canyon Road and The Old Road.

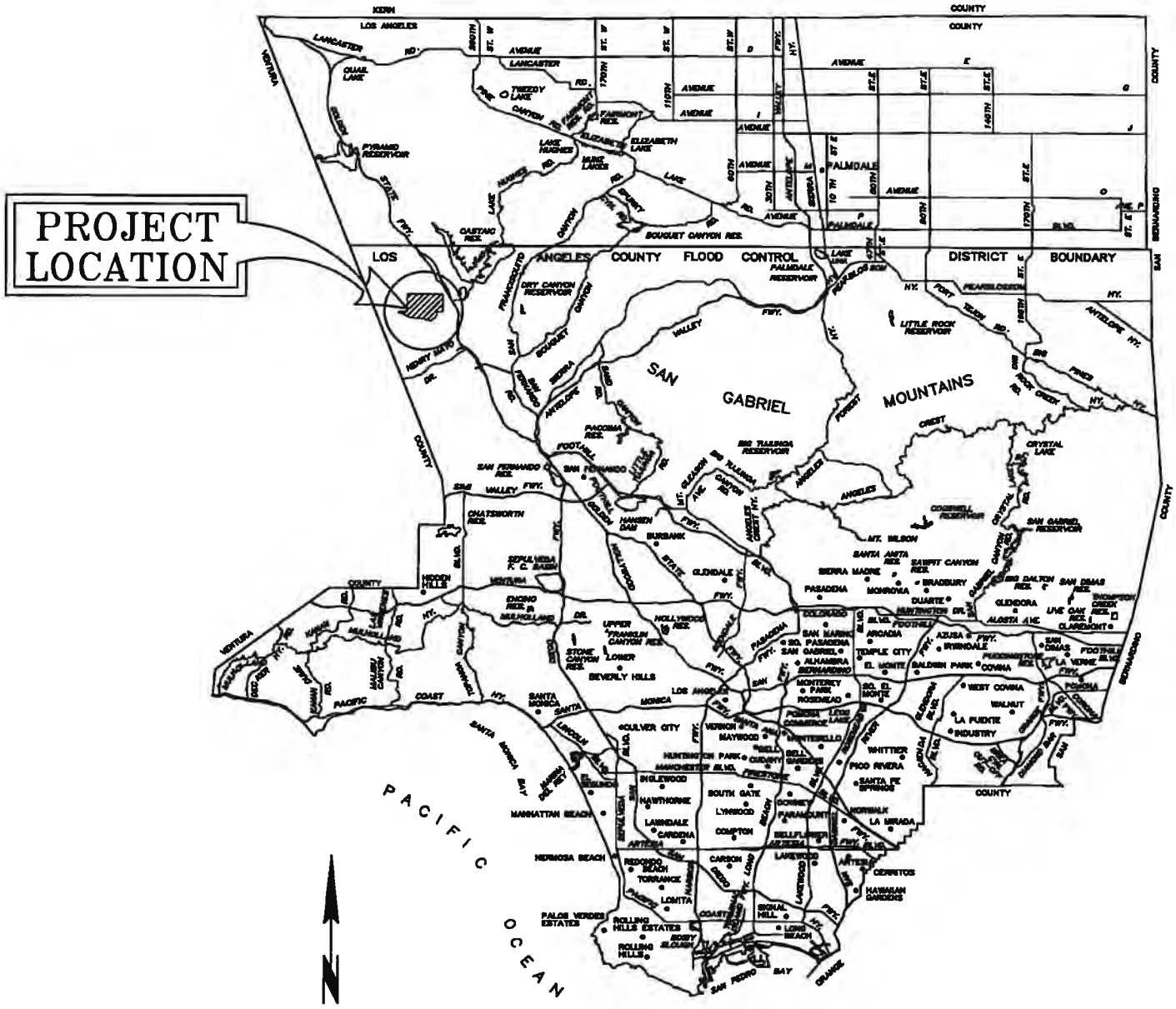
The anticipated sewer discharge flow rates were calculated for various sewer line reaches from Kutter's Formula with "n=0.013" by using the Flow Master Computer program. The discharge flow rates (Q) were calculated by using Zoning Method. "Land use" of properties within this study's limits were as defined in the Department of Regional Planning's "GIS-NET3" program on their web site. The Zoning Coefficients used here are the current L.A. County's sewer area study sewer flow coefficients.

CONCLUSION

Based on the sewer area study table analysis, hydraulic calculations and the existing sewer main information, some of the existing sewer pipes for the first study through Hasley Canyon Road to the 15" trunk sewer do exceed capacity and are under pressure. This pertains to sewer segments between MH 111 to MH 108 and MH 105 to MH 98. For the second study through Hayward Drive to the 15" trunk sewer, existing sewer pipes between MH 60 to 67 exceeds capacity. Their flow depths exceed the maximum depths of 1 half-full for existing pipes. See Sewer Area Study Maps in Appendix C.

Flow tests will be undertaken to determine the actual discharges and capacity for the overcharged sewer pipes due to proposed development of V.T.T.M. 052584. County of Los Angeles Department of Public Works will determine which MH's to be selected for

flow measurements. An addendum to this report will be provided for flow test results of the overcharged sewer segments for sufficient capacity or to upgrade existing sewer pipe segments.



LOCATION MAP

N.T.S.

T.G. P.4459 GRID E4

AREA STUDY
SEWAGE FLOW COEFFICIENTS

BASIS OF FLOW COMPUTATION				AVER. FLOW COEFF.	PEAK I COEFF
AREA & LAND USE				cfs/acre	cfs/a
Residential					
Density Type	Average Area Per Dwelling	Dwellings per Acre	Persons per Acre		
Rural 1	5 acres	.2	0.7	.00008	.0002
Rural 2	1½ acres	.8	2.7	.0003	.0007
High Desert	1 acre	1.0	3.3	.0004	.0010
Very Low	20,000 sq.ft.	1.7	6	.0006	.0015
Low (R-1)	7,000 sq.ft.	4.9	16	.002	.005
Medium (R-2)	3,200 sq.ft.	10.8	25	.0048	.012
Medium High (R-3)	1,800 sq.ft.	18.8	38	.006	.015
High (R-4)	1,400 sq.ft.	30.0	52	.0092	.023
	Commercial			.006	.015
	Industrial			.0084	.021
RESIDENTIAL UNIT**				cfs/unit	cfs/uni
	1 & 2 bedroom units			.00032	.0008
	3 & 4 bedroom units			.00044	.0011
	Mobile Home Parks			.0002	.0005
POPULATION***				cfs/capita	cfs/cap
	Resident Population			.00012	.0003

Based on [redacted], for use up to a peak flow rate of 5.0 cfs. F larger flows, use a lower peak factor per the Average Flow-Peak Flow grap

*These coefficients are based on the following average flows:

1 & 2 bedroom - 200 g.p.d./unit; 3 & 4 bedroom - 285 g.p.d./unit; and Mobile Home - 130 g.p.d./unit

**This coefficient based on 80 g.p.d./capita.

USE OF FLOW COEFFICIENTS

For general studies based on zoning, use the area coefficients listed. If known densities vary from this table, adjust the coefficient accordi When estimating flows from developments where number and size of residential units are known, use Residential Unit coefficients. For more of a broad range study based on population, use Population coefficient

Estimated Average Daily Sewage Flows for Various Occupancies

Occupancy	Abbreviation	*Average daily flow	
Apartment Buildings:			
Bachelor or Single dwelling units	Apt	100	gal/D.U. → 150
1 bedroom dwelling units	Apt	150	gal/D.U. → 200
2 bedroom dwelling units	Apt	200	gal/D.U. → 250
3 bedroom or more dwelling units	Apt	250	gal/D.U. → use 300 GPD per SMD
Auditoriums, churches, etc.	Aud	5	gal/seat
Automobile parking	P	25	gal/1000 sq ft gross floor area
Bars, cocktails lounges, etc.	Bar	20	gal/seat
Commercial Shops & Stores	CS	100	gal/1000 sq ft gross floor area
Hospitals (surgical)	HS	500	gal/bed
Hospitals (convalescent)	HC	85	gal/bed
Hotels	H	150	gal/room
Medical Buildings	MB	300	gal/1000 sq ft gross floor area
Motels	M	150	gal/unit
Office Buildings	Off	200	gal/1000 sq ft gross floor area
Restaurants, cafeterias, etc.	R	50	gal/seat
Schools:			
Elementary or Jr. High	S	10	gal/student
High Schools	HS	15	gal/student
Universities or Colleges	U	20	gal/student
College Dormitories	CD	85	gal/student

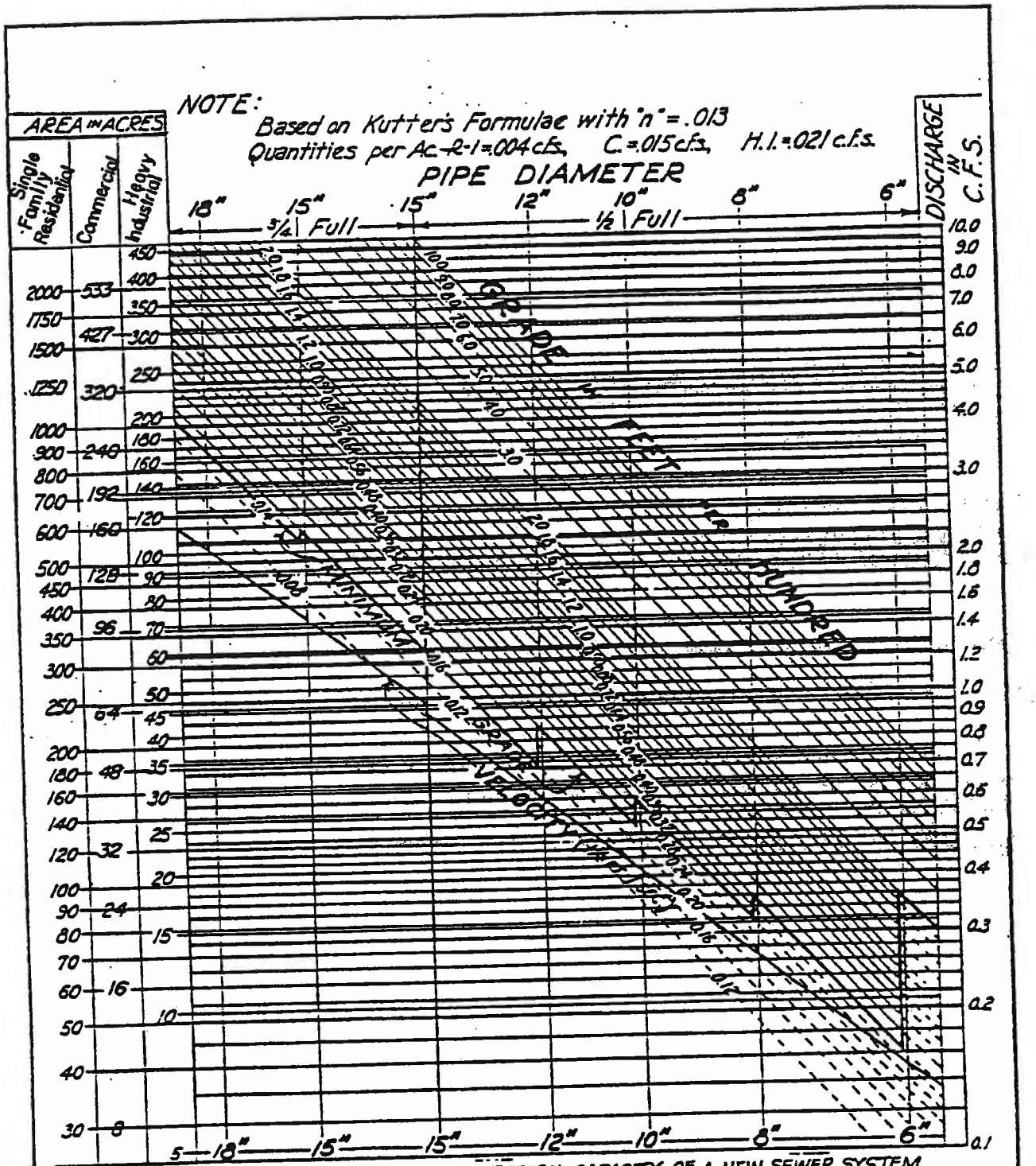
*Multiply the average daily flow by 2.5 to obtain the peak flow

Zoning Coefficients

Zone	Coefficient (cfs/Acre)
Agriculture	**0.001**
Residential+:	
R-1	**0.004**
R-2	**0.008**
R-3	**0.012**
R-4	**0.016***
Commercial:	
C-1 through C-4	**0.015***
Heavy Industrial:	
M1 through M-4	**0.021***

***Individual building, commercial or industrial plant capacities shall be the determining factor when they exceed the coefficients shown**

+ Use 0.001 (cfs/unit) for condominiums only



NOTE: USE 15" 1/2 FULL FOR COMPUTING DESIGN CAPACITY OF A NEW SEWER SYSTEM.
USE 15" 3/4 FULL FOR CHECKING CAPACITY OF EXIST. SEWER SYSTEM.

FLOW DIAGRAM FOR THE DESIGN
OF CIRCULAR SANITARY SEWERS

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

ASSISTANT DEPUTY

COUNTY ENGINEER

COUNTY ENGINEER STANDARD S-C4

DATE: 3/80

DESIGN

RCE

EXIST. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
	2A	1012	RL20 - RURAL LAND 20 (1 DU / 20 AC)	A-2-2	*	0.0001	0.10	
	2B	320	RL5 - RURAL LAND 5 (1 DU / 5 AC)	A-2-2	**	0.0002	0.06	
	2C	1983	RL2 - RURAL LAND 2 (1 DU / 2 AC)	A-2-2	***	0.0005	0.99	
	2D	60	RL2 - RURAL LAND 2 (1 DU / 2 AC)	A-2-2	***	0.0005	0.03	
PROJECT SITE	**1A**	**410**	**H2 - RESIDENTIAL, (0-2 DU / AC)**	**A-2-2**	********	0.002	**0.82**	
1	**TOTAL:**	3785						**2.01**
	4A	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.05	
	3A	33	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.03	
2	**TOTAL:**	3834						**2.09**
	5A	45	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.95	
3	**TOTAL:**	3879						**3.03**
	7A	96	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.02	
4	**TOTAL:**	3975						**5.05**
	6A	58	IO - OFFICE AND PROFESSIONAL	MPD		0.021	1.22	
								6.27
	8A	117	IO - OFFICE AND PROFESSIONAL	MPD-DP		0.021	2.46	
	9A	305	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	6.41	
	10A	131	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.75	
	11A	14	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.29	
	12A	40	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.84	
			PUMP STATION				6.30	
5	**TOTAL:**	4640						**12.57**
	13A	9	CM - MAJOR COMMERCIAL	C-3-DP		0.015	0.14	
	13B	20	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.42	
	14A	5	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
6	**TOTAL:**	4674						**13.13**
	15A	45	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.14	
7	**TOTAL:**	4719						**13.26**
	16A	13	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-3U	****	0.003	0.04	
	16B	22	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.07	
	16C	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.05	
	16D	25	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-5.8U	****	0.006	0.15	
	17A	19	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.02	
	18A	8	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
8	**TOTAL:**	4822						**13.59**
	19A	7	CG - GENERAL COMMERCIAL	CM		0.015	0.11	
9	**TOTAL:**	4829						**13.70**

Note:

Zoning Coeffiecients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.

*** The average sewer coefficient is 1 units per 20 acres => 1 du/20 acres x 0.001 cfs = 0.0001 cfs/acre = 0.0001**

**** The average sewer coefficient is 1 units per 5 acres => 1 du/5 acres x 0.001 cfs = 0.0002 cfs/acre = 0.0002**

***** The average sewer coefficient is 1 units per 2 acres => 1 du/2 acres x 0.001 cfs = 0.0005 cfs/acre = 0.0005**

****** ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs**

PROP. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
	2A	1012	RL20 - RURAL LAND 20 (1 DU / 20 AC)	A-2-2	*	0.0001	0.10	
	2B	320	RL5 - RURAL LAND 5 (1 DU / 5 AC)	A-2-2	**	0.0002	0.06	
	2C	1983	RL2 - RURAL LAND 2 (1 DU / 2 AC)	A-2-2	***	0.0005	0.99	
	2D	60	**RESIDENTIAL LOTS (LOW)**	**A-2-2**		**0.001**	**0.06**	
PROJECT SITE	**1A**	**410**	**497 SINGLE FAMILY LOTS**	**A-2-2**	******	**0.004**	**1.64**	
1	**TOTAL:**	3785						**2.86**
	4A	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.05	
	3A	33	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.03	
2	**TOTAL:**	3834						**2.94**
	5A	45	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.95	
3	**TOTAL:**	3879						**3.88**
	7A	96	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.02	
4	**TOTAL:**	3975						**5.90**
	6A	58	IO - OFFICE AND PROFESSIONAL	MPD		0.021	1.22	
								7.12
	8A	117	IO - OFFICE AND PROFESSIONAL	MPD-DP		0.021	2.46	
	9A	305	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	6.41	
	10A	131	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.75	
	11A	14	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.29	
	12A	40	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.84	
			PUMP STATION				6.30	
5	**TOTAL:**	4640						**13.42**
	13A	9	CM - MAJOR COMMERCIAL	C-3-DP		0.015	0.14	
	13B	20	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.42	
	14A	5	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
6	**TOTAL:**	4674						**13.98**
	15A	45	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	*****	0.003	0.14	
7	**TOTAL:**	4719						**14.11**
	16A	13	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-3U	*****	0.003	0.04	
	16B	22	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	*****	0.003	0.07	
	16C	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	*****	0.003	0.05	
	16D	25	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-5.8U	*****	0.006	0.15	
	17A	19	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.02	
	18A	8	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
8	**TOTAL:**	4822						**14.44**
	19A	7	CG - GENERAL COMMERCIAL	CM		0.015	0.11	
9	**TOTAL:**	4829						**14.55**

Note:

Zoning Coeffiecients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.

*** The average sewer coefficient is 1 units per 20 acres => 1 du/20 acres x 0.001 cfs = 0.0001 cfs/acre = 0.0001**

**** The average sewer coefficient is 1 units per 5 acres => 1 du/5 acres x 0.001 cfs = 0.0002 cfs/acre = 0.0002**

***** The average sewer coefficient is 1 units per 2 acres => 1 du/2 acres x 0.001 cfs = 0.0005 cfs/acre = 0.0005**

****** ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs**

******** 497 Dwelling Units on approximately 143 acres lots => 0.001 cfs x 497 units/142 acres = 0.0035 cfs/acre = 0.004**

EXIST. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
PROJECT SITE	**A1a**	**27.5767**	**H2 - RESIDENTIAL, (0-2 DU / AC)**	**A-2-2**		**0.002**	0.0552	
	A1	0.8661	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0026	
	A2	1.0688	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0032	
	A3	1.0658	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0032	
	A4	0.7818	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0023	
	A5a	27.5195	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0275	
	A6	2.3283	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0070	
1	**TOTAL:**	**61.2070**						**0.1010**
	A7	0.6021	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0018	
	A8	3.4472	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0103	
	A9	0.4135	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0012	
	A10	0.5512	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0017	
	A11	6.9160	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0207	
	A11a	4.9869	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0050	
	A11b	3.0260	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0030	
2	**TOTAL:**	**81.1499**						**0.1448**
	A12	0.8607	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0026	
	A13	0.4725	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0014	
	A14	1.2327	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0037	
	A15	1.1041	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0033	
	A16	1.2888	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0039	
	A17	0.929	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0028	
	A18	0.6496	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0019	
	A19	2.9372	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0088	
	A20	1.0975	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0033	
	A21	0.4561	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0014	
	A22	0.1927	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0012	
	A23	0.7455	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0045	
	A24	0.8728	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0052	
	A25	1.5675	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0094	
	A26	0.8456	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0051	
	A27	0.8737	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0052	
	A28	0.6118	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0037	
	A29	0.9655	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0058	
	A30a	49.2872	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.1479	
	A30b	12.3524	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0741	
3	**TOTAL:**	**160.4928**						**0.4399**
	A31	0.4263	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0026	
	A32	0.9095	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0055	
	A33	0.222	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0013	
	A34	2.2959	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0138	
	A35	3.341	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0200	
	A36	1.7868	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0107	
	A37	3.8249	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0229	
	A38	1.5334	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0092	
	A39	1.4711	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0088	
	A40	4.5884	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0275	
	A41	1.329	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0080	
	A42	2.7991	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0168	
	A43	1.0544	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0063	
	A44	2.3289	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0140	
	A45a	23.8043	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0714	
	A45b	56.926	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.3416	
	A46	0.7192	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0043	
4	**TOTAL:**	**269.8530**						**1.0247**

Note:

Zoning Coeffiecients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.

ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs = 3 du/1 acre x 0.001 cfs = 0.003

= 5.8 du/1 acre x 0.001 cfs = 0.006

PROP. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
PROJECT SITE	**A1a**	**27.5767**	**497 SINGLE FAMILY LOTS**	**A-2-2**	*	**0.004**	0.1103	
	A1	0.8661	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0026	
	A2	1.0688	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0032	
	A3	1.0658	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0032	
	A4	0.7818	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0023	
	A5a	27.5195	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0275	
	A6	2.3283	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0070	
1	**TOTAL:**	**61.207**						**0.1562**
	A7	0.6021	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0018	
	A8	3.4472	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0103	
	A9	0.4135	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0012	
	A10	0.5512	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0017	
	A11	6.9160	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0207	
	A11a	4.9869	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0050	
	A11b	3.0260	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0030	
2	**TOTAL:**	**81.1499**						**0.2000**
	A12	0.8607	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0026	
	A13	0.4725	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0014	
	A14	1.2327	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0037	
	A15	1.1041	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0033	
	A16	1.2888	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0039	
	A17	0.929	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0028	
	A18	0.6496	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0019	
	A19	2.9372	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0088	
	A20	1.0975	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0033	
	A21	0.4561	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0014	
	A22	0.1927	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0012	
	A23	0.7455	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0045	
	A24	0.8728	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0052	
	A25	1.5675	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0094	
	A26	0.8456	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0051	
	A27	0.8737	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0052	
	A28	0.6118	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0037	
	A29	0.9655	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0058	
	A30a	49.2872	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.1479	
	A30b	12.3524	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0741	
3	**TOTAL:**	**160.4928**						**0.4951**
	A31	0.4263	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0026	
	A32	0.9095	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0055	
	A33	0.222	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0013	
	A34	2.2959	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0138	
	A35	3.341	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0200	
	A36	1.7868	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0107	
	A37	3.8249	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0229	
	A38	1.5334	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0092	
	A39	1.4711	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0088	
	A40	4.5884	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0275	
	A41	1.329	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0080	
	A42	2.7991	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0168	
	A43	1.0544	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0063	
	A44	2.3289	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0140	
	A45a	23.8043	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0714	
	A45b	56.926	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.3416	
	A46	0.7192	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0043	
4	**TOTAL:**	**269.8530**						**1.0798**

Note:

Zoning Coeffiecients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.

ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs = 3 du/1 acre x 0.001 cfs = 0.003

= 5.8 du/1 acre x 0.001 cfs = 0.006

*** 497 Dwelling Units on approximately 143 acres lots => 0.001 cfs x 497 units/142 acres = 0.0035 cfs/acre = 0.004**

SEWER AREA STUDY TABLE (HASLEY CANYON ROAD TO TRUNK)

Street Name	Segment		Pipe		Capacity		Area	Area (Acres)	Area total per segment (Acres)	Zoning	Zoning Coeff (cfs/acre) or cfs/unit	Calculated Peak Flow (cfs)	Cumulated Peak Flow (cfs)	Flow Depth (ft)	PC or CI Constructio n Plan #	% Full		Study of	Comments
	M.H. #	M.H. #	Size (in.)	Slope (%)	1/2 Full(<15")	3/4 Full(>15")										Flow Depth/ (0.75 X Pipe Dia.)	Calculated Flow/ Capacity	Ex. Pipe Capacity	
					(cfs)	(cfs)													
							2A	1012		A-2-2	0.0001	0.10							
							2B	320		A-2-2	0.0002	0.06							
							2C	1983		A-2-2	0.0005	0.99							
							2D	**60**		**A-2-2**	**0.0010**	0.06							
							1A	**410**		**A-2-2**	**0.0040**	1.64							
HASLEY CYN RD.	14	13	15	1.00		5.82			*3785*				*2.86*	*0.59*	PC 11572	63%	49%		
HASLEY CYN RD.	13	12	15	1.00		5.82			*3785*				*2.86*	*0.59*	PC 11572	63%	49%		
HASLEY CYN RD.	12	11	15	1.00		5.82			*3785*				*2.86*	*0.59*	PC 11572	63%	49%		
HASLEY CYN RD.	11	10	15	0.93		5.61			*3785*				*2.86*	*0.60*	PC 11572	64%	51%		
HASLEY CYN RD.	10	9	15	0.93		5.61			*3785*				*2.86*	*0.60*	PC 11572	64%	51%		
HASLEY CYN RD.	9	8	15	0.93		5.61			*3785*				*2.86*	*0.60*	PC 11572	64%	51%		
HASLEY CYN RD.	8	7	15	0.93		5.61			*3785*				*2.86*	*0.60*	PC 11572	64%	51%		
							4A	16		RPD-5000-2.8U	0.0030	0.05							
							3A	33		OS	0.0010	0.03							
HASLEY CYN RD.	7	6	15	2.60		9.40			*3834*				*2.94*	*0.46*	PC 11491	49%	31%		
HASLEY CYN RD.	6	5	15	3.00		10.09			*3834*				*2.94*	*0.45*	PC 11491	48%	29%		
	5	4	15	3.84		11.42			*3834*				*2.94*	*0.42*	PC 11491	45%	26%		
	4	3	15	3.98		11.63			*3834*				*2.94*	*0.42*	PC 11491	45%	25%		
							5A	45		M-1.5-DP	0.0210	0.95							
INDUSTRY DR.	3	2	15	1.08		6.05			*3879*				*3.88*	*0.69*	PC 11491	74%	64%		
INDUSTRY DR.	2	1	15	2.88		9.89			*3879*				*3.88*	*0.52*	PC 10942	55%	39%		
INDUSTRY DR.	1	120	15	2.88		9.89			*3879*				*3.88*	*0.52*	PC 10942	55%	39%		
INDUSTRY DR.	120	119	15	3.65		11.13			*3879*				*3.88*	*0.49*	PC 10942	52%	35%		
							7A	96		M-1.5-DP	0.0210	2.02							
INDUSTRY DR.	119	118	15	1.92		8.07			*3975*				*5.90*	*0.75*	PC 10942	80%	73%		
INDUSTRY DR.	118	117	15	1.60		7.37			*3975*				*5.90*	*0.80*	PC 10942	85%	80%		
INDUSTRY DR.	117	116	18	1.42		11.41			*3975*				*5.90*	*0.73*	PC 10942	65%	52%		
INDUSTRY DR.	116	111	18	1.42		11.41			*3975*				*5.90*	*0.73*	PC 10942	65%	52%		
							6A	58		MPD	0.0210	1.22							
													7.12						
							8A	117		MPD-DP	0.0210	2.46							
							9A	305		M-1.5-DP	0.0210	6.41							
							10A	131		M-1.5-DP	0.0210	2.75							
							11A	14		M-1.5-DP	0.0210	0.29							
							12A	40		M-1.5-DP	0.0210	0.84							
												****	***19.86***						
										PUMP STATION, Q=		****	***6.30***		PC 11477				
COMMERCE CENTE	111	110	21	0.36		8.72			*4640*				*13.42*	*1.63*	PC 10942	124%	154%	UNDER PRESSURE	10.26cfs max
COMMERCE CENTE	110	109	21	0.36		8.72			*4640*				*13.42*	*1.63*	PC 10942	124%	154%	UNDER PRESSURE	10.26cfs max
							13A	9		C-3-DP	0.0150	0.14							
							13B	20		M-1.5-DP	0.0210	0.42							
							14A	5		OS	0.0010	0.01							
HASLEY CYN RD.	109	223	21	0.36		8.72			*4674*				*13.98*	*1.63*	PC 10942	124%	160%	UNDER PRESSURE	10.26cfs max
							15A	45		RPD-5000-2.8U	0.0030	0.14							
HASLEY CYN RD.	223	108	21	0.36		8.72			*4719*				*14.11*	*1.63*	PC 10942	124%	162%	UNDER PRESSURE	10.26cfs max
HASLEY CYN RD.	108	107	18	3.32		17.46			*4719*				*14.11*	*0.96*	PC 10942	85%	81%		

SEWER AREA STUDY TABLE (HASLEY CANYON ROAD TO TRUNK)

Street Name	Segment		Pipe		Capacity		Area	Area (Acres)	Area total per segment (Acres)	Zoning	Zoning Coeff (cfs/acre) or cfs/unit	Calculated Peak Flow (cfs)	Cumulated Peak Flow (cfs)	Flow Depth (ft)	PC or CI Constructio n Plan #	% Full		Study of	Comments
	M.H. #	M.H. #	Size (in.)	Slope (%)	1/2 Full(<15")	3/4 Full(>15")										Flow Depth/ (0.75 X Pipe Dia.)	Calculated Flow/ Capacity	Ex. Pipe Capacity	
HASLEY CYN RD.	107	106	18	3.84		18.78			*4719*				*14.11*	*0.91*	PC 10942	81%	75%		
HASLEY CYN RD.	106	105	18	3.16		17.04			*4719*				*14.11*	*0.98*	PC 10942	87%	83%		
HASLEY CYN RD.	105	104	18	1.90		13.21			*4719*				*14.11*	*1.20*	PC 10942	107%	107%	EXCEEDS CAPACTIY	
HASLEY CYN RD.	104	103	18	0.92		9.18			*4719*				*14.11*	*1.39*	PC 10942	124%	154%	UNDER PRESSURE	10.80cfs max
							16A	13		RPD-6000-3U	0.0030	0.04							
							16B	22		RPD-5000-2.8U	0.0030	0.07							
							16C	16		RPD-5000-2.8U	0.0030	0.05							
							16D	25		RPD-6000-5.8U	0.0060	0.15							
							17A	19		OS	0.0010	0.02							
							18A	8		OS	0.0010	0.01							
HASLEY CYN RD.	103	102	18	0.98		9.48			*4822*				*14.44*	*1.39*	PC 10942	124%	152%	UNDER PRESSURE	11.15cfs max
HASLEY CYN RD.	102	101	18	0.92		9.18			*4822*				*14.44*	*1.39*	PC 10942	124%	157%	UNDER PRESSURE	10.80cfs max
HASLEY CYN RD.	101	100	18	0.92		9.18			*4822*				*14.44*	*1.39*	PC 10942	124%	157%	UNDER PRESSURE	10.80cfs max
HASLEY CYN RD.	100	99	18	0.92		9.18			*4822*				*14.44*	*1.39*	PC 10942	124%	157%	UNDER PRESSURE	10.80cfs max
HASLEY CYN RD.	99	98	18	1.40		11.33			*4822*				*14.44*	*1.39*	PC 10942	124%	127%	UNDER PRESSURE	13.33cfs max
							19A	7		CM	0.0150	0.11							
HASLEY CYN RD.	98	TRUNK	18	2.64		15.57			*4829*				*14.55*	*1.07*	PC 10942	95%	93%		

Note:

1. Calculated using Kutter's Formula with n=0.013 (as in S-C4 graph in PC Procedural Manual)
2. Zoning Coeffiecients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.
   ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs = 3 du/1 acre x 0.001 cfs = 0.003
   = 5.8 du/1 acre x 0.001 cfs = 0.006
3. For pipes > 15" ,% Full should be calculated by taking flow depth divided by 0.75 times the pipe diameter
4. **** 19.86 cfs is not using for down stream cumulated peak flow calculation. We were using Q=2,828 gpm = 6.3 cfs the design pump rate.

SEWER AREA STUDY TABLE (HAYWARD TO TRUNK)

Street Name	Segment		Pipe		Capacity		Area	Area (Acres)	Area total per segment (Acres)	Zoning	Zoning Coeff (cfs/acre) or cfs	Calculated Peak Flow (cfs)	Cumulated Peak Flow (cfs)	Flow Depth (ft)	PC or CI Construction Plan #	% Full		Study of	Comments
	M.H. #	M.H. #	Size (in.)	Slope (%)	1/2 Full(<15") (cfs)	3/4 Full(>15") (cfs)										Flow Depth/ (0.5 X Pipe Dia)	Calculated Flow/ Capacity	Ex. Pipe Capacity	
							A1a	**27.5767**		**A2-2**	**0.0040**	**0.1103**							**PROP. SITE**
							A1	0.8661		RPD-6000-3U	0.0030	0.0026							
Hayward Drive	230	229	8	5.25	1.25				28.4428				*0.1129*	0.10	PC11488	30%	9%		
							A2	1.0688		RPD-6000-3U	0.0030	0.0032							
Hayward Drive	229	228	8	7.24	1.46				29.5116	RPD-6000-3U			*0.1161*	0.10	PC11488	30%	8%		
							A3	1.0658		RPD-6000-3U	0.0030	0.0032							
Hayward Drive	228	227	8	7.80	1.52				30.5774				*0.1193*	0.10	PC11488	30%	8%		
							A4	0.7818		RPD-6000-3U	0.0030	0.0023							
							A5a	27.5195		OS	0.0010	0.0275							
Hayward Drive	227	223	8	3.00	0.94				30.4359		0.0030		*0.1492*	0.13	PC11488	39%	16%		
							A6	2.3283		RPD-6000-3U	0.0030	0.0070							
							A7	0.6021		RPD-6000-3U	0.0030	0.0018							
Cambridge Avenue	223	224	8	3.60	1.03				61.8091				*0.1580*	0.13	PC11488	39%	15%		
							A8	3.4472		RPD-6000-3U	0.0030	0.0103							
							A9	0.4135		RPD-6000-3U	0.0030	0.0012							
Cambridge Avenue	224	200		5.68	1.31				65.6698				*0.1695*	0.12	PC11488	36%	13%		
							A10	0.5512		RPD-6000-3U	0.0030	0.0017							
Cambridge Avenue	200	201	8	5.68	1.30				66.2210				*0.1712*	0.12	PC11489	36%	13%		
							A11	6.9160		RPD-6000-3U	0.0030	0.0207							
							A11a	4.9869		OS	0.0010	0.0050							
							A11b	3.0260		OS	0.0010	0.0030							
							A12	0.8607		RPD-6000-3U	0.0030	0.0026							
							A13	0.4725		RPD-6000-3U	0.0030	0.0014							
Bridlewood Drive	201	202	8	3.80	1.06				82.4831				*0.2040*	0.14	PC11489	42%	19%		
							A14	1.2327		RPD-6000-3U	0.0030	0.0037							
							A15	1.1041		RPD-6000-3U	0.0030	0.0033							
Bridlewood Drive	202	203	8	3.64	1.04				84.8199				*0.2110*	0.15	PC11489	45%	20%		
							A16	1.2888		RPD-6000-3U	0.0030	0.0039							
							A17	0.9290		RPD-6000-3U	0.0030	0.0028							
Bridlewood Drive	203	204	8	8.76	1.61				87.0377				*0.2176*	0.12	PC11489	36%	14%		
							A18	0.6496		RPD-6000-3U	0.0030	0.0019							
Bridlewood Drive	204	205	8	11.84	1.72				87.6873				*0.2196*	0.12	PC11489	36%	13%		**MAX ALLOWABLE SLOPE 10%**
							A19	2.9372		RPD-6000-3U	0.0030	0.0088							
							A20	1.0975		RPD-6000-3U	0.0030	0.0033							
Bridlewood Drive	205	206	8	7.04	1.44				91.7220				*0.2317*	0.13	PC11489	39%	16%		
							A21	0.4561		RPD-6000-3U	0.0030	0.0014							
Bridlewood Drive	206	78	8	10.80	1.72				92.1781				*0.2330*	0.12	PC11489	36%	14%		**MAX ALLOWABLE SLOPE 10%**
							A22	0.1927		RPD-6000-5.8U	0.0060	0.0012							
							A23	0.7455		RPD-6000-5.8U	0.0060	0.0045							
Bridlewood Drive	78	77	8	6.24	1.36				93.1163				*0.2387*	0.14	PC10664	42%	18%		
							A24	0.8728		RPD-6000-5.8U	0.0060	0.0052							
							A25	1.5675		RPD-6000-5.8U	0.0060	0.0094							
Bridlewood Drive	77	76	8	7.92	1.53				95.5566				*0.2533*	0.14	PC10664	42%	17%		

SEWER AREA STUDY TABLE (HAYWARD TO TRUNK)

Street Name	Segment		Pipe		Capacity		Area	Area (Acres)	Area total per segment (Acres)	Zoning	Zoning Coeff (cfs/acre) or cfs	Calculated Peak Flow (cfs)	Cumulated Peak Flow (cfs)	Flow Depth (ft)	PC or CI Construction Plan #	% Full		Study of	Comments
	M.H. #	M.H. #	Size (in.)	Slope (%)	1/2 Full(<15") (cfs)	3/4 Full(>15") (cfs)										Flow Depth/ (0.5 X Pipe Dia)	Calculated Flow/ Capacity	Ex. Pipe Capacity	
							A26	0.8456		RPD-6000-5.8U	0.0060	0.0051							
							A27	0.8737		RPD-6000-5.8U	0.0060	0.0052							
Bridlewood Drive	76	75	8	8.96	1.63				97.2759				*0.2636*	0.13	PC10664	39%	16%		
							A28	0.6118		RPD-6000-5.8U	0.0060	0.0037							
							A29	0.9655		RPD-6000-5.8U	0.0060	0.0058							
Bridlewood Drive	75	74	8	9.88	1.71				98.8532				*0.2731*	0.13	PC10664	39%	16%		
							A30a	49.2872		RPD-6000-3U	0.0030	0.1479							
							A30b	12.3524		RPD-6000-5.8U	0.0060	0.0741							
							A31	0.4263		RPD-6000-5.8U	0.0060	0.0026							
							A32	0.9095		RPD-6000-5.8U	0.0060	0.0055							
Saguard Street	74	73	8	8.76	1.61				161.8286				*0.5031*	0.18	PC10664	55%	31%		
							A33	0.2220		RPD-6000-5.8U	0.0060	0.0013							
							A34	2.2959		RPD-6000-5.8U	0.0060	0.0138							
Saguard Street	73	72	8	8.92	1.63				164.3465				*0.5182*	0.18	PC10664	55%	32%		
							A35	3.3410		RPD-6000-5.8U	0.0060	0.0200							
							A36	1.7868		RPD-6000-5.8U	0.0060	0.0107							
Saguard Street	72	69	8	8.20	1.56				169.4743				*0.5490*	0.19	PC10664	58%	35%		
							A37	3.8249		RPD-6000-5.8U	0.0060	0.0229							
							A38	1.5334		RPD-6000-5.8U	0.0060	0.0092							
Saguard Street	69	68	8	7.92	1.52				174.8326				*0.5811*	0.20	PC10664	61%	38%		
							A39	1.4711		RPD-6000-5.8U	0.0060	0.0088							
Saguard Street	68	67	8	2.40	0.84				176.3037				*0.5899*	0.27	PC10664	82%	70%		
							A40	4.5884		RPD-6000-5.8U	0.0060	0.0275							
							A41	1.3290		RPD-6000-5.8U	0.0060	0.0080							
Saguard Street	67	63	8	0.60	0.42				182.2211				*0.6254*	0.42	PC10664	127%	149%	**EXCEEDS CAPACITY**	
							A42	2.7991		RPD-6000-5.8U	0.0060	0.0168							
							A43	1.0544		RPD-6000-5.8U	0.0060	0.0063							
Saguard Street	63	60	8	1.16	0.59				186.0746				*0.6486*	0.35	PC10664	106%	110%	**EXCEEDS CAPACITY**	
							A44	2.3289		RPD-6000-5.8U	0.0060	0.0140							
							A45a	23.8043		RPD-6000-3U	0.0030	0.0714							
							A45b	56.9260		RPD-6000-5.8U	0.0060	0.3416							
							A46	0.7192		RPD-6000-5.8U	0.0060	0.0043							
Sedona Way	60	TRUNK	8	6.44	1.38				269.8530				*1.0798*	0.29	PC10664	88%	78%		
15" TRUNK SEWER																			
PER SAN DIST NO. 32																			
CASTAIC TRUNK SEWER																			
SEC. NO. (32-P-6)																			

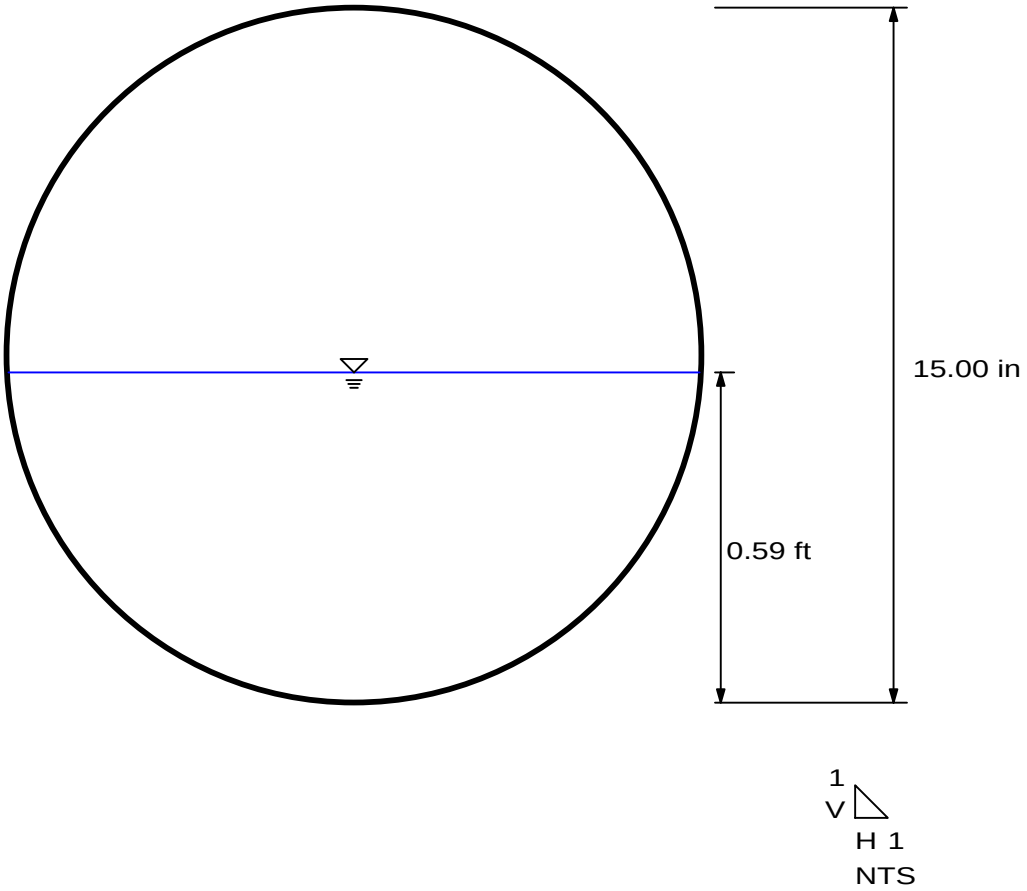
Note:

1. Calculated using Kutter's Formula with n=0.013 (as in S-C4 graph in PC Procedural Manual)
2. Zoning Coeffiecients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.
   ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs = 3 du/1 acre x 0.001 cfs = 0.003
   = 5.8 du/1 acre x 0.001 cfs = 0.006
3. For pipes < 15" , % full should be calculated by taking flow depth divided by 0.50 times the pipe diameter

MH 14-13, 15" VCP @ 1.00% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 14-13, 15" VCP @ 1.00% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

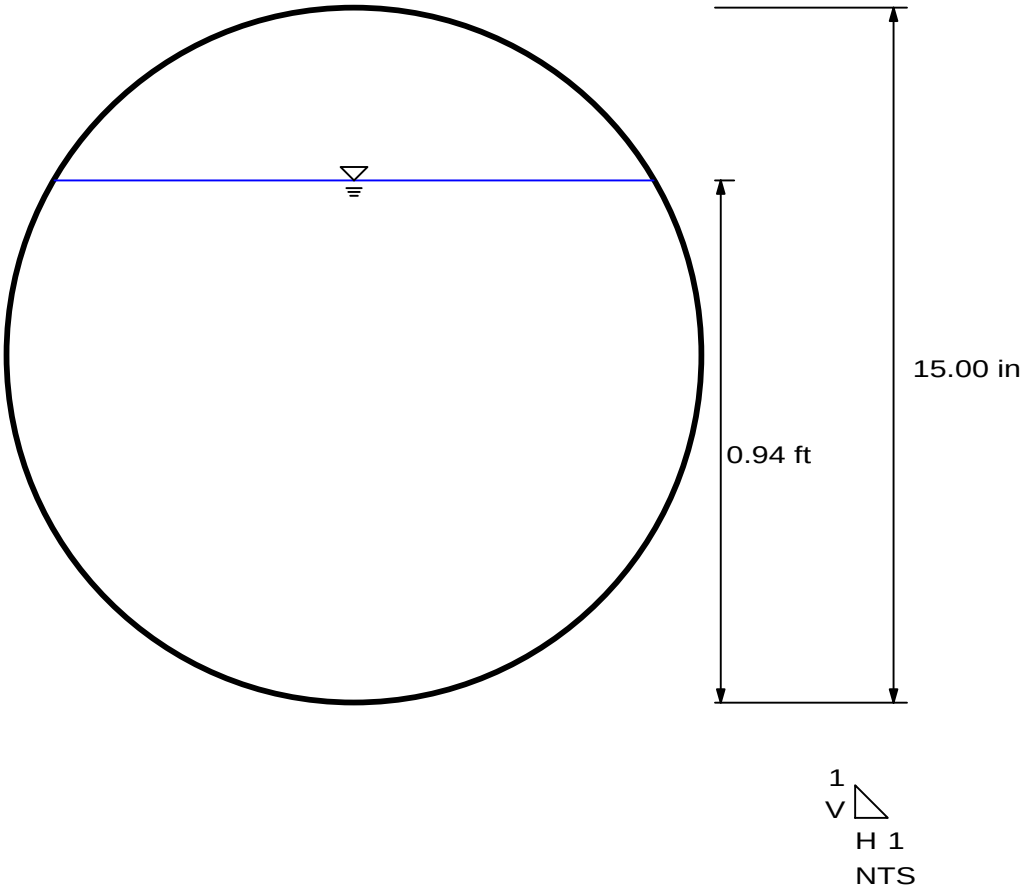
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.010000	ft/ft
Depth	0.59	ft
Diameter	15.00	in
Discharge	2.86	cfs



MH 14-13, 15" VCP @ 1.00% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 14-13, 15" VCP @ 1.00% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

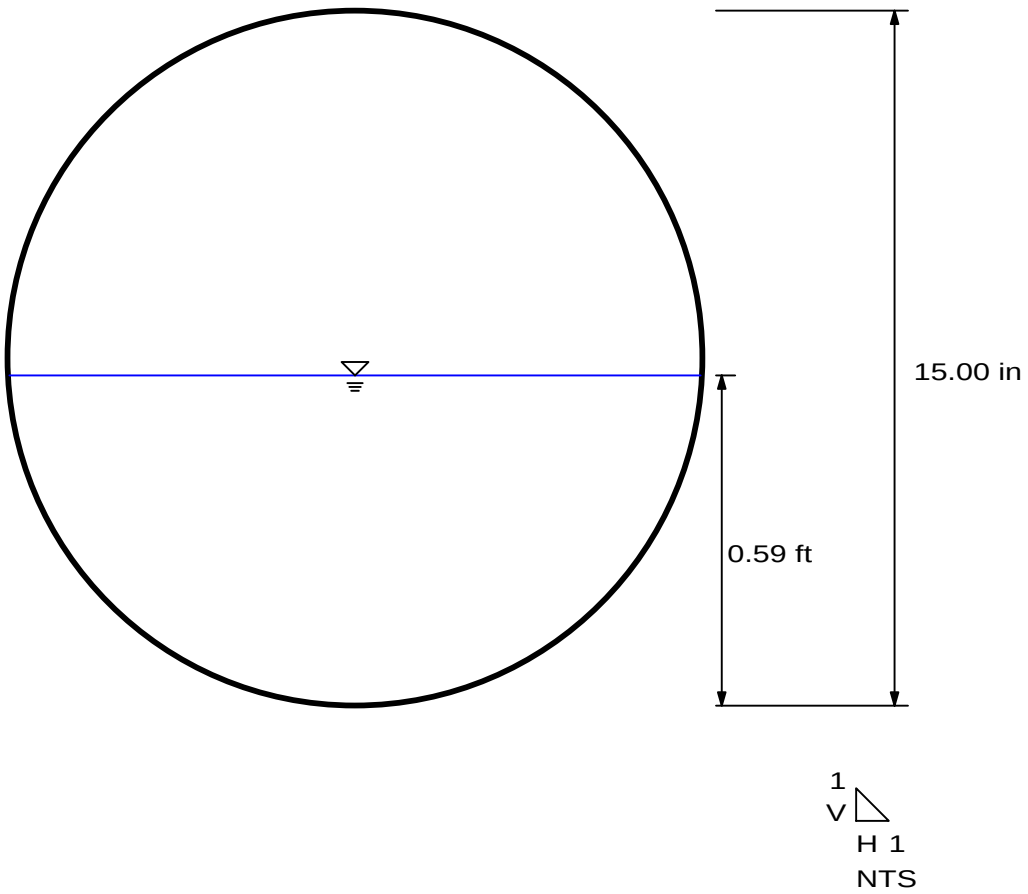
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.010000	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	5.82	cfs



MH 13-12, 15" VCP @ 1.00% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 13-12, 15" VCP @ 1.00% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

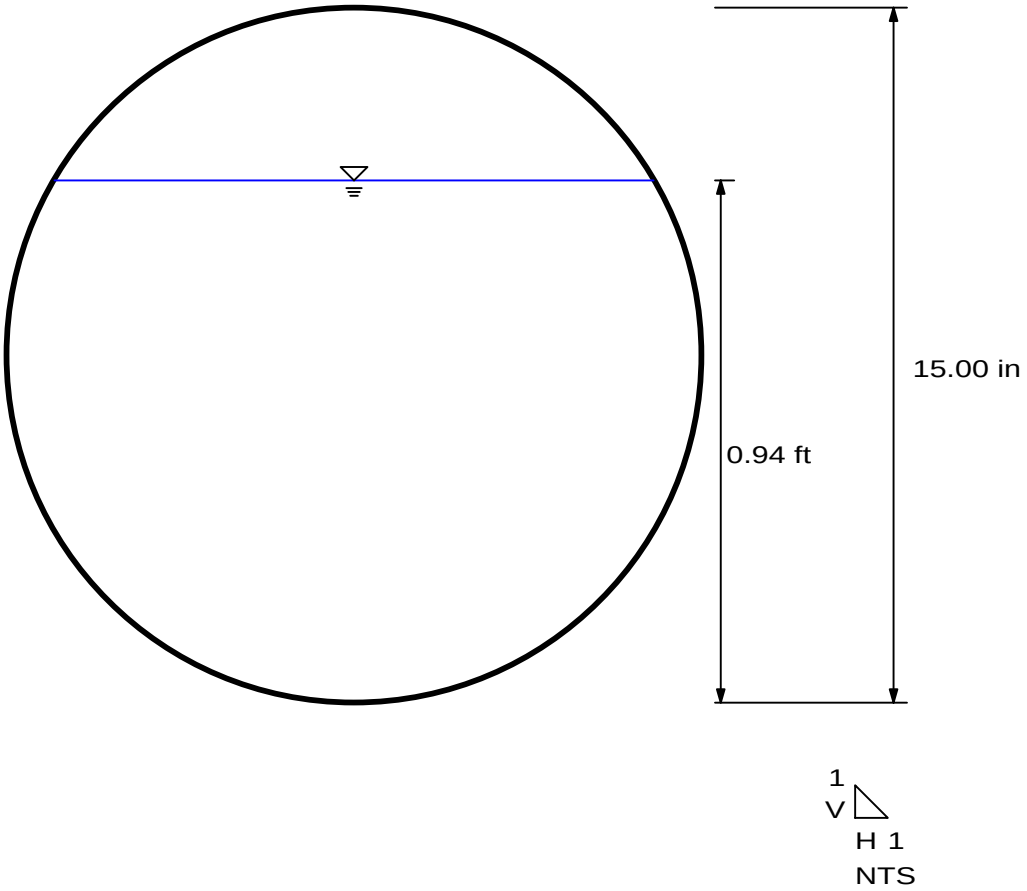
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.010000	ft/ft
Depth	0.59	ft
Diameter	15.00	in
Discharge	2.86	cfs



MH 13-12, 15" VCP @ 1.00% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 13-12, 15" VCP @ 1.00% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

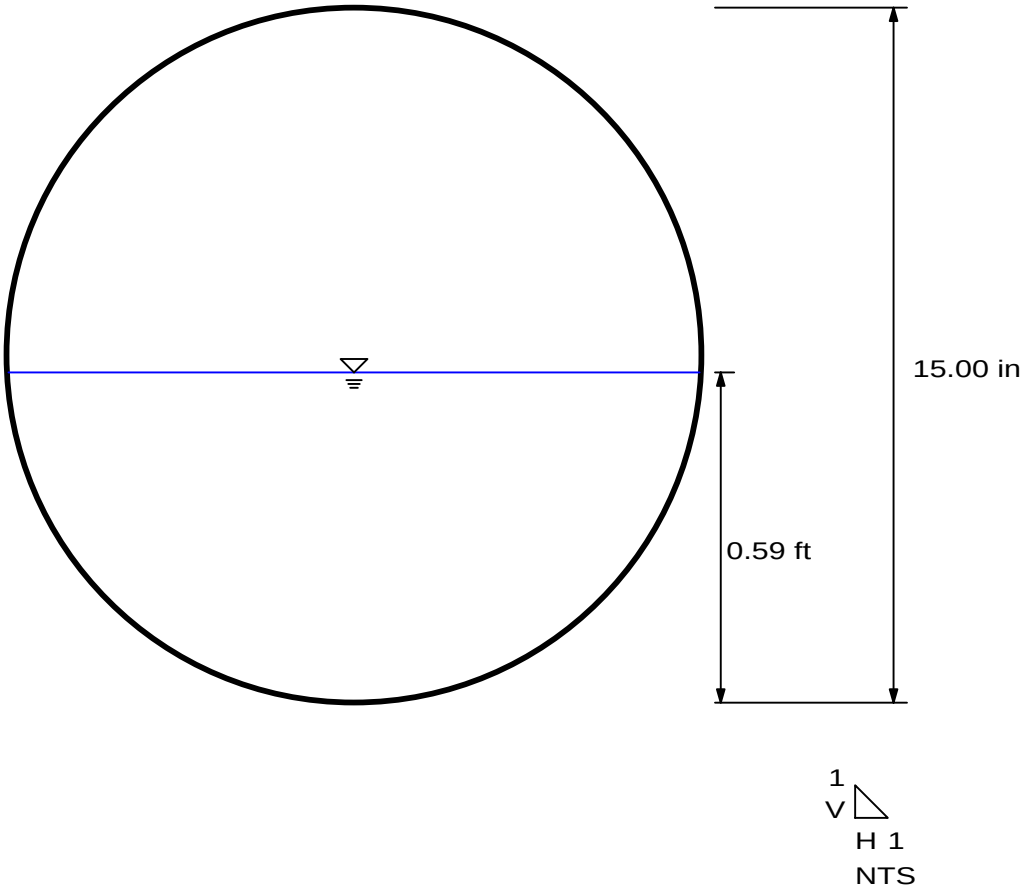
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.010000	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	5.82	cfs



MH 12-11, 15" VCP @ 1.00% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 12-11, 15" VCP @ 1.00% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

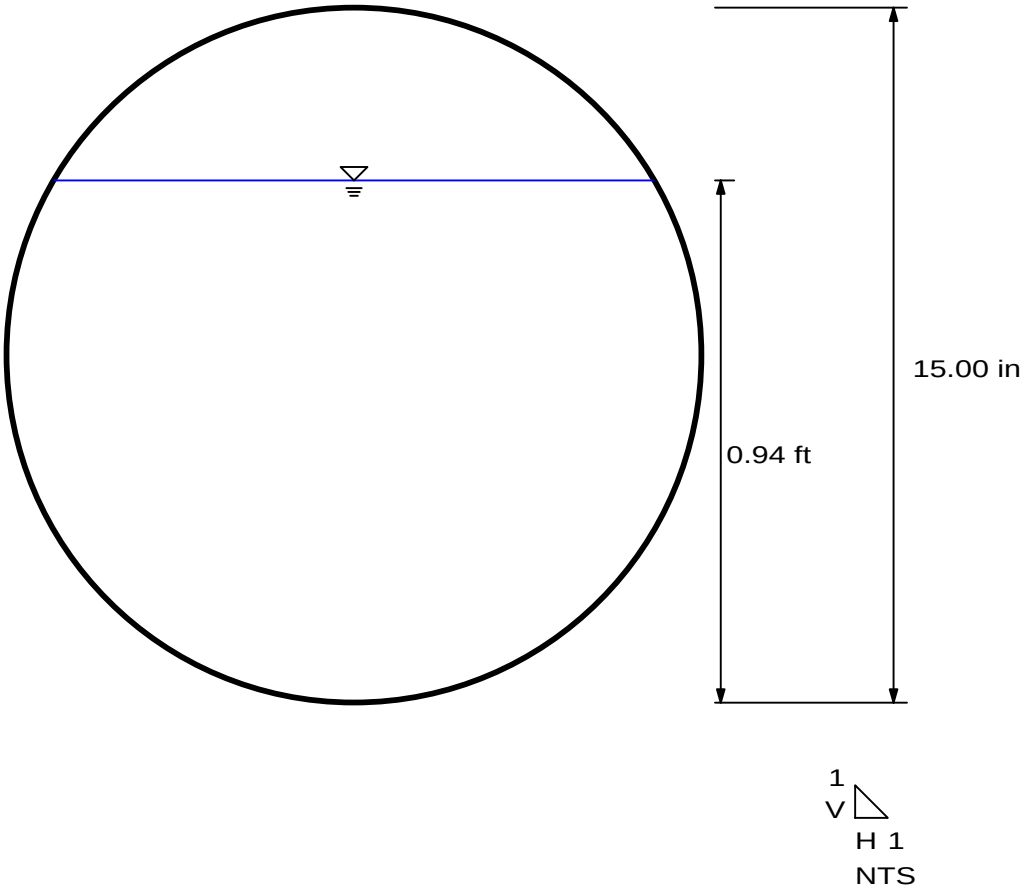
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.010000	ft/ft
Depth	0.59	ft
Diameter	15.00	in
Discharge	2.86	cfs



MH 12-11, 15" VCP @ 1.00% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 12-11, 15" VCP @ 1.00% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

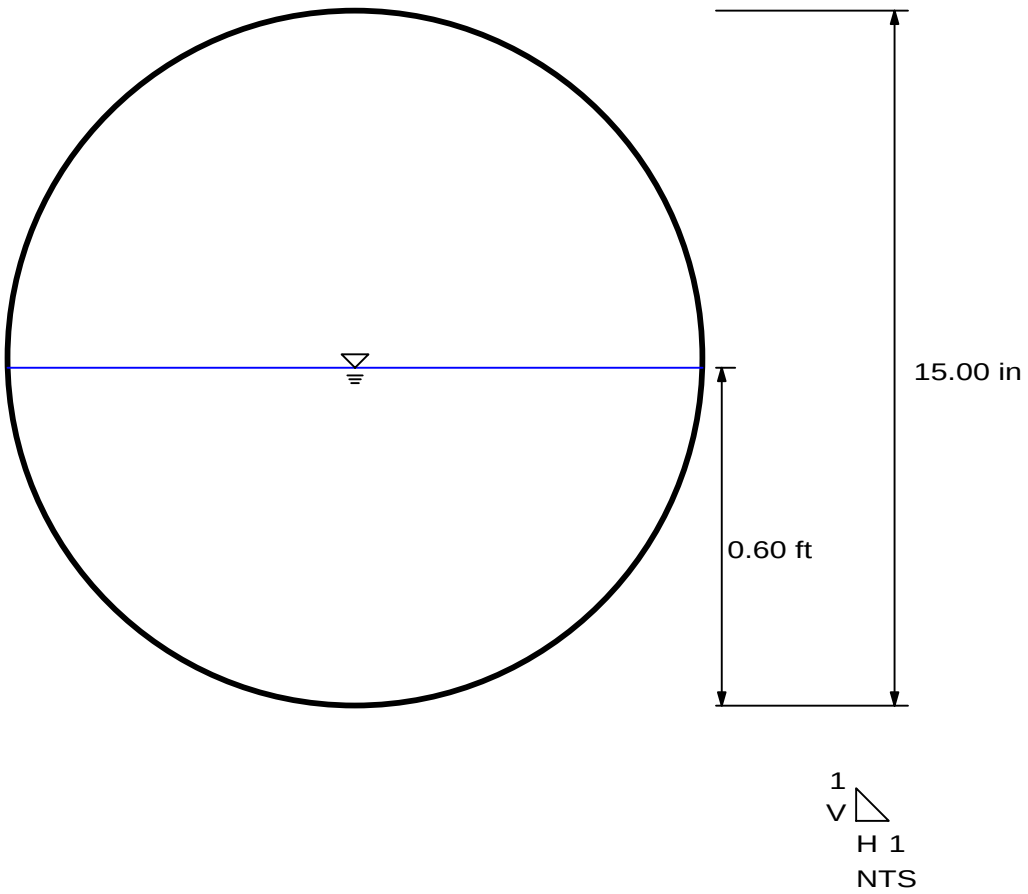
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.010000	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	5.82	cfs



MH 11-10, 15" VCP @ 0.93% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 11-10, 15" VCP @ 0.93% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

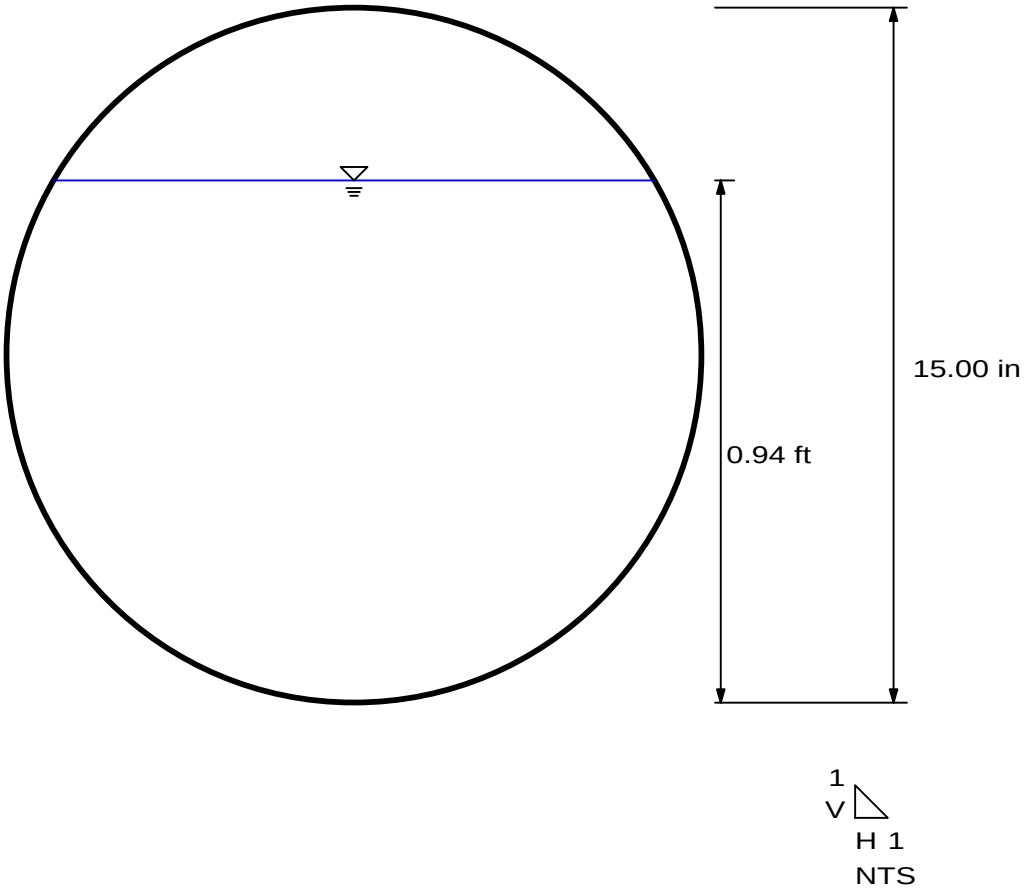
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009300	ft/ft
Depth	0.60	ft
Diameter	15.00	in
Discharge	2.86	cfs



MH 11-10, 15" VCP @ 0.93% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 11-10, 15" VCP @ 0.93% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

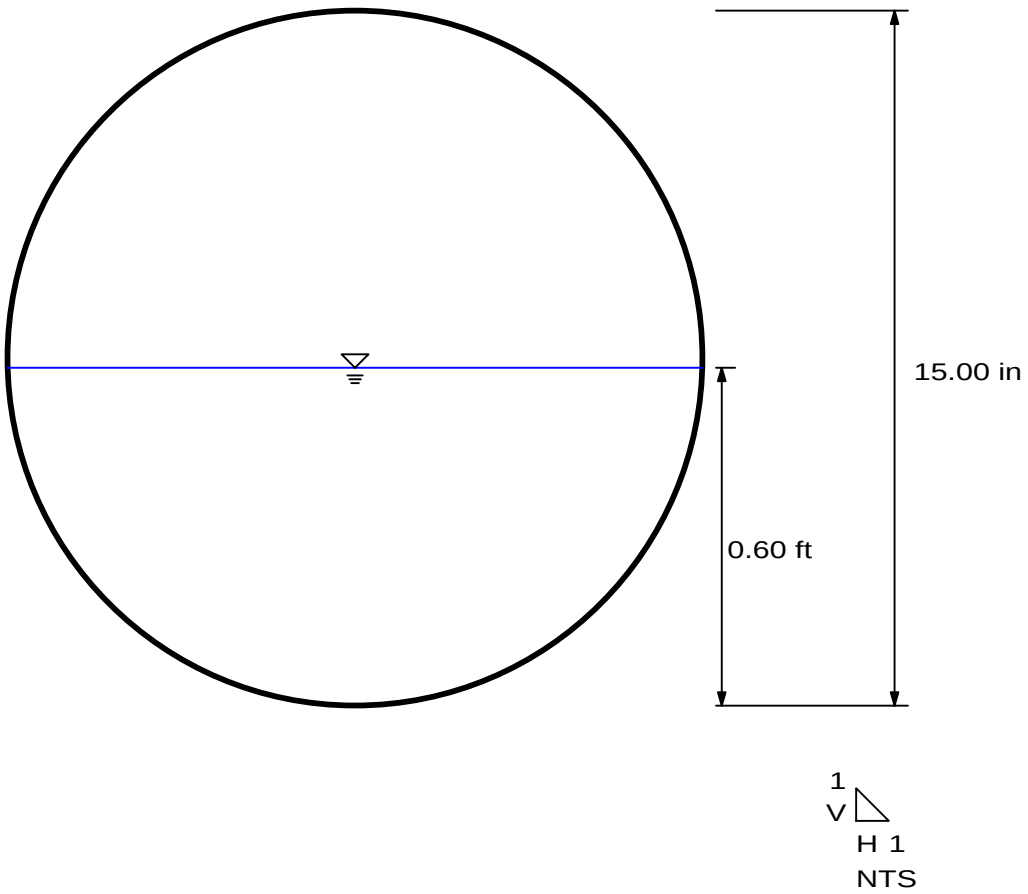
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009300	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	5.61	cfs



MH 10-9, 15" VCP @ 0.93% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 10-9, 15" VCP @ 0.93% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

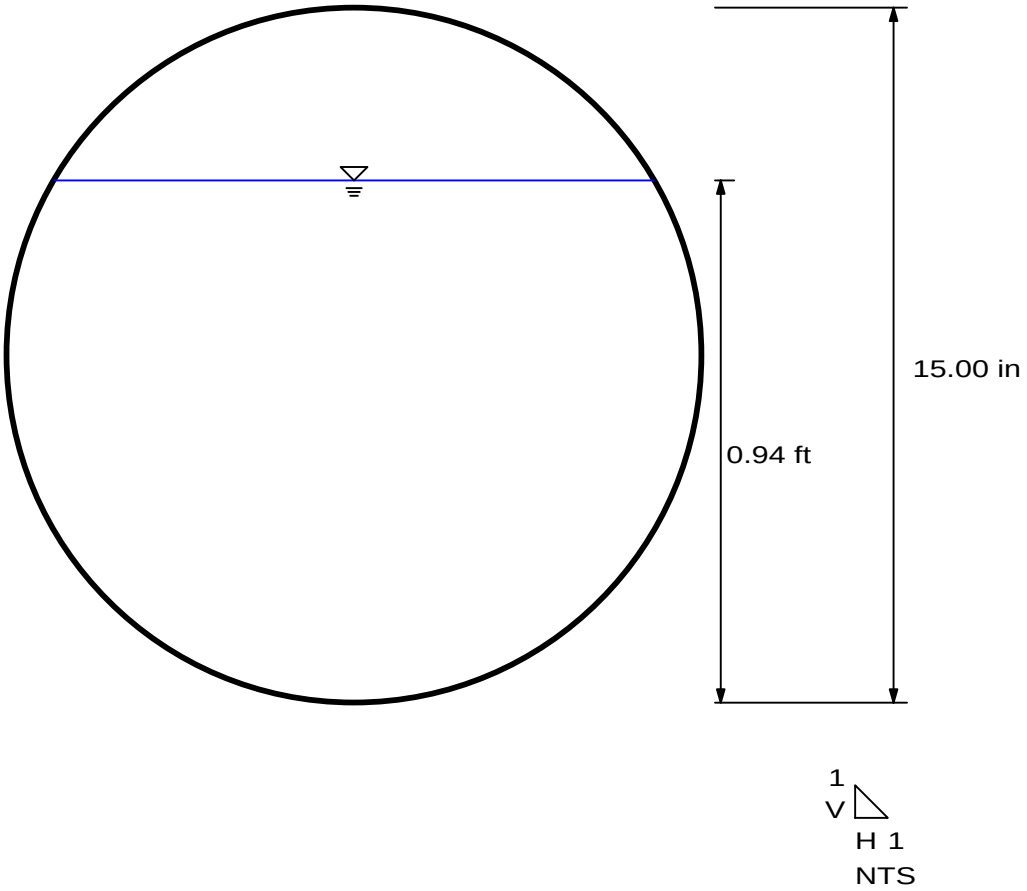
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009300	ft/ft
Depth	0.60	ft
Diameter	15.00	in
Discharge	2.86	cfs



MH 10-9, 15" VCP @ 0.93% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 10-9, 15" VCP @ 0.93% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

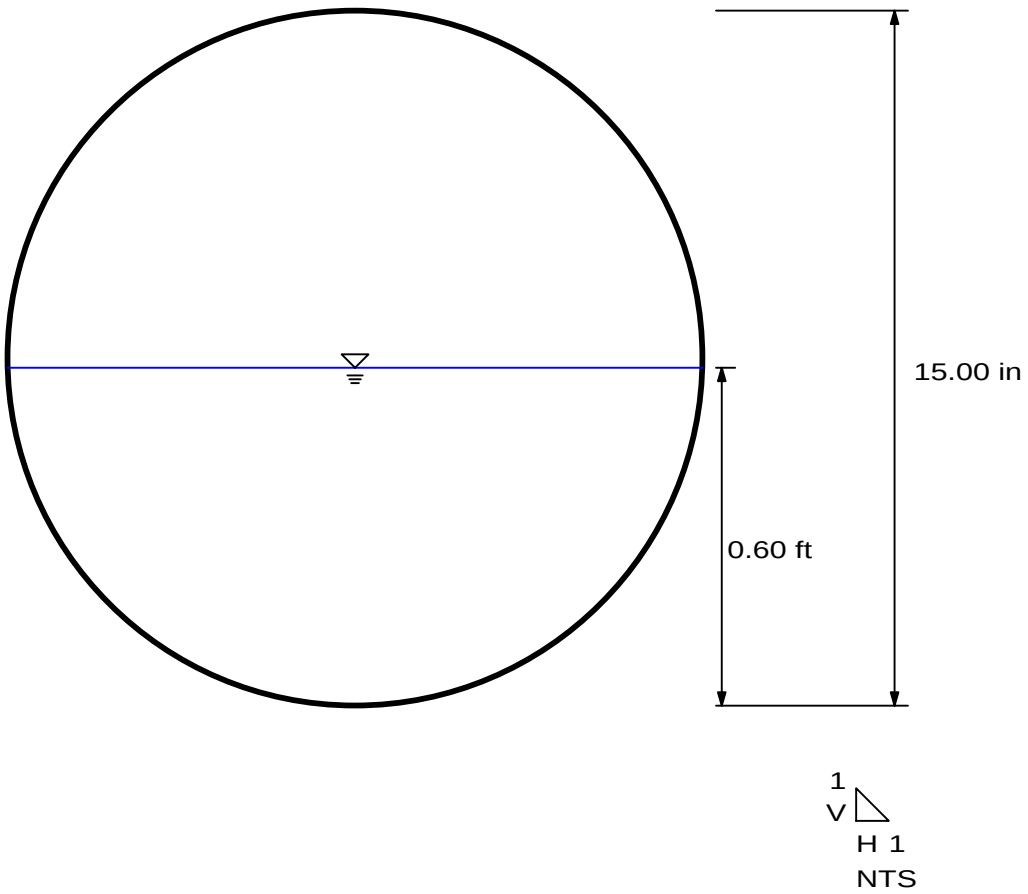
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009300	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	5.61	cfs



MH 9-8, 15" VCP @ 0.93% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 9-8, 15" VCP @ 0.93% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

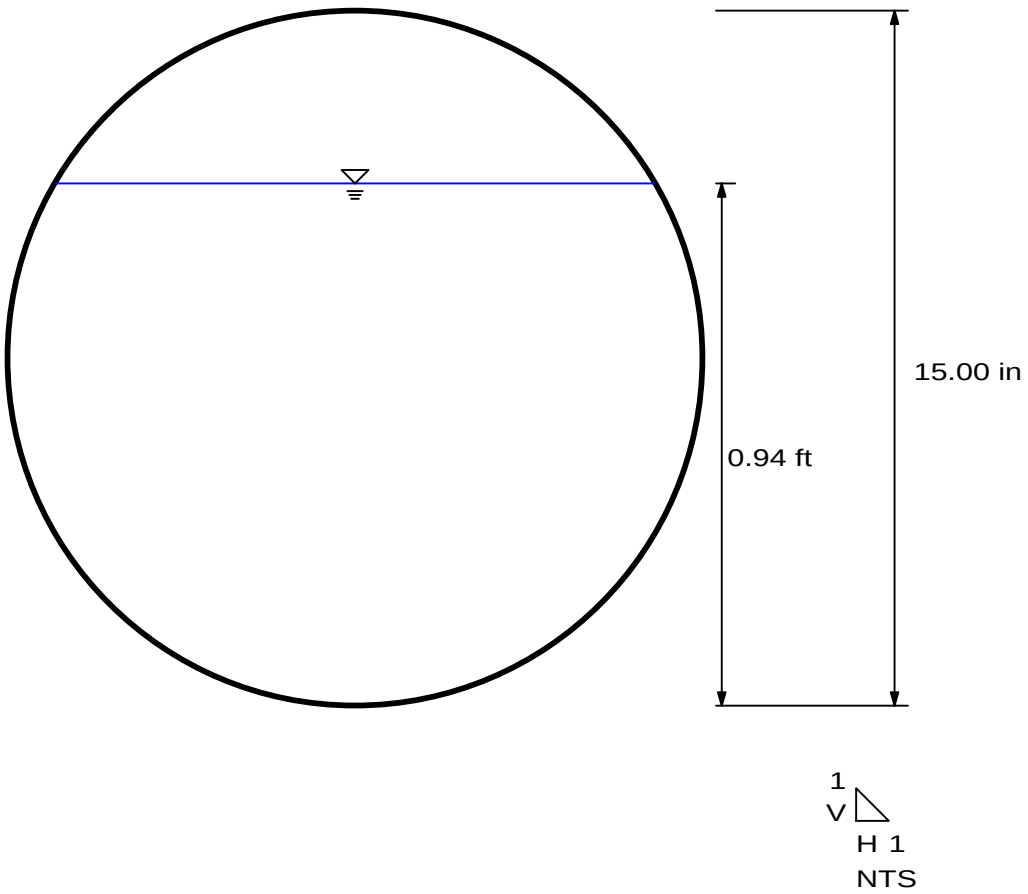
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009300	ft/ft
Depth	0.60	ft
Diameter	15.00	in
Discharge	2.86	cfs



MH 9-8, 15" VCP @ 0.93% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 9-8, 15" VCP @ 0.93% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

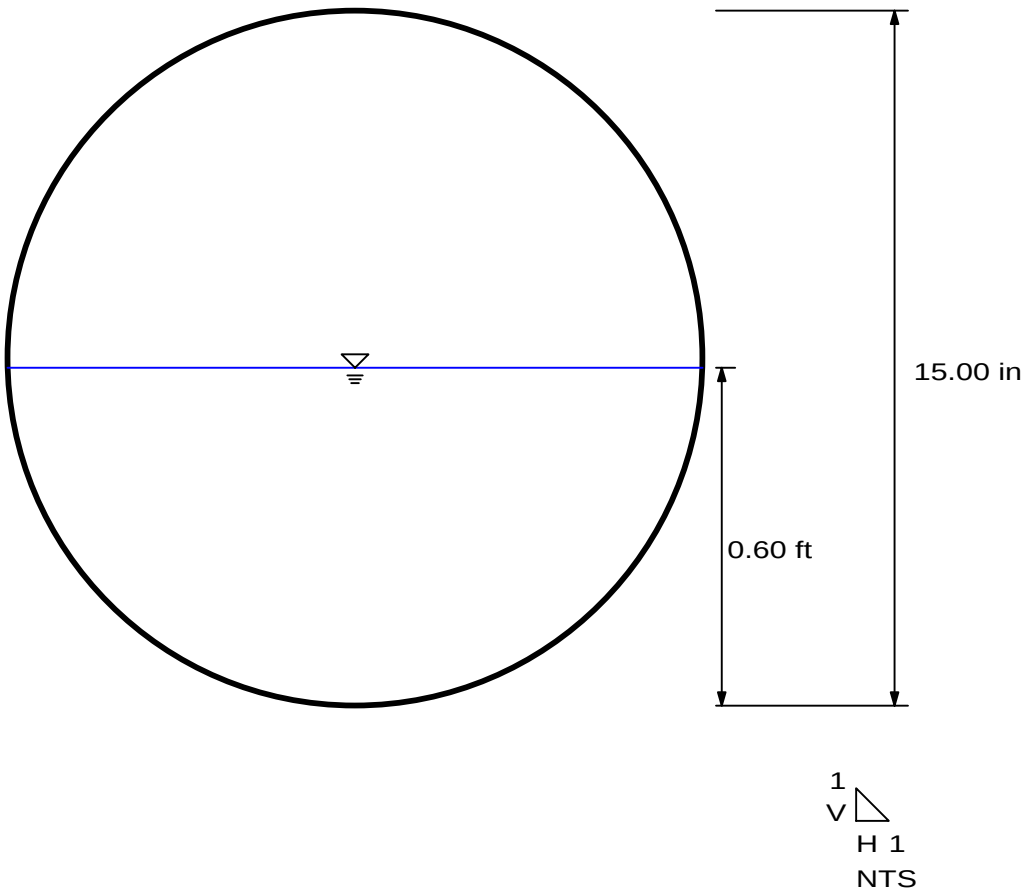
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009300	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	5.61	cfs



MH 8-7, 15" VCP @ 0.93% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 8-7, 15" VCP @ 0.93% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

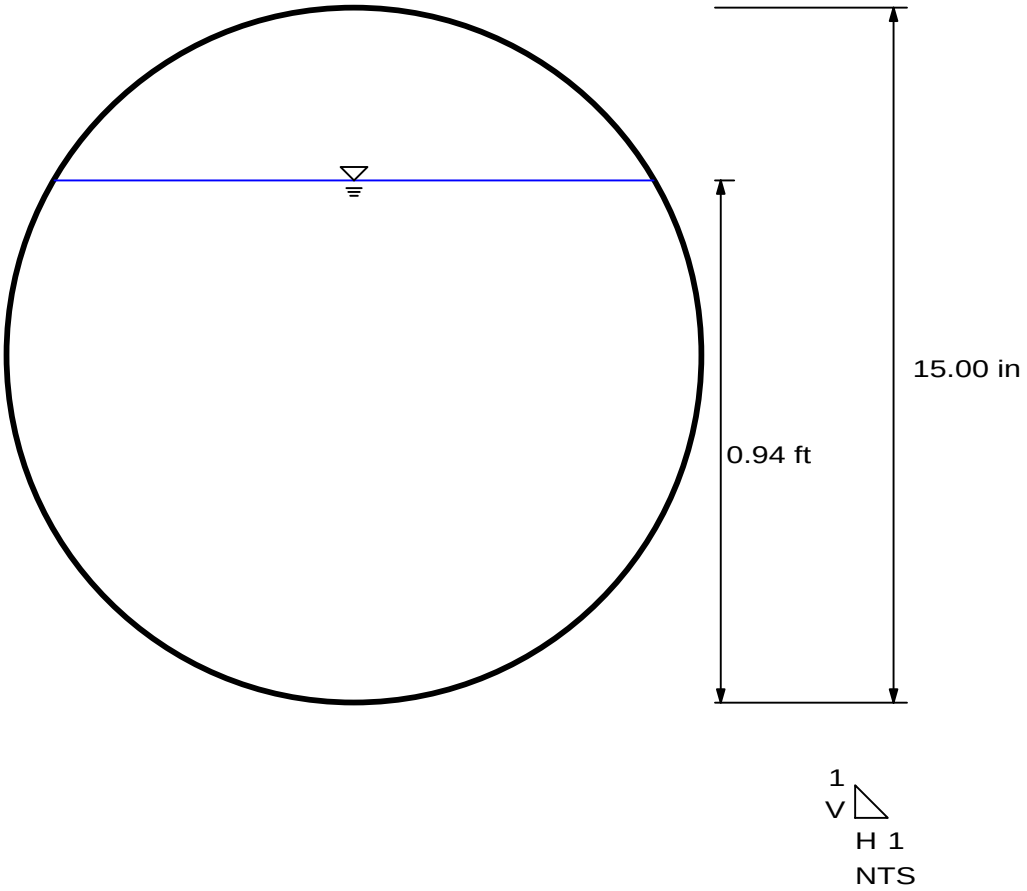
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009300	ft/ft
Depth	0.60	ft
Diameter	15.00	in
Discharge	2.86	cfs



MH 8-7, 15" VCP @ 0.93% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 8-7, 15" VCP @ 0.93% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

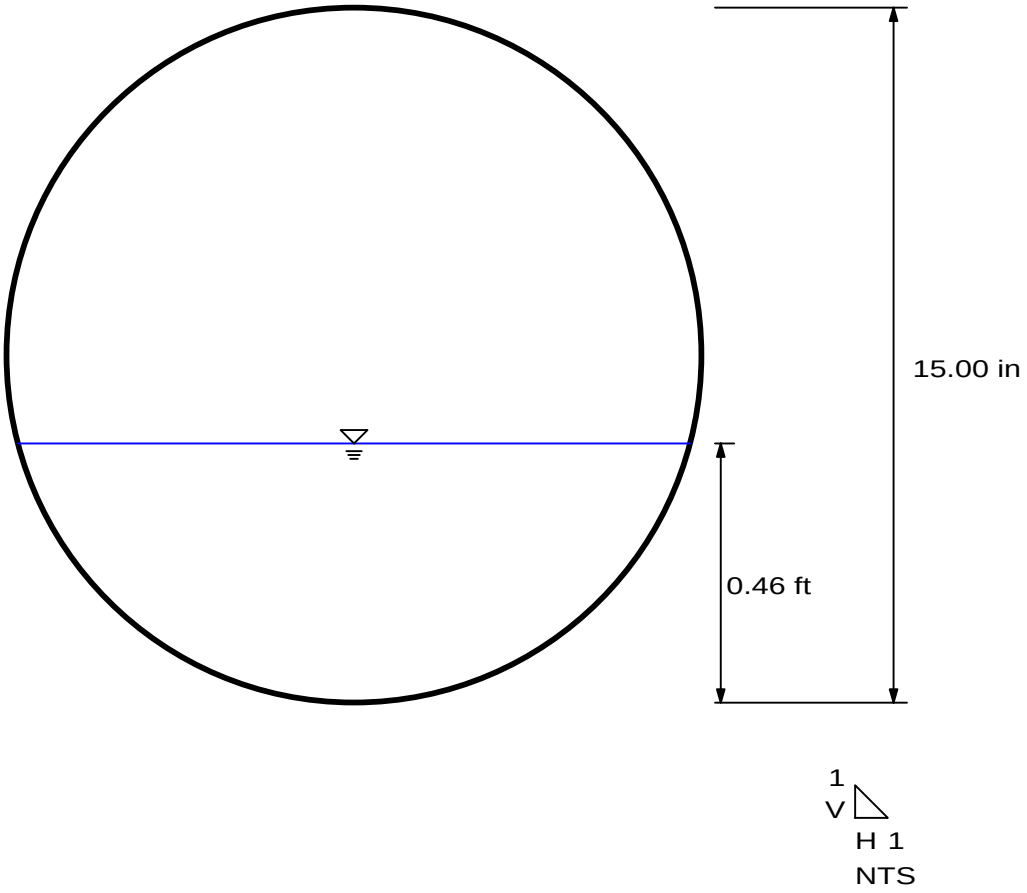
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009300	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	5.61	cfs



MH 7-6 15" VCP @ 2.60% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 7-6 15" VCP @ 2.60% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

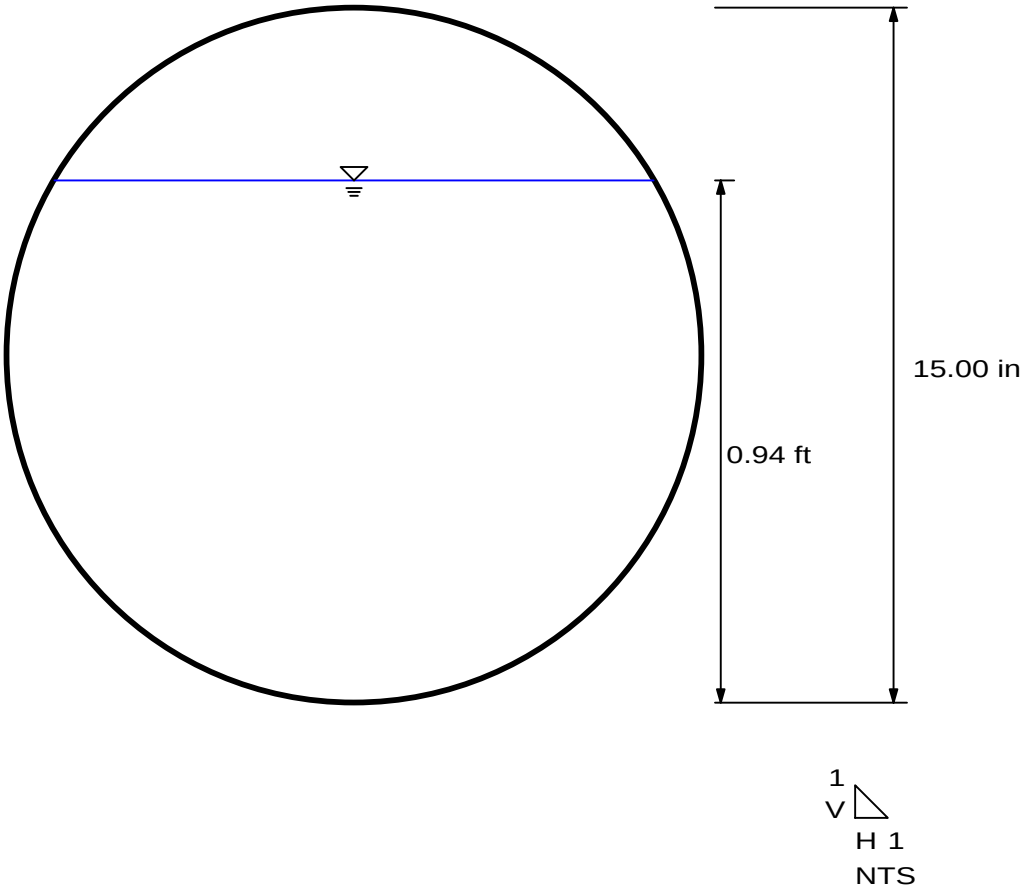
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.026000	ft/ft
Depth	0.46	ft
Diameter	15.00	in
Discharge	2.94	cfs



MH 7-6 15" VCP @ 2.60% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 7-6 15" VCP @ 2.60% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

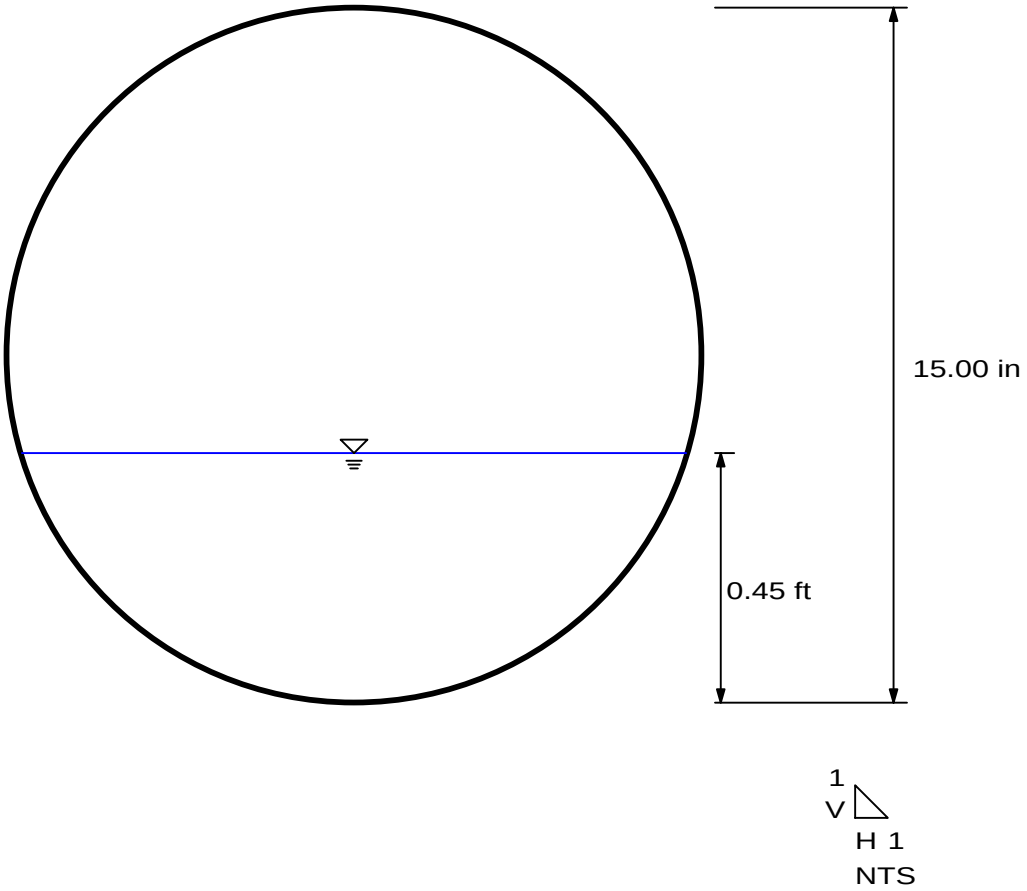
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.026000	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	9.40	cfs



MH 6-5 15" VCP @ 3.00% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 6-5 15" VCP @ 3.00% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

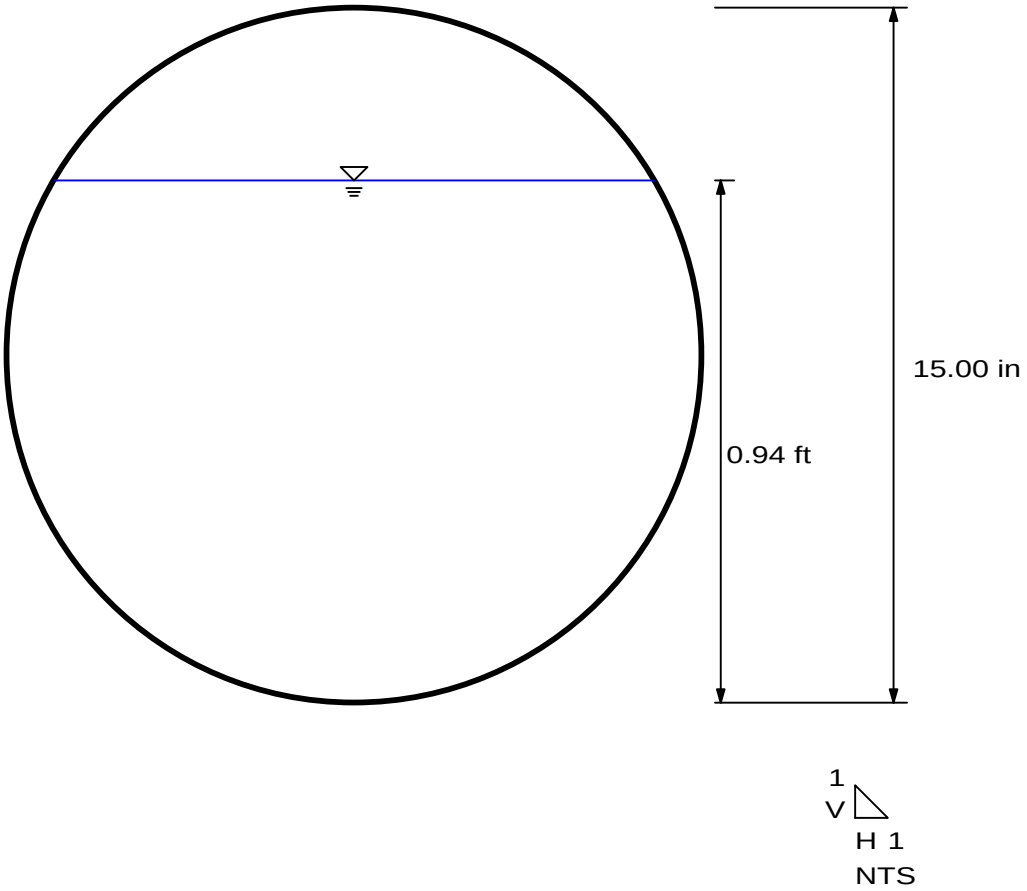
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.030000	ft/ft
Depth	0.45	ft
Diameter	15.00	in
Discharge	2.94	cfs



MH 6-5 15" VCP @ 3.00% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 6-5 15" VCP @ 3.00% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

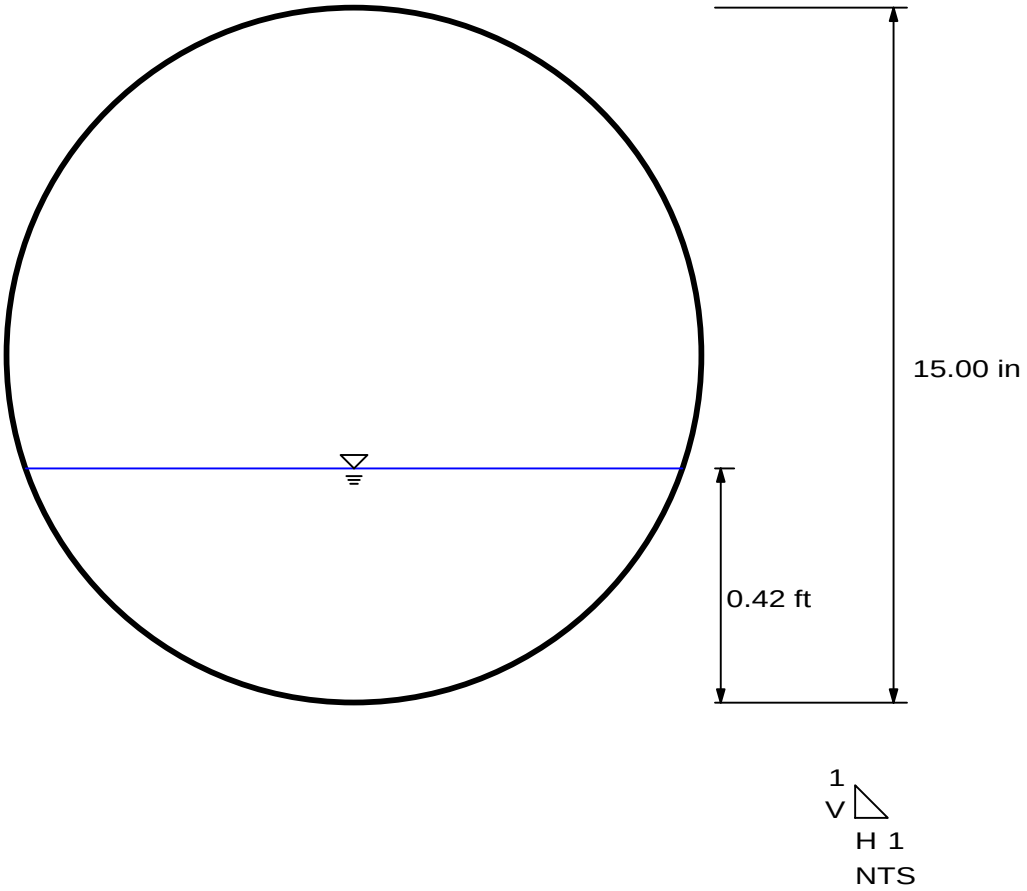
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.030000	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	10.09	cfs



MH 5-4 15" VCP @ 3.84% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 5-4 15" VCP @ 3.84% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

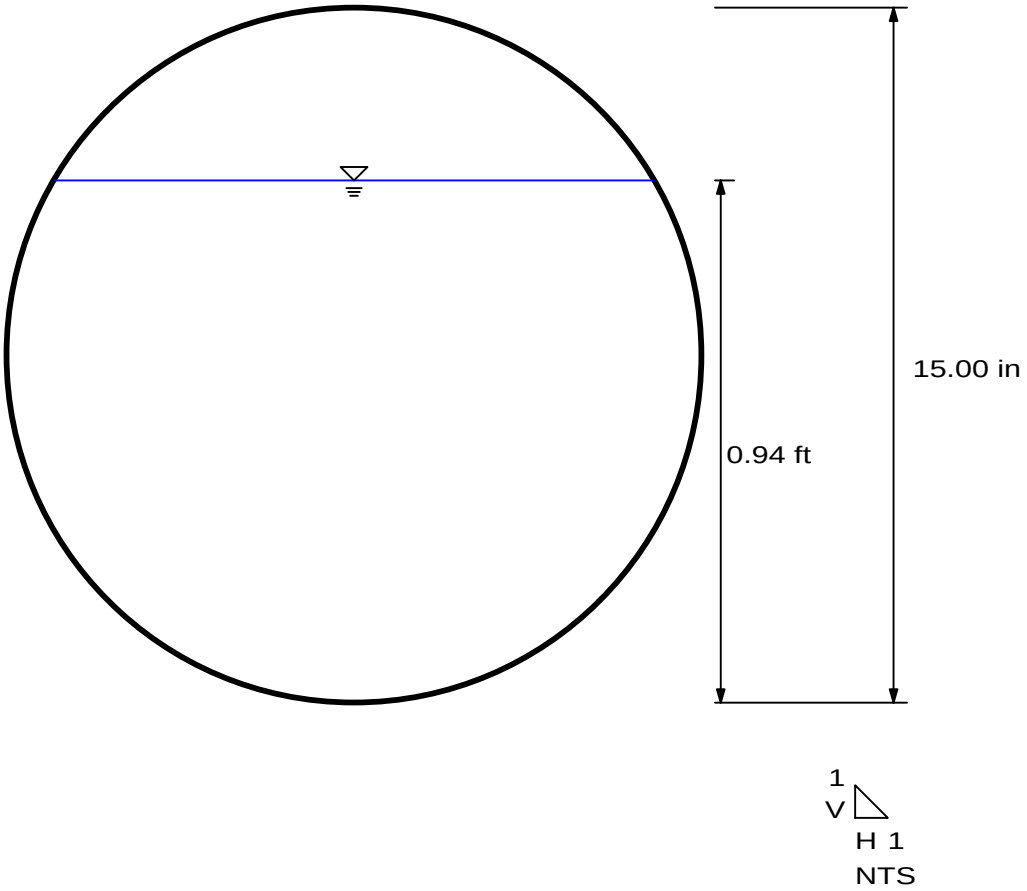
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.038400	ft/ft
Depth	0.42	ft
Diameter	15.00	in
Discharge	2.94	cfs



MH 5-4 15" VCP @ 3.84% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 5-4 15" VCP @ 3.84% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

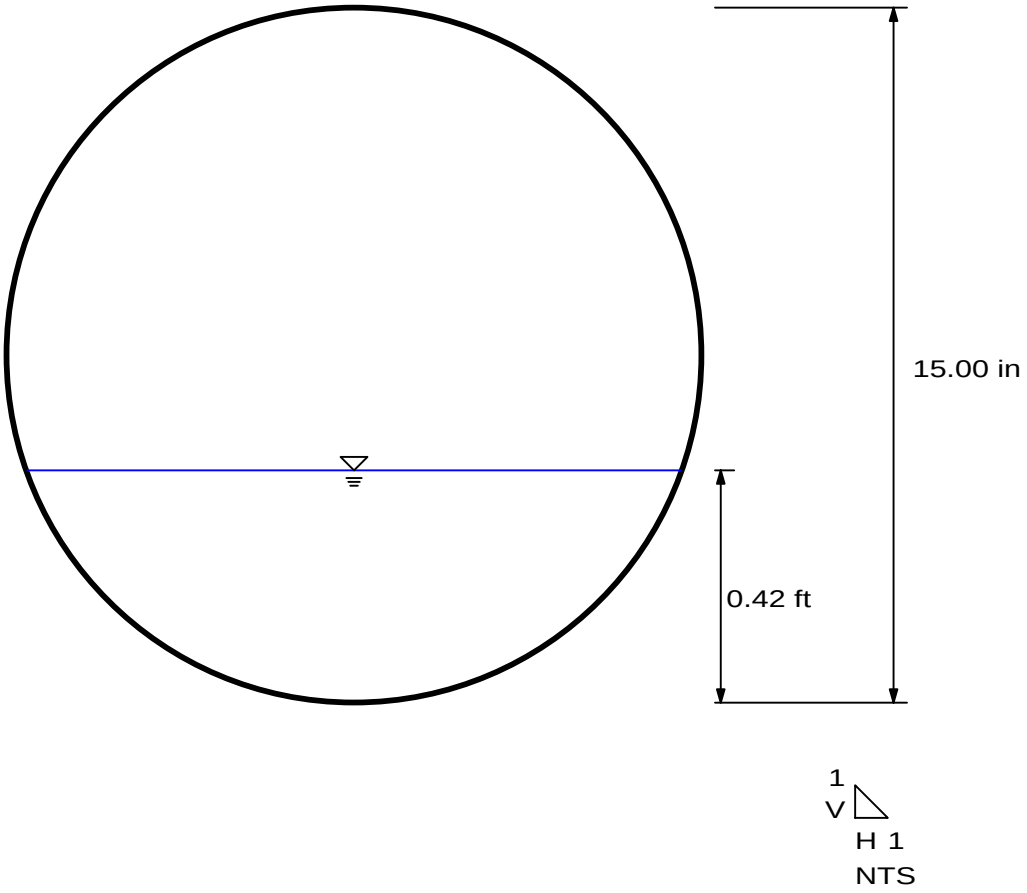
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.038400	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	11.42	cfs



MH 4-3 15" VCP @ 3.98% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 4-3 15" VCP @ 3.98% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

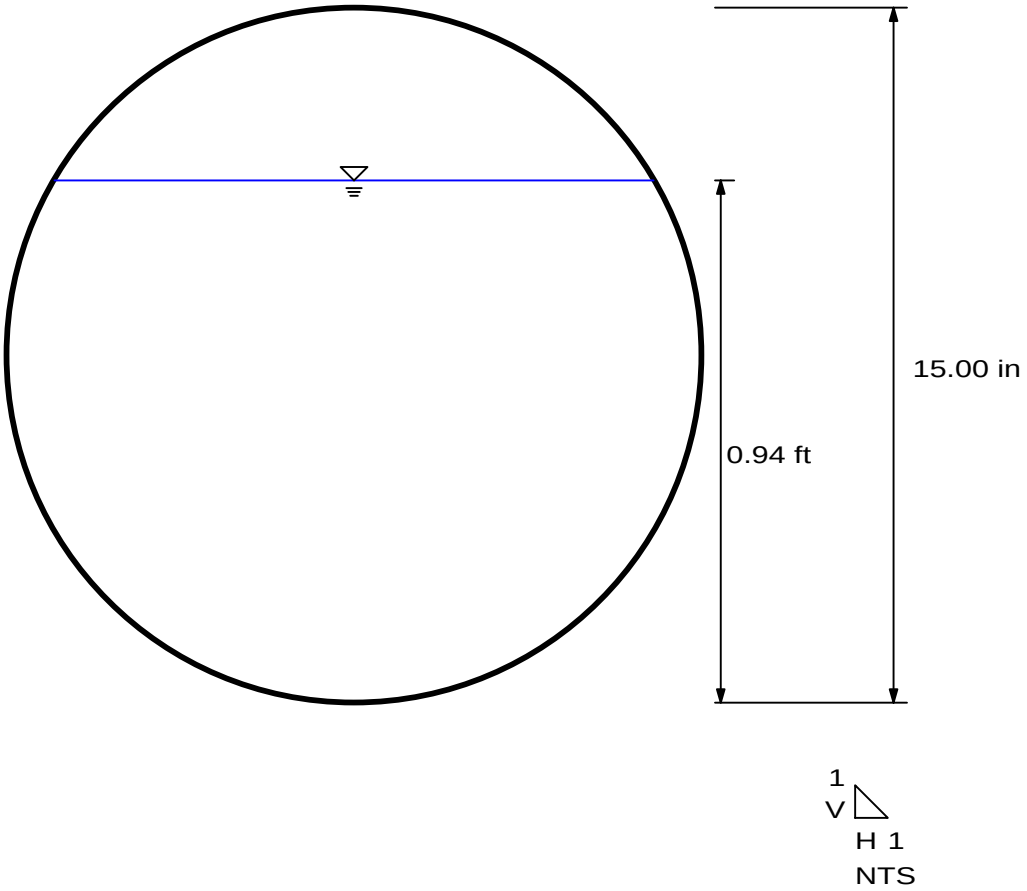
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.039800	ft/ft
Depth	0.42	ft
Diameter	15.00	in
Discharge	2.94	cfs



MH 4-3 15" VCP @ 3.98% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 4-3 15" VCP @ 3.98% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

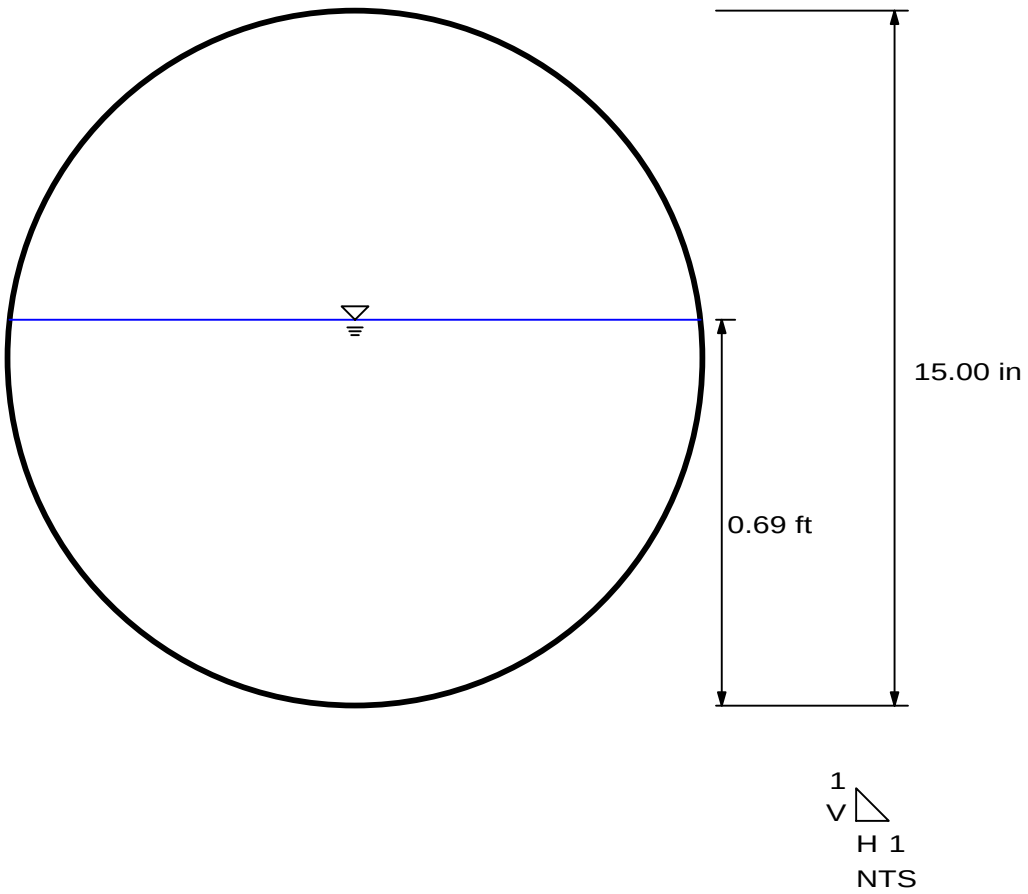
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.039800	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	11.63	cfs



MH 3-2 15" VCP @ 1.08% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 3-2 15" VCP @ 1.08% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

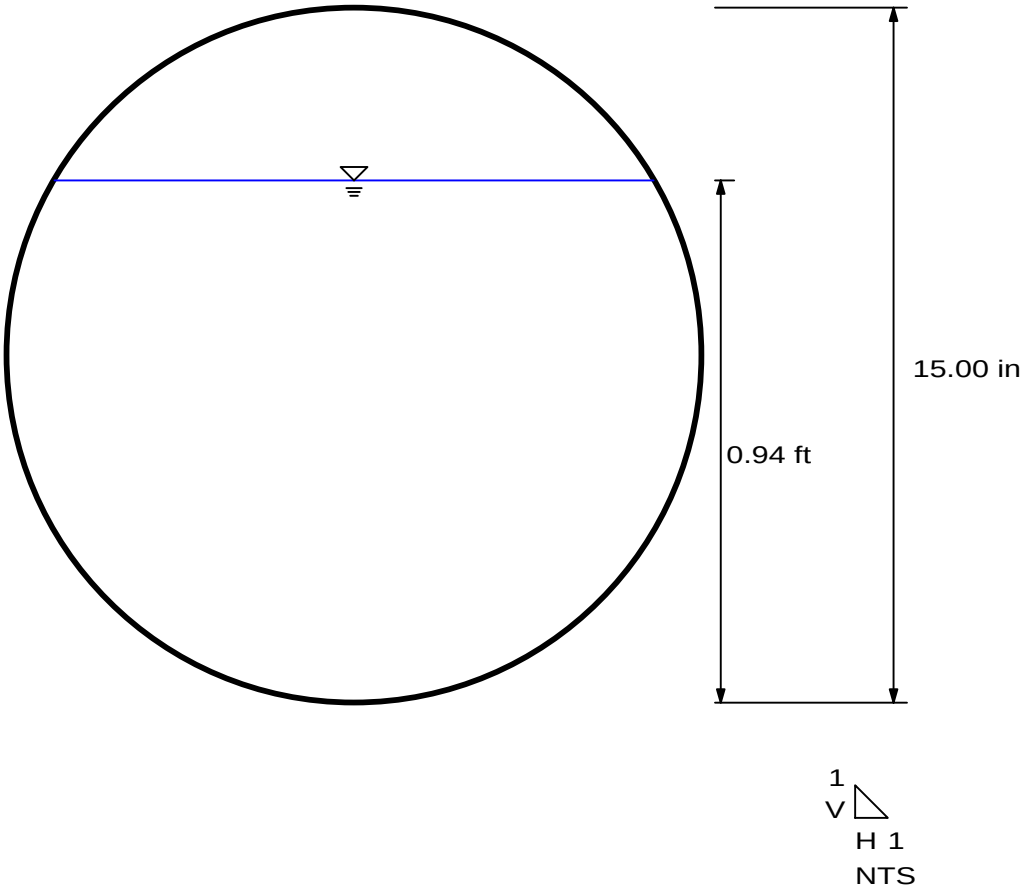
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.010800	ft/ft
Depth	0.69	ft
Diameter	15.00	in
Discharge	3.88	cfs



MH 3-2 15" VCP @ 1.08% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 3-2 15" VCP @ 1.08% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

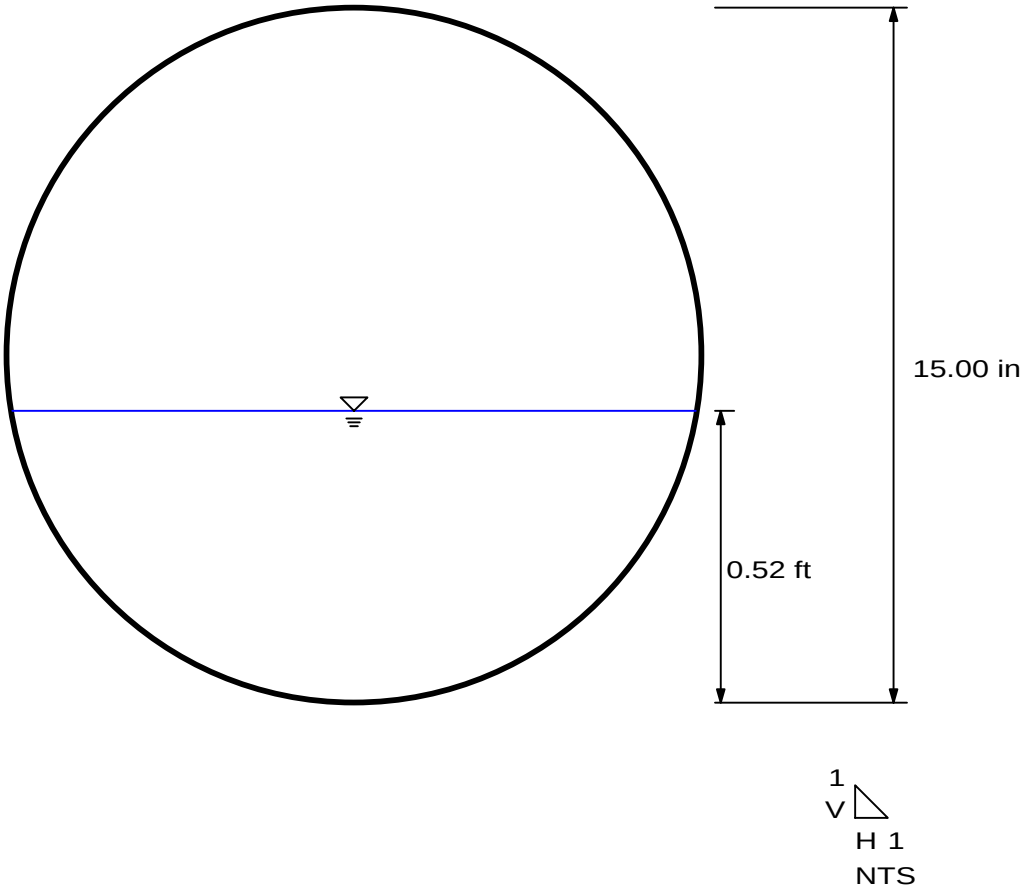
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.010800	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	6.05	cfs



MH 2-1 15" VCP @ 2.88% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 2-1 15" VCP @ 2.88% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

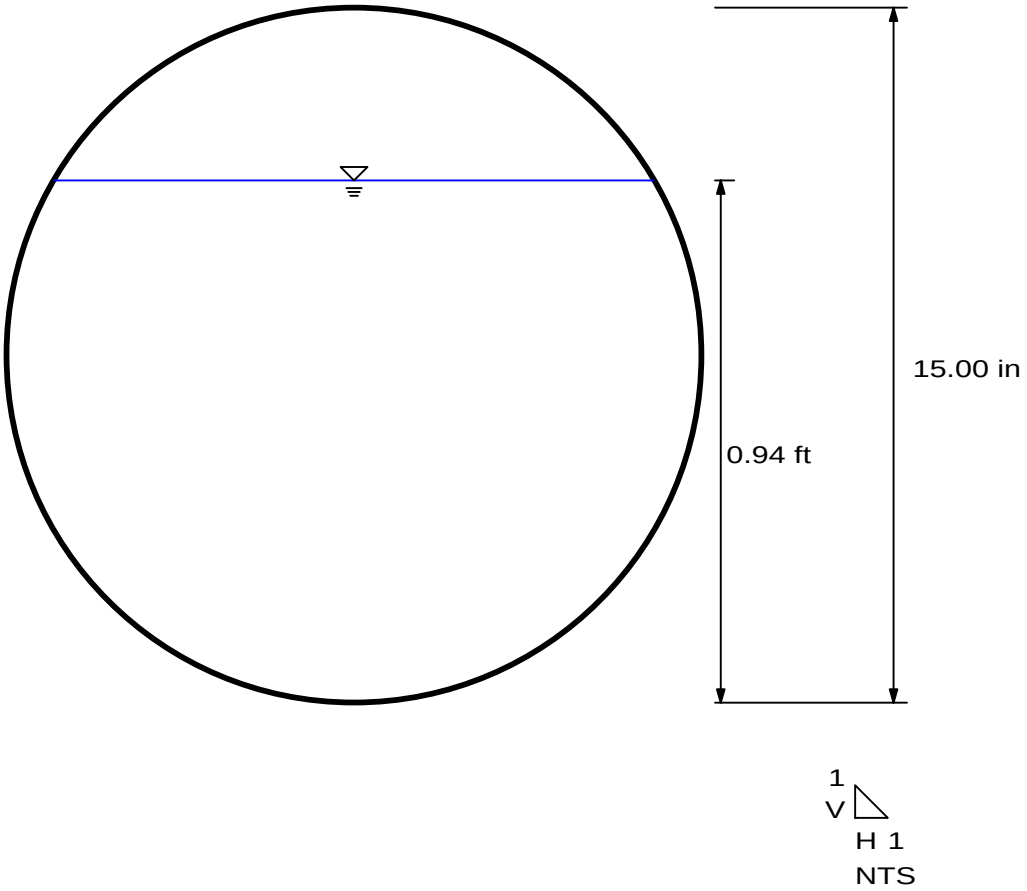
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.028800	ft/ft
Depth	0.52	ft
Diameter	15.00	in
Discharge	3.88	cfs



MH 2-1 15" VCP @ 2.88% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 2-1 15" VCP @ 2.88% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

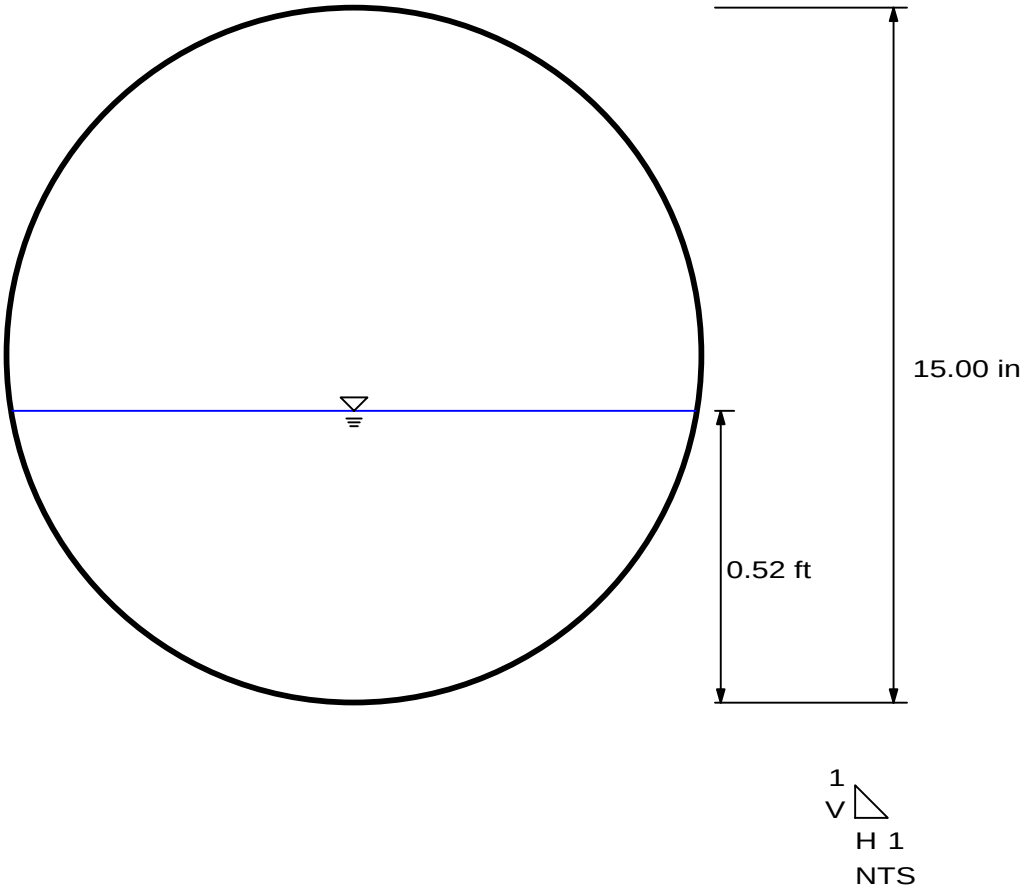
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.028800	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	9.89	cfs



MH 1-120 15" VCP @ 2.88% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 1-120 15" VCP @ 2.88% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

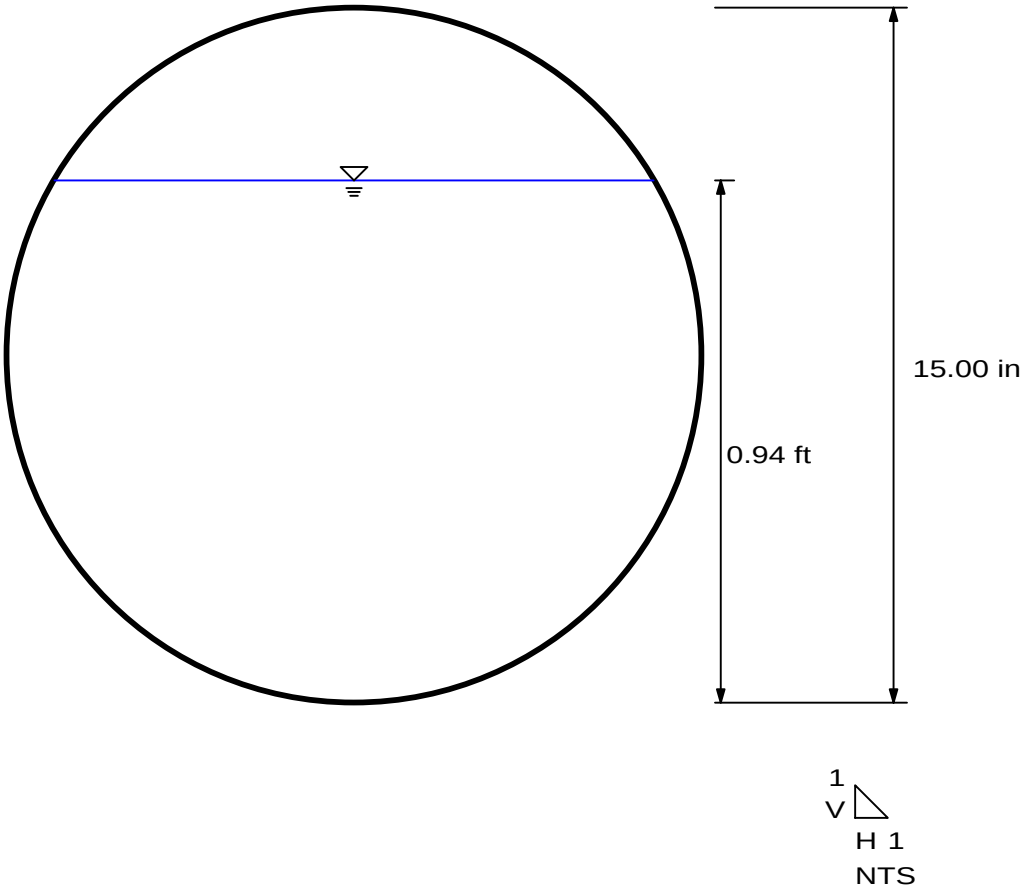
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.028800	ft/ft
Depth	0.52	ft
Diameter	15.00	in
Discharge	3.88	cfs



MH 1-120 15" VCP @ 2.88% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 1-120 15" VCP @ 2.88% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

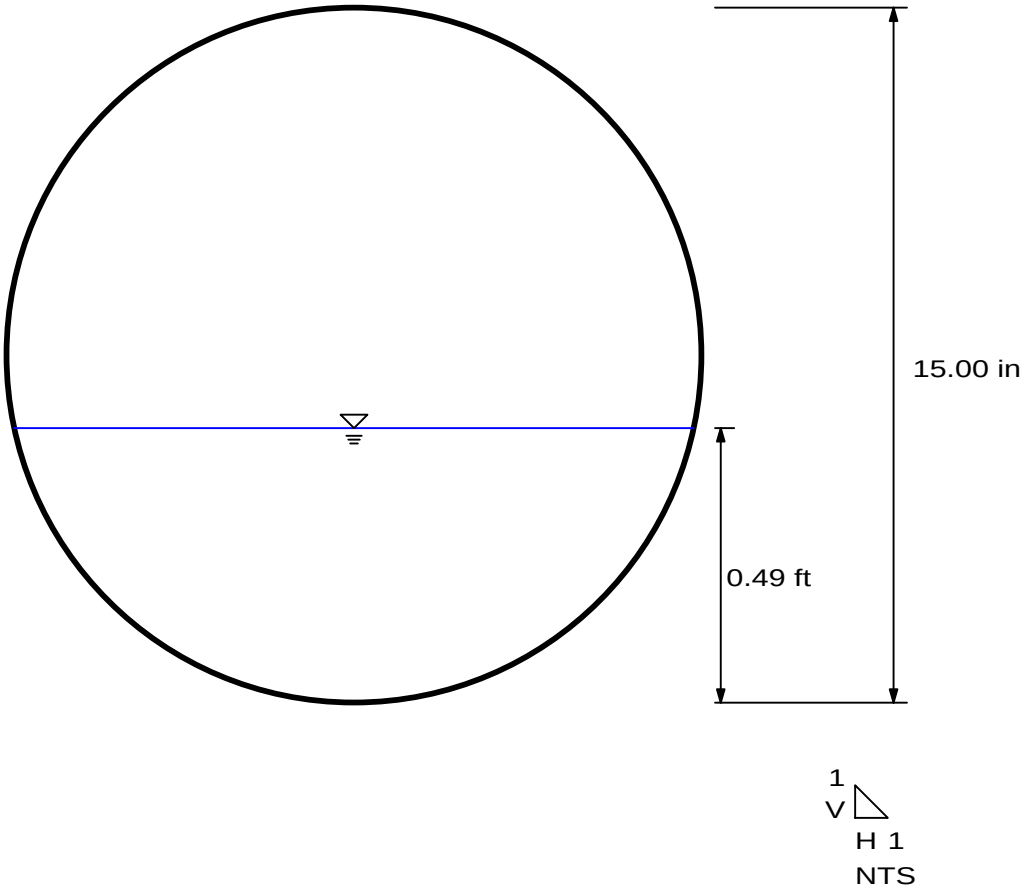
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.028800	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	9.89	cfs



MH 120-119 15" VCP @ 3.65% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 120-119 15" VCP @ 3.65% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

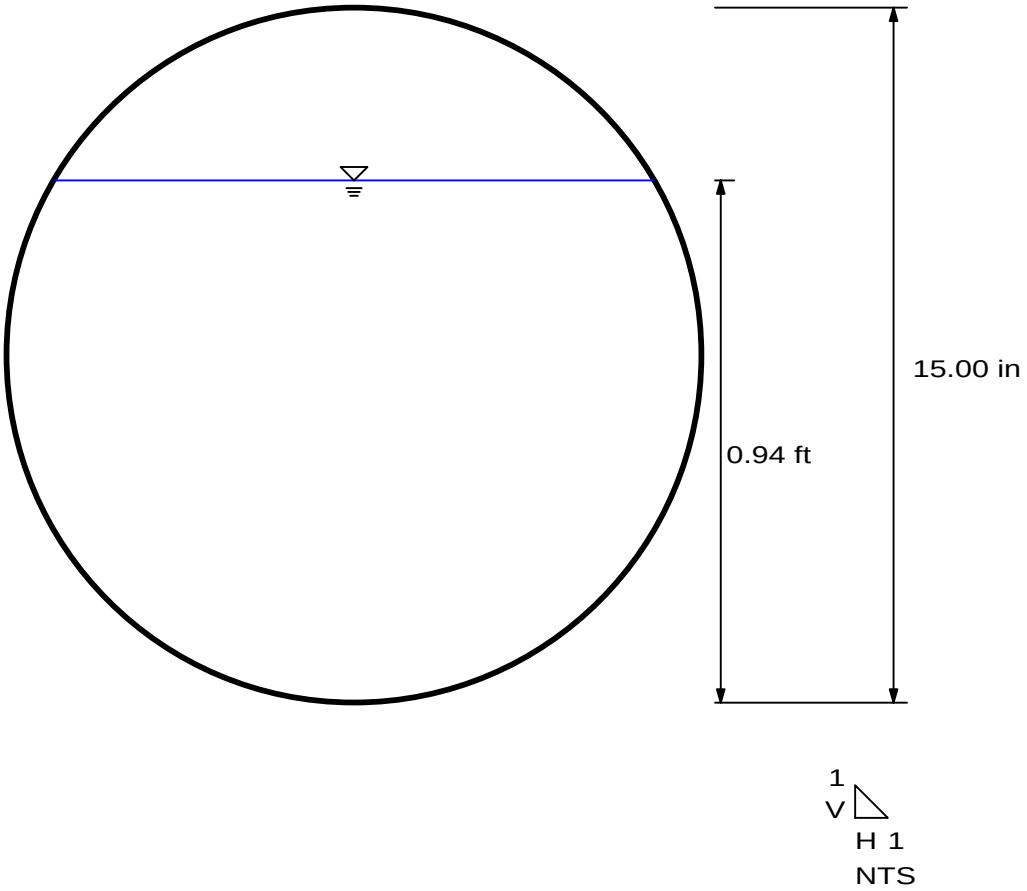
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.036500	ft/ft
Depth	0.49	ft
Diameter	15.00	in
Discharge	3.88	cfs



MH 120-119 15" VCP @ 3.65% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 120-119 15" VCP @ 3.65% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

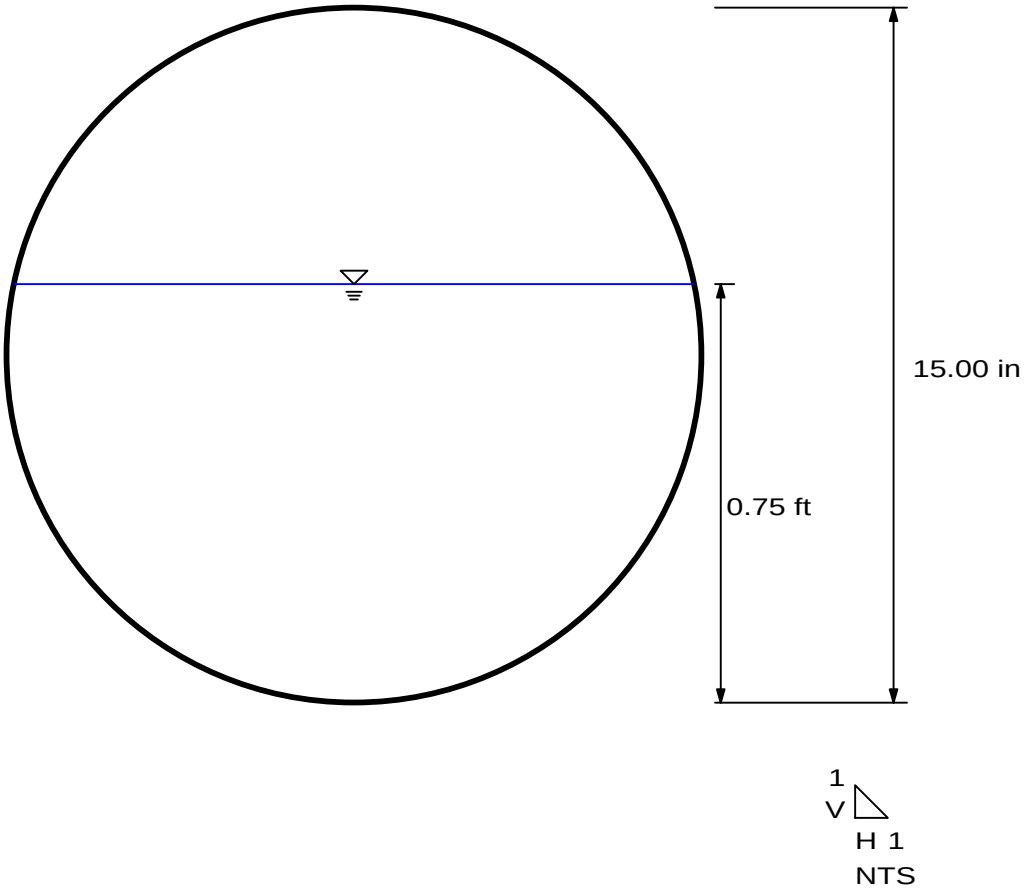
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.036500	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	11.13	cfs



MH 119-118 15" VCP @ 1.92% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 119-118 15" VCP @ 1.92% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

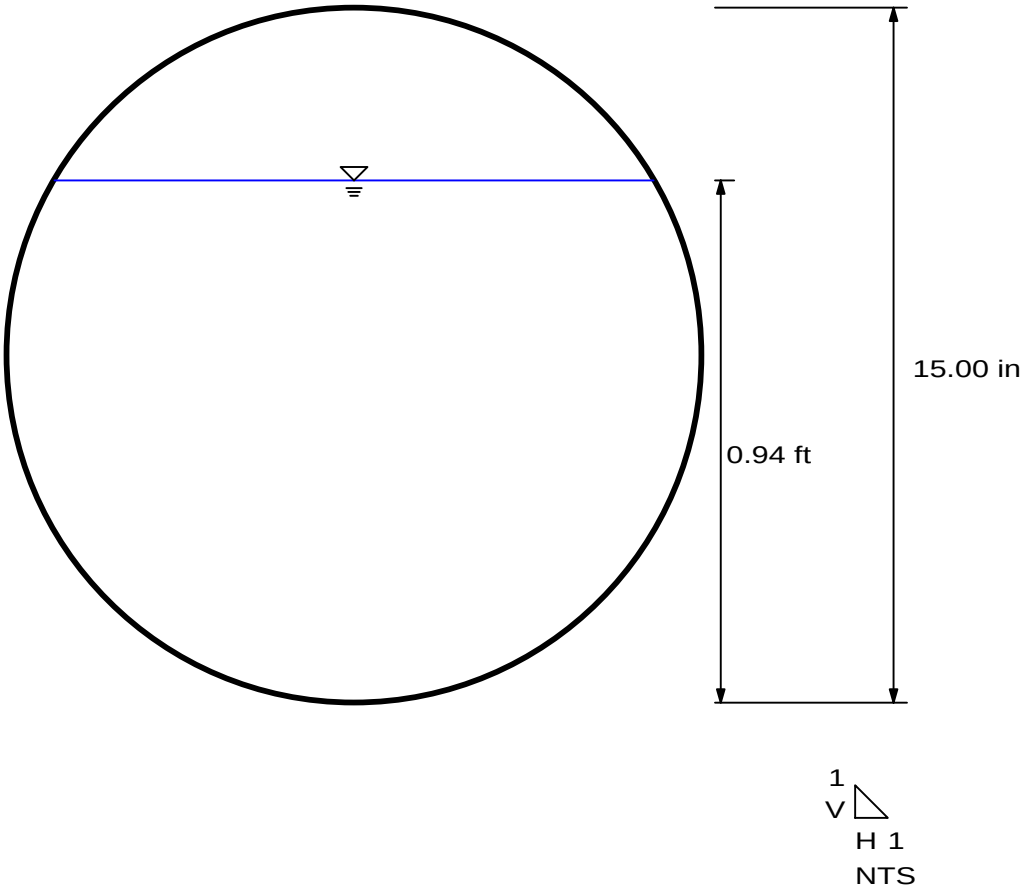
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.019200	ft/ft
Depth	0.75	ft
Diameter	15.00	in
Discharge	5.90	cfs



MH 119-118 15" VCP @ 1.92% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 119-118 15" VCP @ 1.92% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

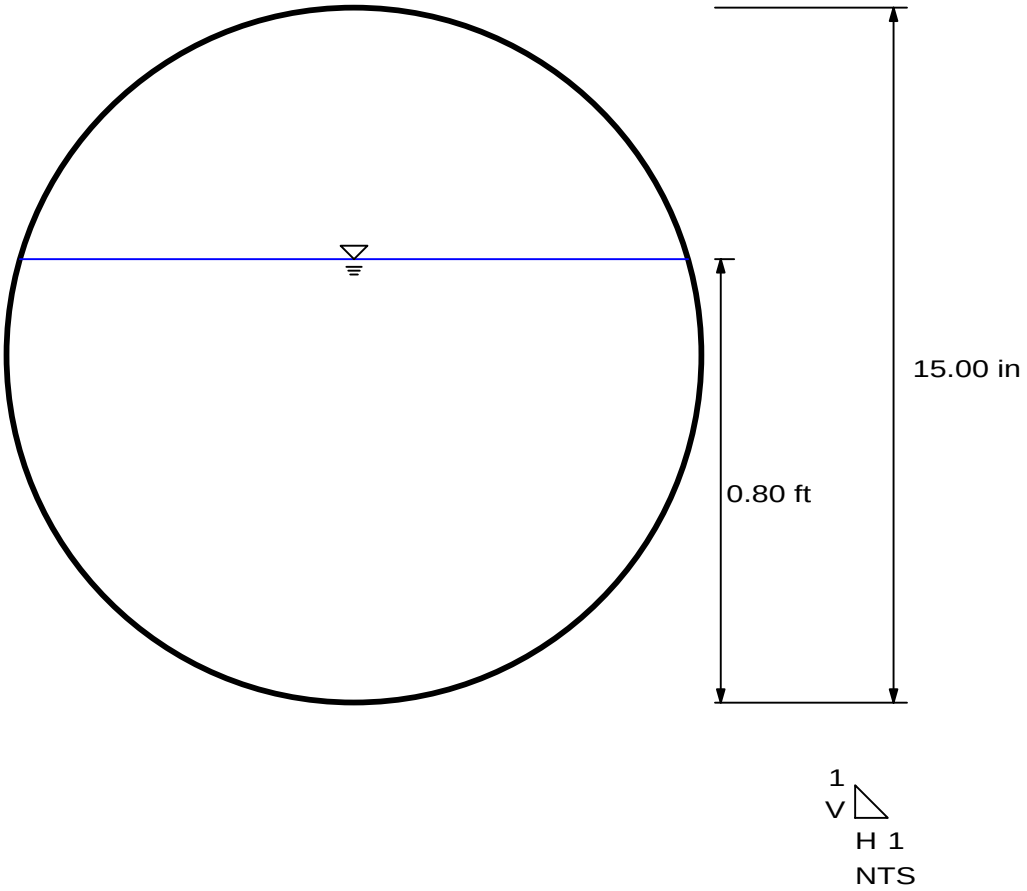
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.019200	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	8.07	cfs



MH 118-117 15" VCP @ 1.60% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 118-117 15" VCP @ 1.60% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

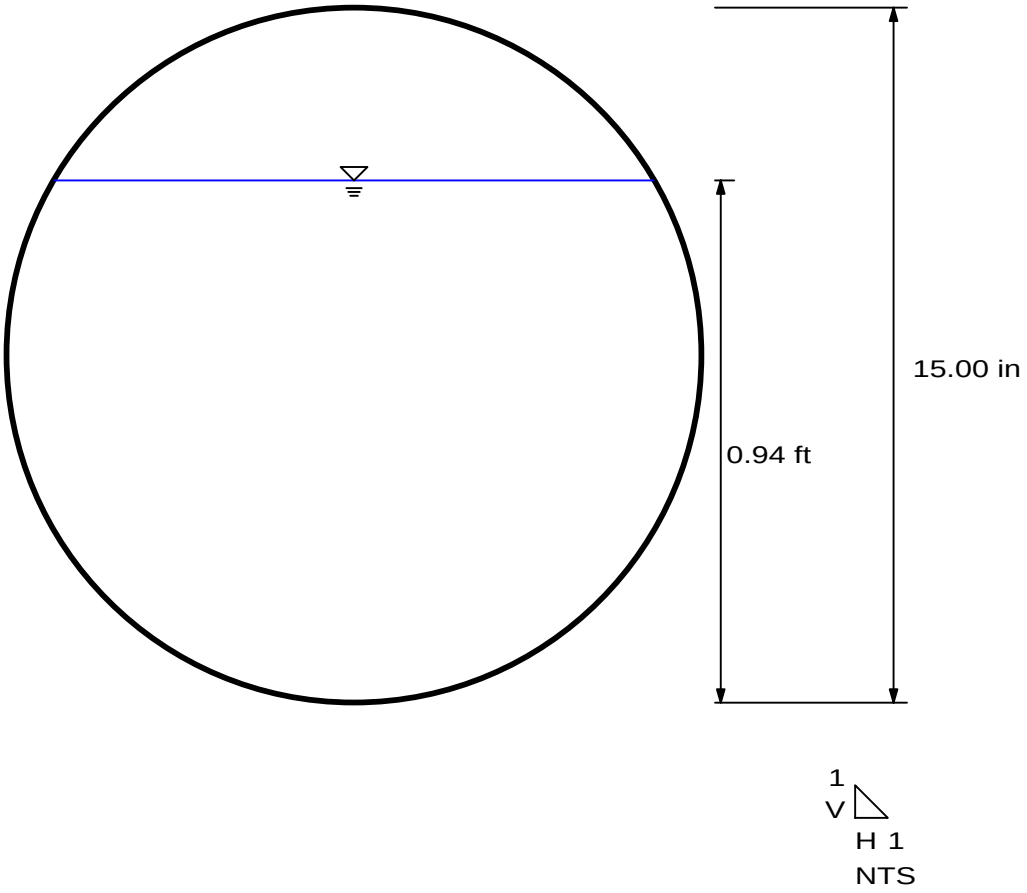
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.016000	ft/ft
Depth	0.80	ft
Diameter	15.00	in
Discharge	5.90	cfs



MH 118-117 15" VCP @ 1.60% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 118-117 15" VCP @ 1.60% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

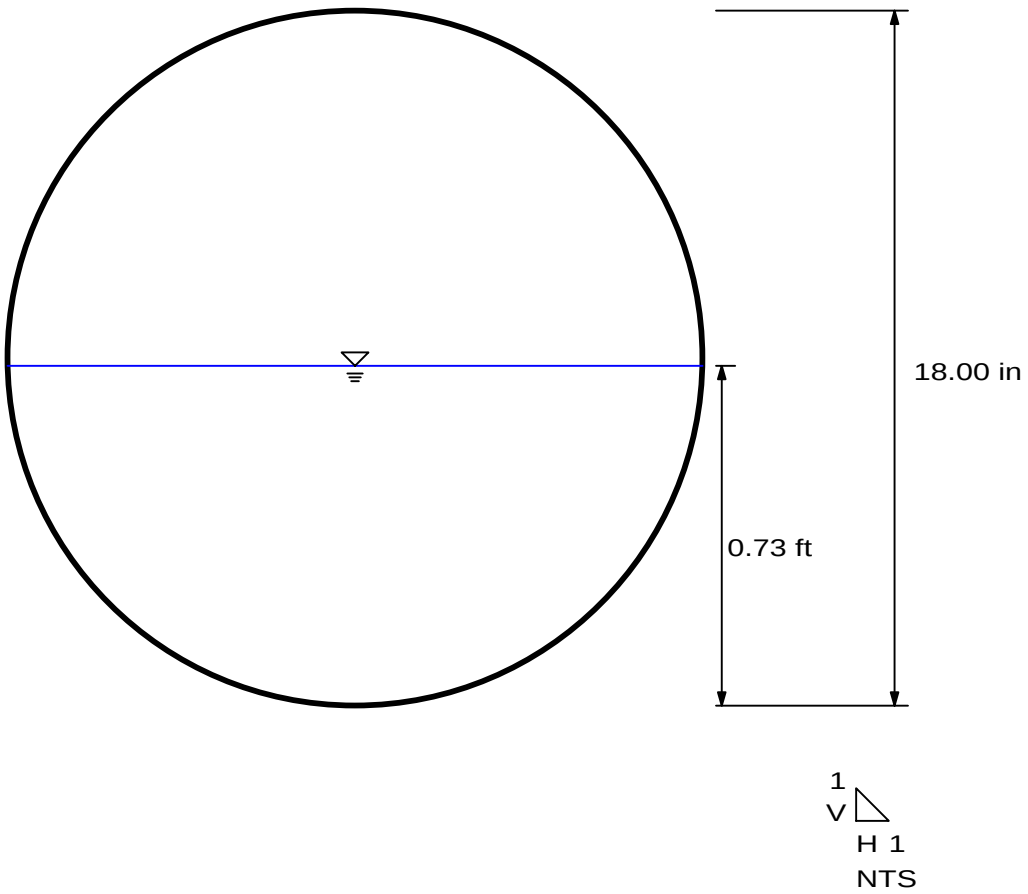
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.016000	ft/ft
Depth	0.94	ft
Diameter	15.00	in
Discharge	7.37	cfs



MH 117-116 18" VCP @ 1.42% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 117-116 18" VCP @ 1.42% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

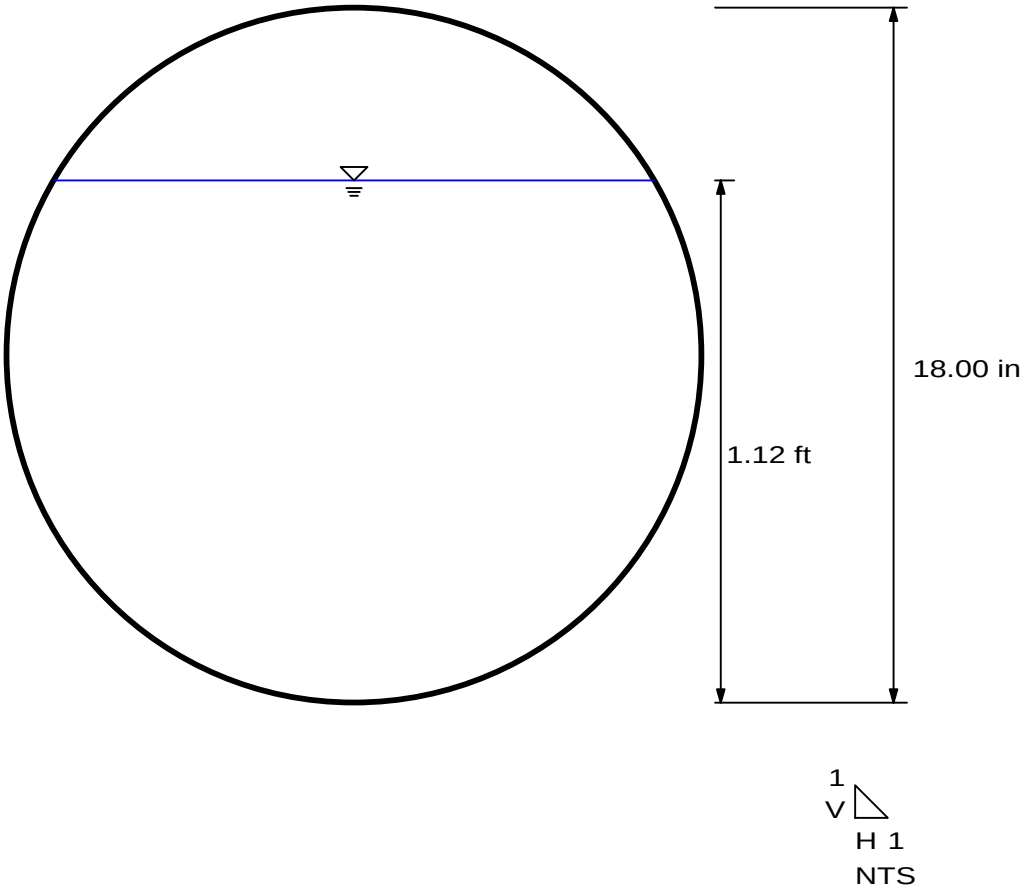
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.014200	ft/ft
Depth	0.73	ft
Diameter	18.00	in
Discharge	5.90	cfs



MH 117-116 18" VCP @ 1.42% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 117-116 18" VCP @ 1.42% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

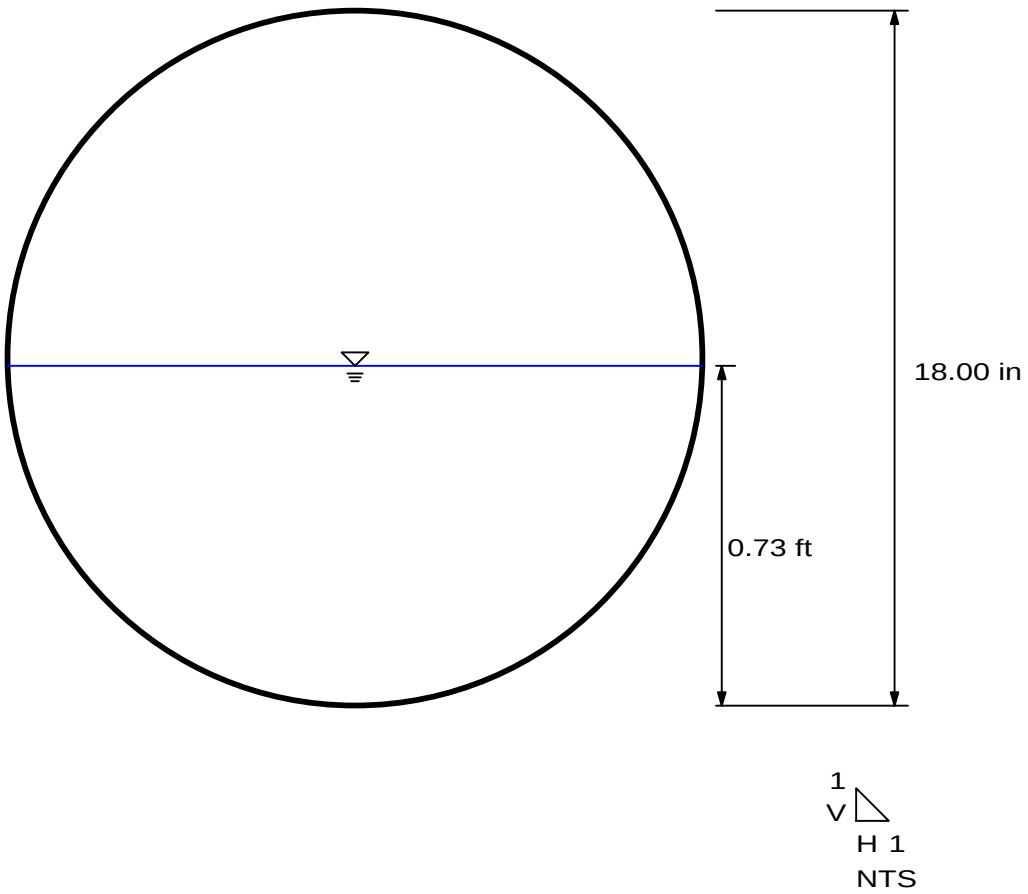
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.014200	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	11.41	cfs



MH 116-111 18" VCP @ 1.42% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 116-111 18" VCP @ 1.42% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

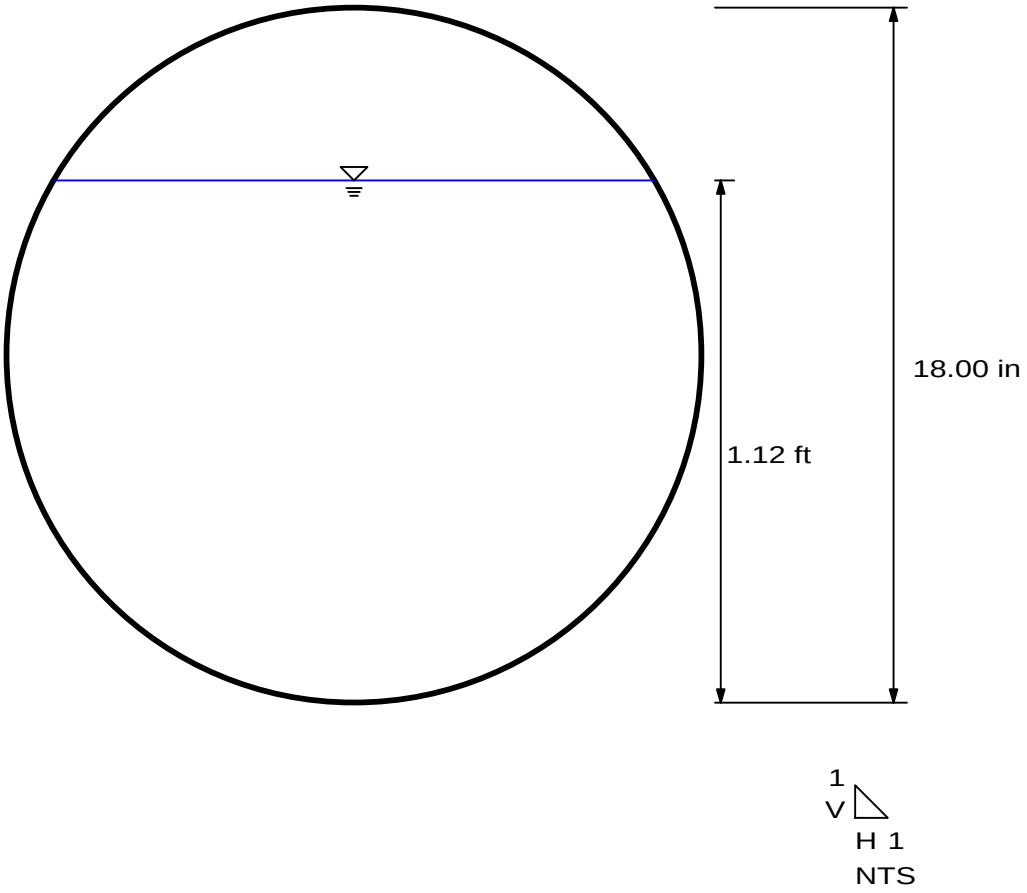
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.014200	ft/ft
Depth	0.73	ft
Diameter	18.00	in
Discharge	5.90	cfs



MH 116-111 18" VCP @ 1.42% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 116-111 18" VCP @ 1.42% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

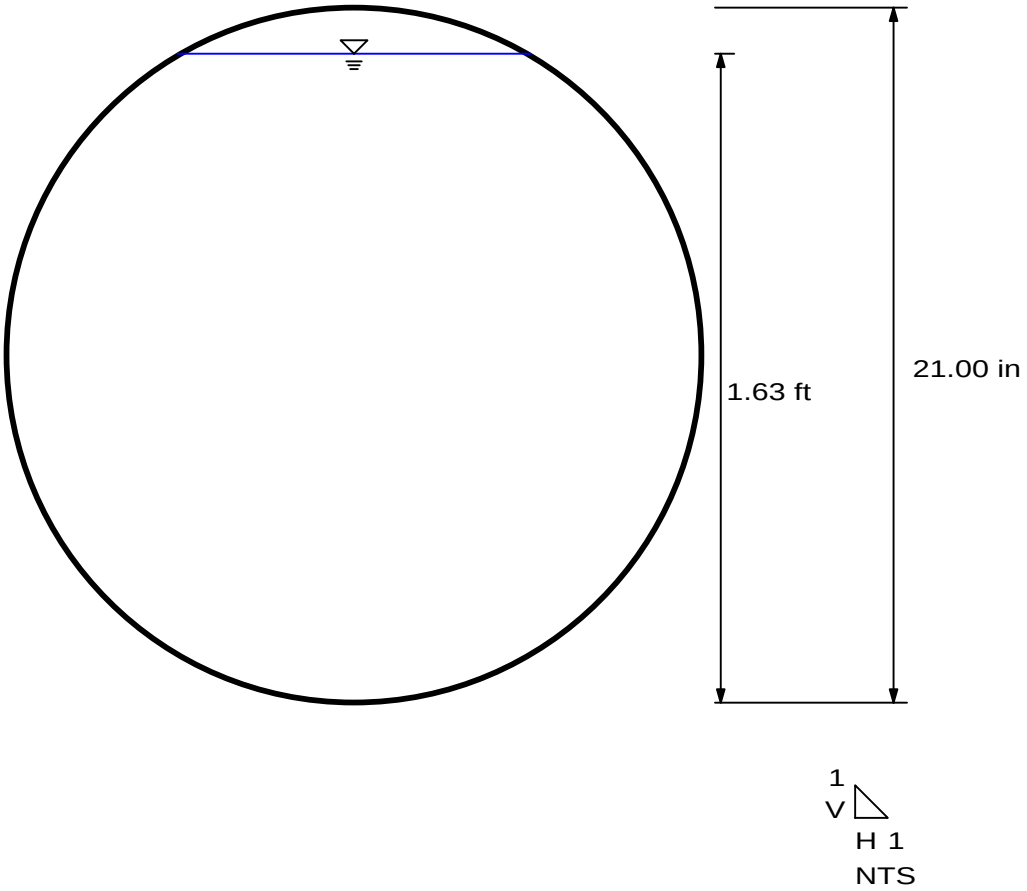
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.014200	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	11.41	cfs



MH 111-110 21" VCP @ 0.36% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 111-110 21" VCP @ 0.36% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

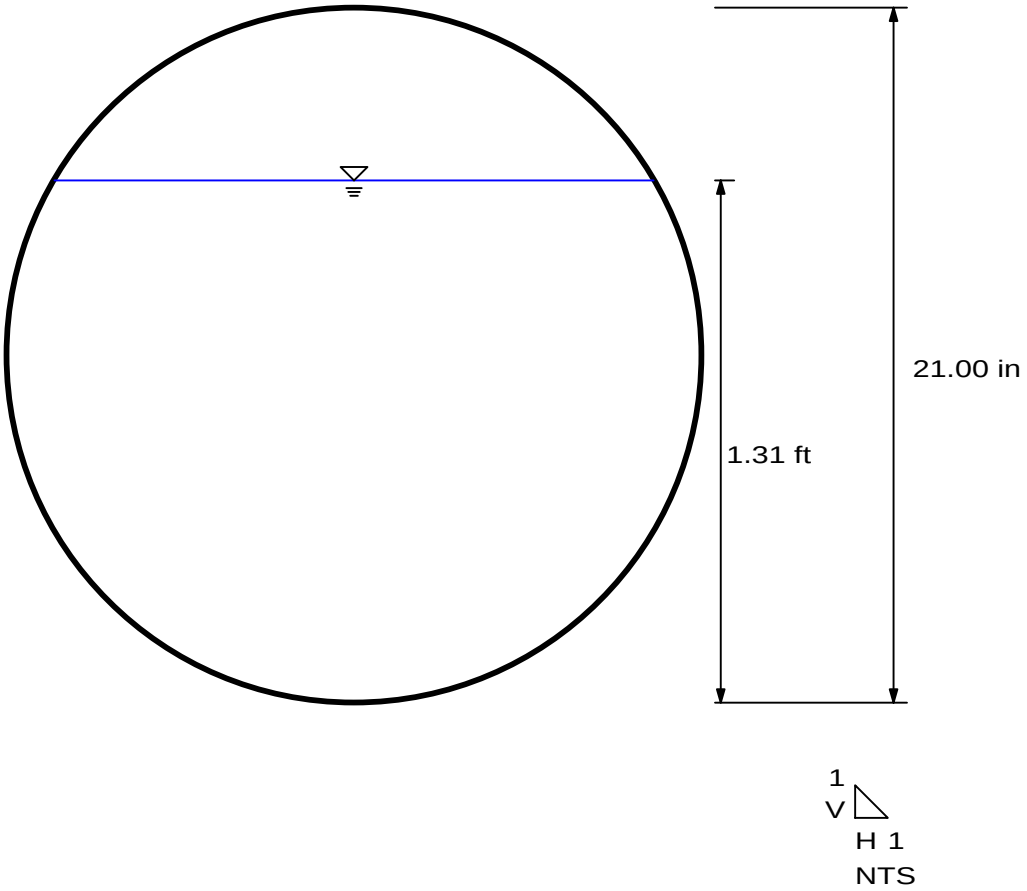
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.003600	ft/ft
Depth	1.63	ft
Diameter	21.00	in
Discharge	10.26	cfs



MH 111-110 21" VCP @ 0.36% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 111-110 21" VCP @ 0.36% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

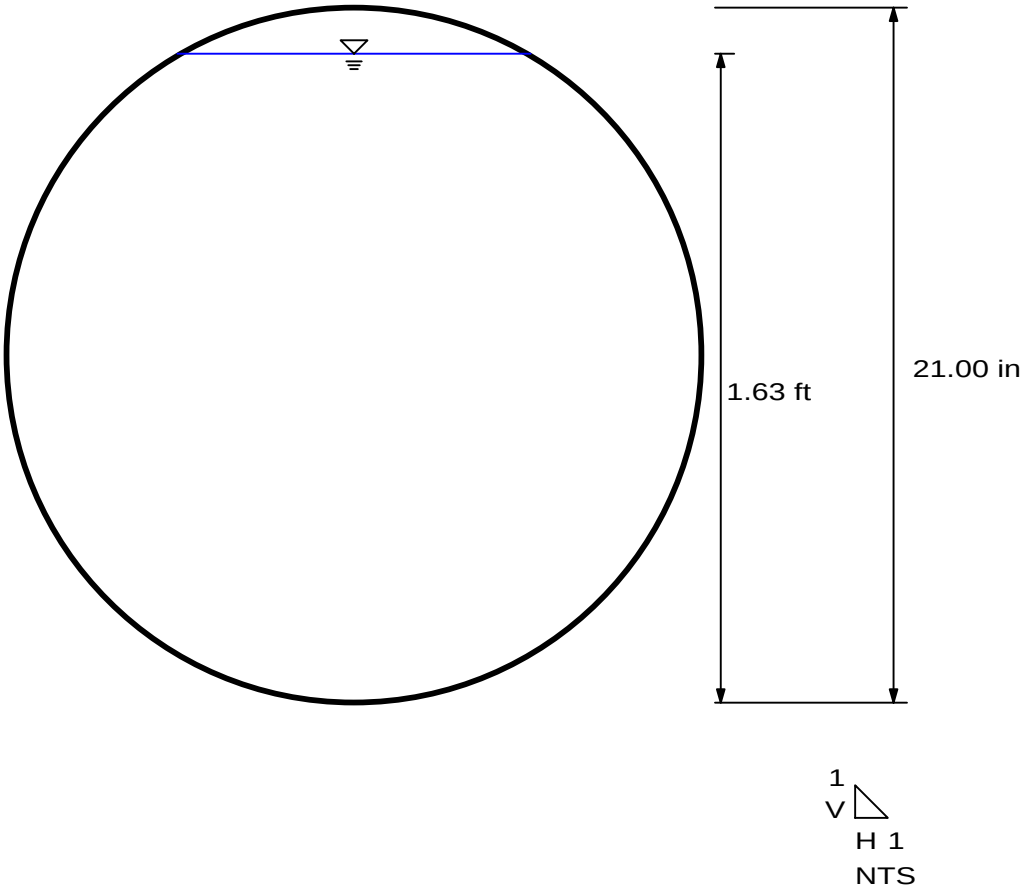
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.003600	ft/ft
Depth	1.31	ft
Diameter	21.00	in
Discharge	8.72	cfs



MH 110-109 21" VCP @ 0.36% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 110-109 21" VCP @ 0.36% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

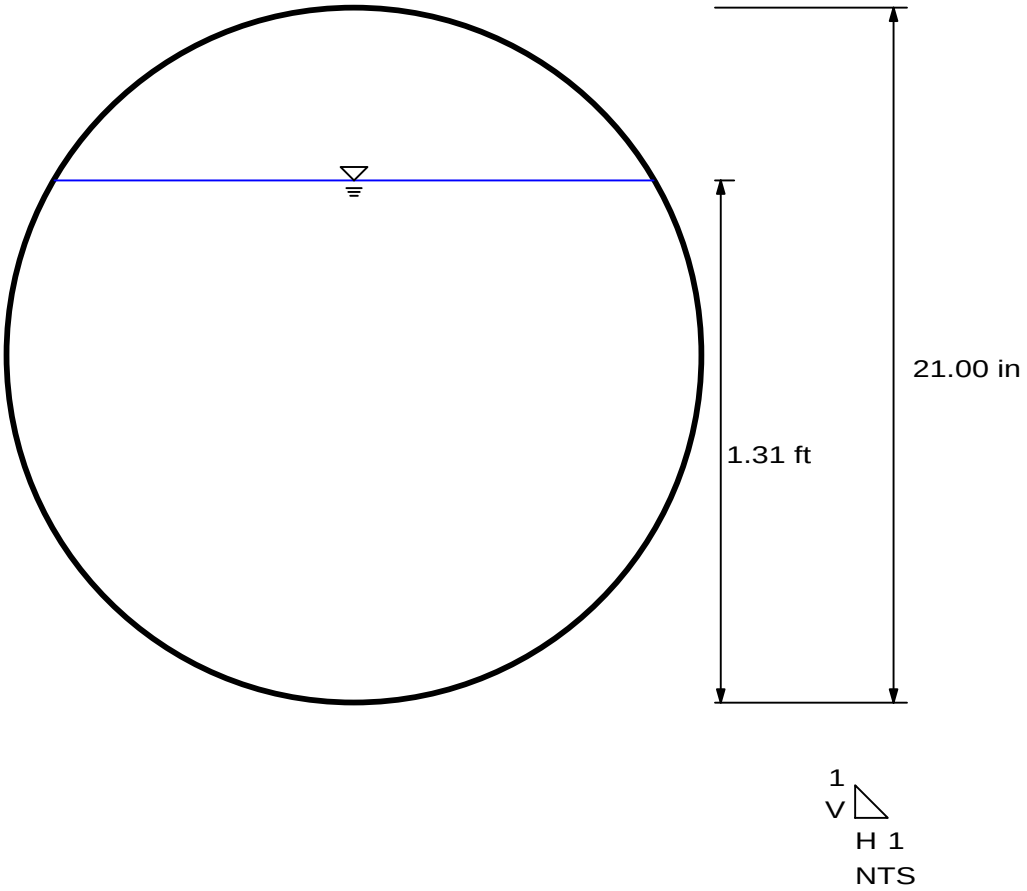
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.003600	ft/ft
Depth	1.63	ft
Diameter	21.00	in
Discharge	10.26	cfs



MH 110-109 21" VCP @ 0.36% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 110-109 21" VCP @ 0.36% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

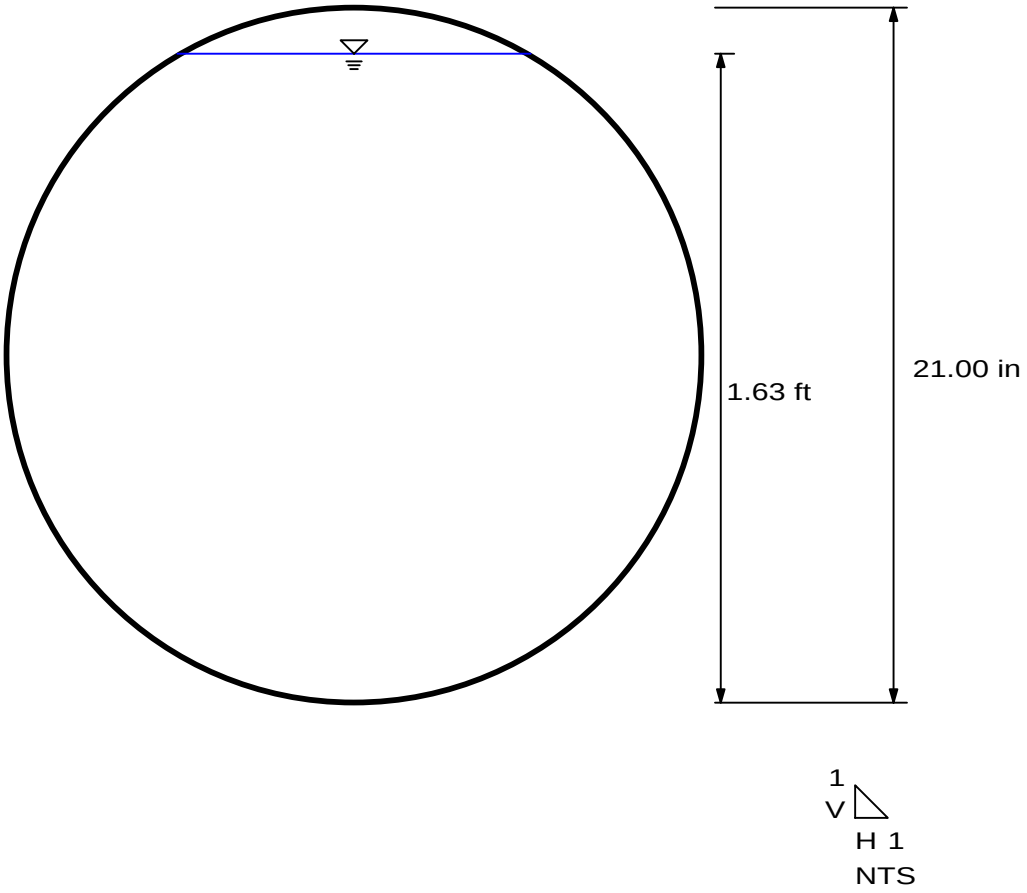
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.003600	ft/ft
Depth	1.31	ft
Diameter	21.00	in
Discharge	8.72	cfs



MH 109-223 21" VCP @ 0.36% DEPTH (10.26cfs MAX)
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 109-223 21" VCP @ 0.36% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

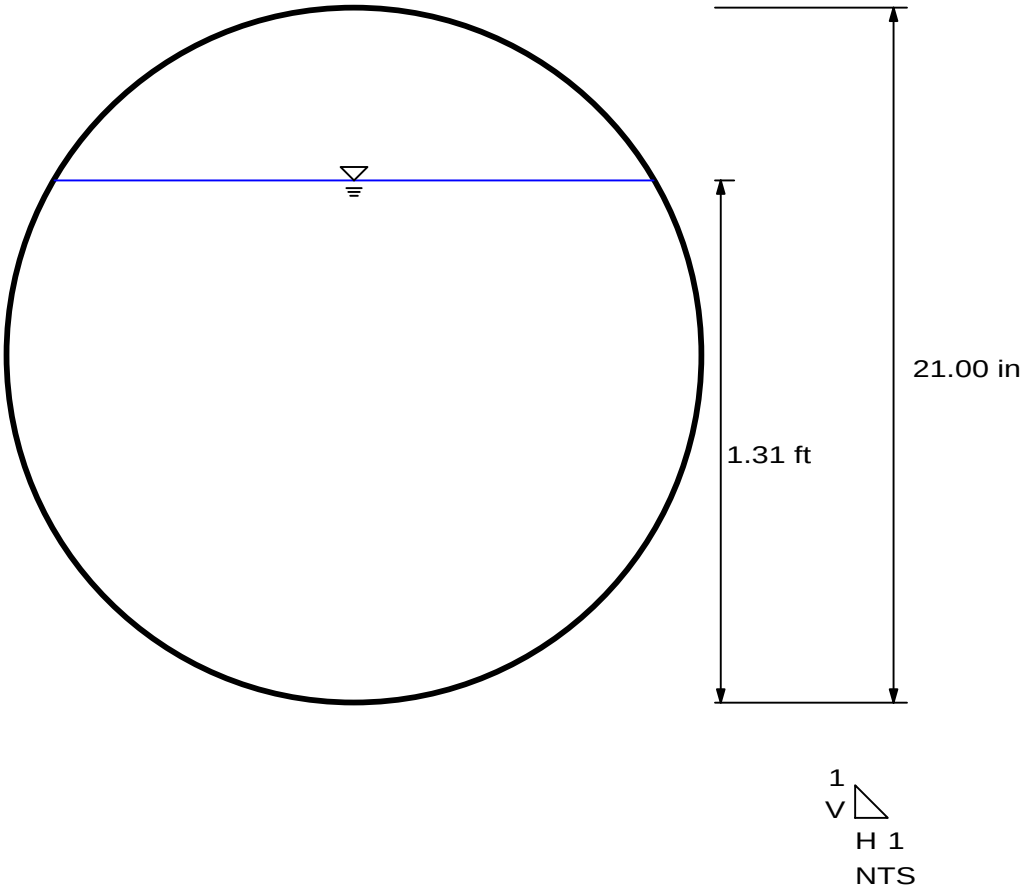
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.003600	ft/ft
Depth	1.63	ft
Diameter	21.00	in
Discharge	10.26	cfs



MH 109-223 21" VCP @ 0.36% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 109-223 21" VCP @ 0.36% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

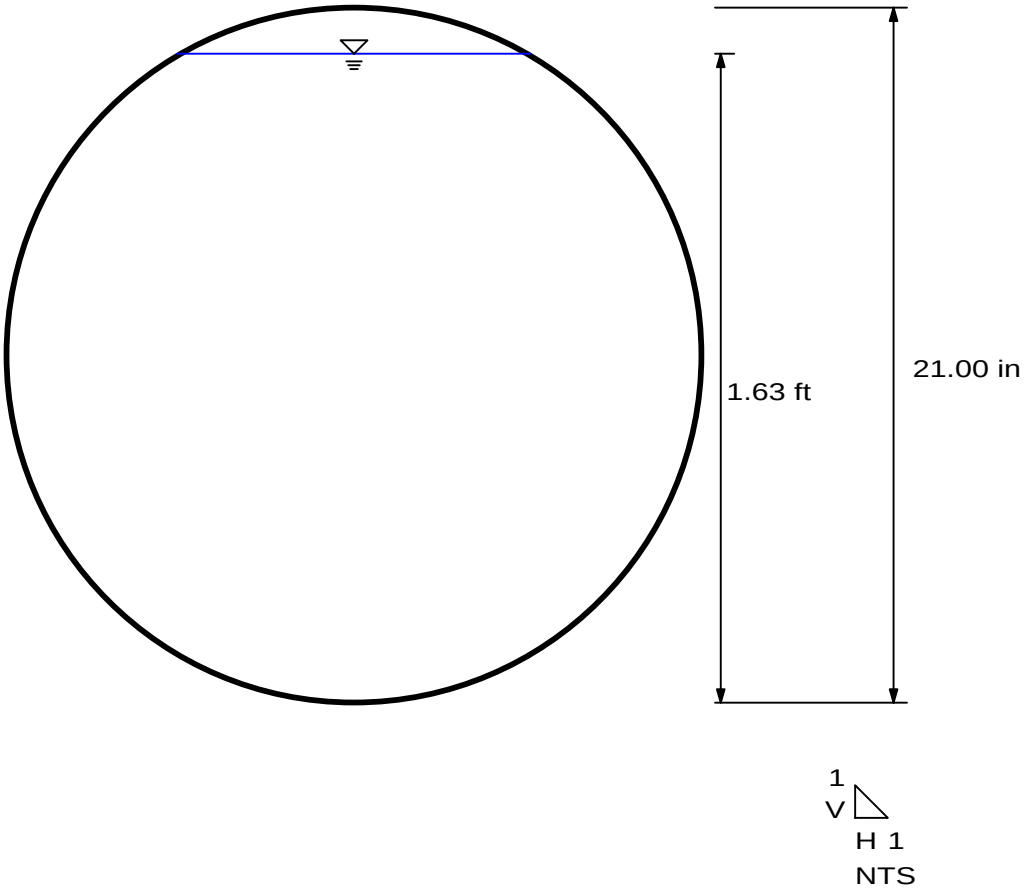
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.003600	ft/ft
Depth	1.31	ft
Diameter	21.00	in
Discharge	8.72	cfs



MH 223-108 21" VCP @ 0.36% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 223-108 21" VCP @ 0.36% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

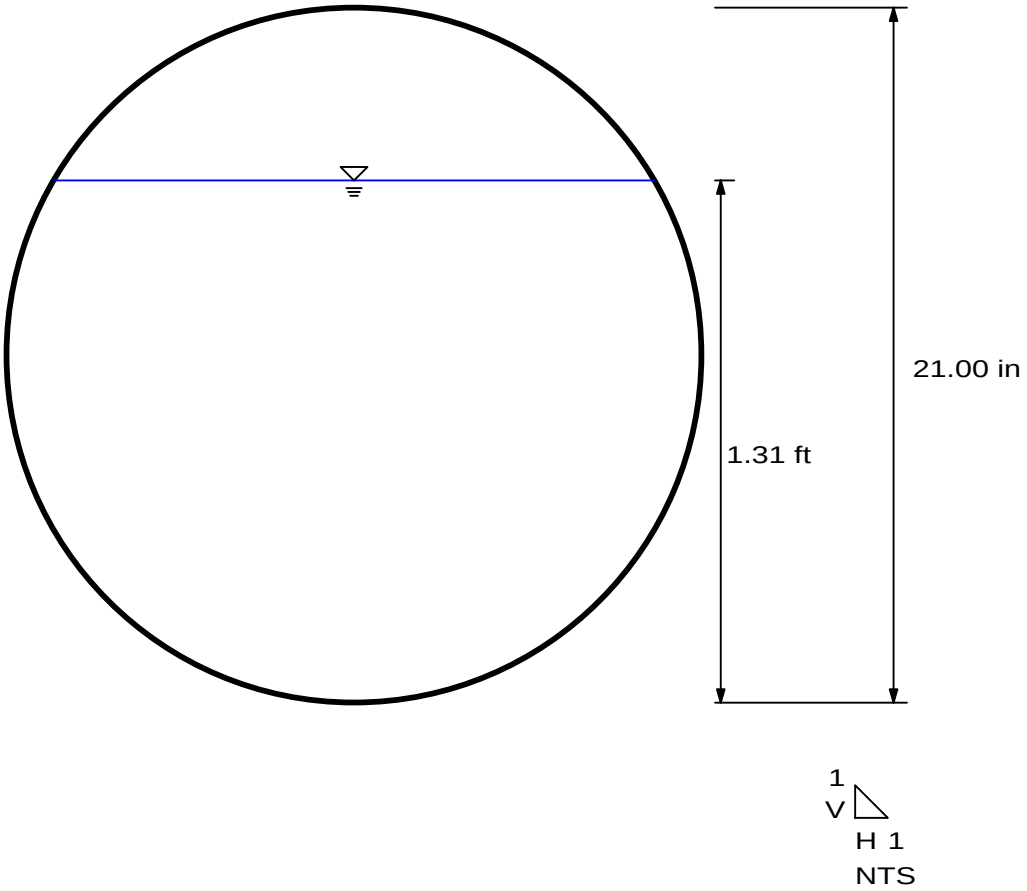
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.003600	ft/ft
Depth	1.63	ft
Diameter	21.00	in
Discharge	10.26	cfs



MH 223-108 21" VCP @ 0.36% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 223-108 21" VCP @ 0.36% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

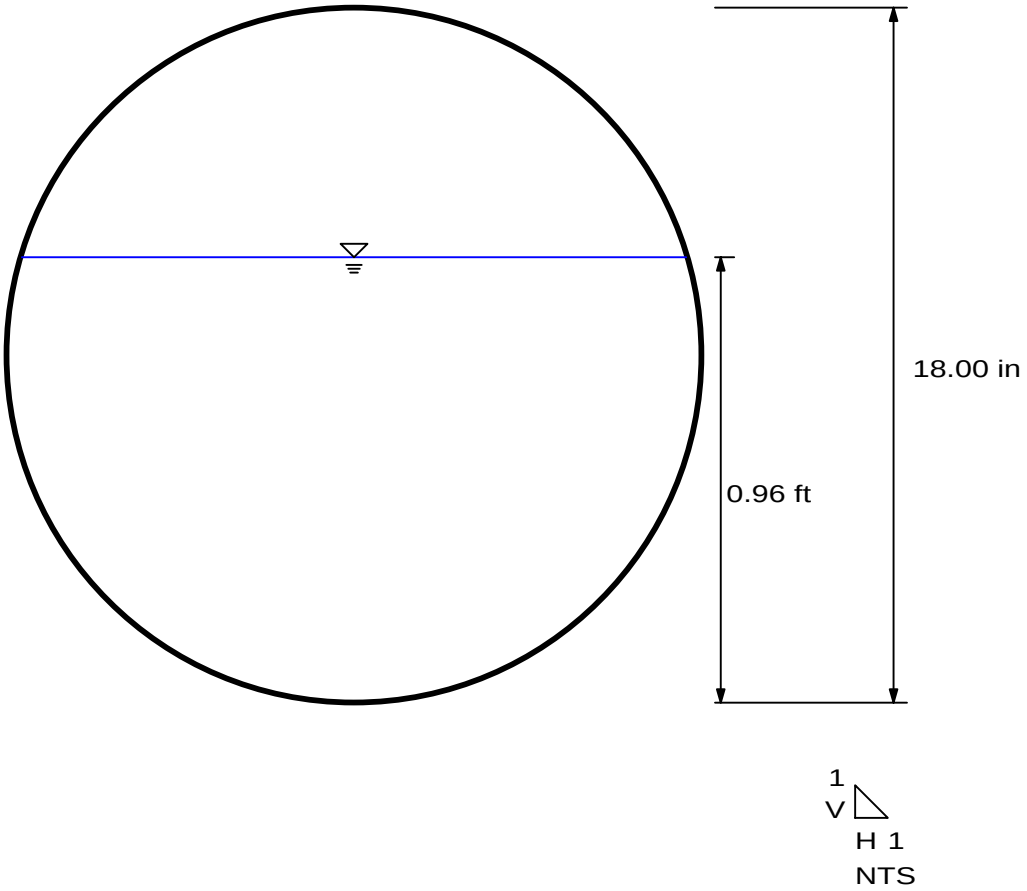
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.003600	ft/ft
Depth	1.31	ft
Diameter	21.00	in
Discharge	8.72	cfs



MH 108-107 18" VCP @ 3.32% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 108-107 18" VCP @ 3.32% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

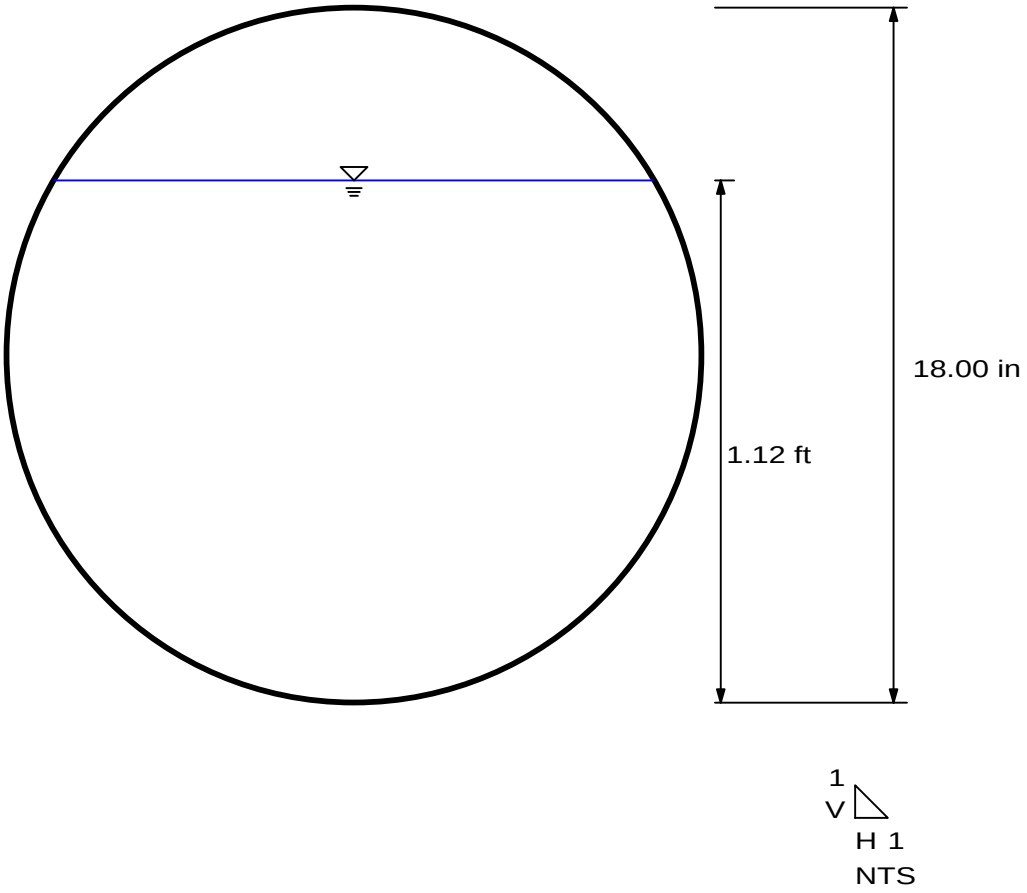
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.033200	ft/ft
Depth	0.96	ft
Diameter	18.00	in
Discharge	14.11	cfs



MH 108-107 18" VCP @ 3.32% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 108-107 18" VCP @ 3.32% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

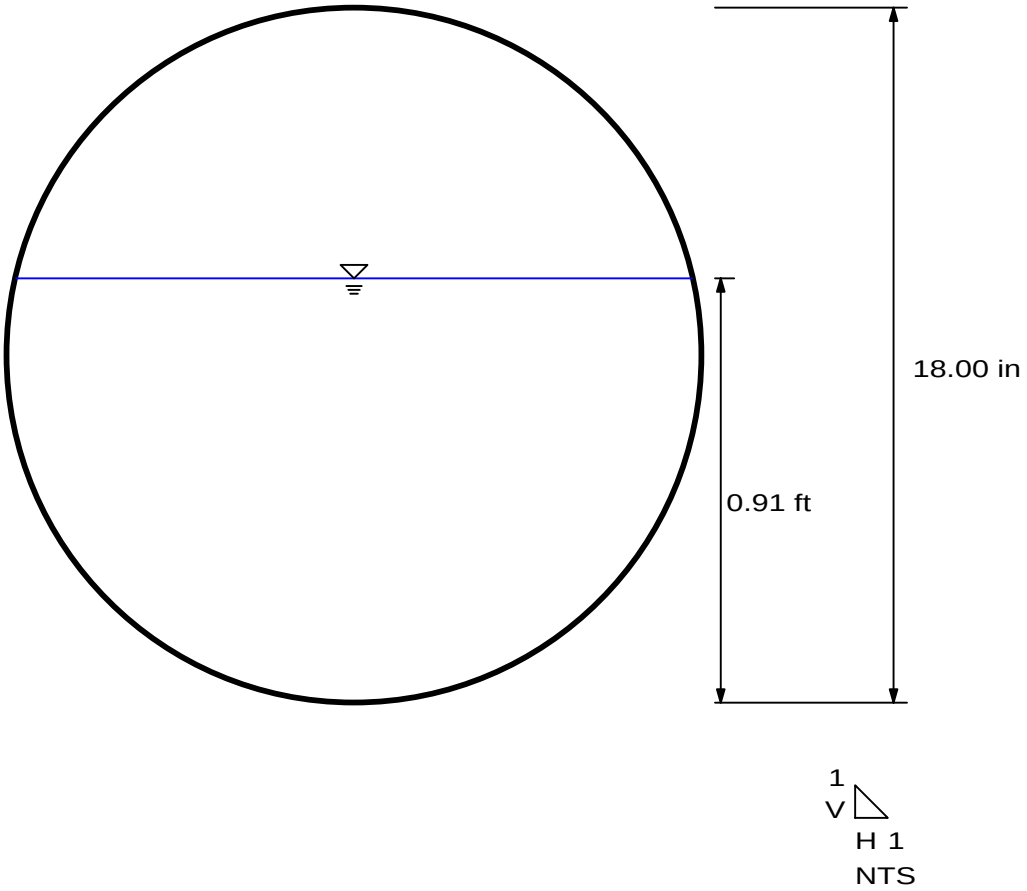
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.033200	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	17.46	cfs



MH 107-106 18" VCP @ 3.84% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 107-106 18" VCP @ 3.84% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

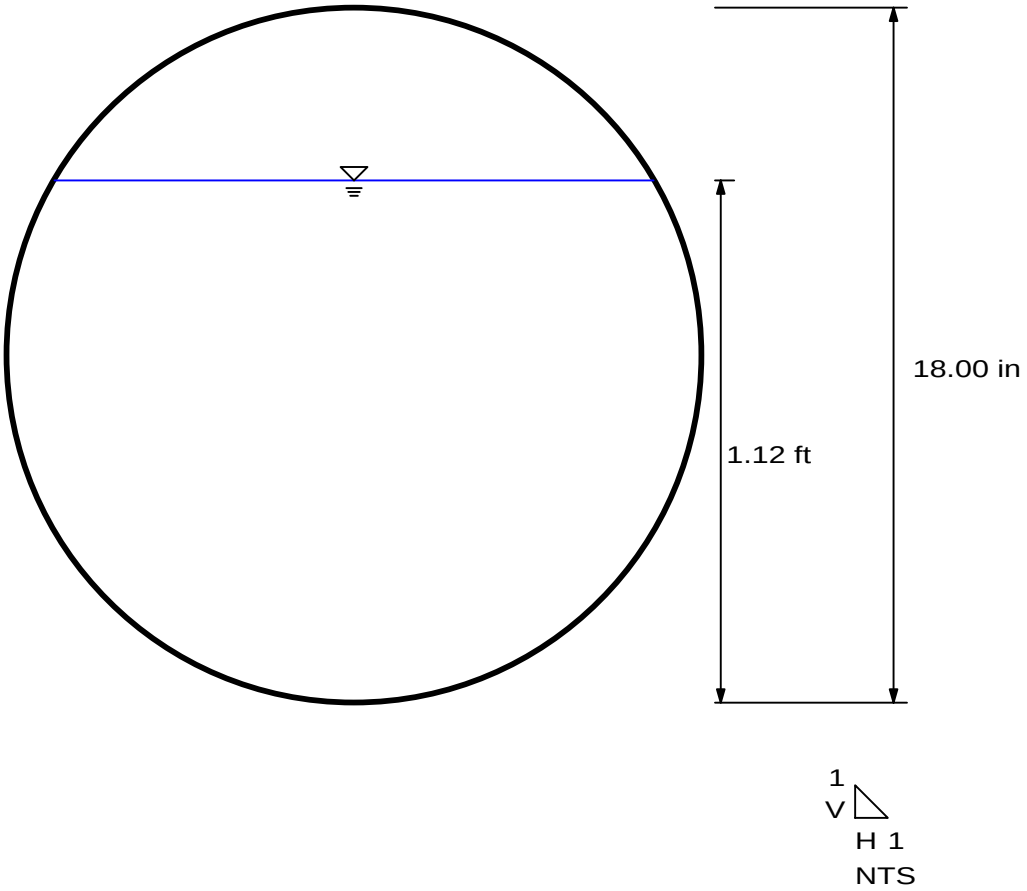
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.038400	ft/ft
Depth	0.91	ft
Diameter	18.00	in
Discharge	14.11	cfs



MH 107-106 18" VCP @ 3.84% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 107-106 18" VCP @ 3.84% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

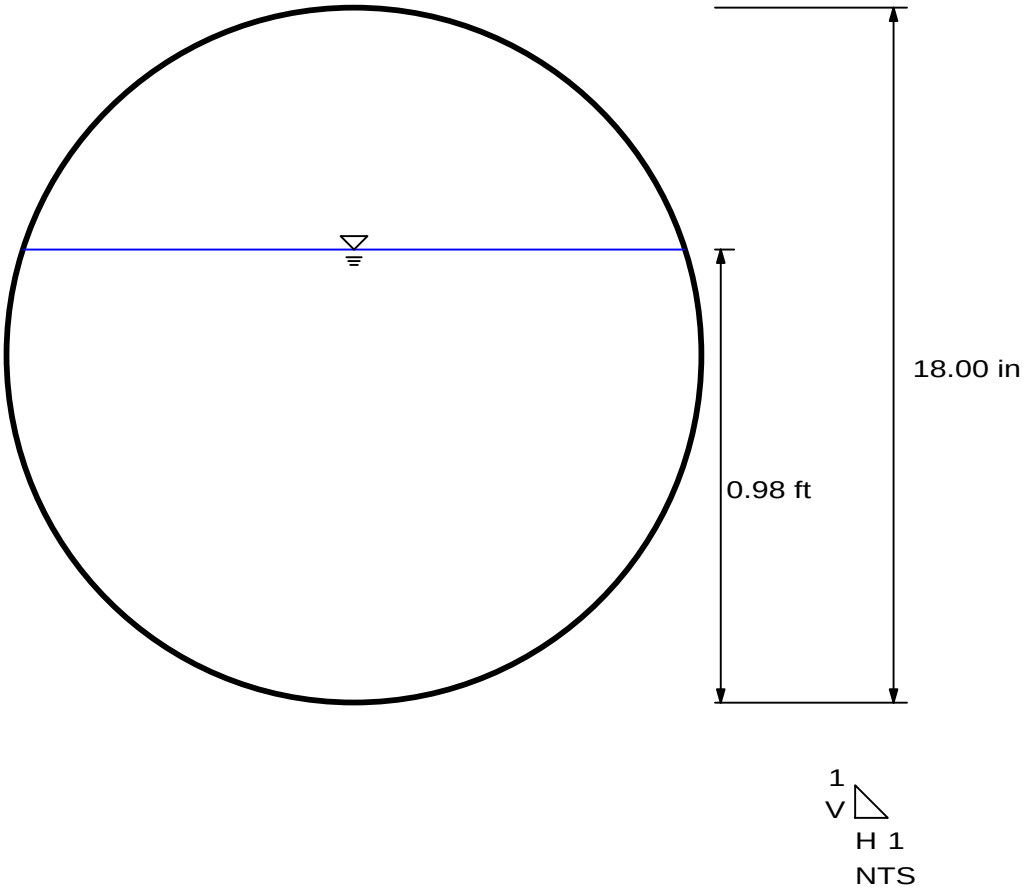
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.038400	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	18.78	cfs



MH 106-105 18" VCP @ 0.0316 DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 106-105 18" VCP @ 0.0316 DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

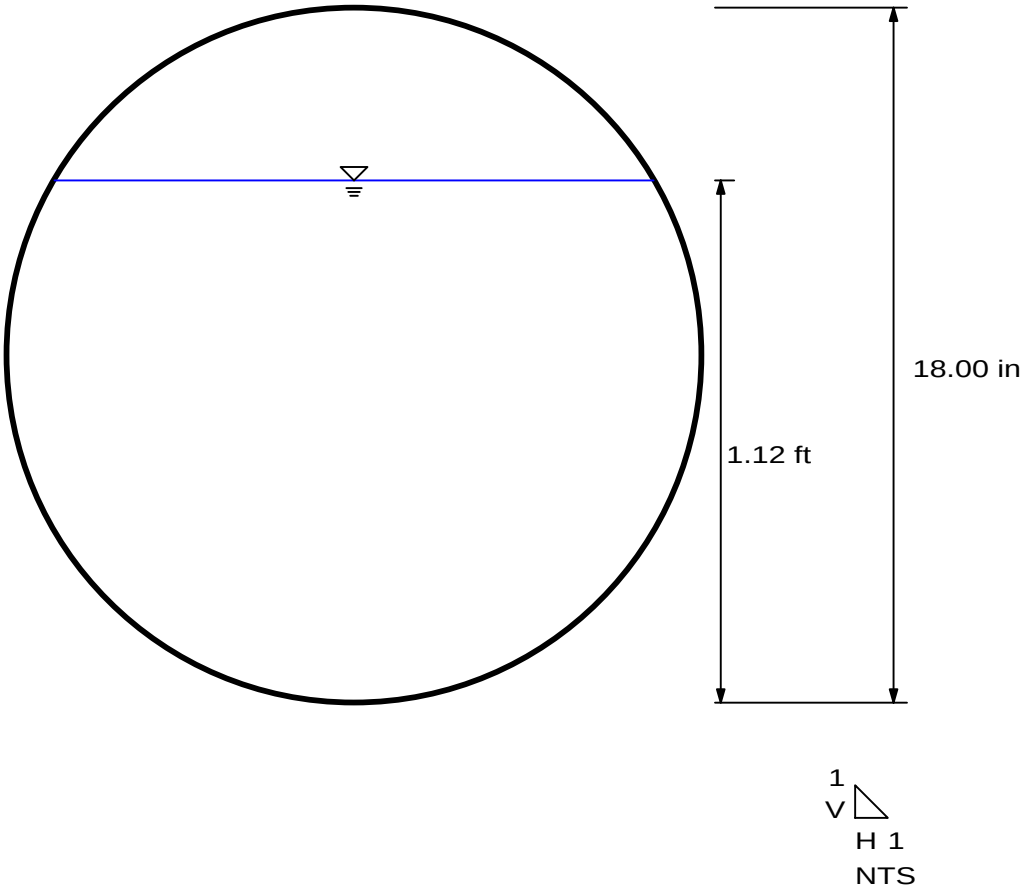
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.031600	ft/ft
Depth	0.98	ft
Diameter	18.00	in
Discharge	14.11	cfs



MH 106-105 18" VCP @ 3.16% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 106-105 18" VCP @ 0.0316 CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

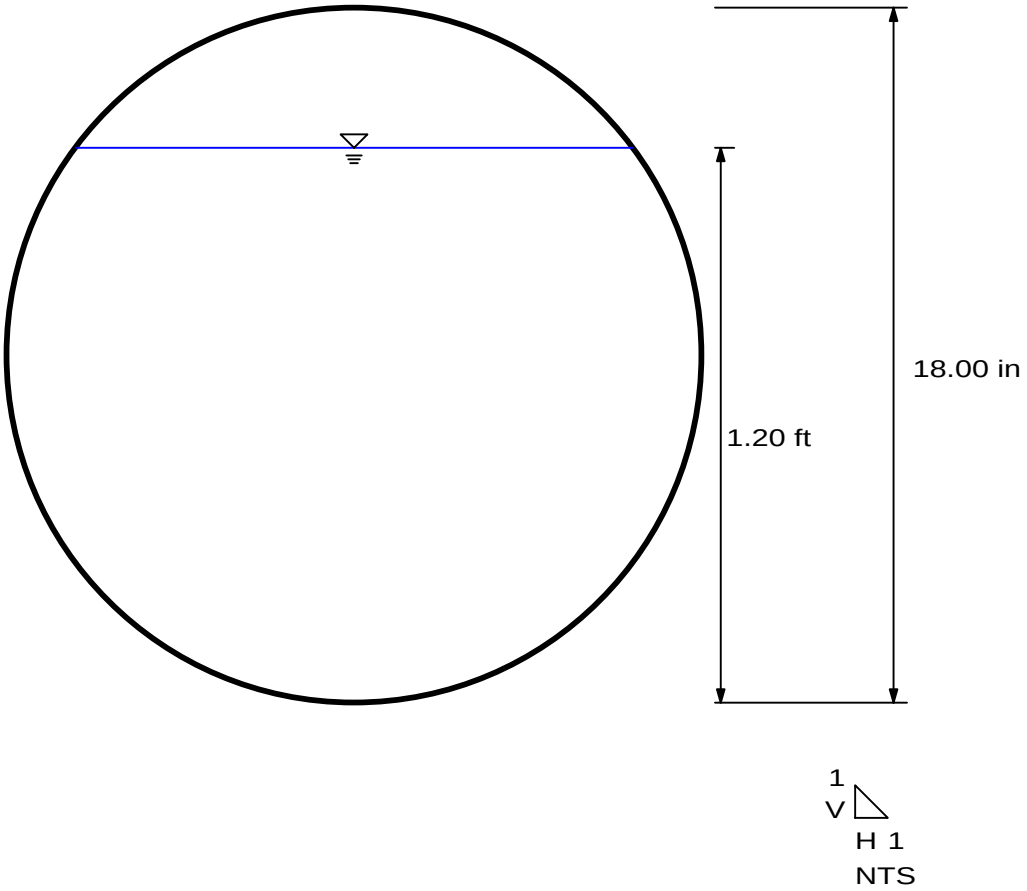
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.031600	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	17.04	cfs



MH 105-104 18" VCP @ 1.90% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 105-104 18" VCP @ 1.90% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

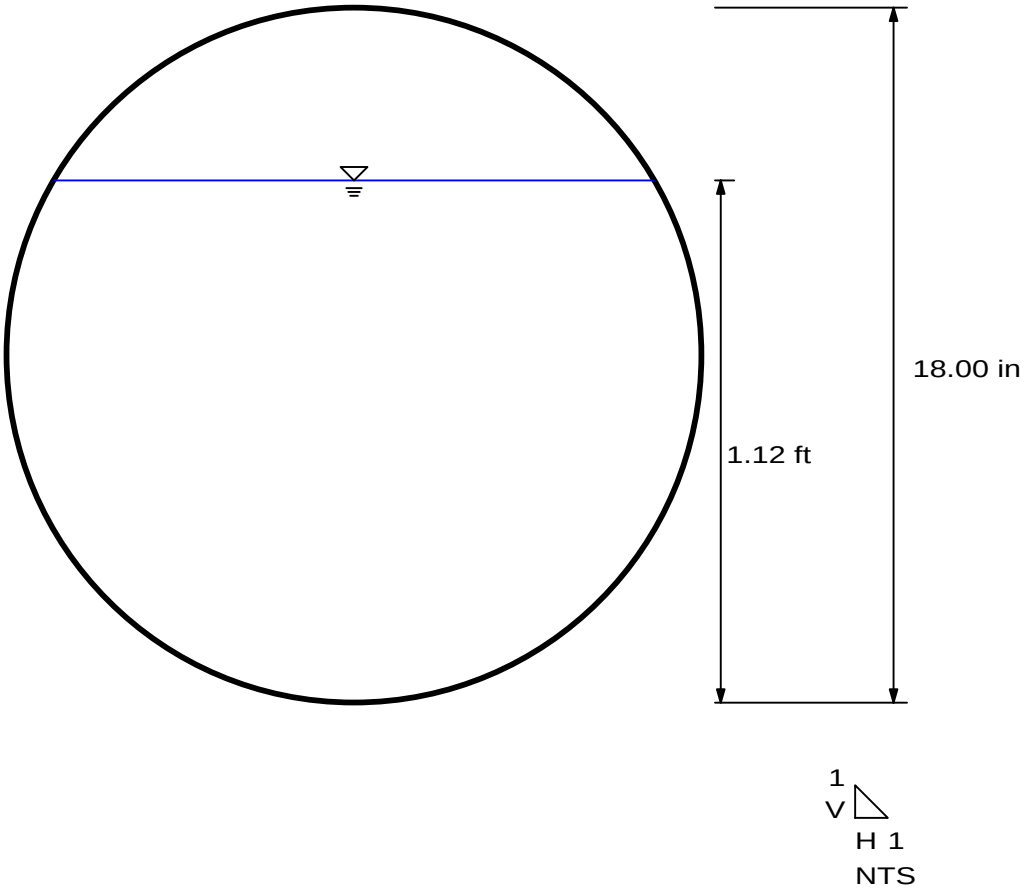
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.019000	ft/ft
Depth	1.20	ft
Diameter	18.00	in
Discharge	14.11	cfs



MH 105-104 18" VCP @ 1.90% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 105-104 18" VCP @ 1.90% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

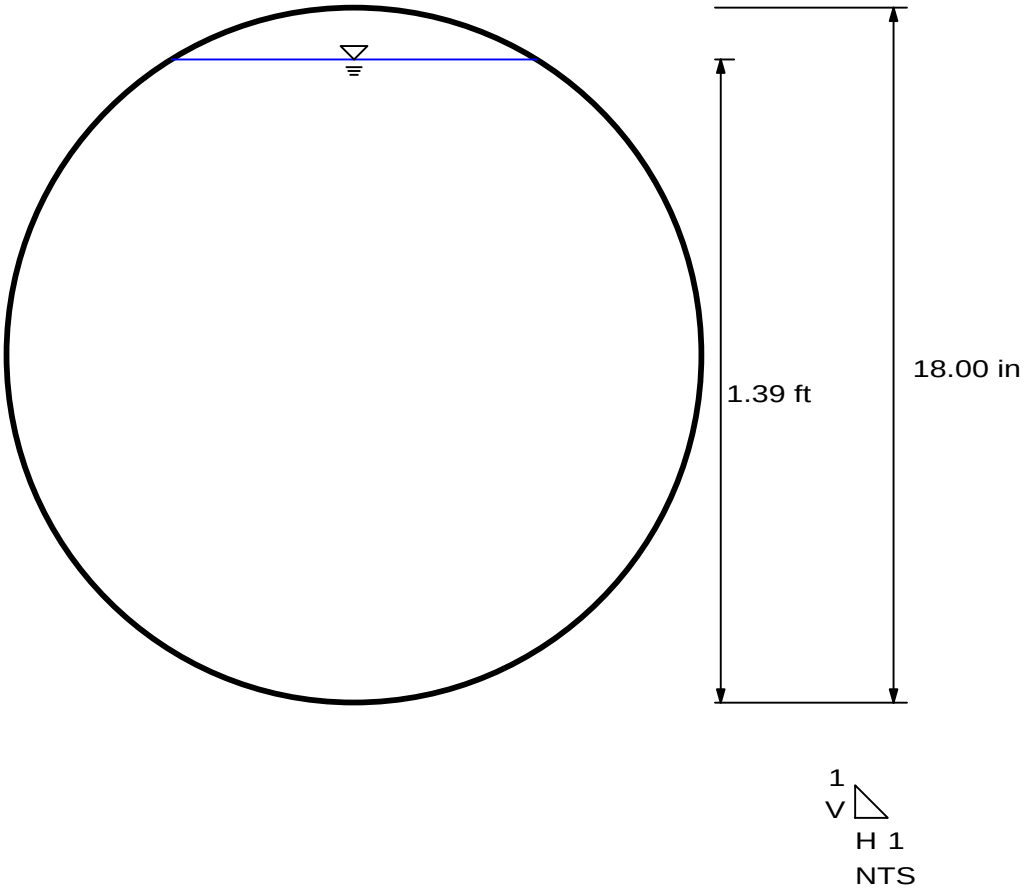
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.019000	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	13.21	cfs



MH 104-103 18" VCP @ 0.92% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 104-103 18" VCP @ 0.92% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

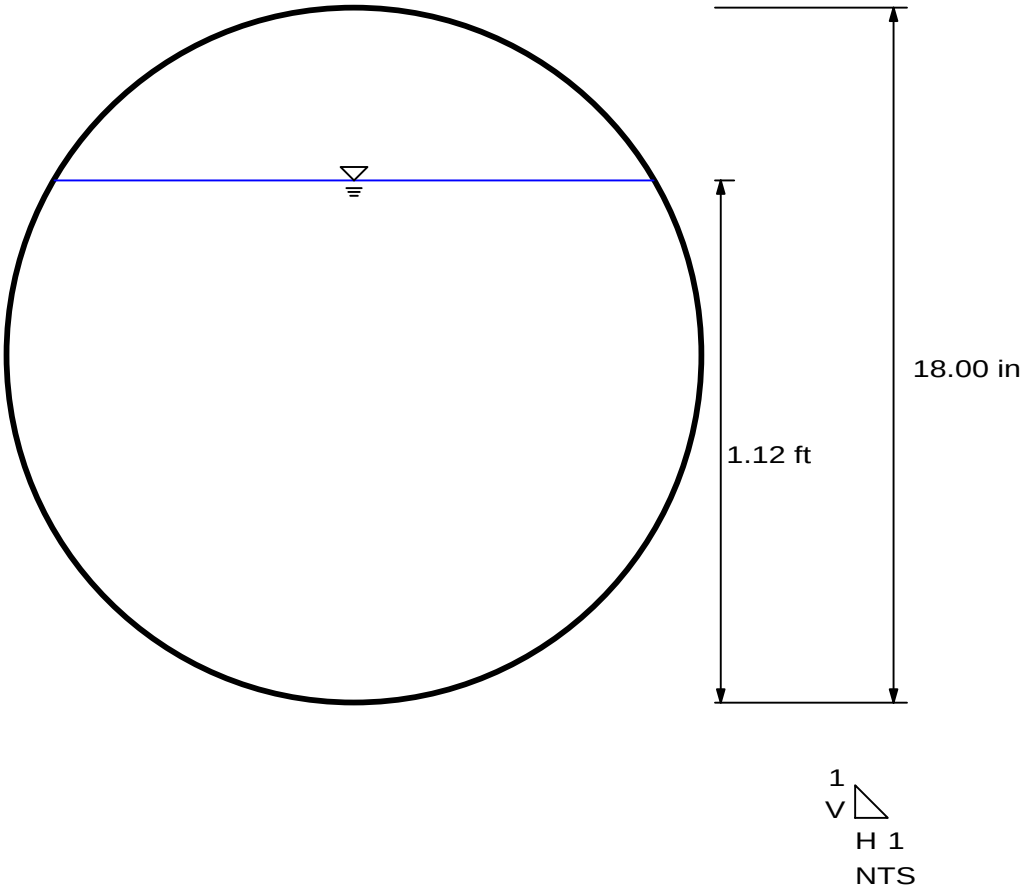
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009200	ft/ft
Depth	1.39	ft
Diameter	18.00	in
Discharge	10.80	cfs



MH 104-103 18" VCP @ 0.92% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 104-103 18" VCP @ 0.92% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

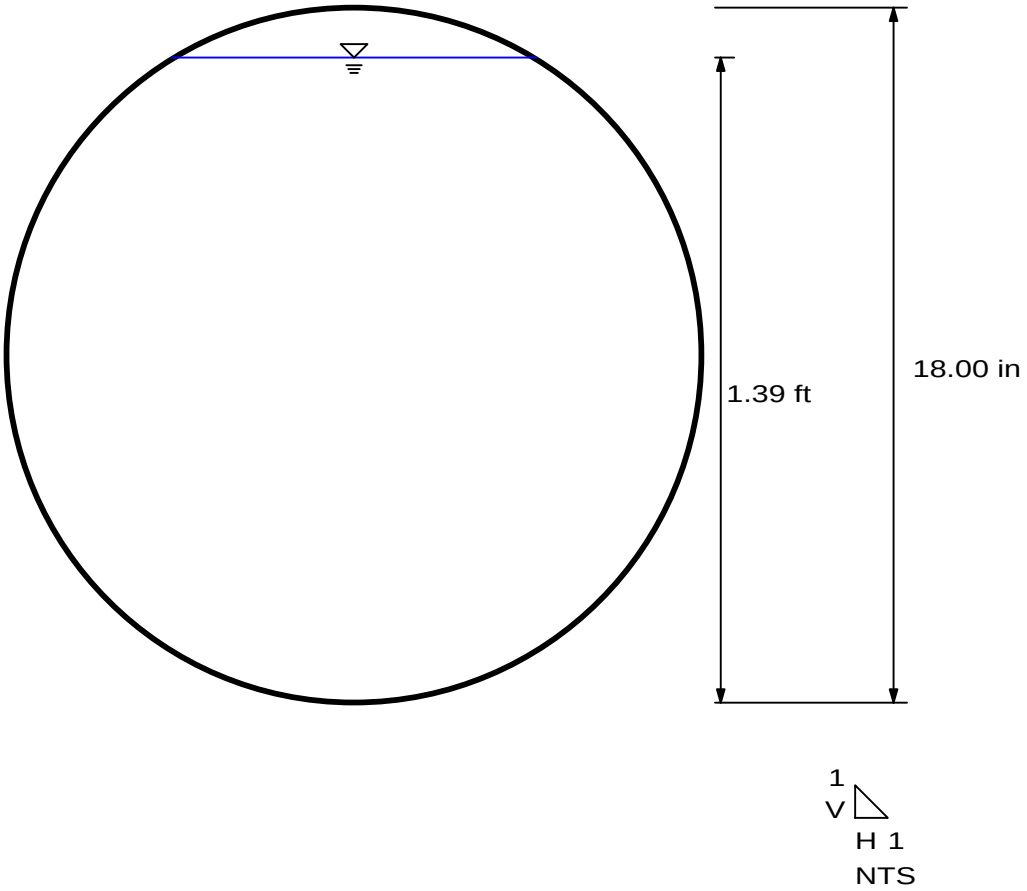
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009200	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	9.18	cfs



MH 103-102 18" VCP @ 0.98% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 103-102 18" VCP @ 0.98% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

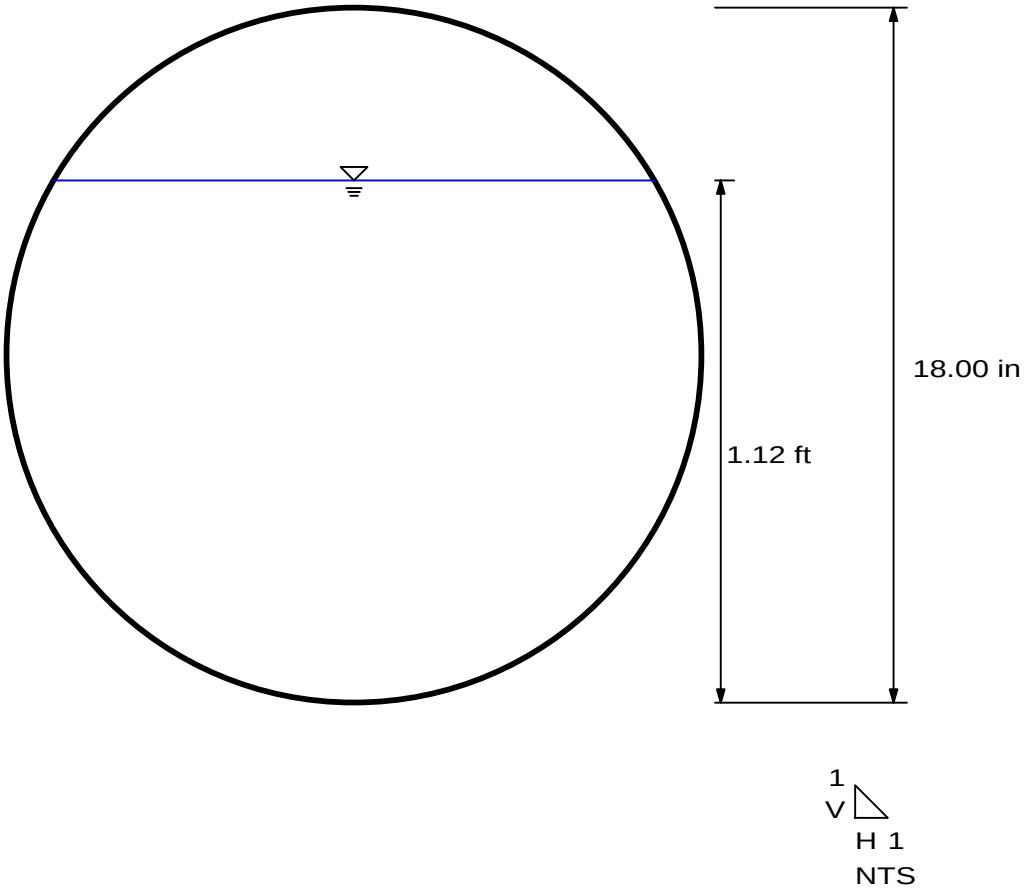
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009800	ft/ft
Depth	1.39	ft
Diameter	18.00	in
Discharge	11.15	cfs



MH 103-102 18" VCP @ 0.98% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 103-102 18" VCP @ 0.98% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

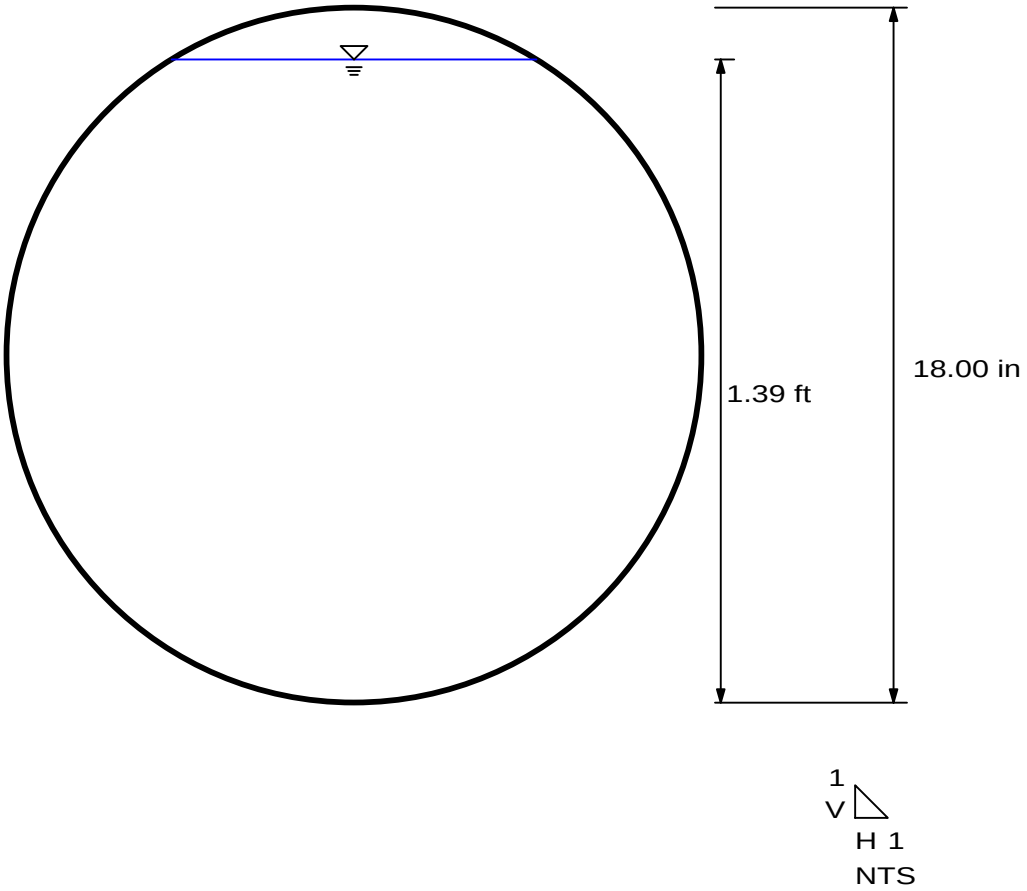
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009800	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	9.48	cfs



MH 102-101, 18" VCP @ 0.92% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 102-101, 18" VCP @ 0.92% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

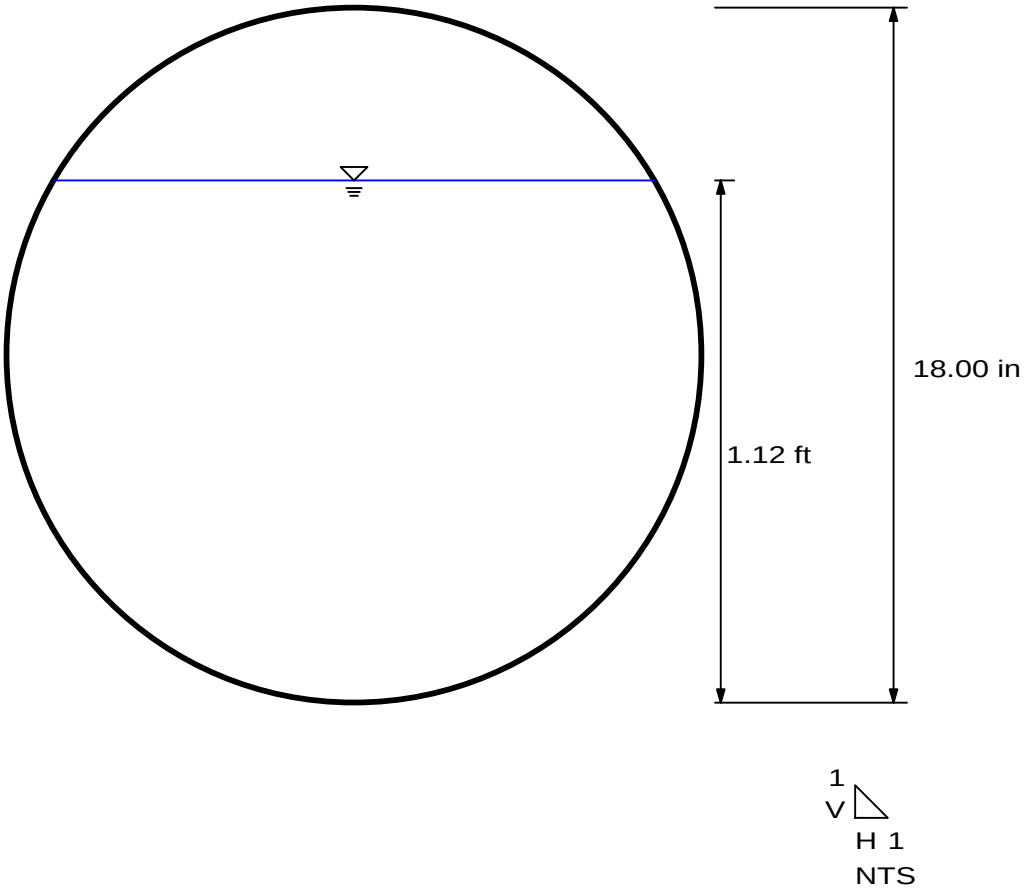
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009200	ft/ft
Depth	1.39	ft
Diameter	18.00	in
Discharge	10.80	cfs



MH 102-101 18" VCP @ 0.92% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 102-101 18" VCP @ 0.92% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

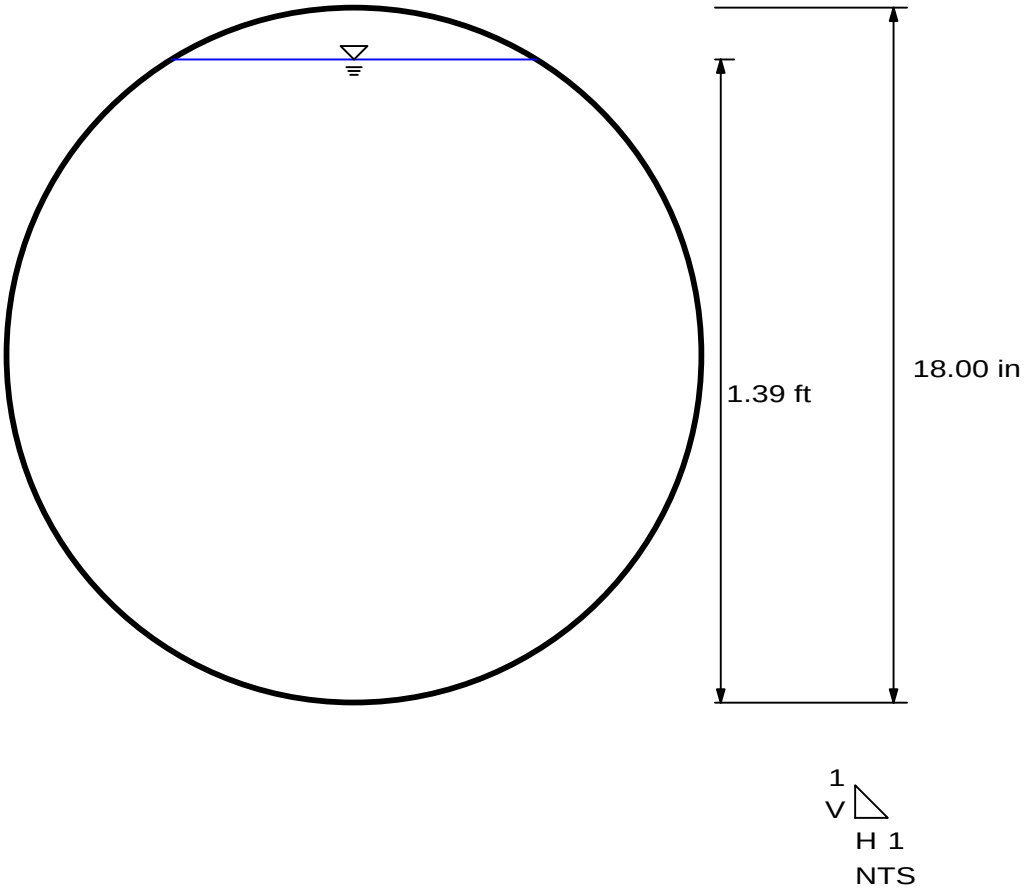
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009200	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	9.18	cfs



MH 101-100 18" VCP @ 0.92% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 101-100 18" VCP @ 0.92% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

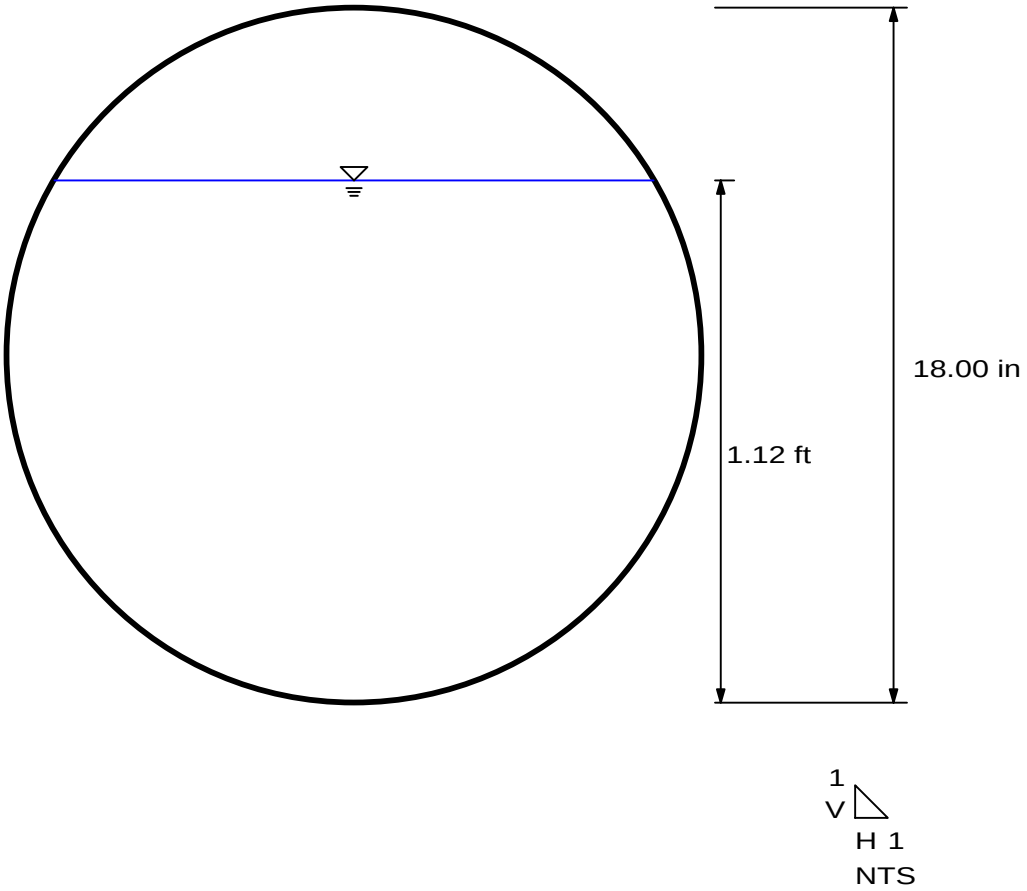
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009200	ft/ft
Depth	1.39	ft
Diameter	18.00	in
Discharge	10.80	cfs



MH 101-100 18" VCP @ 0.92% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 101-100 18" VCP @ 0.92% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

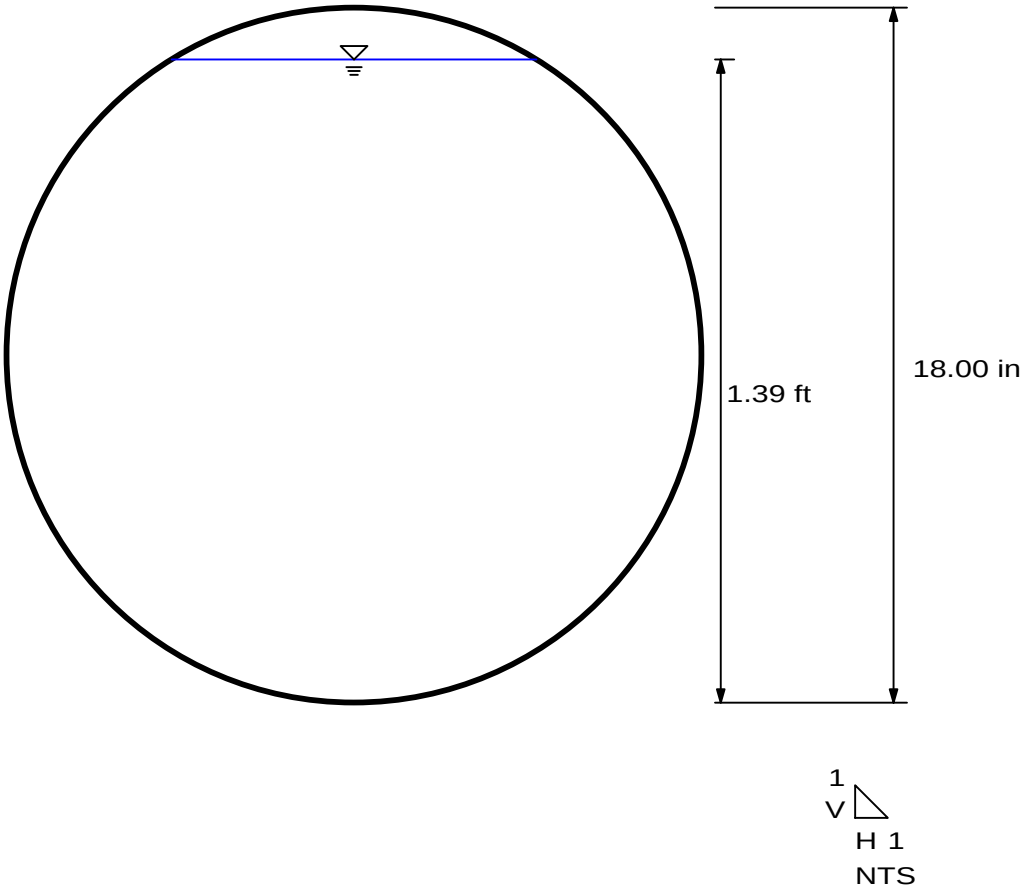
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009200	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	9.18	cfs



MH 100-99 18" VCP @ 0.92% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 100-99 18" VCP @ 0.92% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

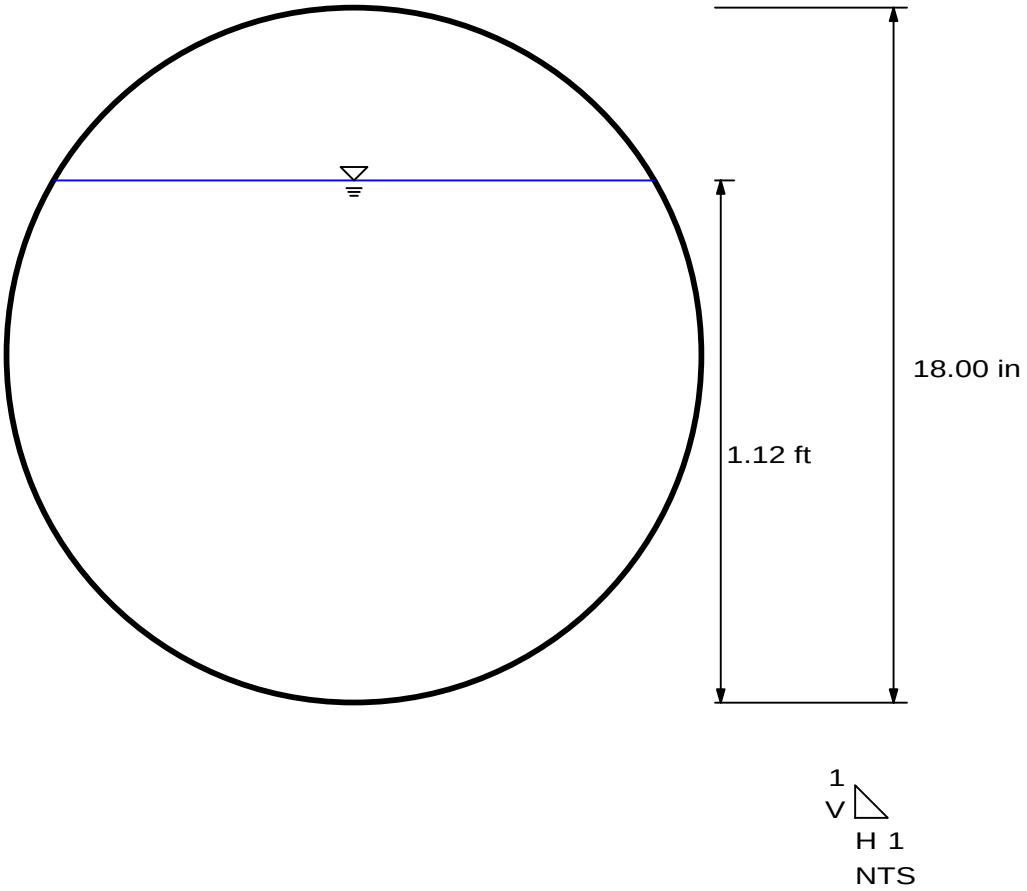
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009200	ft/ft
Depth	1.39	ft
Diameter	18.00	in
Discharge	10.80	cfs



MH 100-99 18" VCP @ 0.92% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 100-99 18" VCP @ 0.92% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

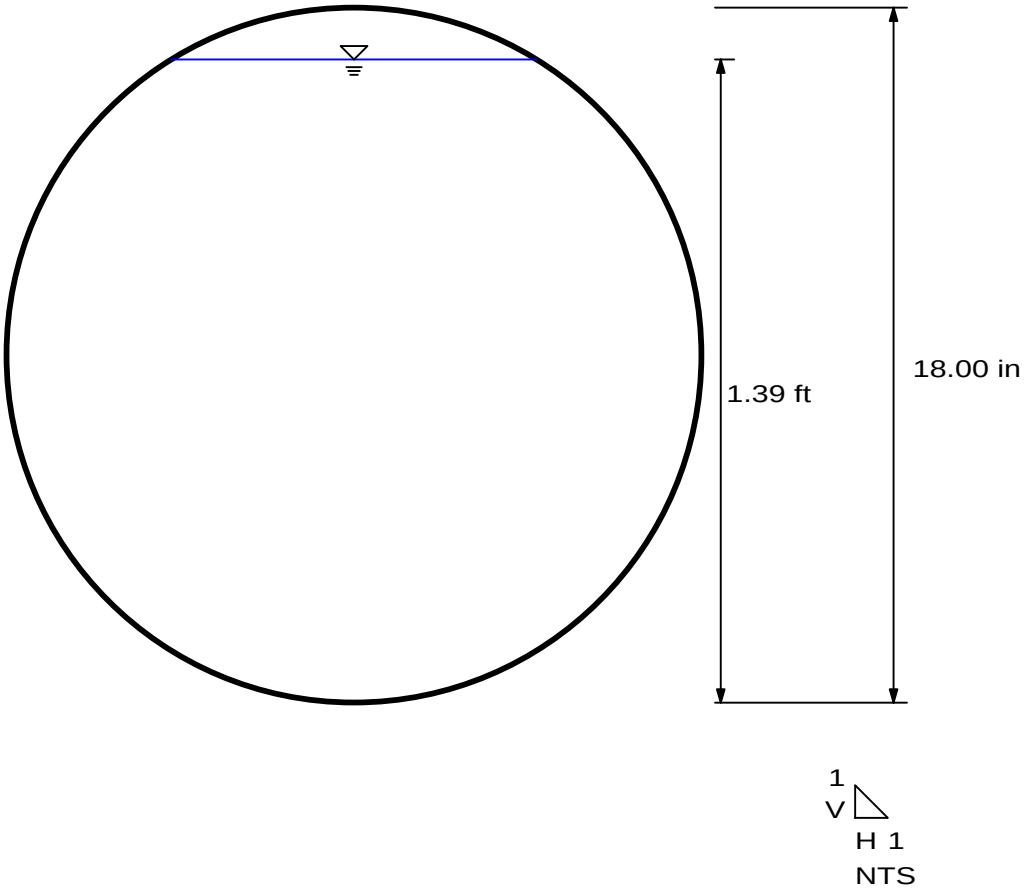
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.009200	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	9.18	cfs



MH 99-98 18" VCP @ 1.40% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 99-98 18" VCP @ 1.40% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

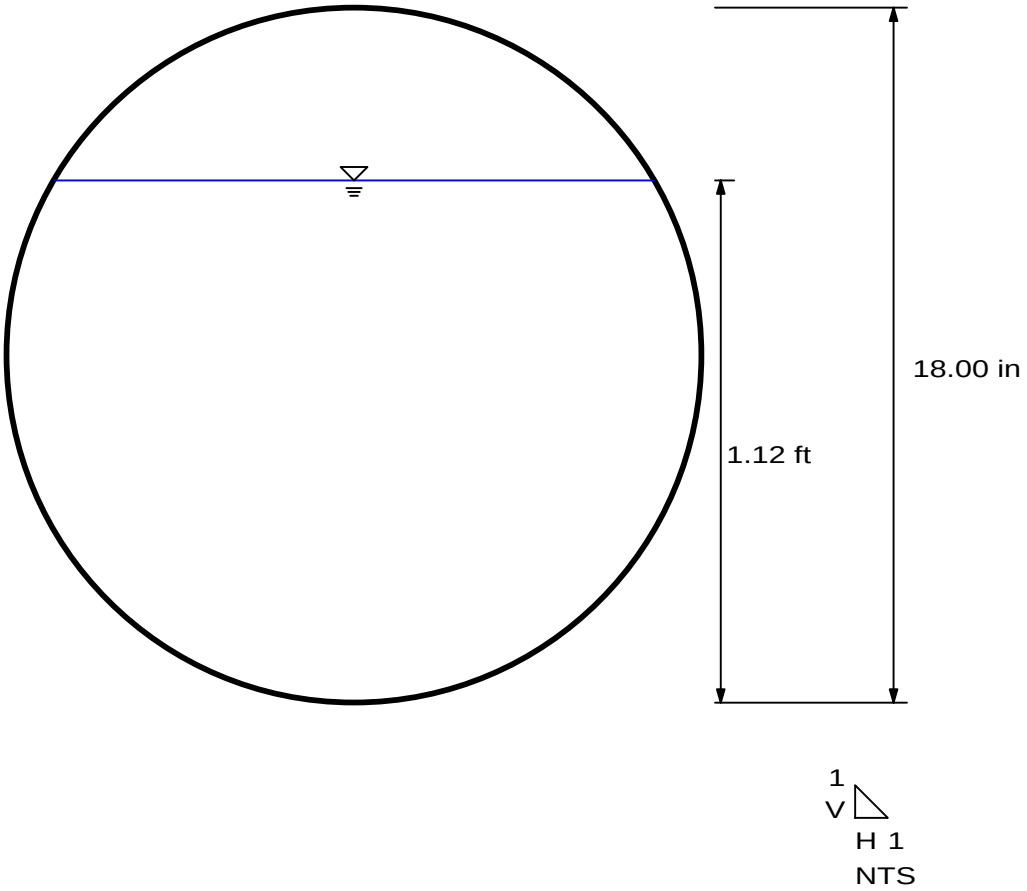
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.014000	ft/ft
Depth	1.39	ft
Diameter	18.00	in
Discharge	13.33	cfs



MH 99-98 18" VCP @ 1.40% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 99-98 18" VCP @ 1.40% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

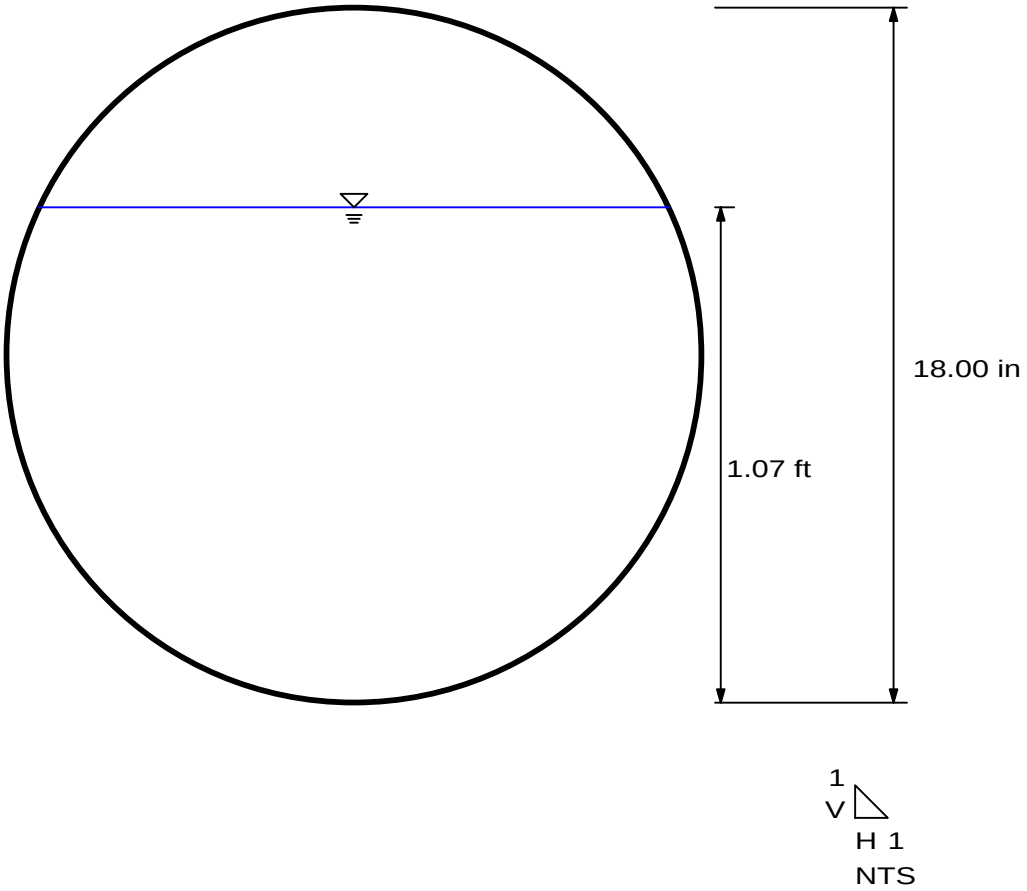
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.014000	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	11.33	cfs



MH 98-TRUNK 18" VCP @ 2.64% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 98-TRUNK 18" VCP @ 2.64% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

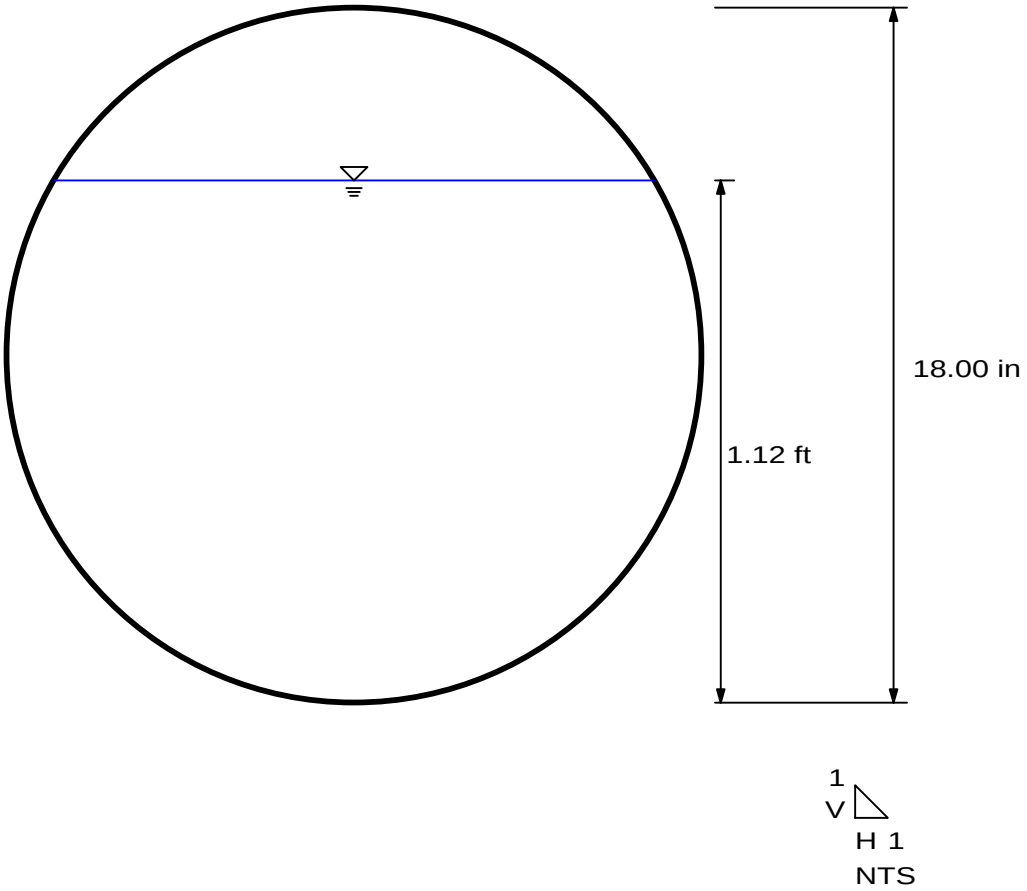
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.026400	ft/ft
Depth	1.07	ft
Diameter	18.00	in
Discharge	14.55	cfs



MH 98-TRUNK 18" VCP @ 2.64% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-4r.fm2
Worksheet	MH 98-TRUNK 18" VCP @ 2.64% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

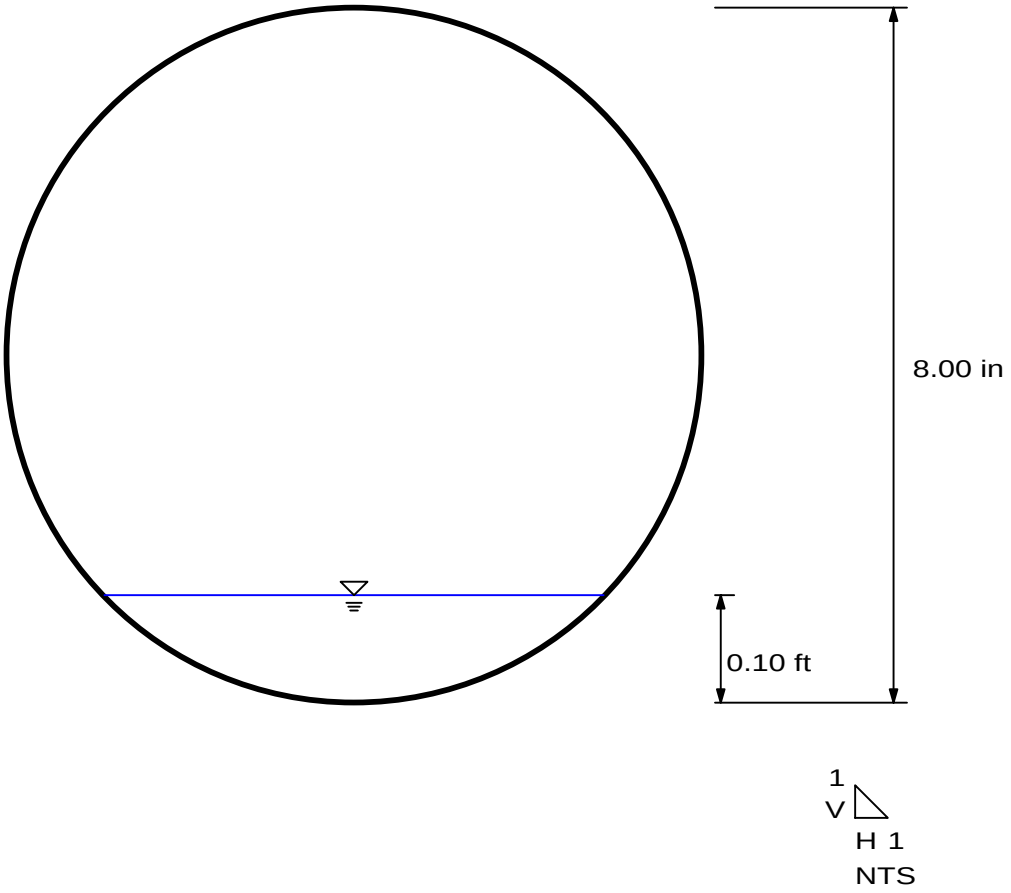
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.026400	ft/ft
Depth	1.12	ft
Diameter	18.00	in
Discharge	15.57	cfs



MH 230-229, 8" VCP @ 5.25% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 230-229, 8" VCP @ 5.25% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

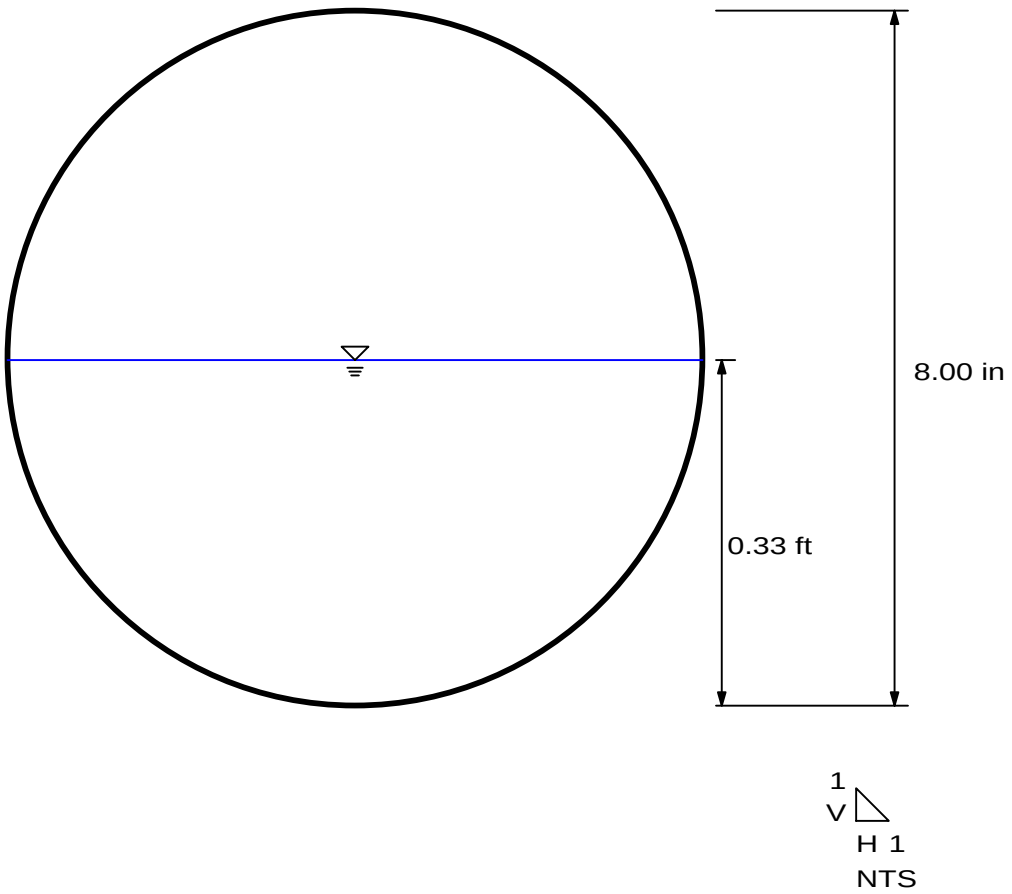
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.052500	ft/ft
Depth	0.10	ft
Diameter	8.00	in
Discharge	0.11	cfs



MH 230-229, 8" VCP @ 5.25% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 230-229, 8" VCP @ 5.25% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

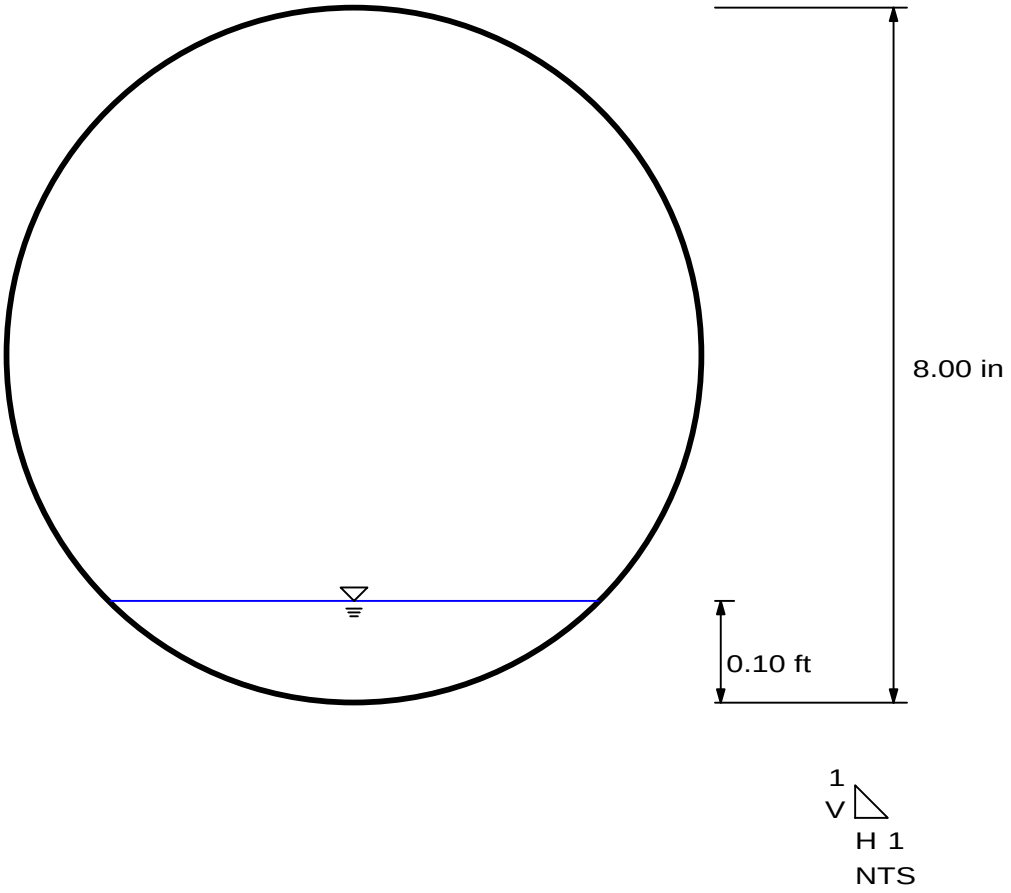
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.052500	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.25	cfs



MH 229-228, 8" VCP @ 7.24 DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 229-228, 8" VCP @ 7.24% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

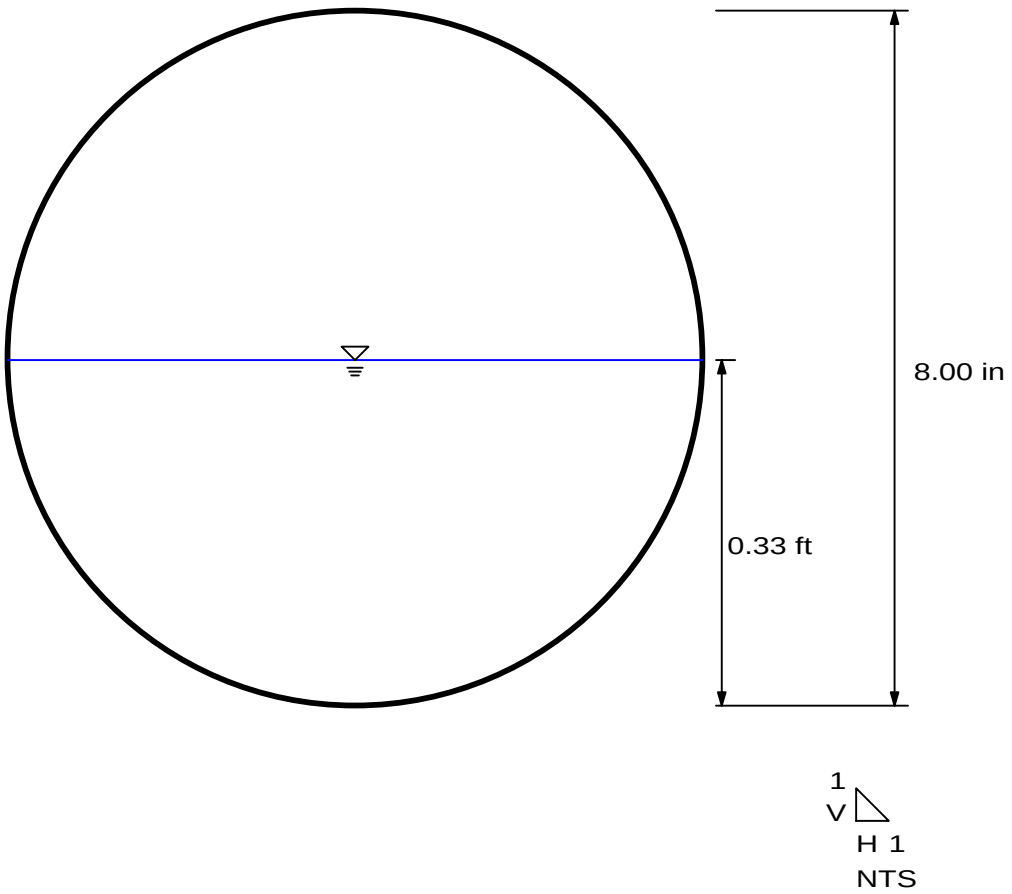
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.072400	ft/ft
Depth	0.10	ft
Diameter	8.00	in
Discharge	0.12	cfs



MH 229-228, 8" VCP @ 7.24 CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 229-228, 8" VCP @ 7.24% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

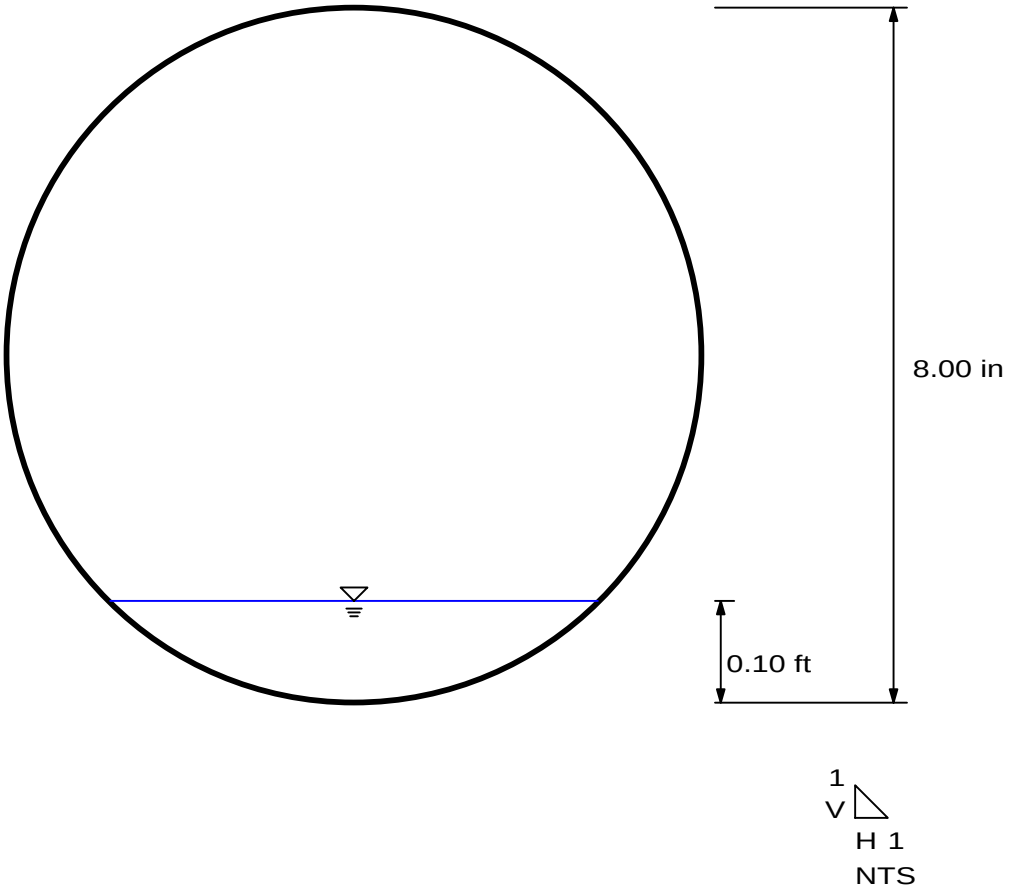
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.072400	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.46	cfs



MH 228-227, 8" VCP @ 7.80 DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 228-227, 8" VCP @ 7.80% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

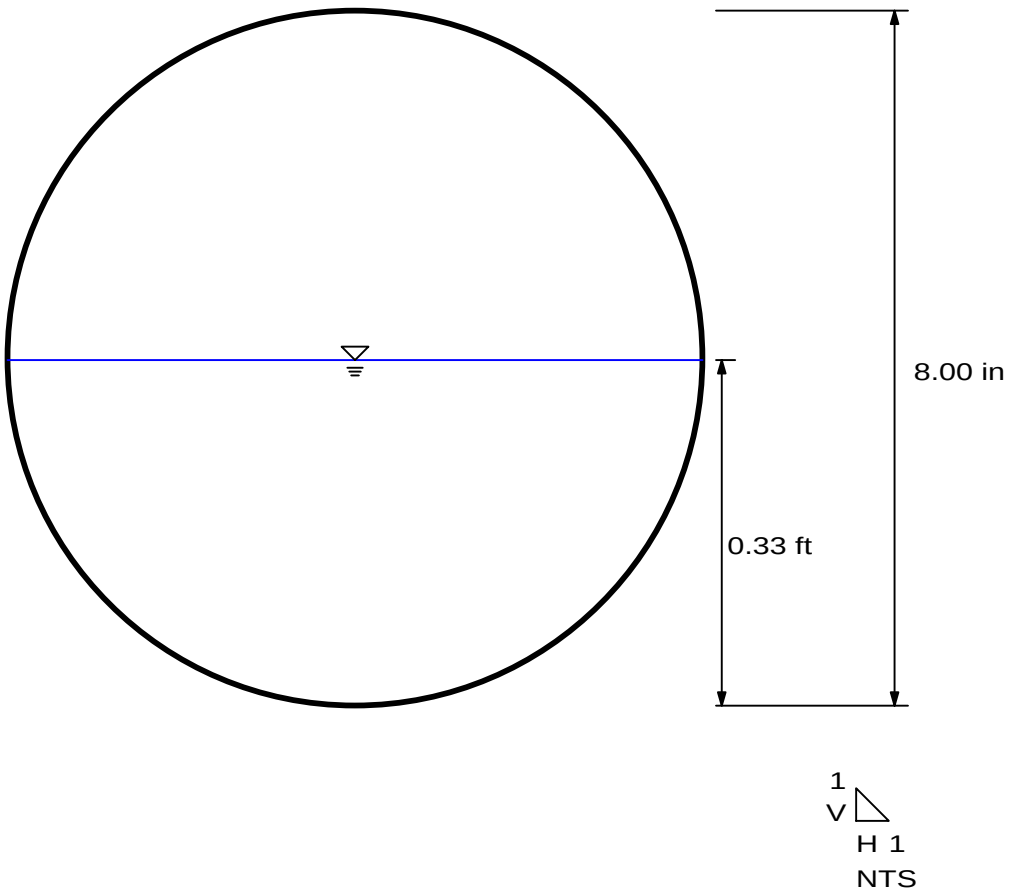
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.078000	ft/ft
Depth	0.10	ft
Diameter	8.00	in
Discharge	0.12	cfs



MH 228-227, 8" VCP @ 7.80 CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 228-227, 8" VCP @ 7.80% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

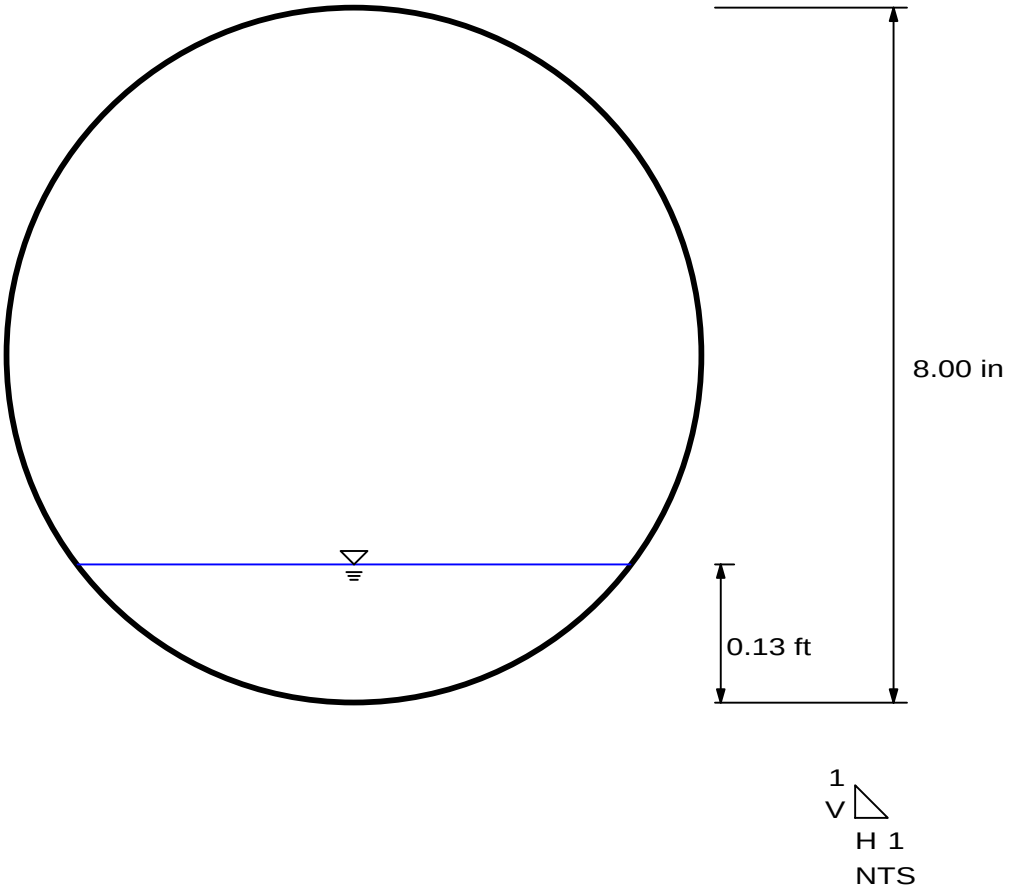
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.078000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.52	cfs



MH 227-223, 8" VCP @ 3.00% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 227-223, 8" VCP @ 3.00% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

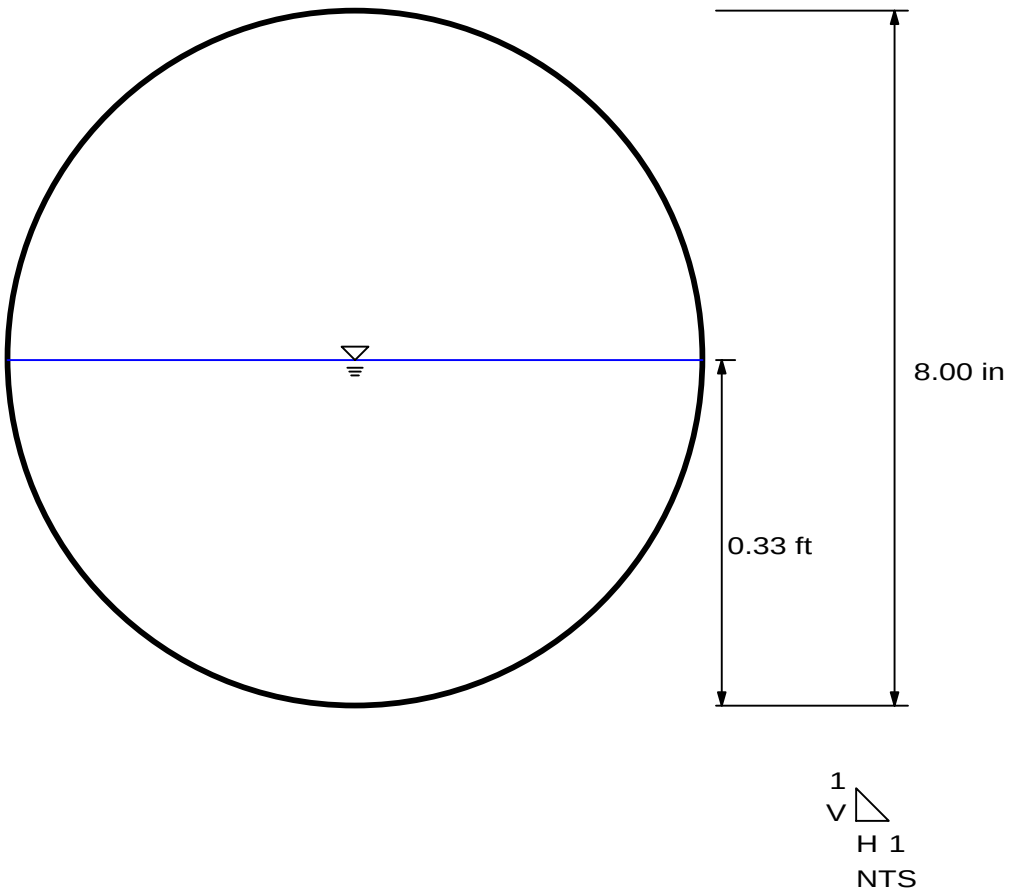
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.030000	ft/ft
Depth	0.13	ft
Diameter	8.00	in
Discharge	0.15	cfs



MH 227-223, 8" VCP @ 3.00% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 227-223, 8" VCP @ 3.00% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

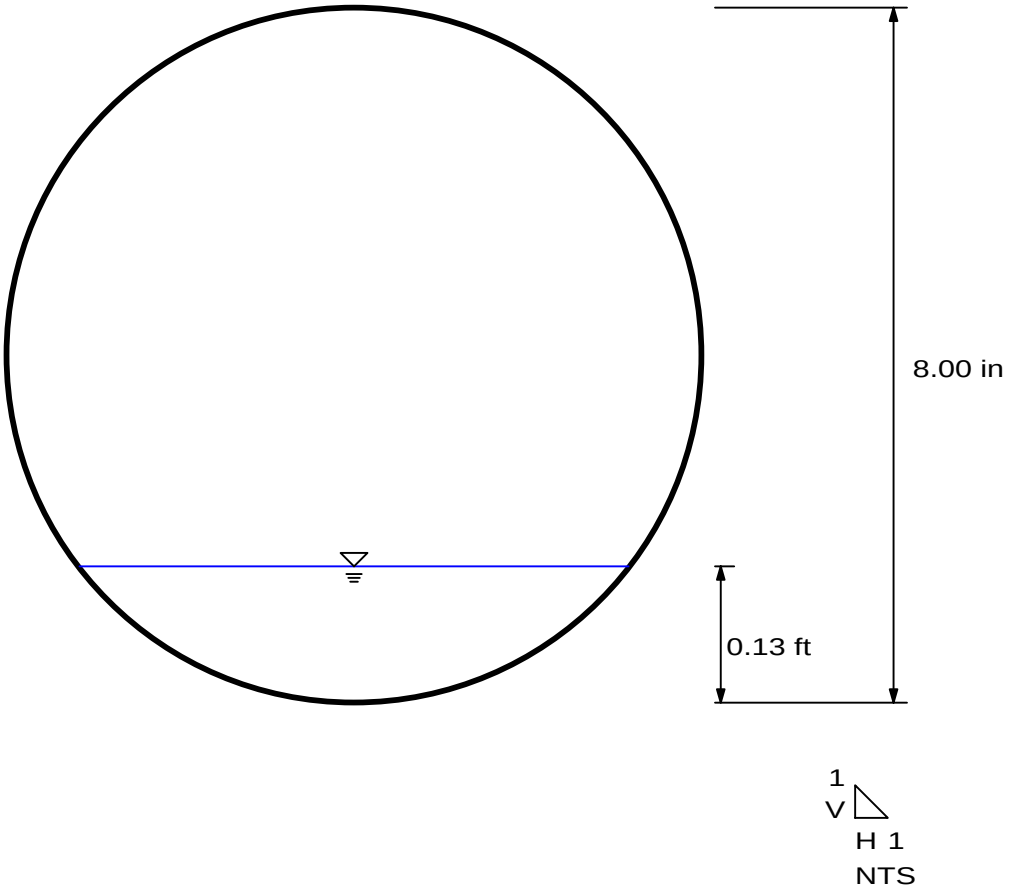
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.030000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	0.94	cfs



MH 223-224, 8" VCP @ 3.60% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 223-224, 8" VCP @ 3.60% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

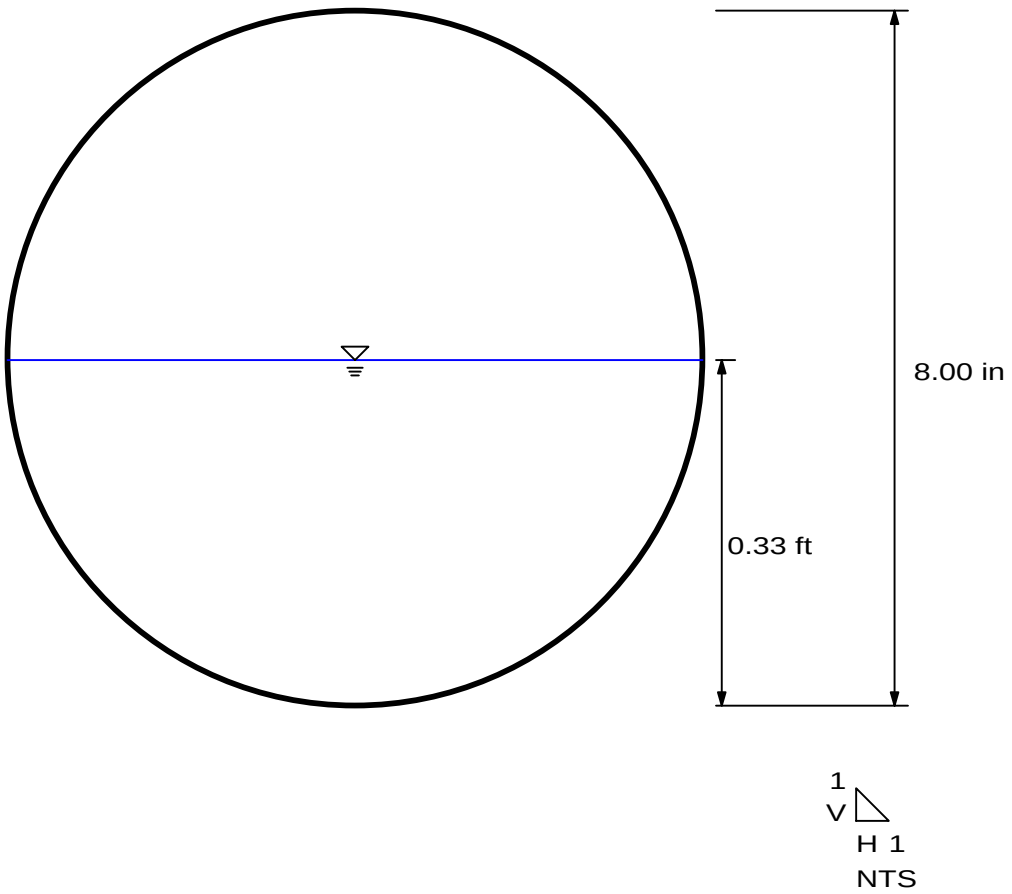
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.036000	ft/ft
Depth	0.13	ft
Diameter	8.00	in
Discharge	0.16	cfs



MH 223-224, 8" VCP @ 3.60% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 223-224, 8" VCP @ 3.60% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

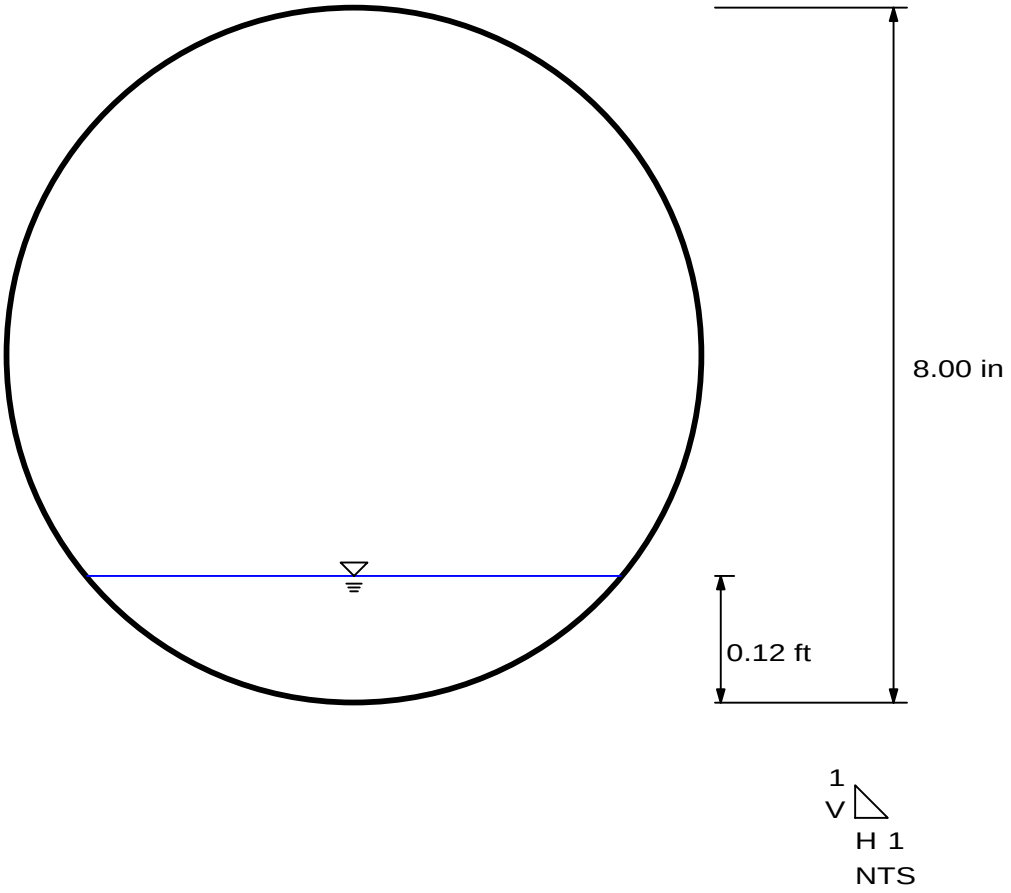
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.036000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.03	cfs



MH 224-200, 8" VCP @ 5.68% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 224-200, 8" VCP @ 5.68% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

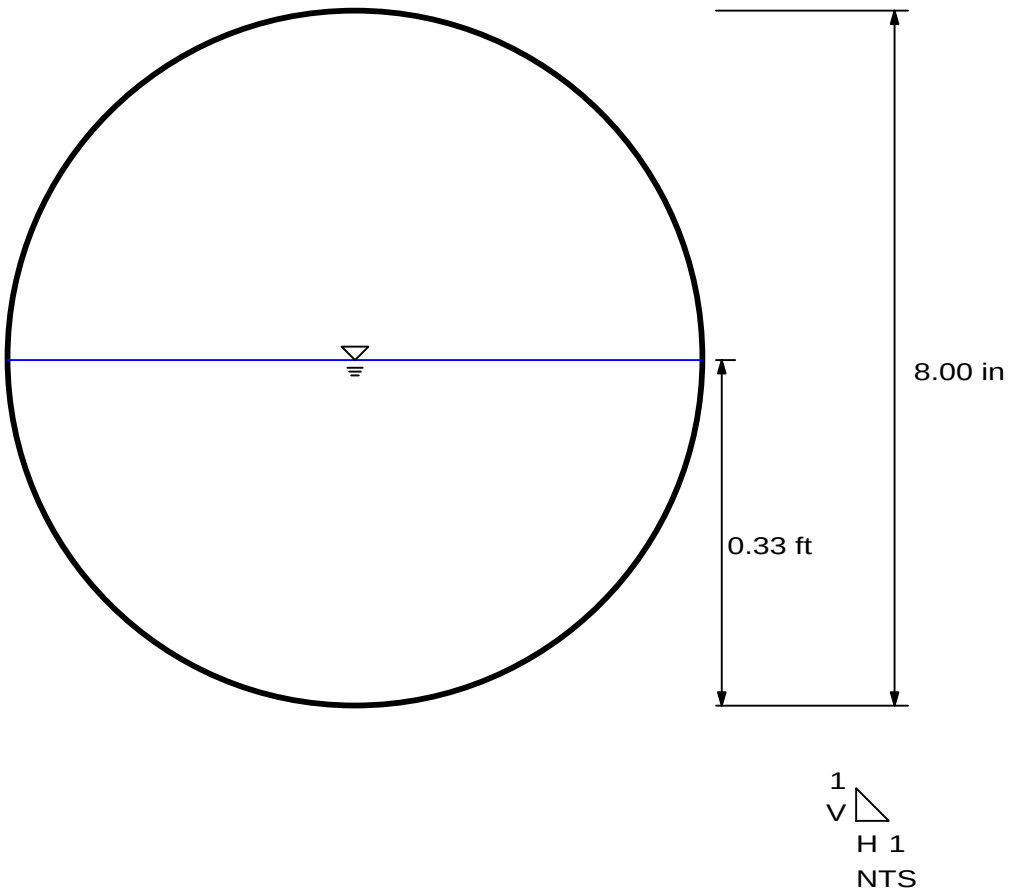
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.056800	ft/ft
Depth	0.12	ft
Diameter	8.00	in
Discharge	0.17	cfs



MH 224-220, 8" VCP @ 5.68% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 224-200, 8" VCP @ 5.68% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

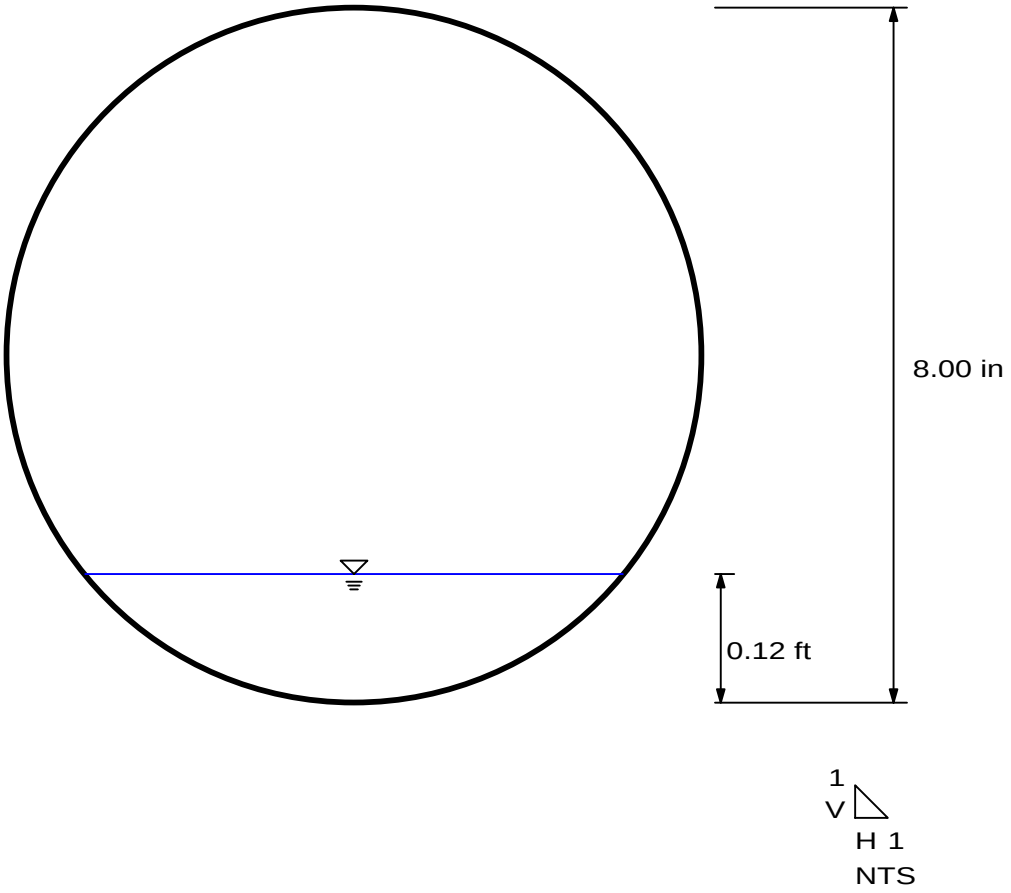
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.058000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.31	cfs



MH 200-201, 8" VCP @ 5.68% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 200-201, 8" VCP @ 5.68% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

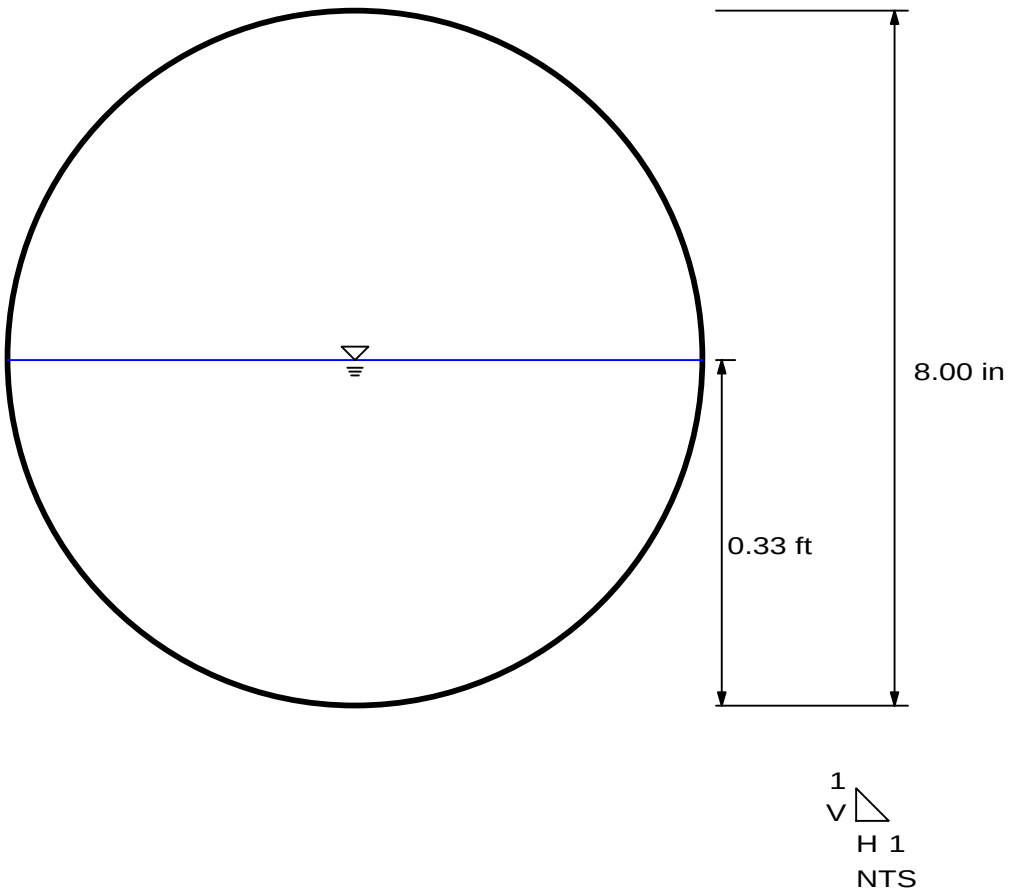
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.056800	ft/ft
Depth	0.12	ft
Diameter	8.00	in
Discharge	0.17	cfs



MH 200-201, 8" VCP @ 5.68% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 200-201, 8" VCP @ 5.68% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

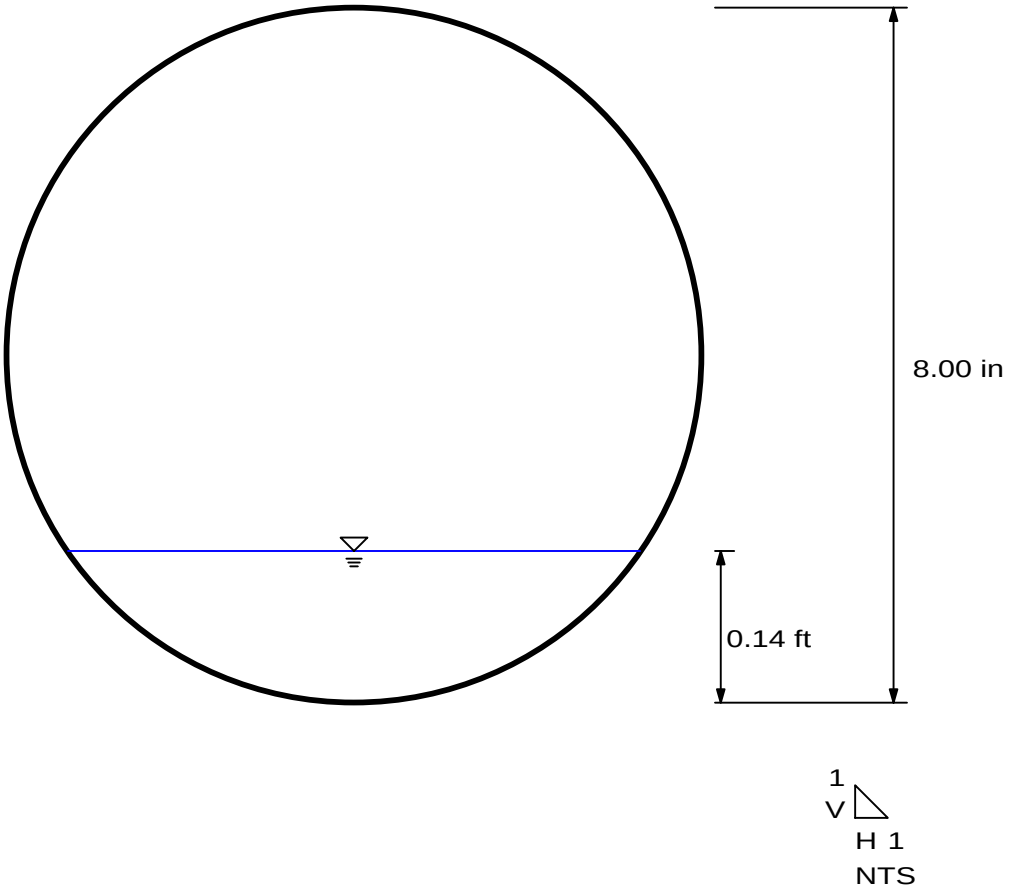
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.056800	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.30	cfs



MH 201-202, 8" VCP @ 3.80% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 201-202, 8" VCP @ 3.80% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

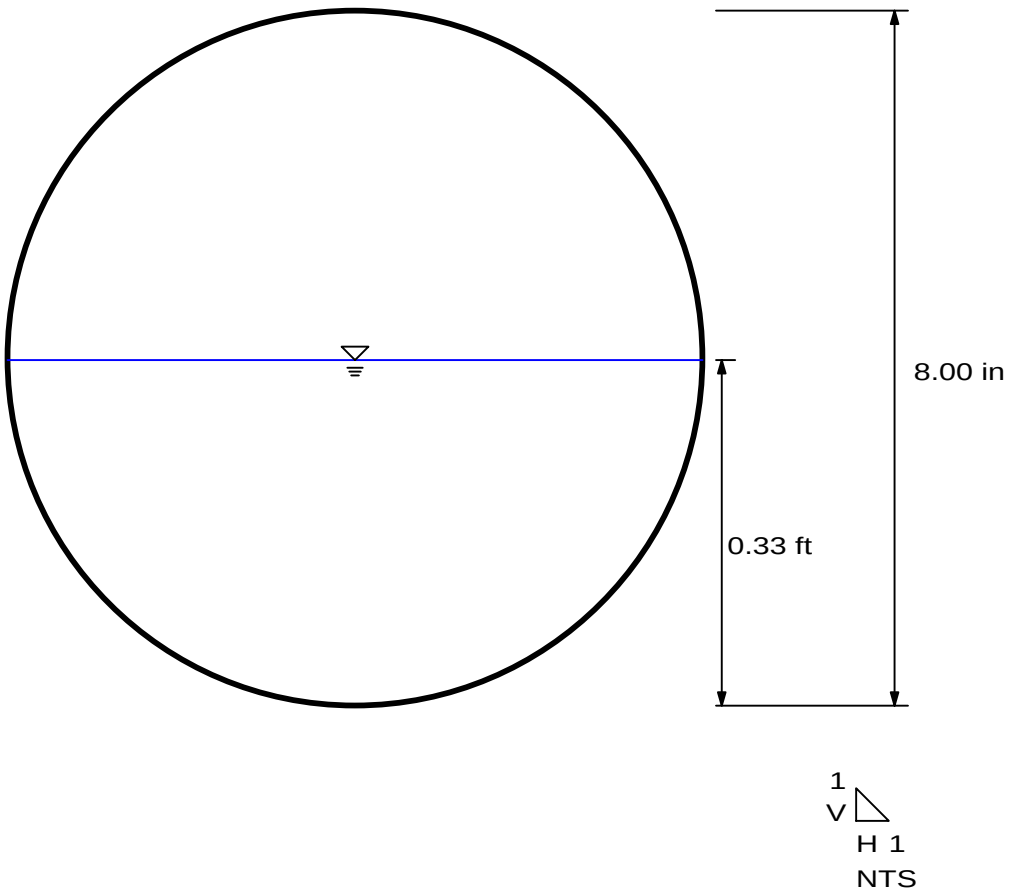
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.038000	ft/ft
Depth	0.14	ft
Diameter	8.00	in
Discharge	0.20	cfs



MH 201-202, 8" VCP @ 3.80% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 201-202, 8" VCP @ 3.80% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

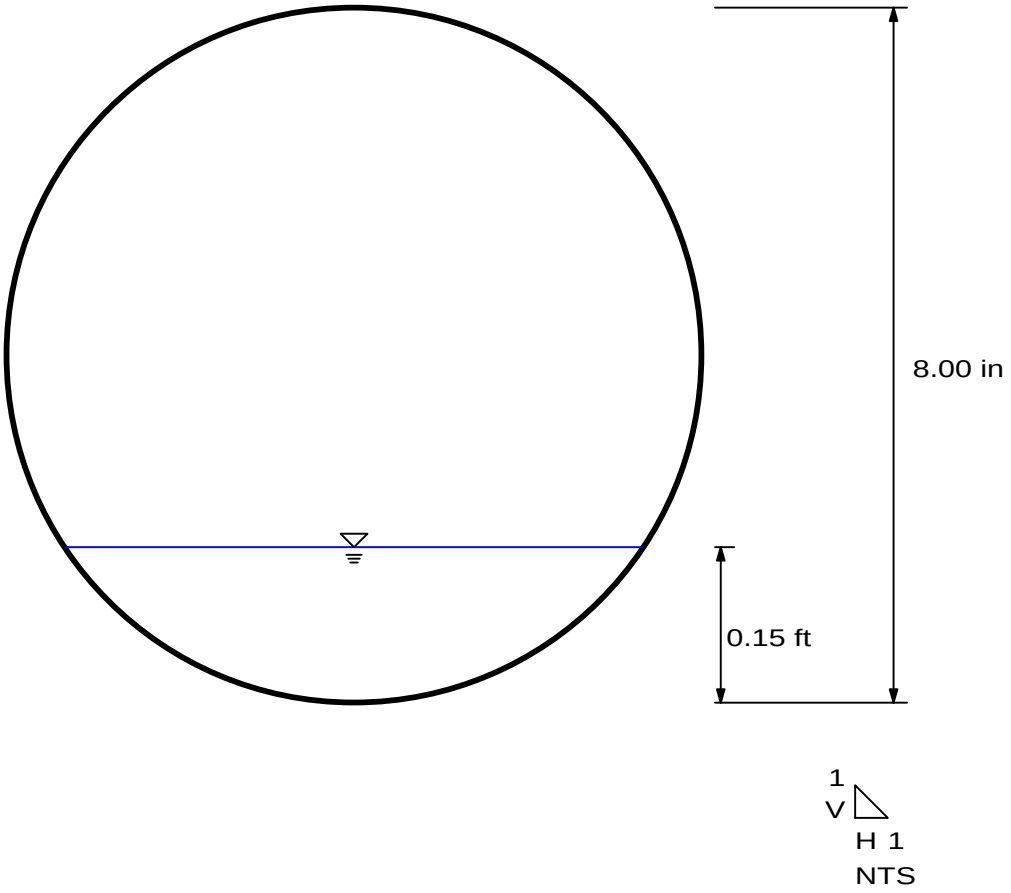
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.038000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.06	cfs



MH 202-203, 8" VCP @ 3.64% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 202-203, 8" VCP @ 3.64% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

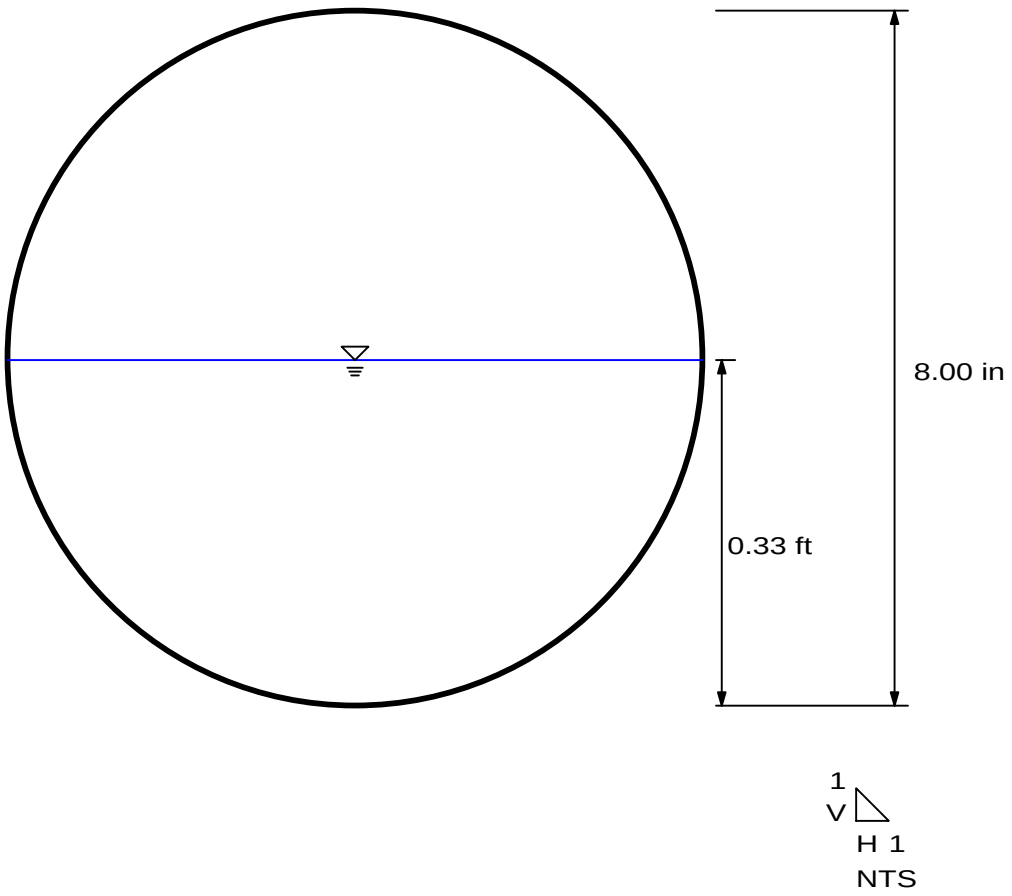
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.036400	ft/ft
Depth	0.15	ft
Diameter	8.00	in
Discharge	0.21	cfs



MH 202-203, 8" VCP @ 3.64% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 202-203, 8" VCP @ 3.64% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

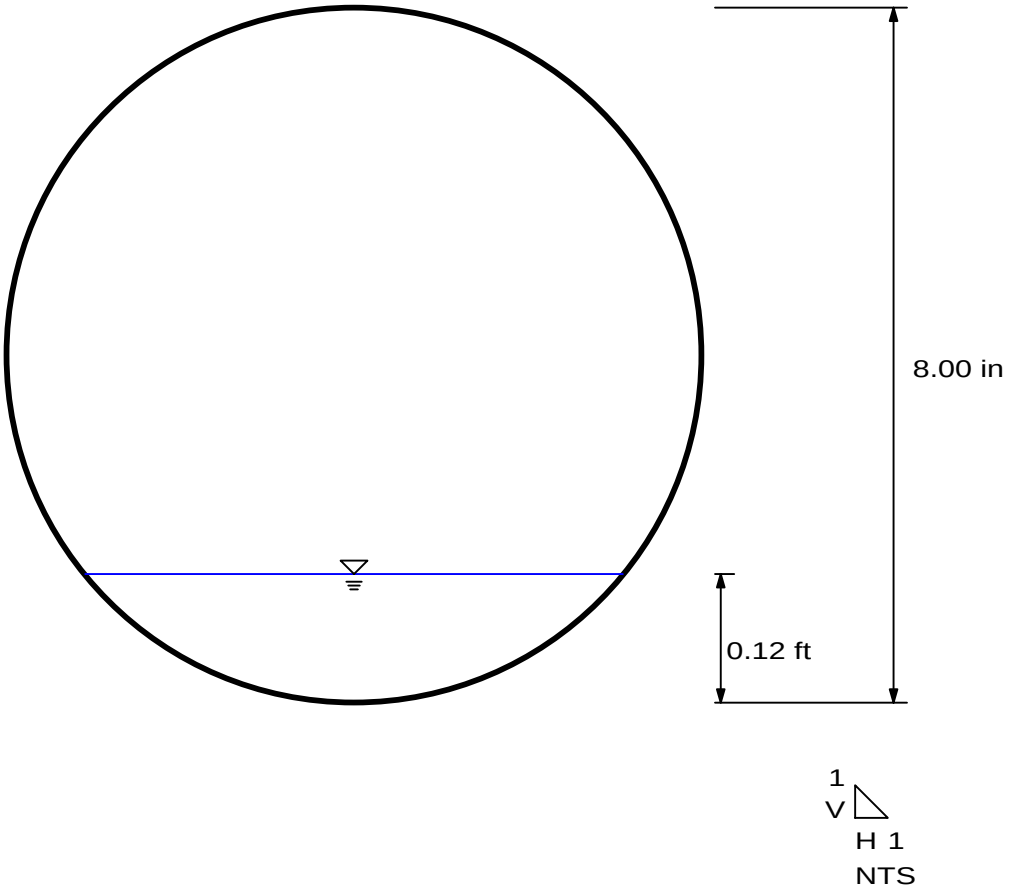
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.036400	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.04	cfs



MH 203-204, 8" VCP @ 8.76% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 203-204, 8" VCP @ 8.76% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

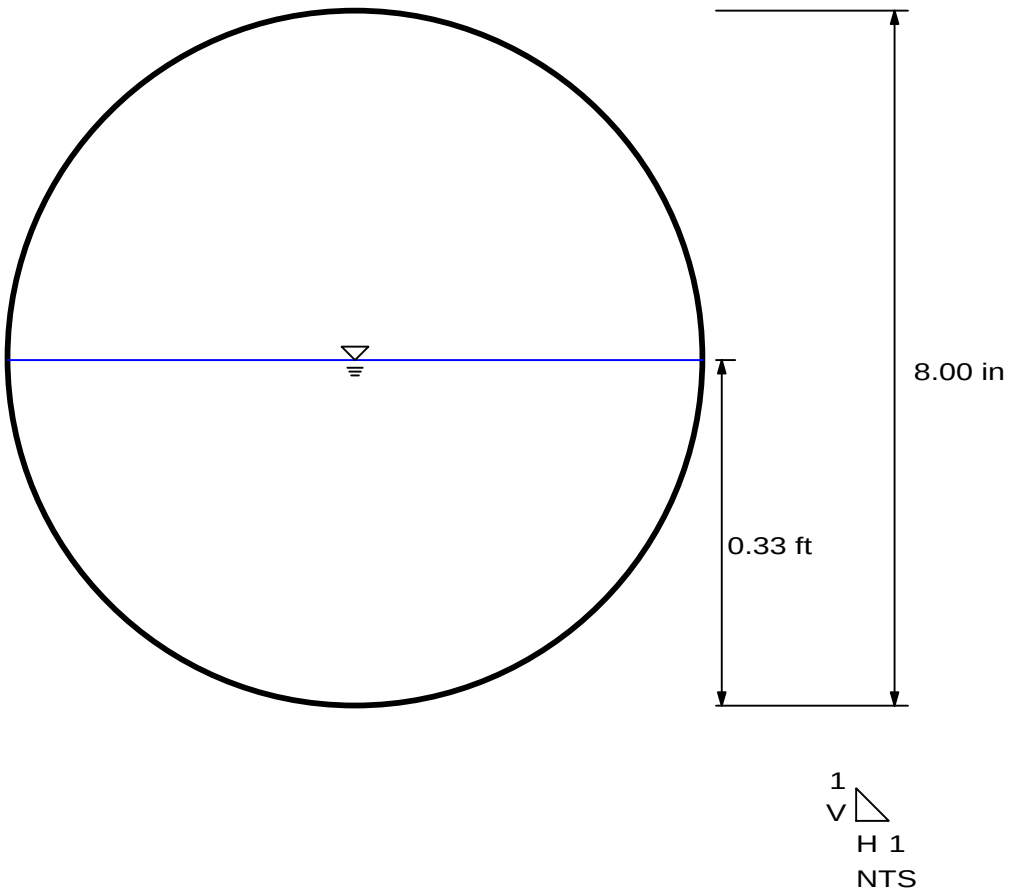
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.087600	ft/ft
Depth	0.12	ft
Diameter	8.00	in
Discharge	0.22	cfs



MH 203-204, 8" VCP @ 8.76% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 203-204, 8" VCP @ 8.76% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

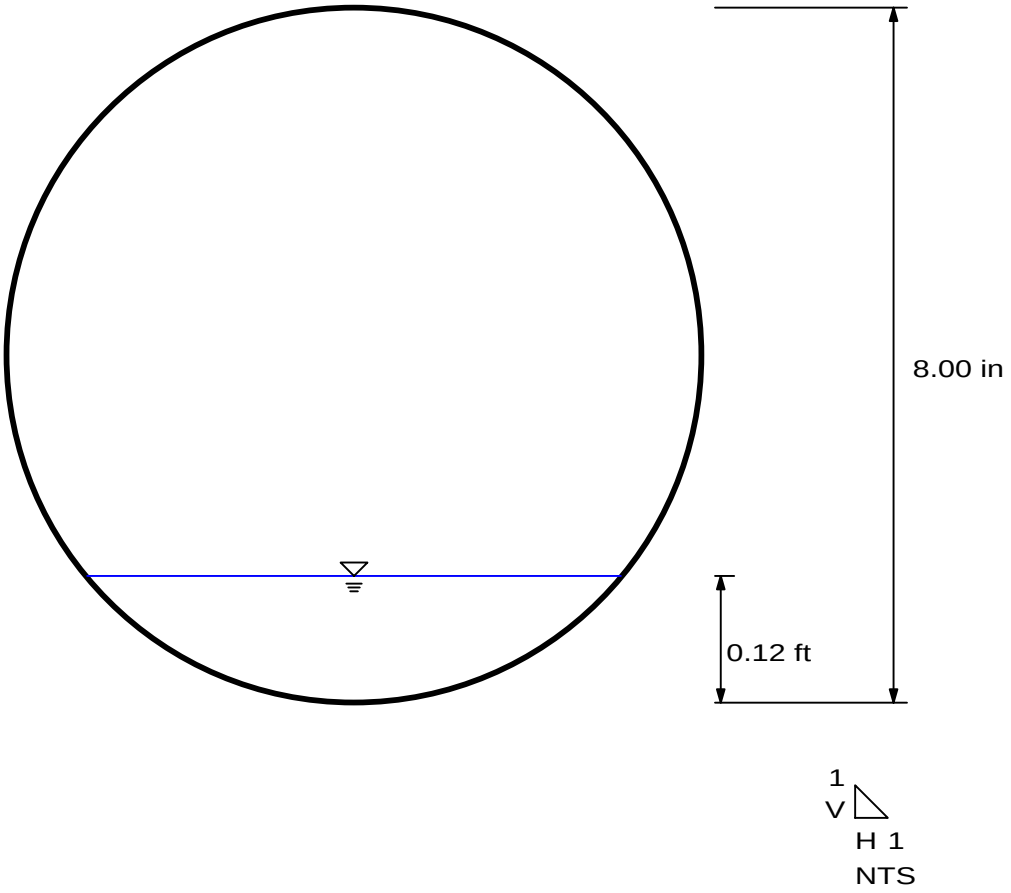
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.087600	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.61	cfs



MH 204-205, 8" VCP @ 10% MAX, DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 204-205, 8" VCP @ 11.84% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

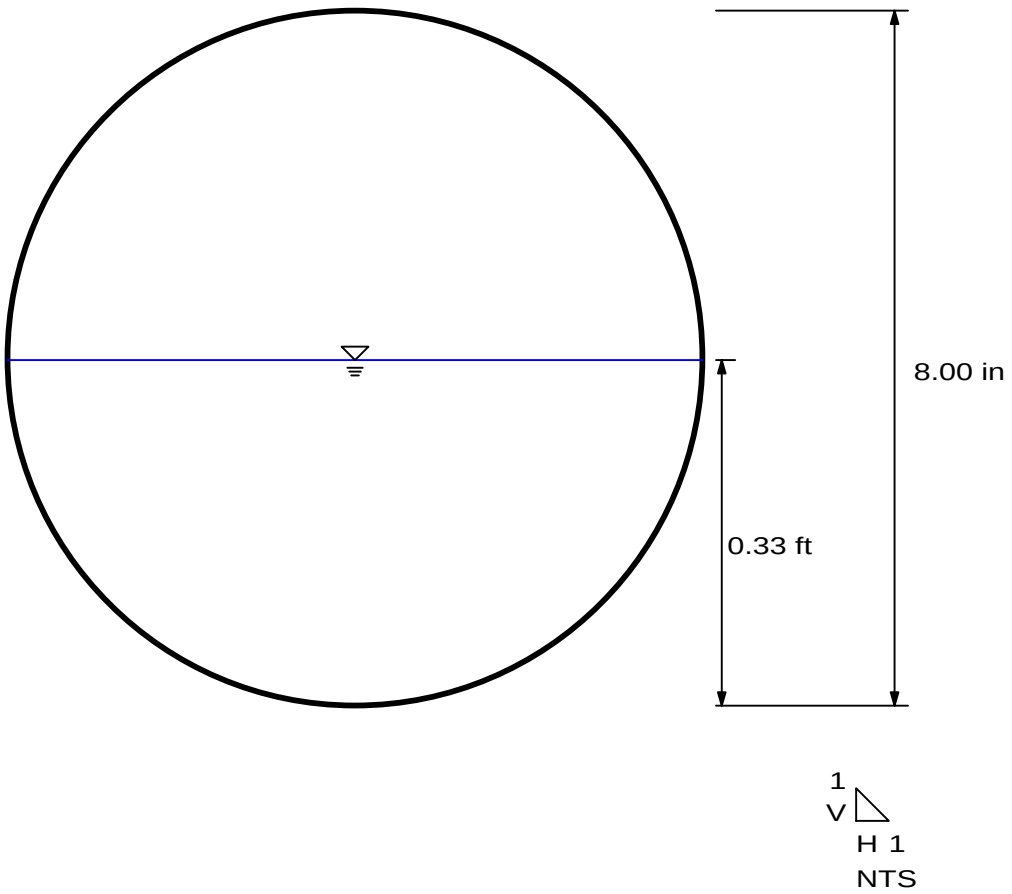
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.100000	ft/ft
Depth	0.12	ft
Diameter	8.00	in
Discharge	0.22	cfs



MH 204-205, 8" VCP @ 10% MAX, CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 204-205, 8" VCP @ 11.84%, CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

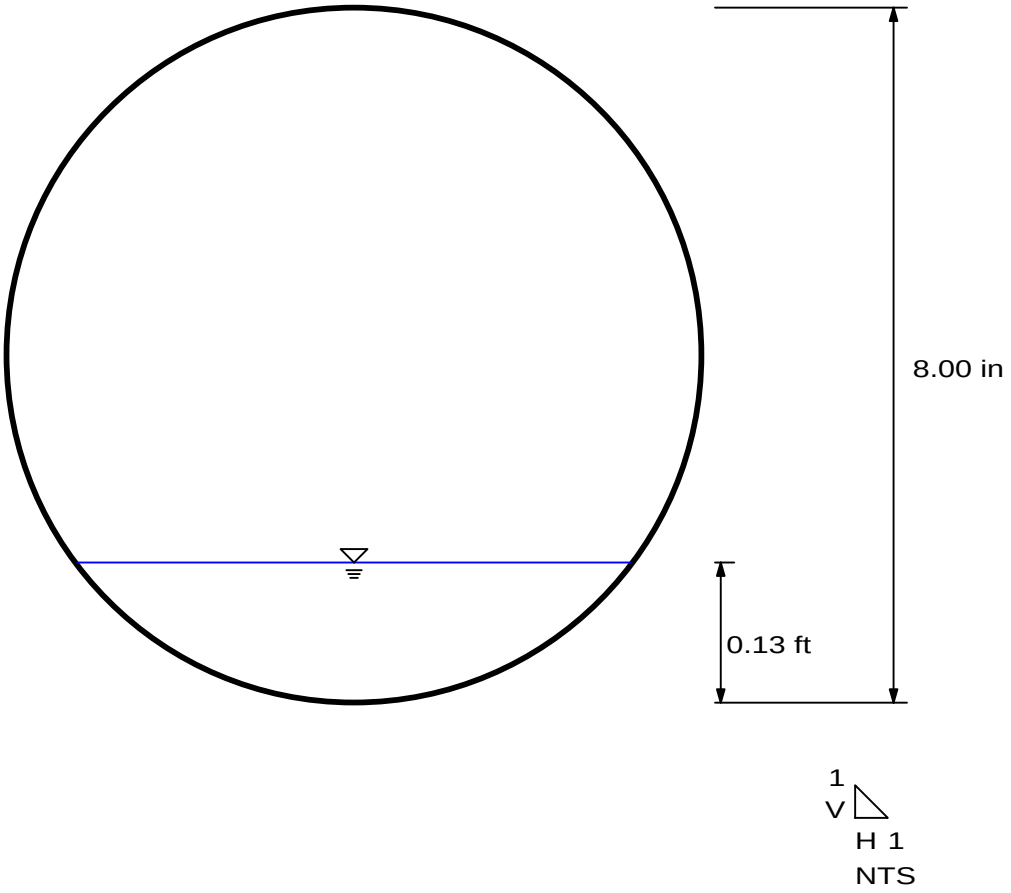
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.100000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.72	cfs



MH 205-206, 8" VCP @ 7.04% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 205-206, 8" VCP @ 7.04% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

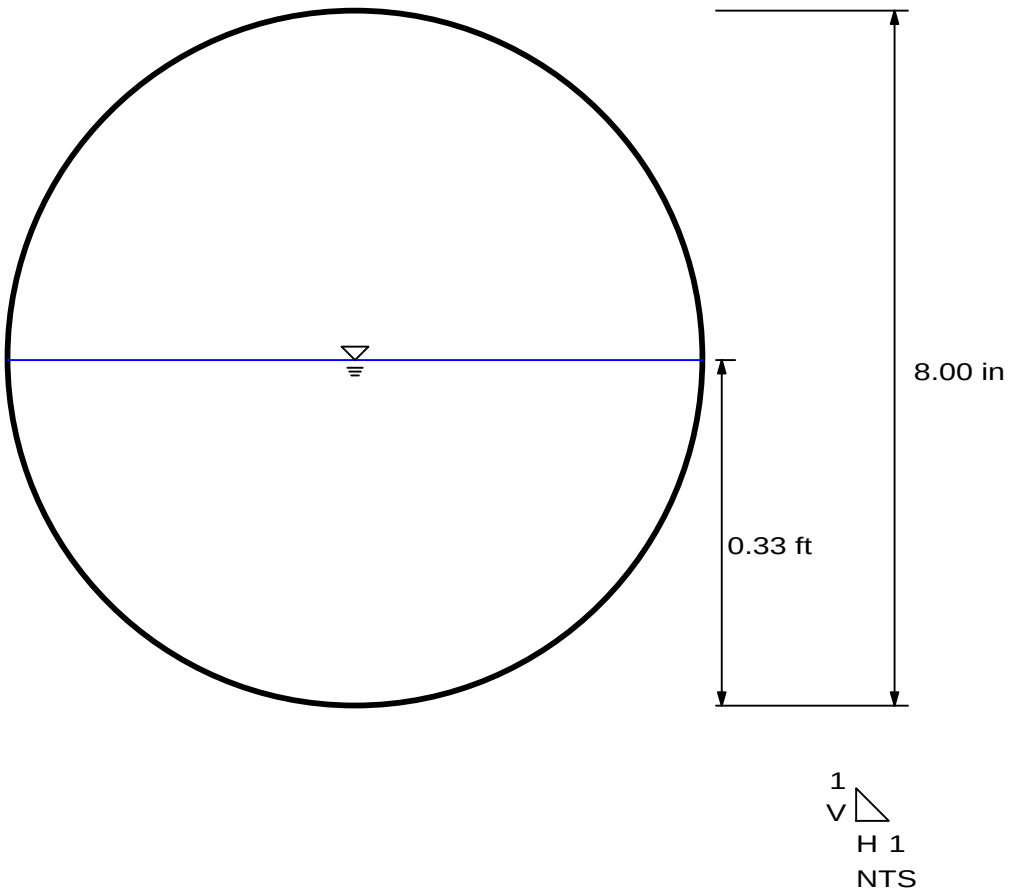
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.070400	ft/ft
Depth	0.13	ft
Diameter	8.00	in
Discharge	0.23	cfs



MH 205-206, 8" VCP @ 7.04% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 205-206, 8" VCP @ 7.04% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

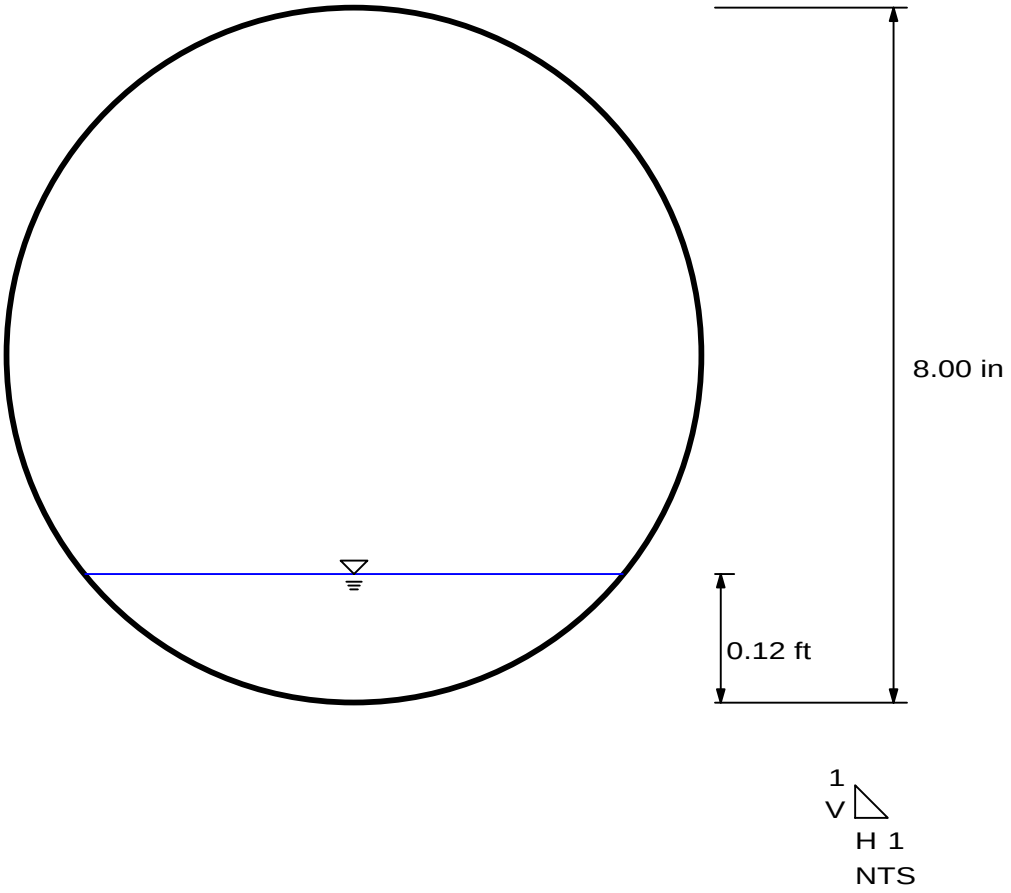
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.070400	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.44	cfs



MH 206-78, 8" VCP @ 10% MAX, DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 206-78, 8" VCP @ 10.80% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

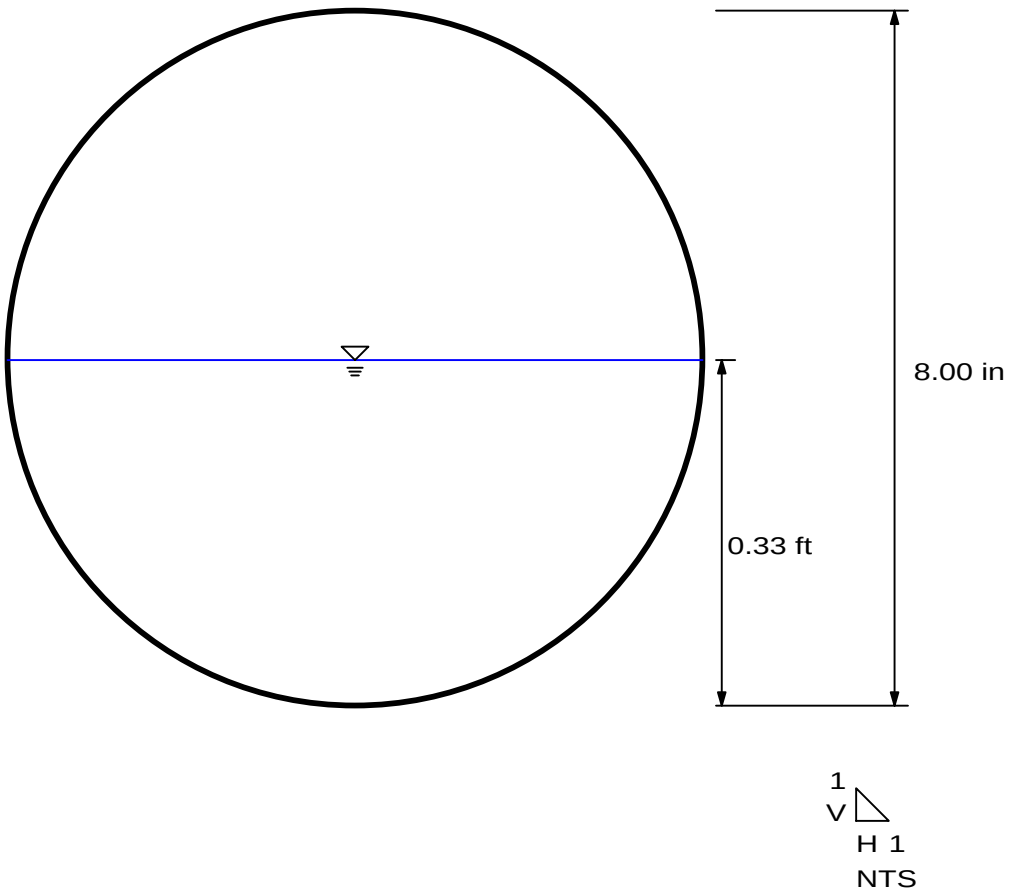
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.100000	ft/ft
Depth	0.12	ft
Diameter	8.00	in
Discharge	0.23	cfs



MH 206-78, 8" VCP @ 10% MAX, CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 206-78, 8" VCP @ 10.80%, CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

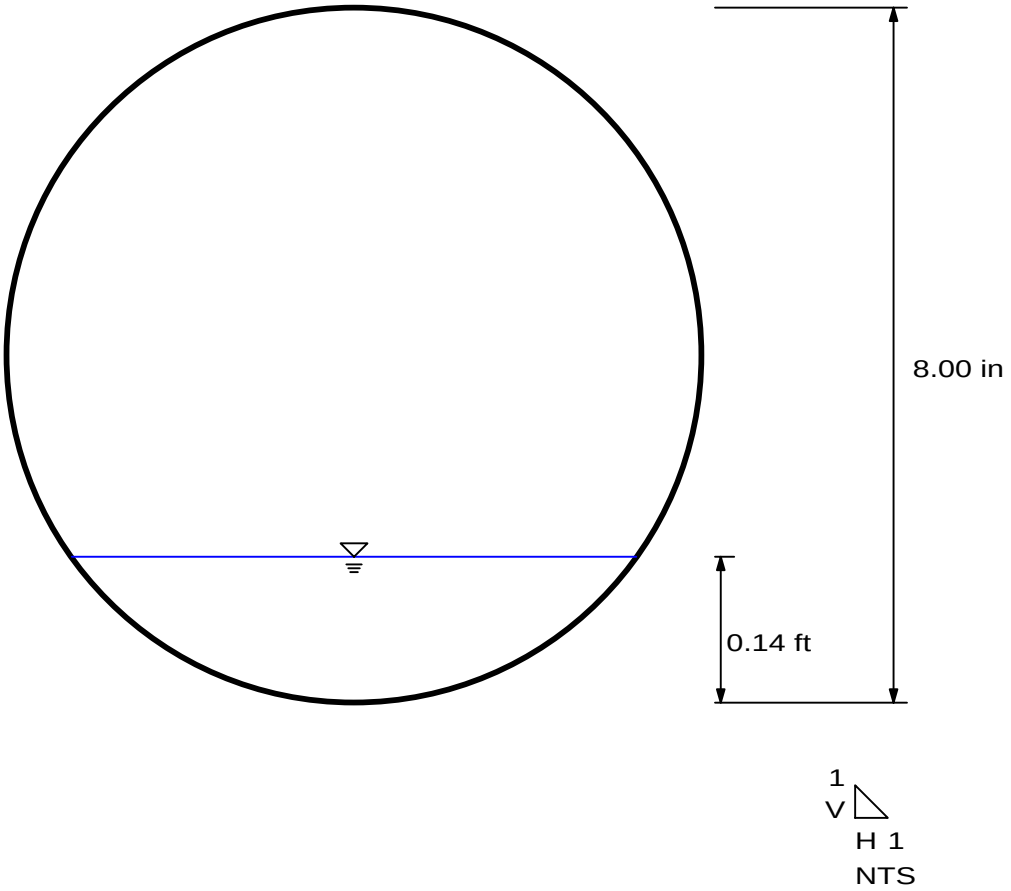
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.100000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.72	cfs



MH 78-77, 8" VCP @ 6.24% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 78-77, 8" VCP @ 6.24% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

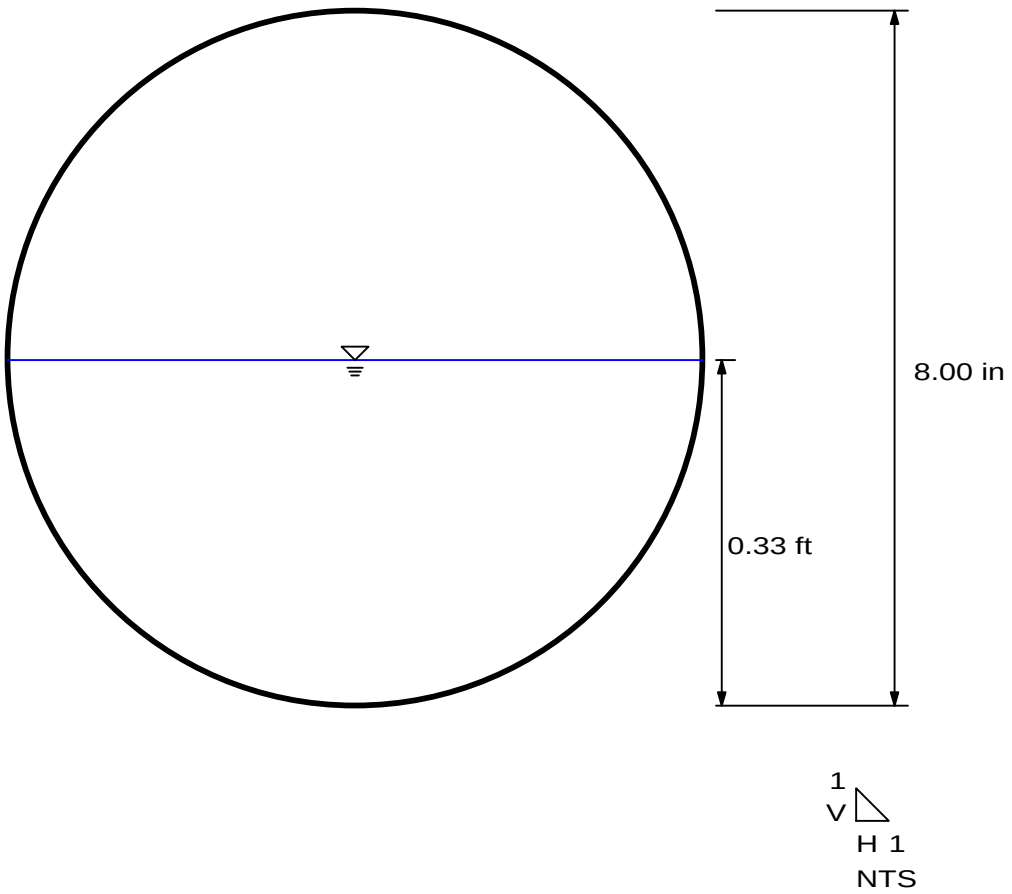
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.062400	ft/ft
Depth	0.14	ft
Diameter	8.00	in
Discharge	0.24	cfs



MH 78-77, 8" VCP @ 6.24% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 78-77, 8" VCP @ 6.24% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

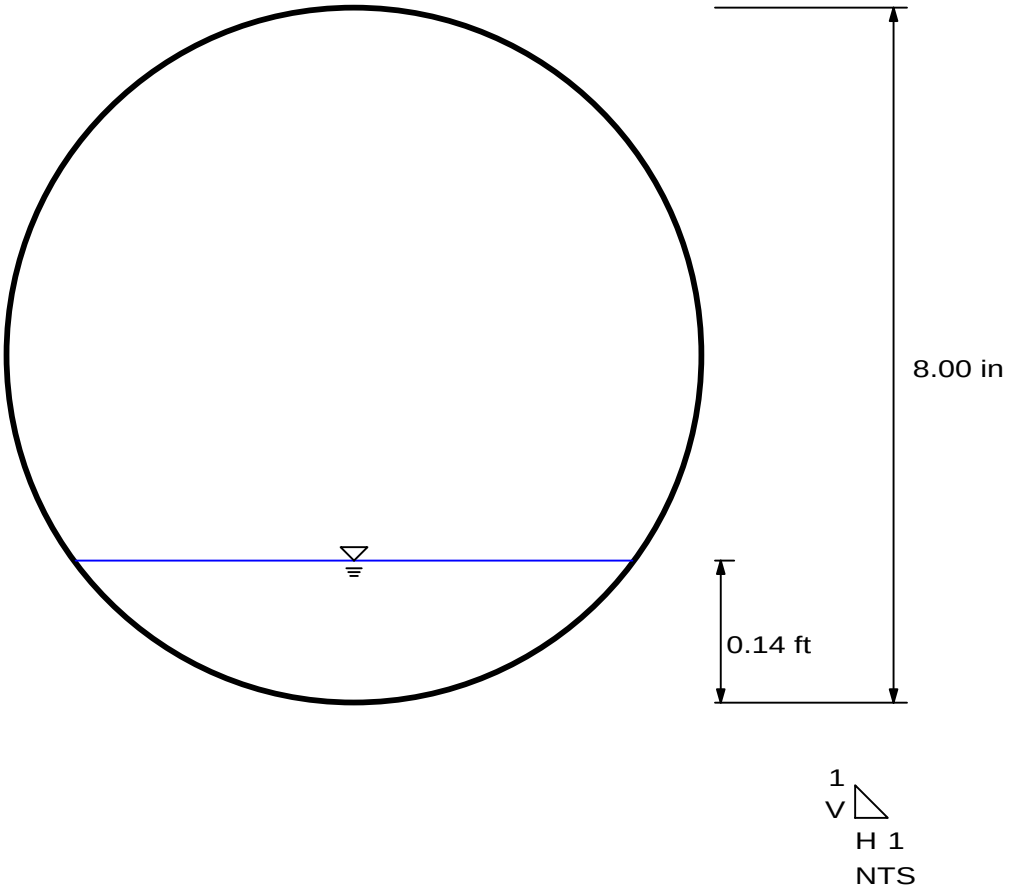
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.062400	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.36	cfs



MH 77-76, 8" VCP @ 7.92% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 77-76, 8" VCP @ 7.92% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

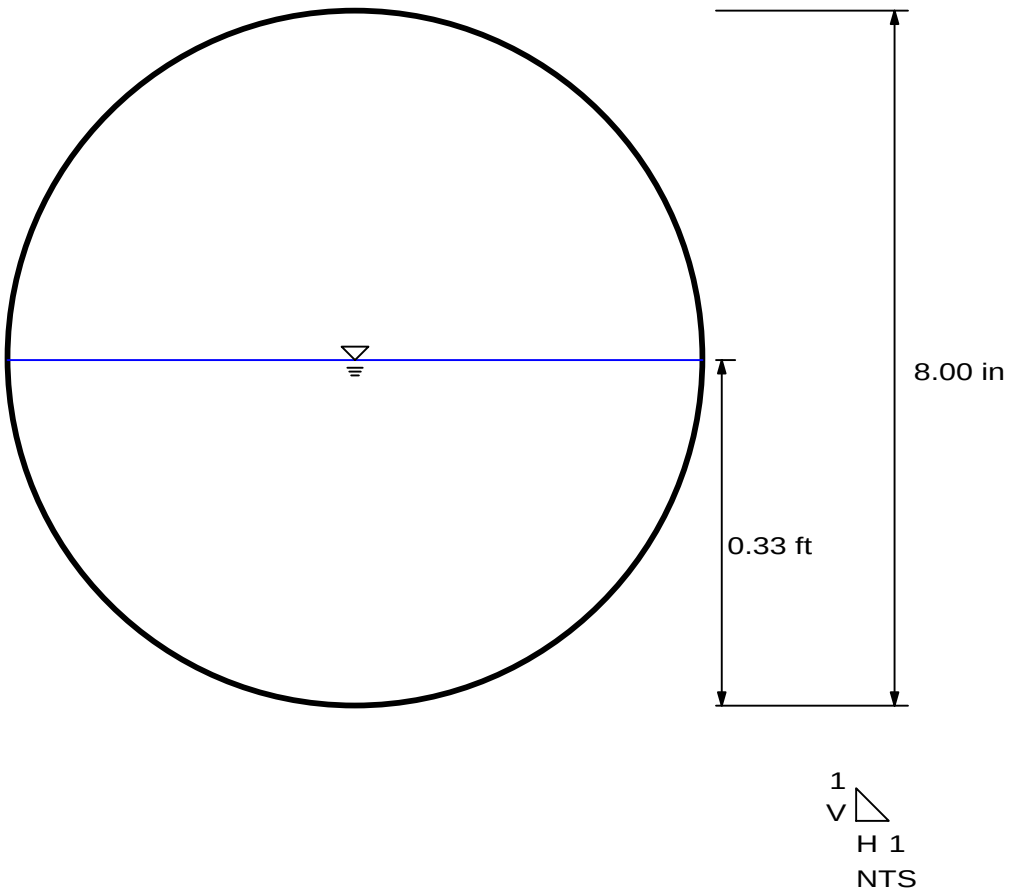
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.079200	ft/ft
Depth	0.14	ft
Diameter	8.00	in
Discharge	0.25	cfs



MH 77-76, 8" VCP @ 7.92% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 77-76, 8" VCP @ 7.92% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

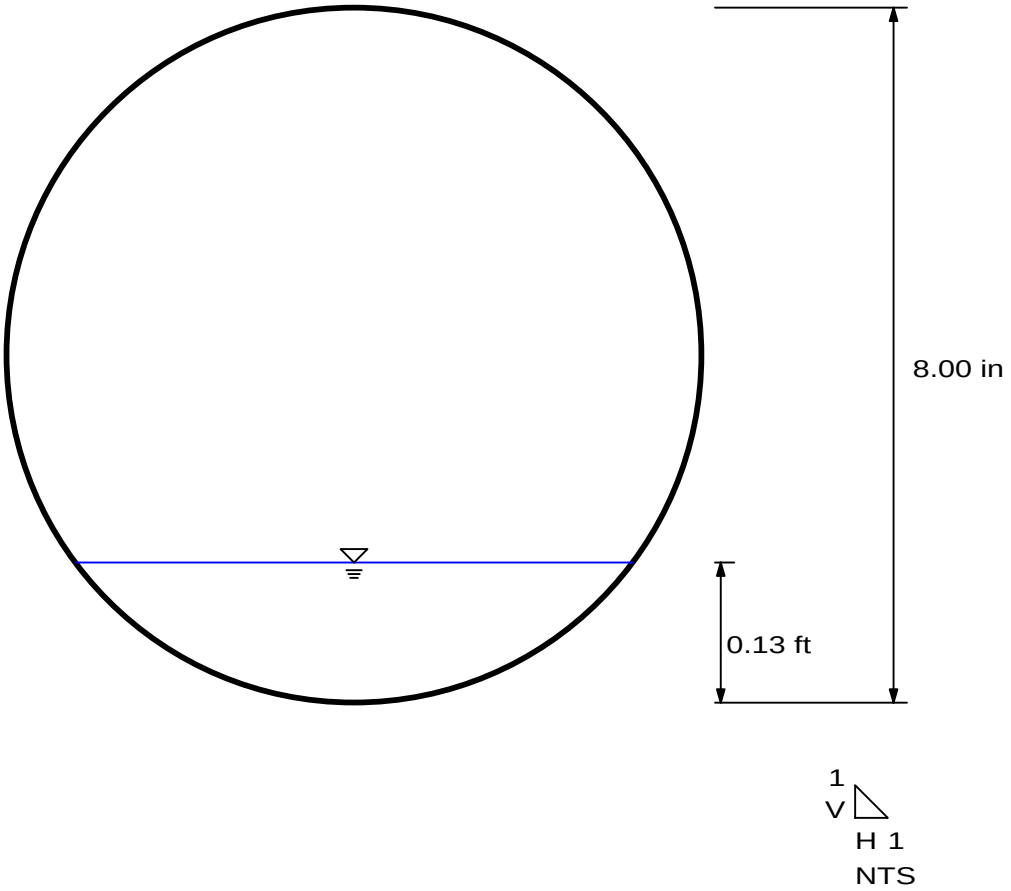
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.079200	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.53	cfs



MH 76-75, 8" VCP @ 8.96% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 76-75, 8" VCP @ 8.96% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

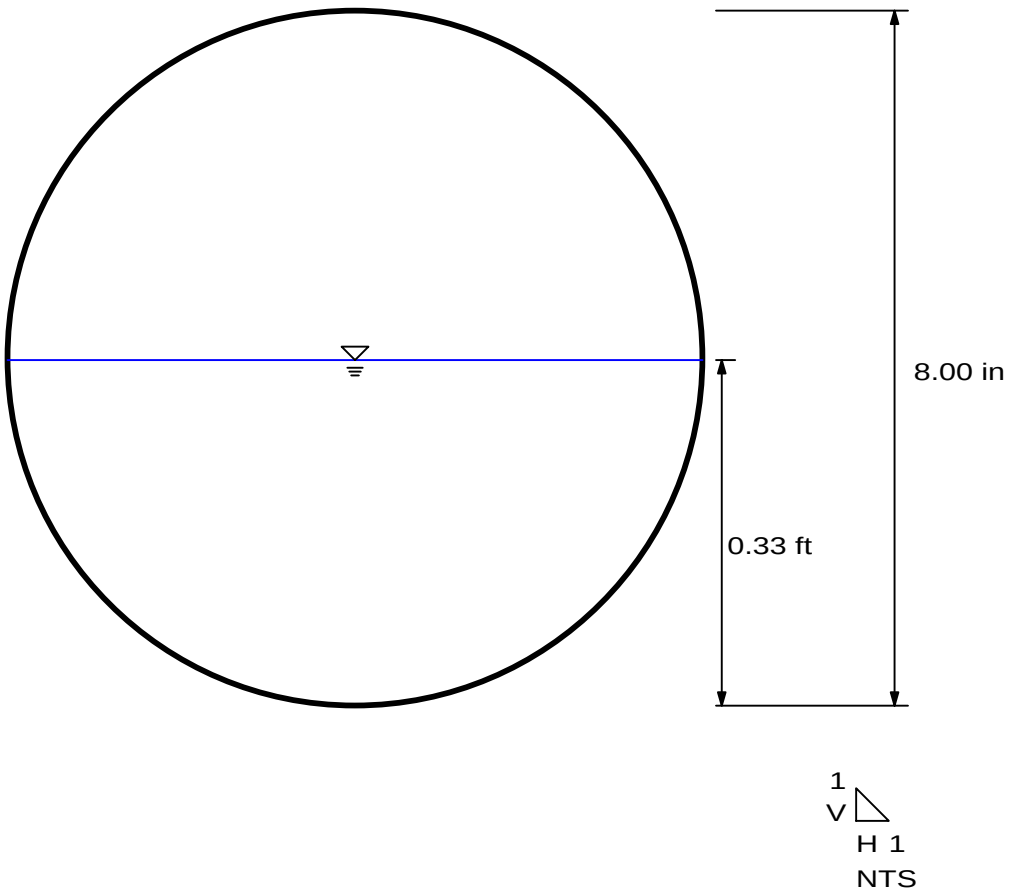
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.089600	ft/ft
Depth	0.13	ft
Diameter	8.00	in
Discharge	0.26	cfs



MH 76-75, 8" VCP @ 8.96% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 76-75, 8" VCP @ 8.96% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

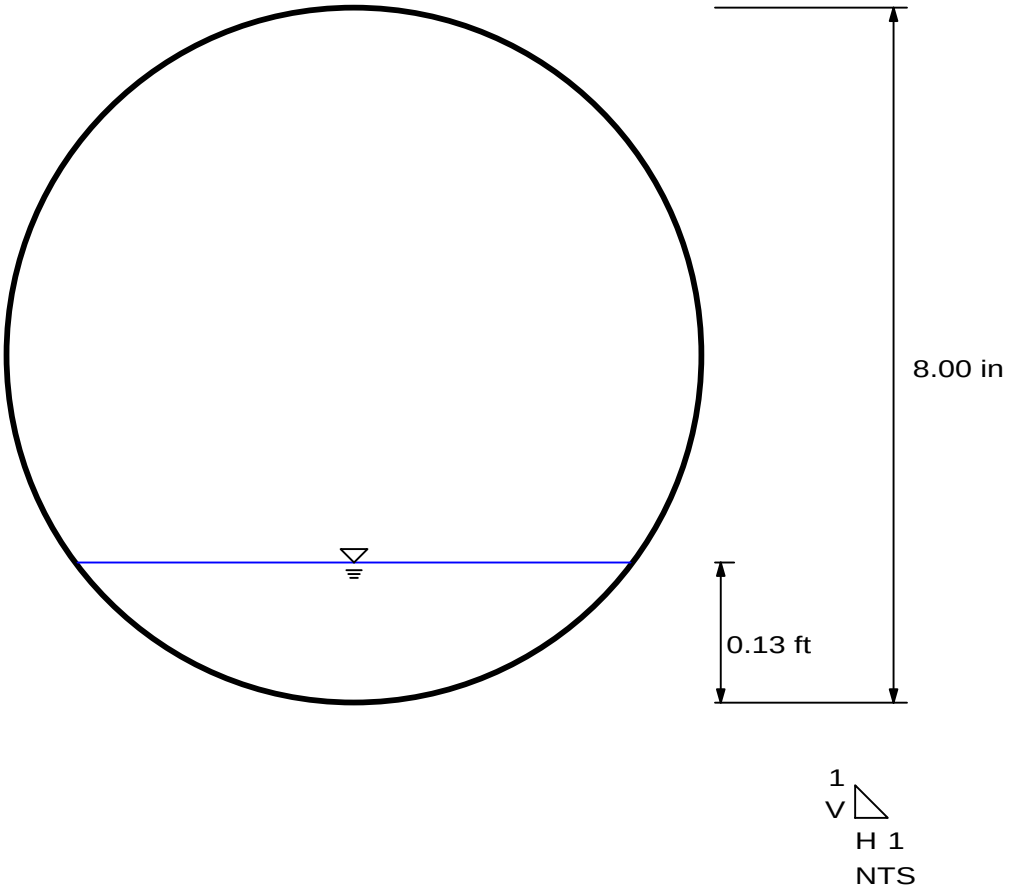
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.089600	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.63	cfs



MH 75-74, 8" VCP @ 9.88% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 75-74, 8" VCP @ 9.88% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

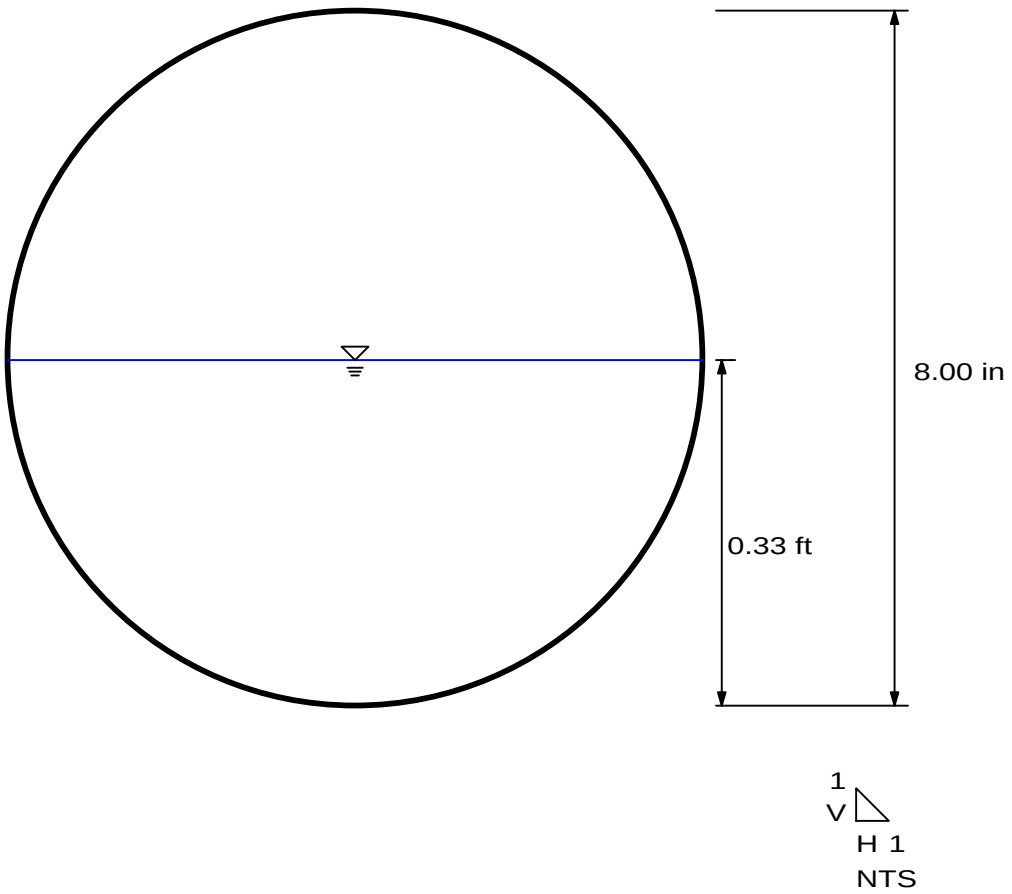
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.098800	ft/ft
Depth	0.13	ft
Diameter	8.00	in
Discharge	0.27	cfs



MH 75-74, 8" VCP @ 9.88% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 75-74, 8" VCP @ 9.88% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

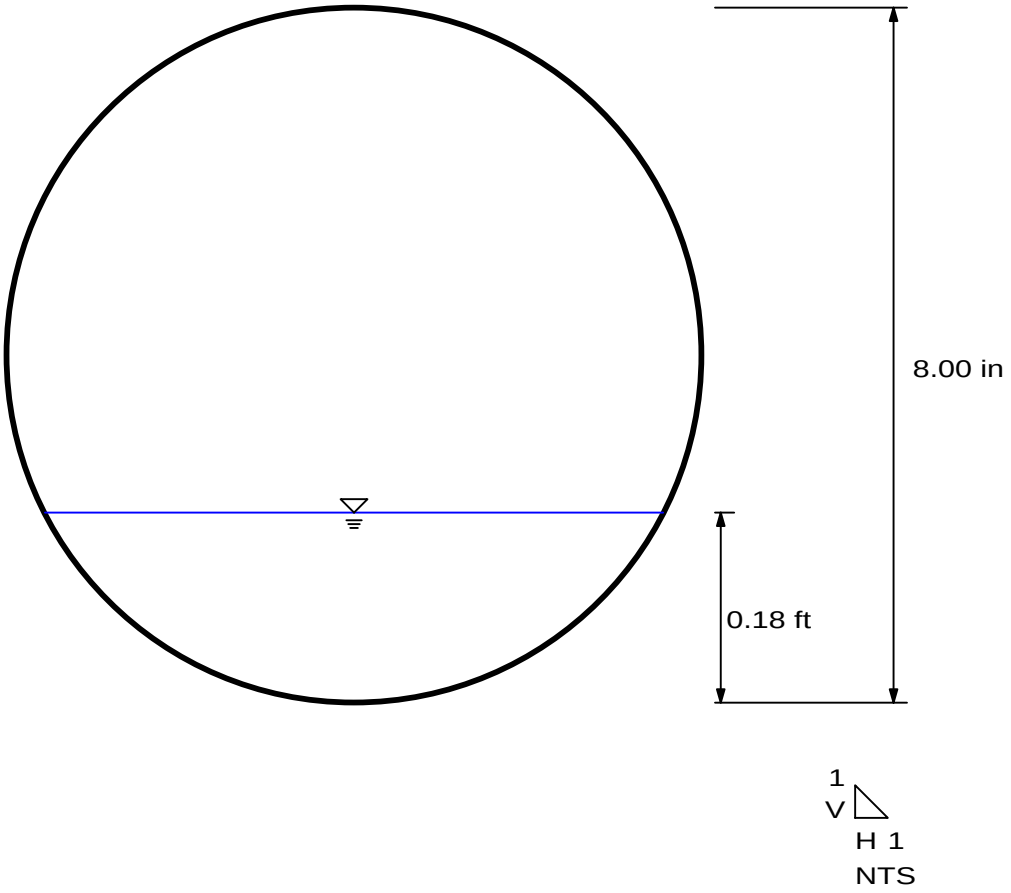
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.098800	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.71	cfs



MH 74-73, 8" VCP @ 8.76% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 74-73, 8" VCP @ 8.76% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

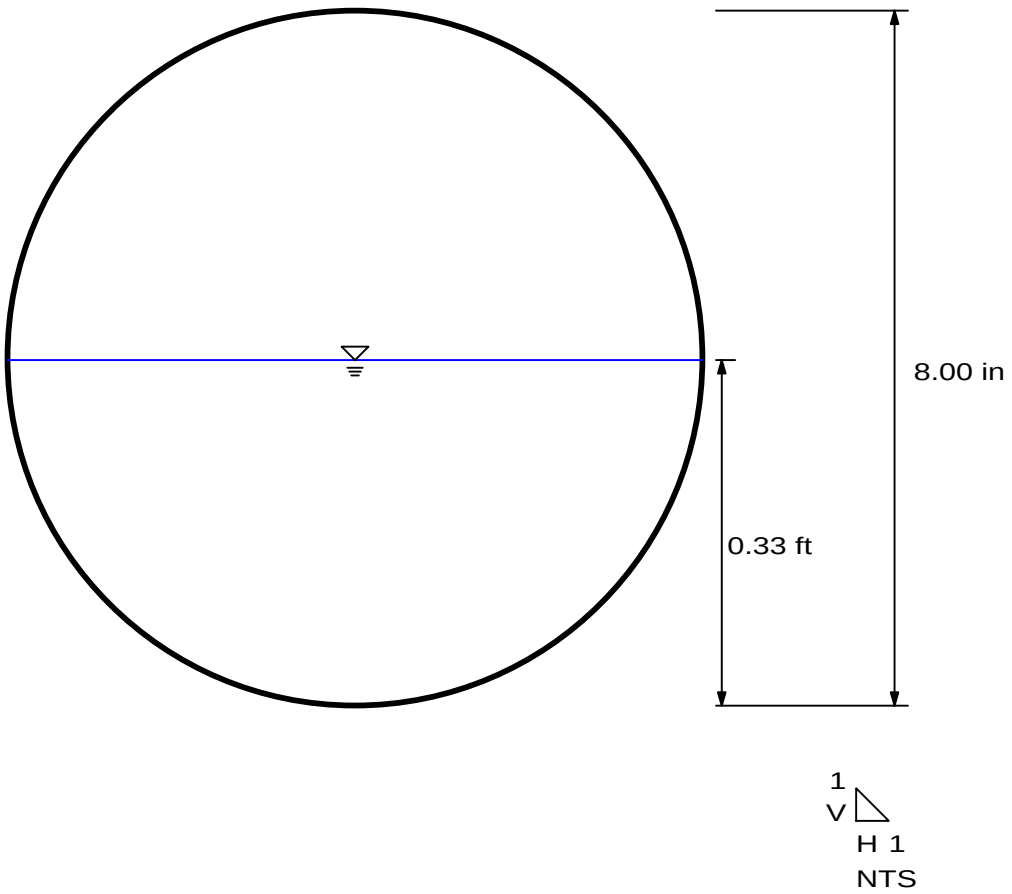
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.087600	ft/ft
Depth	0.18	ft
Diameter	8.00	in
Discharge	0.50	cfs



MH 74-73, 8" VCP @ 8.76% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 74-73, 8" VCP @ 8.76% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

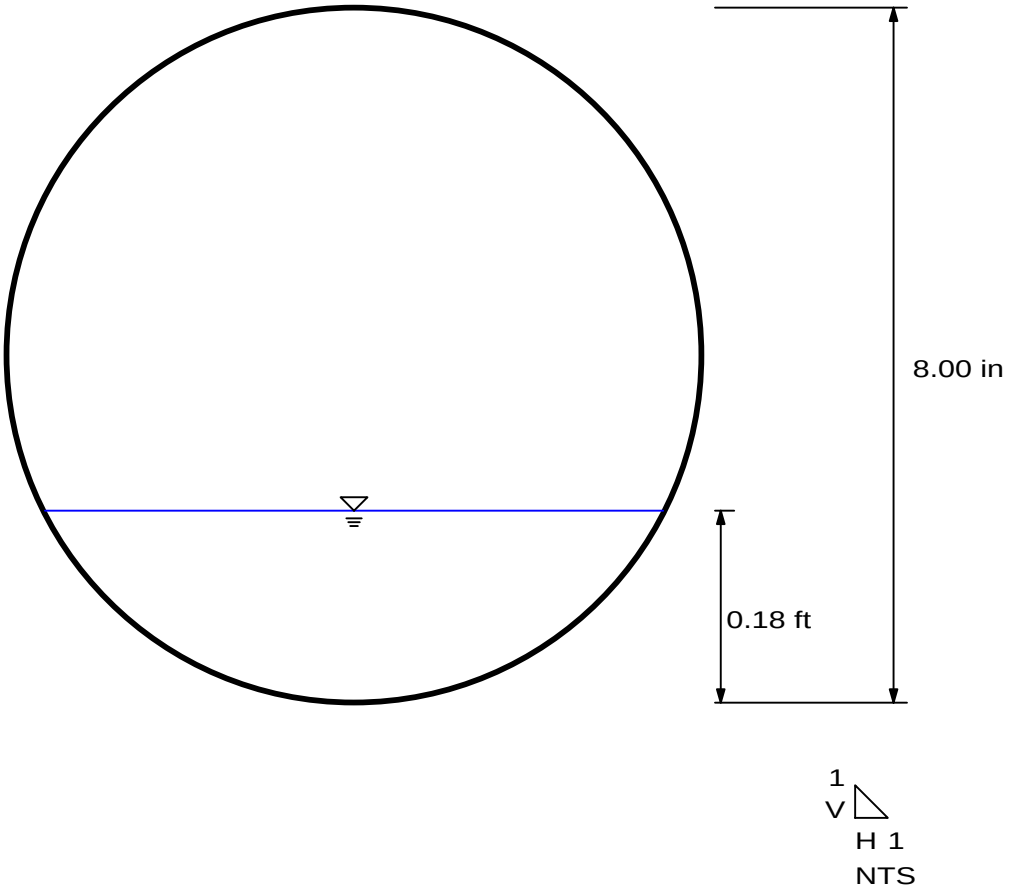
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.087600	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.61	cfs



MH 73-72, 8" VCP @ 8.92% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 73-72, 8" VCP @ 8.92% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

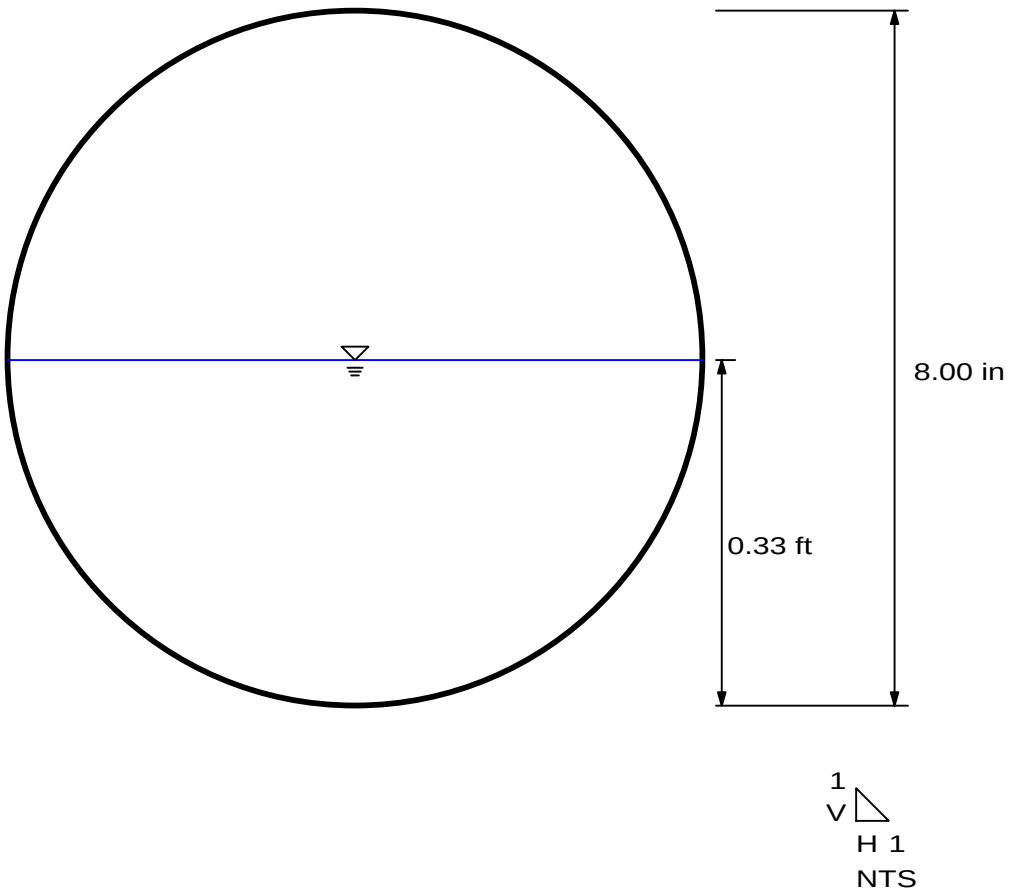
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.089200	ft/ft
Depth	0.18	ft
Diameter	8.00	in
Discharge	0.52	cfs



MH 73-72, 8" VCP @ 8.92% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 73-72, 8" VCP @ 8.92% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

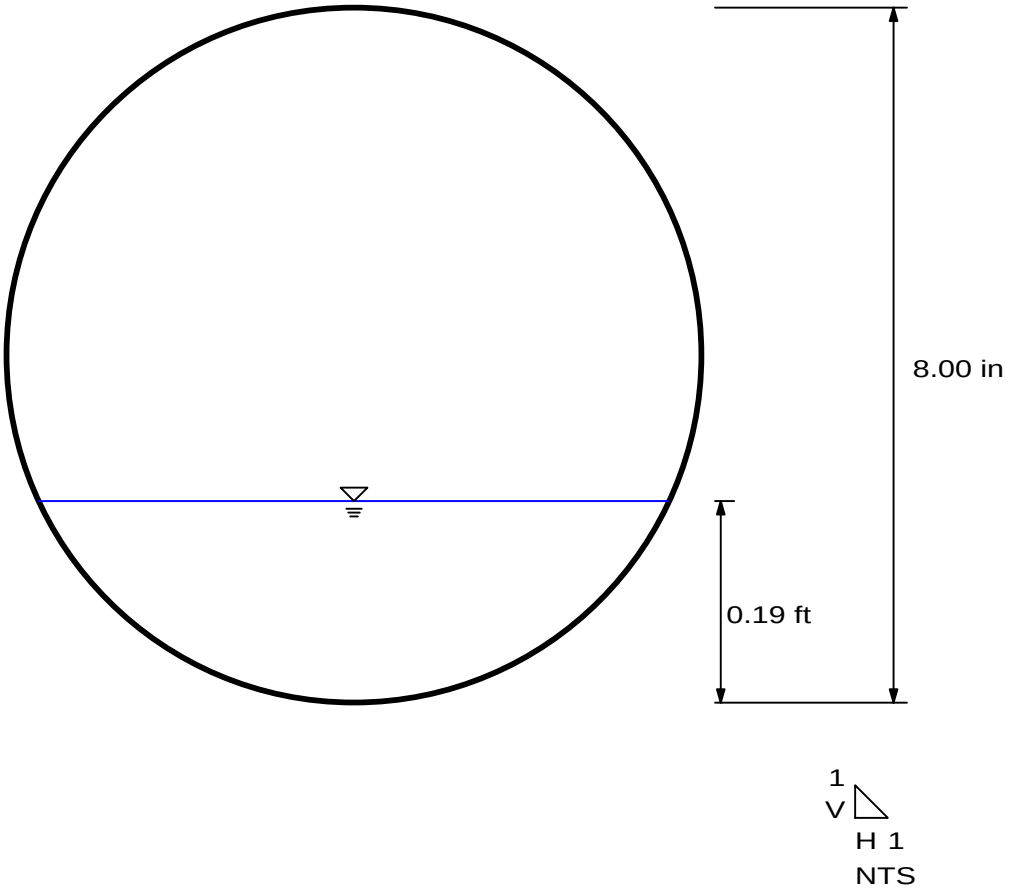
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.089200	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.63	cfs



MH 72-69, 8" VCP @ 8.20% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 72-69, 8" VCP @ 8.20% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

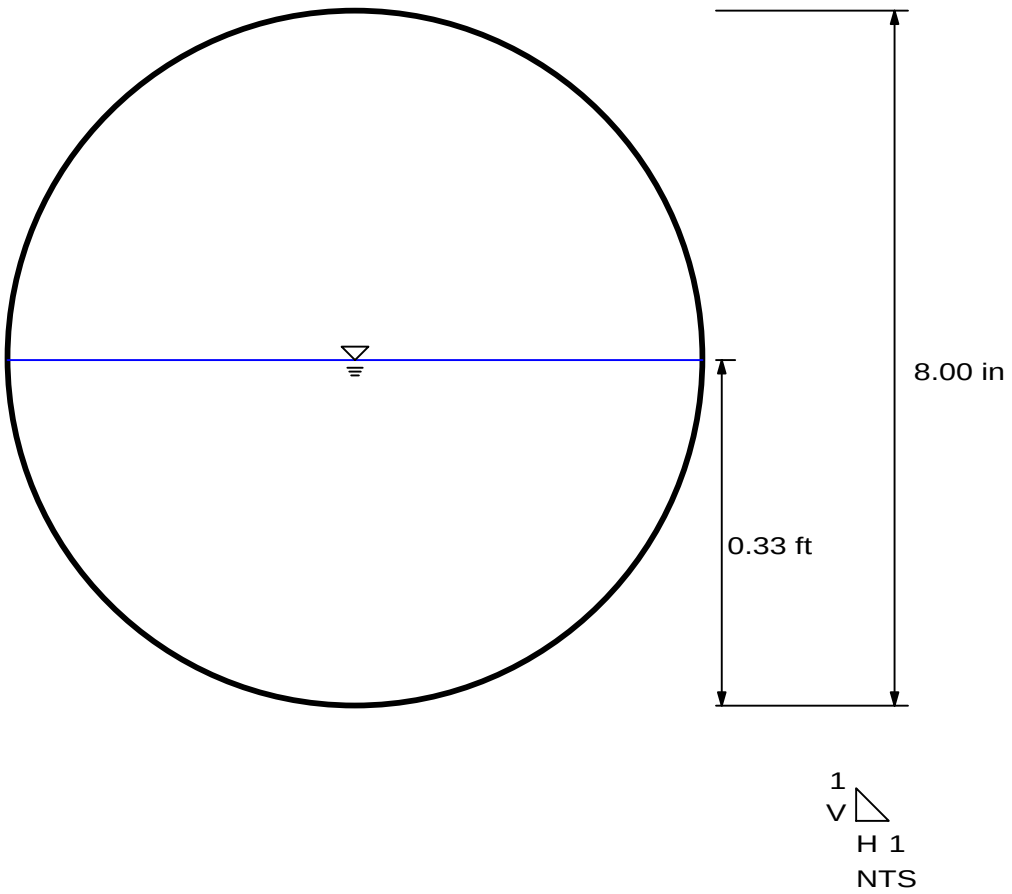
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.082000	ft/ft
Depth	0.19	ft
Diameter	8.00	in
Discharge	0.55	cfs



MH 72-69, 8" VCP @ 8.20% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 72-69, 8" VCP @ 8.20% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

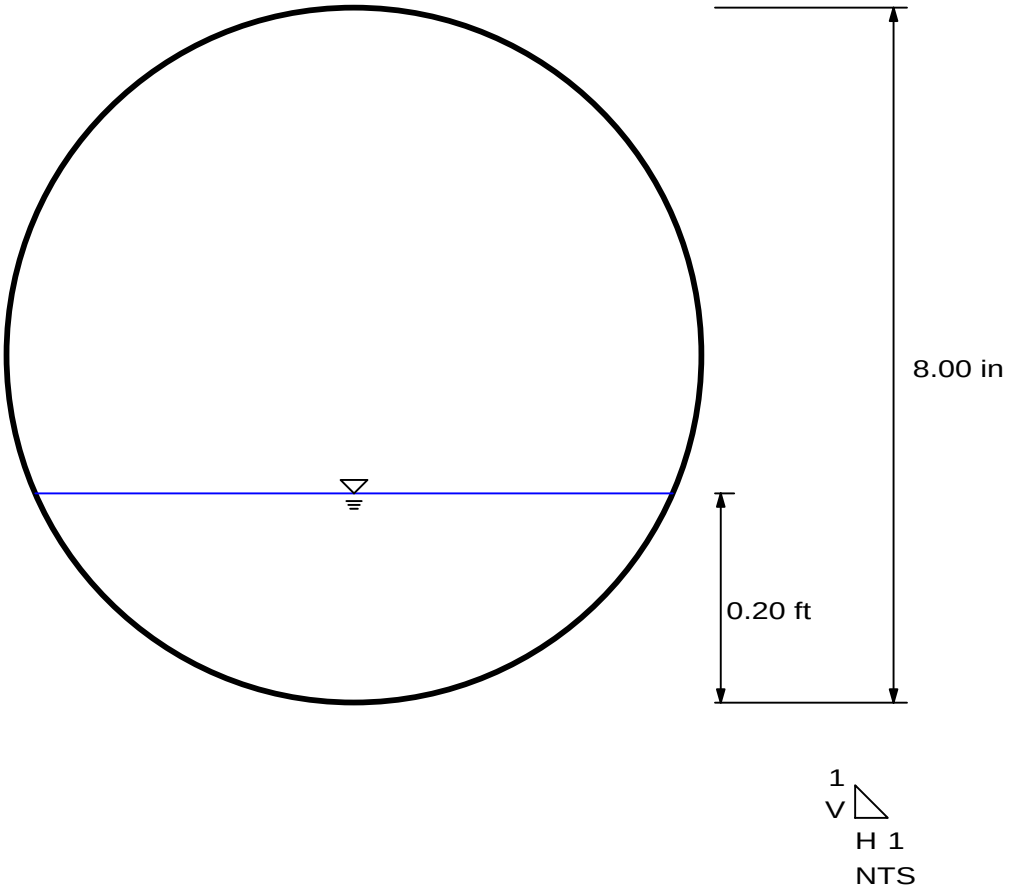
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.082000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.56	cfs



MH 69-68, 8" VCP @ 7.92% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 69-68, 8" VCP @ 7.92% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

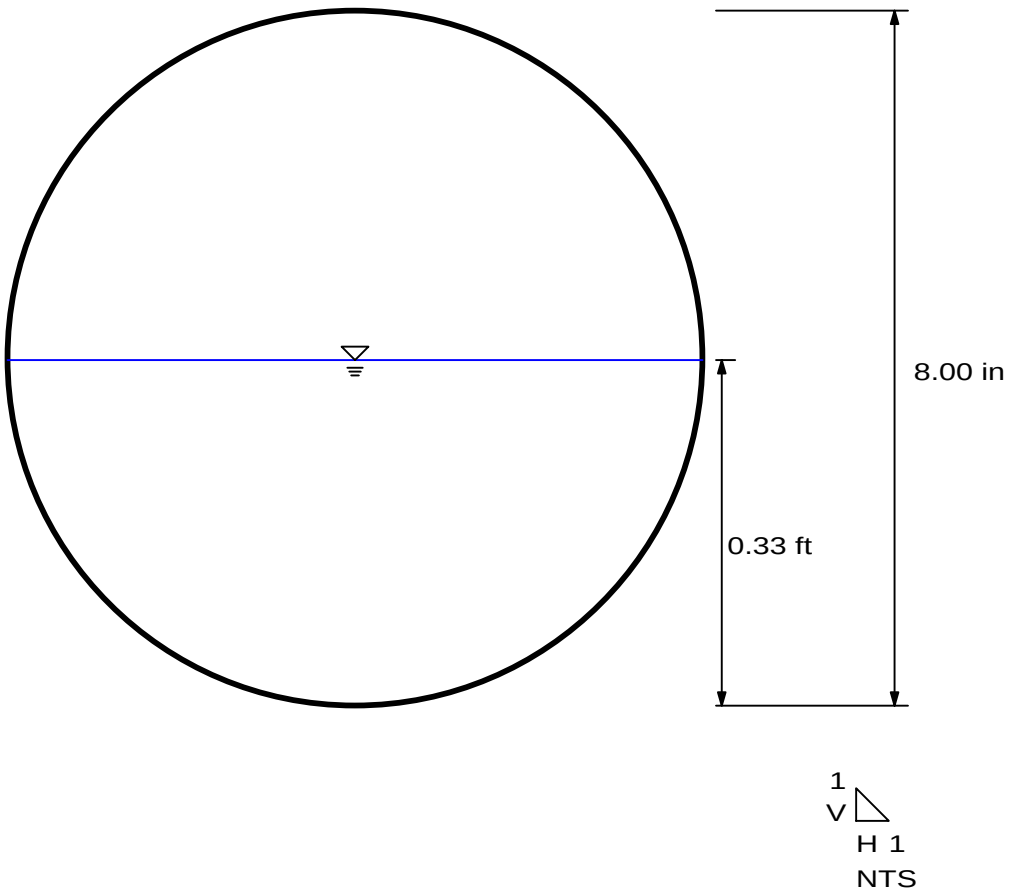
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.079200	ft/ft
Depth	0.20	ft
Diameter	8.00	in
Discharge	0.58	cfs



MH 69-68, 8" VCP @ 7.92% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 69-68, 8" VCP @ 7.92% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

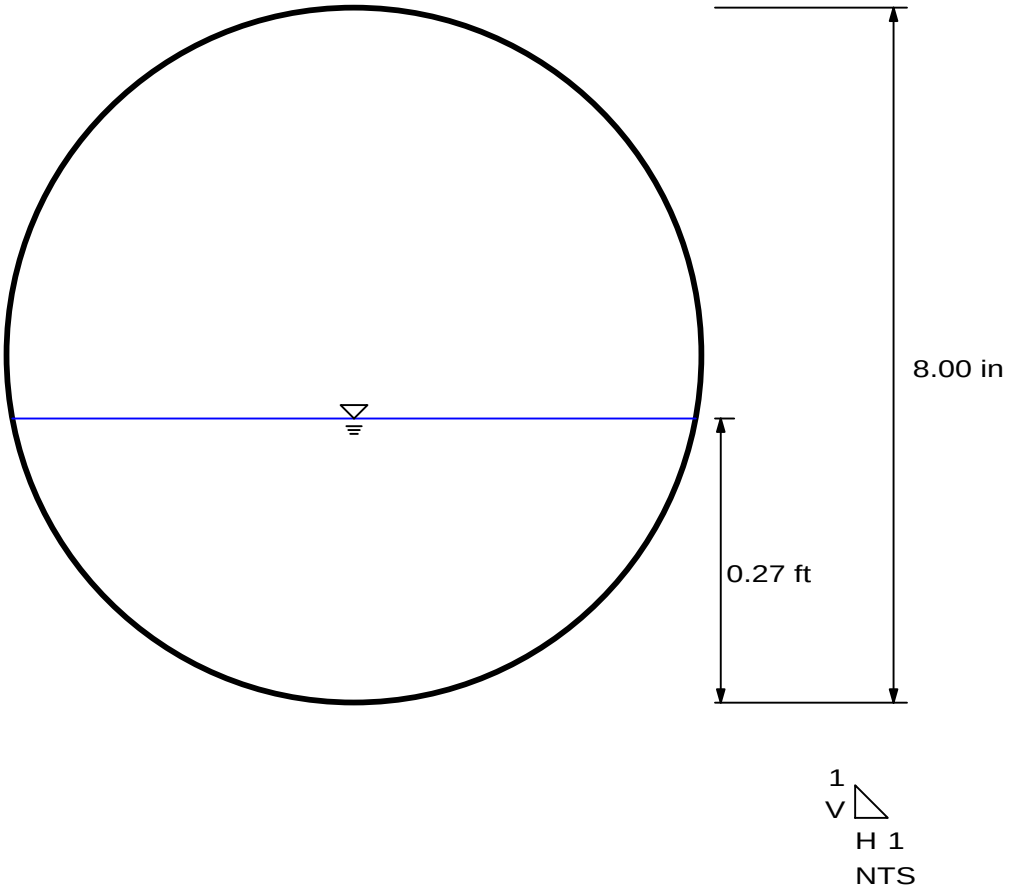
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.079200	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.53	cfs



MH 68-67, 8" VCP @ 2.40% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 68-67, 8" VCP @ 2.40% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

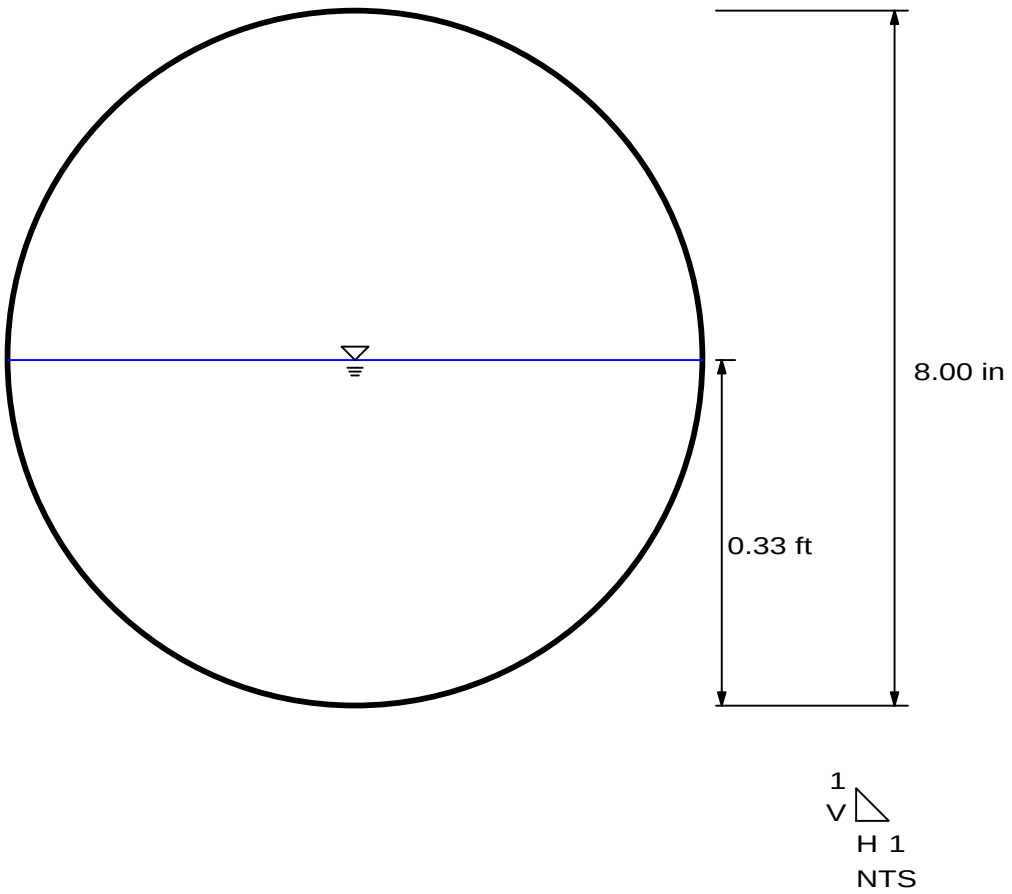
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.024000	ft/ft
Depth	0.27	ft
Diameter	8.00	in
Discharge	0.59	cfs



MH 68-67, 8" VCP @ 2.40% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 68-67, 8" VCP @ 2.40% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

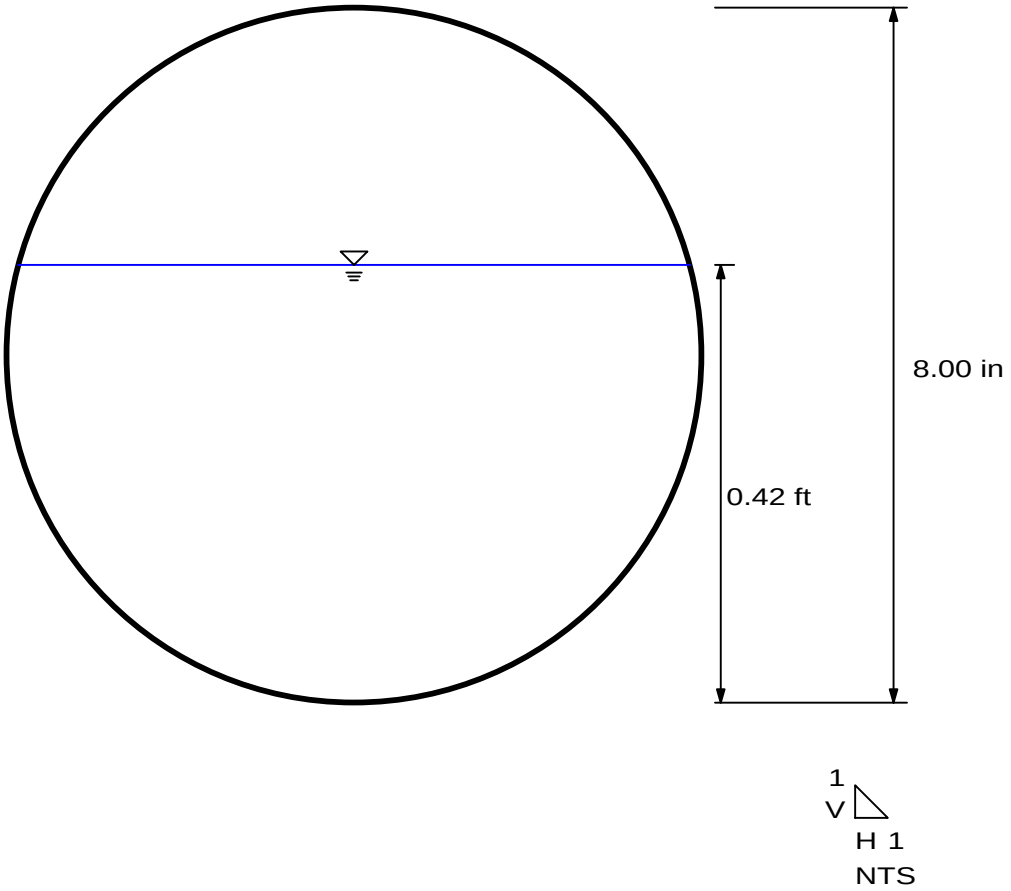
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.024000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	0.84	cfs



MH 67-63, 8" VCP @ 0.60% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 67-63, 8" VCP @ 0.60% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

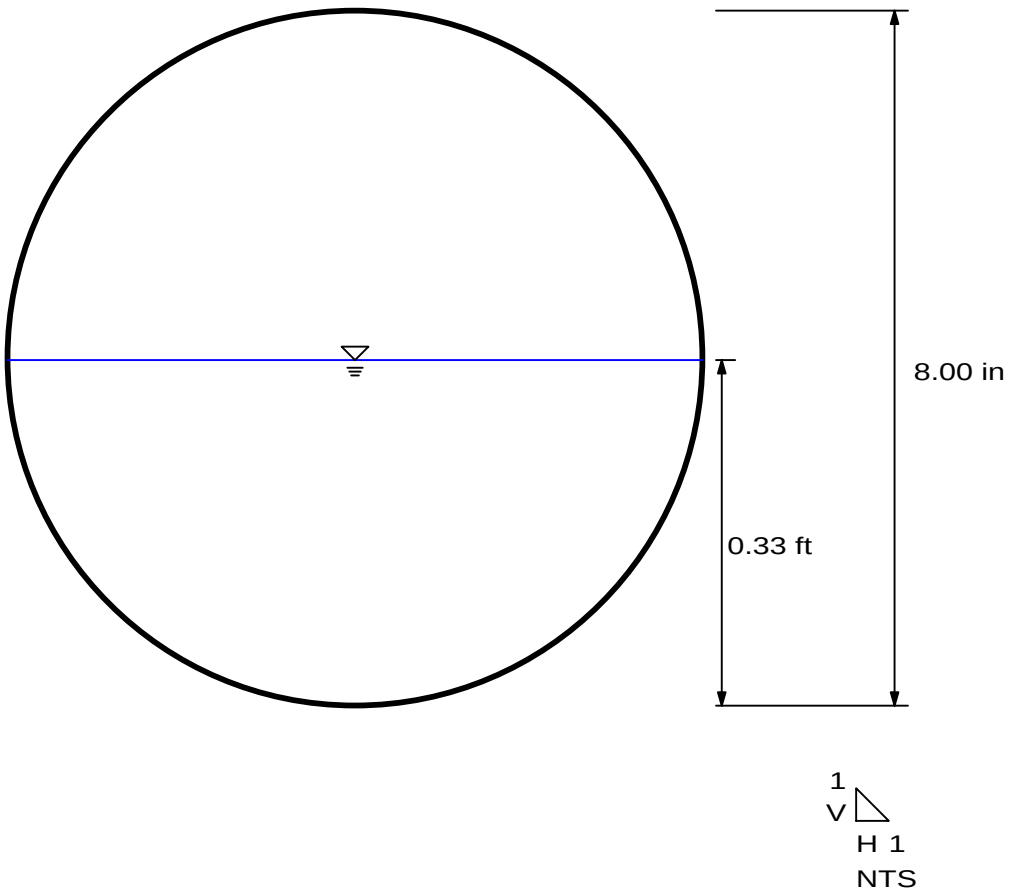
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.006000	ft/ft
Depth	0.42	ft
Diameter	8.00	in
Discharge	0.63	cfs



MH 67-63, 8" VCP @ 0.60% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 67-63, 8" VCP @ 0.60% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

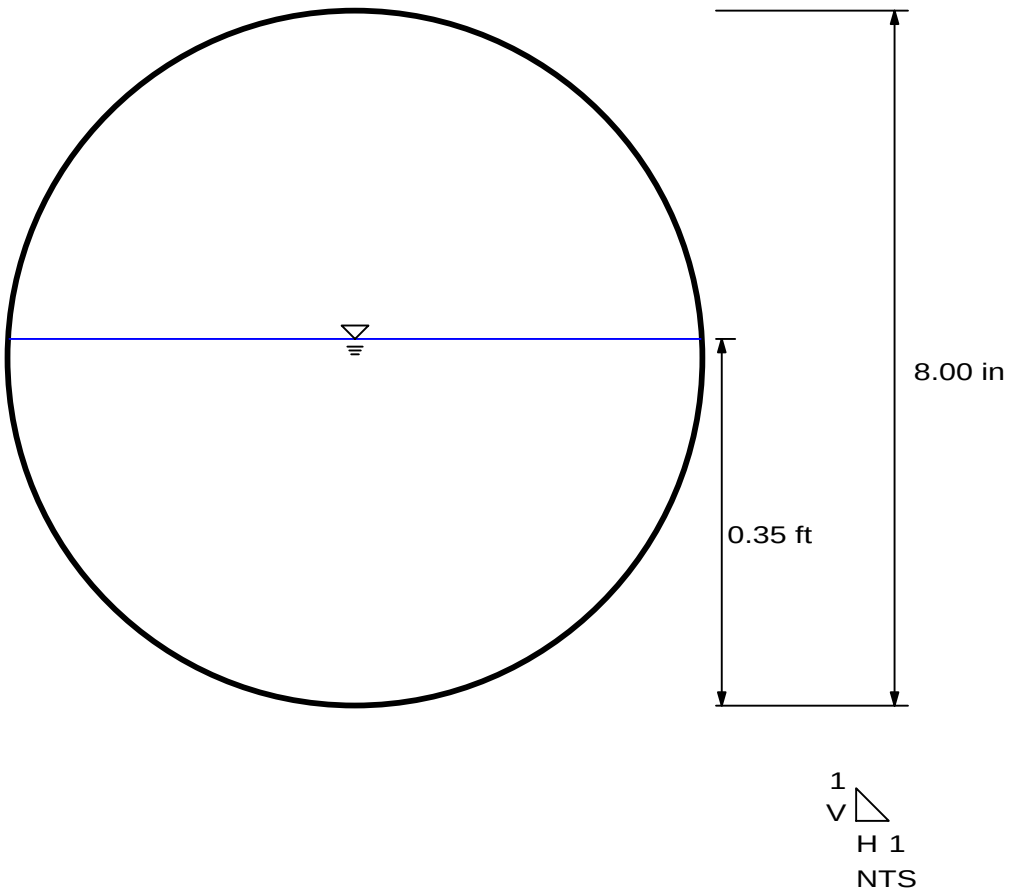
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.006000	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	0.42	cfs



MH 63-60, 8" VCP @ 1.16% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 63-60, 8" VCP @ 1.16% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

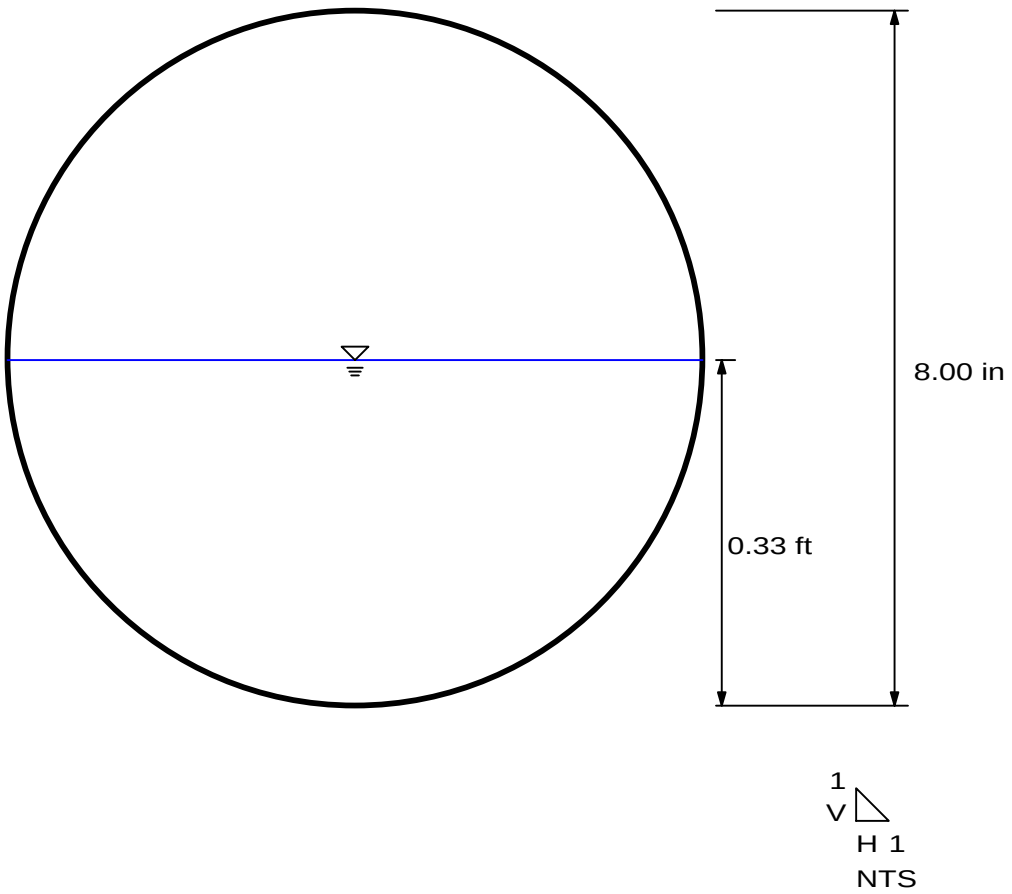
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.011600	ft/ft
Depth	0.35	ft
Diameter	8.00	in
Discharge	0.65	cfs



MH 63-60, 8" VCP @1.16 CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 63-60, 8" VCP @1.16 CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

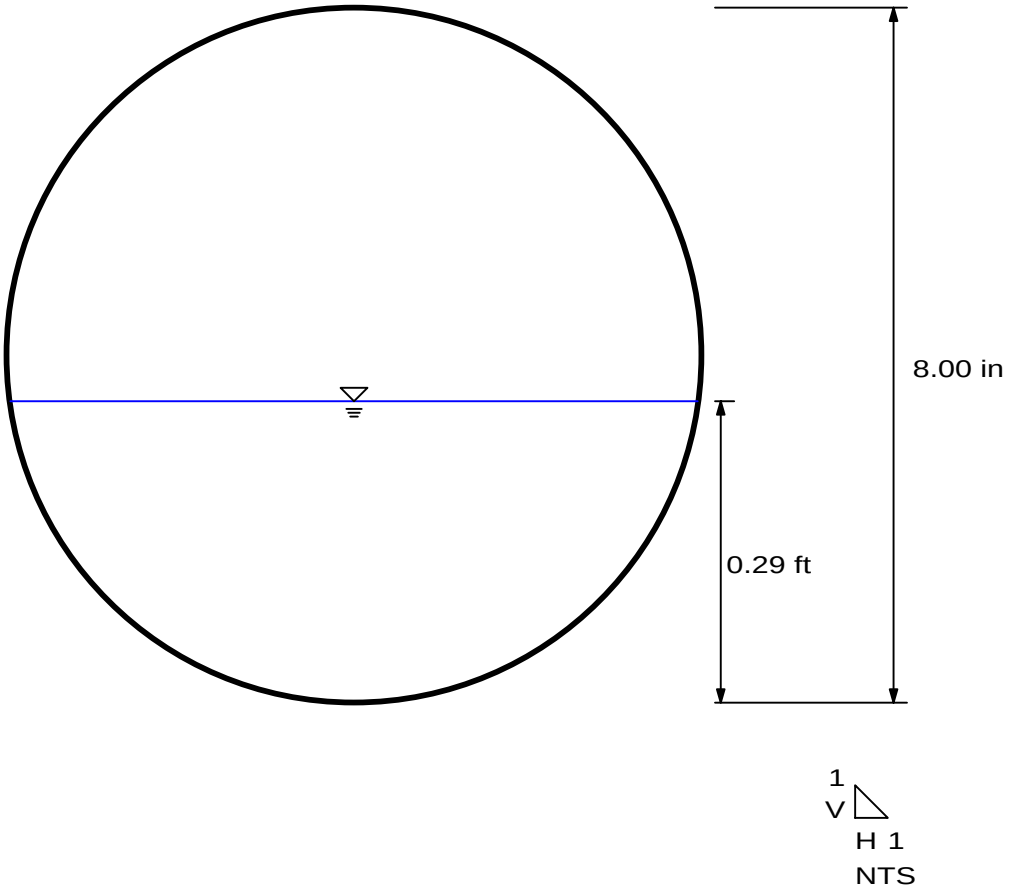
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.011600	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	0.59	cfs



MH 60-TRUNK, 8" VCP @ 6.44% DEPTH
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 60-TRUNK, 8" VCP @6.44% DEPTH
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Channel Depth

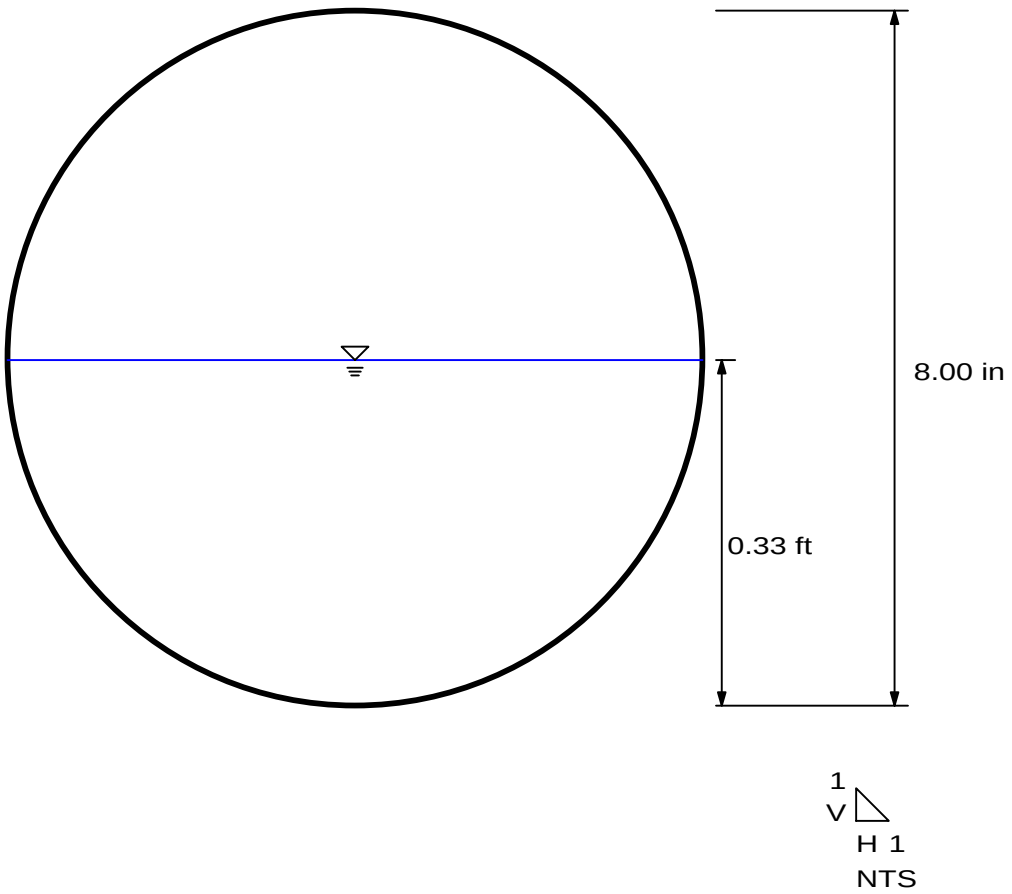
Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.064400	ft/ft
Depth	0.29	ft
Diameter	8.00	in
Discharge	1.08	cfs



MH 60-TRUNK, 8" VCP @ 6.44% CAPACITY
Cross Section for Circular Channel

Project Description	
Project File	c:\flowmaster\fmw\11018-2r.fm2
Worksheet	MH 60-TRUNK, 8" VCP @ 6.44% CAPACITY
Flow Element	Circular Channel
Method	Kutter's Formula
Solve For	Discharge

Section Data		
Kutter's n Coefficient	0.013	
Channel Slope	0.064400	ft/ft
Depth	0.33	ft
Diameter	8.00	in
Discharge	1.38	cfs



Appendix A

P.C. 10942 Sewer Pump Station Pump Rate

Hong Zhang

From: Bouse, Jeffrey [JBOUSE@dpw.lacounty.gov]
Sent: Monday, August 06, 2012 11:08 AM
To: Chuck Gilman
Cc: Hong Zhang; Esfahani, Massoud; Garcia, Julian
Subject: RE: Sewer Lift Station for P.C. 11120

All capacity/area studies need to run through Land Development Division. I'm not clear on the scope of your area study or the discharge point that is being analyzed. However, the Commerce Center Pump Station serves a specific area and only flow from this specific area will be accepted in the station. The design pump rate for the Commerce Center Pump Station is 2,828 gpm. This is the pump station discharge rate that needs to be considered in all downstream gravity sewers. Note that the Commerce Center Pump Station and the Hancock Parkway Pump Station, that is currently under construction and will discharge to the Commerce Center Pump Station, both have large holding wells that could result in prolonged peak discharges from the Commerce Center Pump Station.

Jeff Bouse
LADPW

From: Chuck Gilman [mailto:CGilman@ldcLA.com]
Sent: Thursday, August 02, 2012 4:35 PM
To: Bouse, Jeffrey
Cc: Hong Zhang; Esfahani, Massoud
Subject: Sewer Lift Station for P.C. 11120

Jeff,
We're working on a sewer area study for a large project in Hasley Canyon in Castaic. We've realized that the sewage first goes through a lift station off of Commerce Center Drive built under the above-named PC. The some reaches of the main between the station and the trunk main appear to be inadequate for the raw peak production of ultimate build-out the watershed, but are no doubt sufficient for the intermediate discharge of the lift station. We wonder if you could let us know what that discharge rate might be? It's the only information we need in order to complete the sewer area study.
Thanks,

Chuck Gilman, P.E., QSD
Land Design Consultants, Inc.
199 S. Los Robles Ave., Suite 250
Pasadena, CA 91101
Ph. (626) 578-700 x 118
Fx. (626) 578-7373

Q=2,828 gpm = 6.3 cfs

Appendix B

Los Angeles County Sewer Index Maps

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

LEGEND

- CLAY SEWERS MAINTAINED BY SMD. 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 143

MAP REV. 10-26-05

N-1176

MAP REV
10-26-05

DATA BASE REV
01-29-00

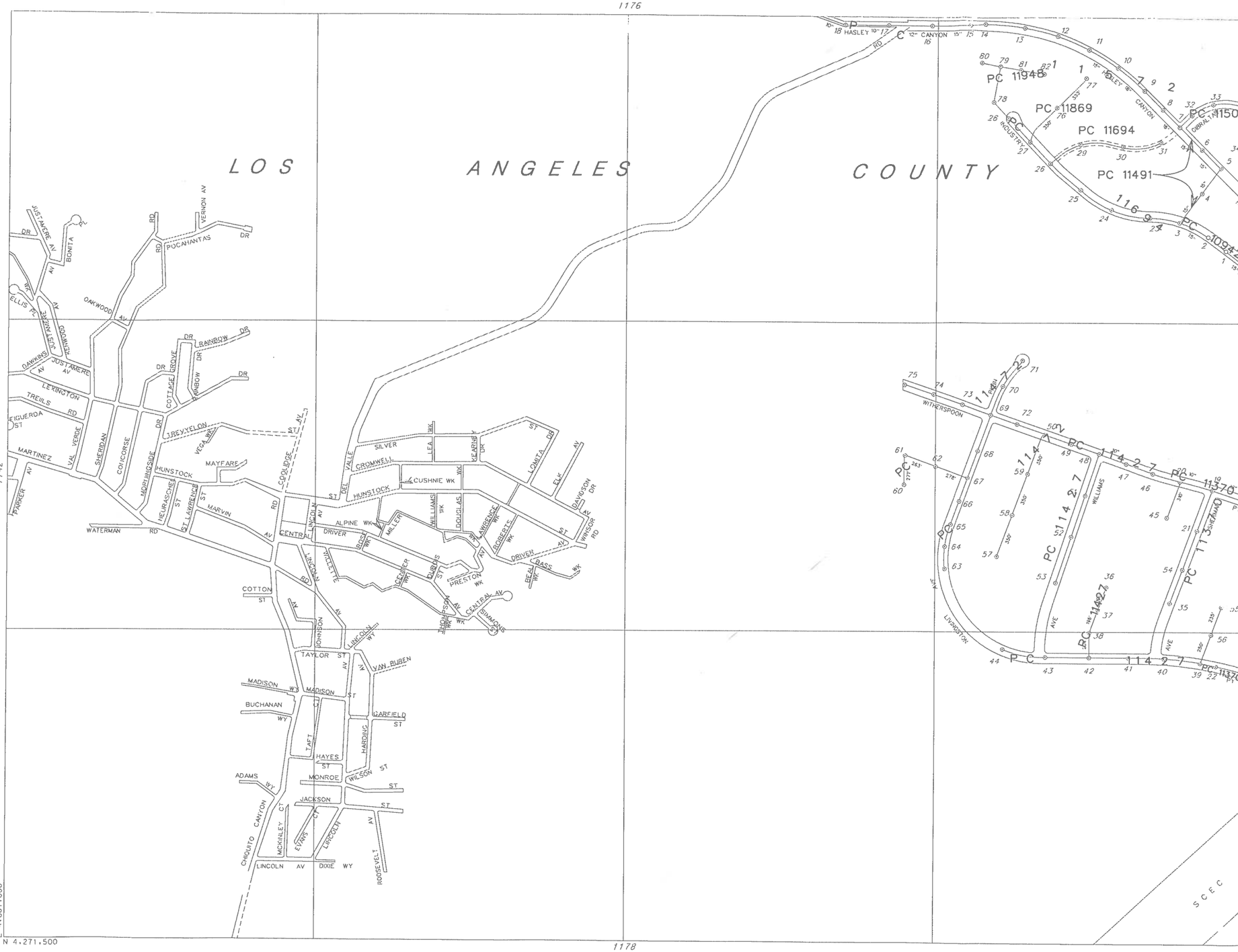
CONSOLIDATED S.M.D.

N-1176

T:4459:D3

2605.2707.1176

N-1177



THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 82

MAP REV. 10-22-09

N-1177

MAP REV 10-22-09

DATA BASE REV 09-22-00

CONSOLIDATED S.M.D.

N-1177

T: 4459 F-5

2607.2607.1177

N-1215

A-68
A-87

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 265

MAP REV.
02-27-06

N-1215

MAP REV
02-27-06

DATA BASE REV
11-04-98

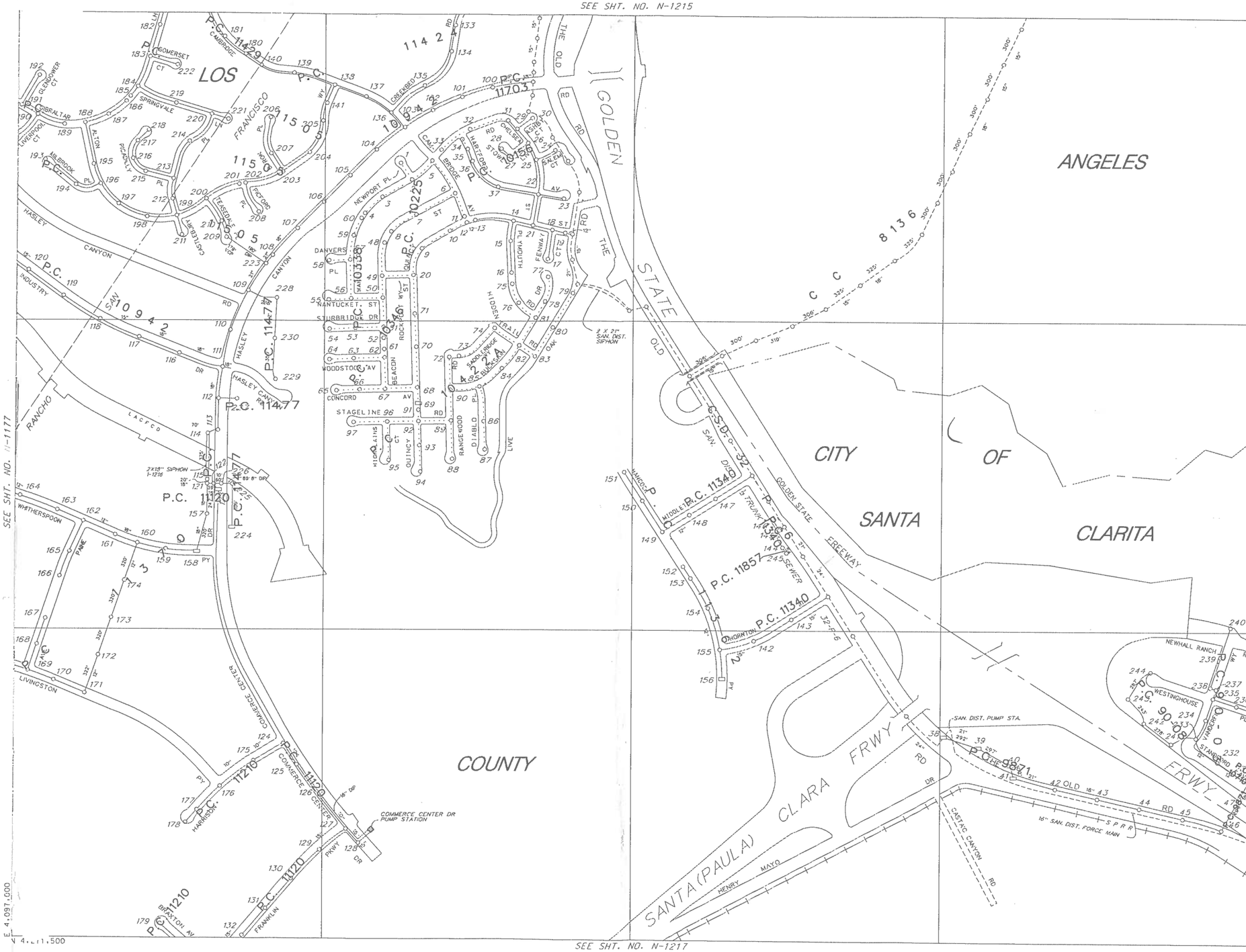
CONSOLIDATED S.M.D.

N-1215

T: 4459 G-2

2607.2709.1215

A-68
A-87



THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD. 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 243

MAP REV.
01-28-10

N-1216

MAP REV
01-28-10

DATA BASE REV
05-12-93

CONSOLIDATED S.M.D.

N-1216

T: 4459 G-5

2607.2609.1216

A-65
A-68

SEE SHT. NO. N-1216

SEE SHT. NO. N-1256

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

N
AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD. 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 5

MAP REV.
10-24-05

N-1217

MAP REV
10-24-05

DATA BASE REV
05-12-93

CONSOLIDATED S.M.D.

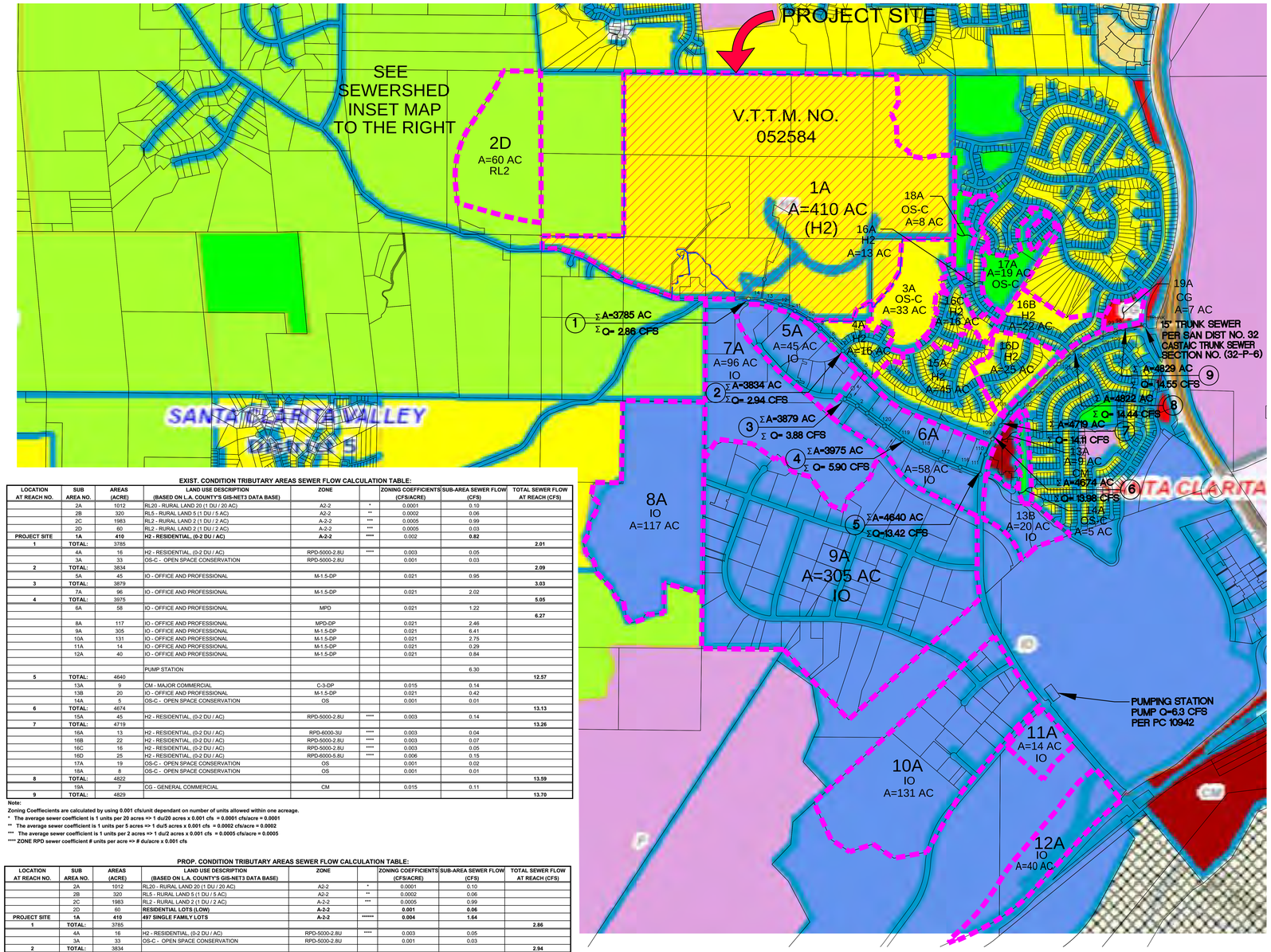
N-1217

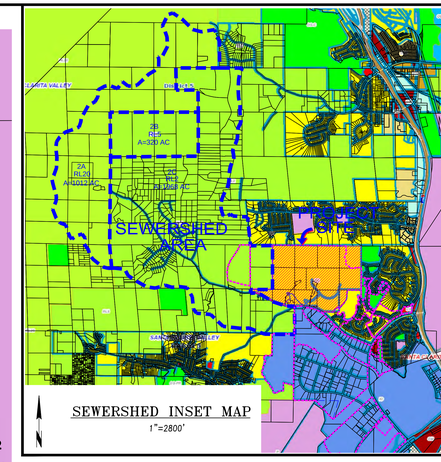
T: 4550 A-1

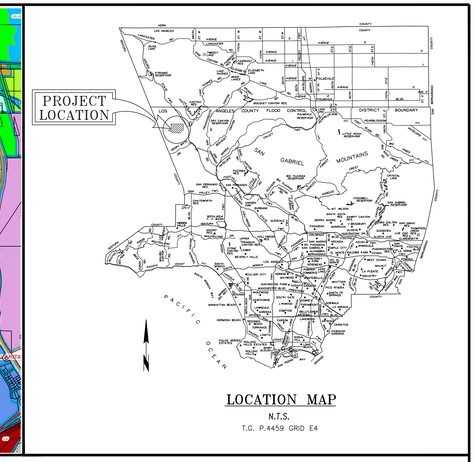
2607.2609.1217

Appendix C

Sewer Area Study Maps







EXIST. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
	2A	1012	RL20 - RURAL LAND 20 (1 DU / 20 AC)	A2-2	*	0.0001	0.10	
	2B	320	RL5 - RURAL LAND 5 (1 DU / 5 AC)	A2-2	**	0.0002	0.06	
	2C	1983	RL2 - RURAL LAND 2 (1 DU / 2 AC)	A-2-2	***	0.0005	0.99	
	2D	60	RL2 - RURAL LAND 2 (1 DU / 2 AC)	A-2-2	***	0.0005	0.03	
PROJECT SITE	**1A**	**410**	**H2 - RESIDENTIAL, (0-2 DU / AC)**	**A-2-2**	****	0.002	**0.82**	
1	**TOTAL:**	3785						**2.01**
	4A	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.05	
	3A	33	OS-C - OPEN SPACE CONSERVATION	RPD-5000-2.8U		0.001	0.03	
2	**TOTAL:**	3834						**2.09**
	5A	45	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.95	
3	**TOTAL:**	3879						**3.03**
	7A	96	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.02	
4	**TOTAL:**	3975						**5.05**
	6A	58	IO - OFFICE AND PROFESSIONAL	MPD		0.021	1.22	
								6.27
	8A	117	IO - OFFICE AND PROFESSIONAL	MPD-DP		0.021	2.46	
	9A	305	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	6.41	
	10A	131	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.75	
	11A	14	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.29	
	12A	40	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.84	
			PUMP STATION				6.30	
5	**TOTAL:**	4640						**12.57**
	13A	9	CM - MAJOR COMMERCIAL	C-3-DP		0.015	0.14	
	13B	20	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.42	
	14A	5	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
6	**TOTAL:**	4674						**13.13**
	15A	45	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.14	
7	**TOTAL:**	4719						**13.26**
	16A	13	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-3U	****	0.003	0.04	
	16B	22	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.07	
	16C	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.05	
	16D	25	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-5.8U	****	0.006	0.15	
	17A	19	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.02	
	18A	8	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
8	**TOTAL:**	4822						**13.59**
	19A	7	CG - GENERAL COMMERCIAL	CM		0.015	0.11	
9	**TOTAL:**	4829						**13.70**

Note:
Zoning Coefficients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.
*** The average sewer coefficient is 1 units per 20 acres => 1 du/20 acres x 0.001 cfs = 0.0001 cfs/acre = 0.0001**
**** The average sewer coefficient is 1 units per 5 acres => 1 du/5 acres x 0.001 cfs = 0.0002 cfs/acre = 0.0002**
***** The average sewer coefficient is 1 units per 2 acres => 1 du/2 acres x 0.001 cfs = 0.0005 cfs/acre = 0.0005**
****** ZONE RPD sewer coefficient # units per acre => # du/acre x 0.001 cfs**

PROP. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
	2A	1012	RL20 - RURAL LAND 20 (1 DU / 20 AC)	A2-2	*	0.0001	0.10	
	2B	320	RL5 - RURAL LAND 5 (1 DU / 5 AC)	A2-2	**	0.0002	0.06	
	2C	1983	RL2 - RURAL LAND 2 (1 DU / 2 AC)	A-2-2	***	0.0005	0.99	
	2D	60	**RESIDENTIAL LOTS (LOW)**	**A-2-2**		**0.001**	**0.06**	
PROJECT SITE	**1A**	**410**	**497 SINGLE FAMILY LOTS**	**A-2-2**	******	**0.004**	**1.64**	
1	**TOTAL:**	3785						**2.86**
	4A	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.05	
	3A	33	OS-C - OPEN SPACE CONSERVATION	RPD-5000-2.8U		0.001	0.03	
2	**TOTAL:**	3834						**2.94**
	5A	45	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.95	
3	**TOTAL:**	3879						**3.88**
	7A	96	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.02	
4	**TOTAL:**	3975						**5.90**
	6A	58	IO - OFFICE AND PROFESSIONAL	MPD		0.021	1.22	
								7.12
	8A	117	IO - OFFICE AND PROFESSIONAL	MPD-DP		0.021	2.46	
	9A	305	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	6.41	
	10A	131	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.75	
	11A	14	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.29	
	12A	40	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.84	
			PUMP STATION				6.30	
5	**TOTAL:**	4640						**13.42**
	13A	9	CM - MAJOR COMMERCIAL	C-3-DP		0.015	0.14	
	13B	20	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.42	
	14A	5	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
6	**TOTAL:**	4674						**13.98**
	15A	45	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	*****	0.003	0.14	
7	**TOTAL:**	4719						**14.11**
	16A	13	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-3U	*****	0.003	0.04	
	16B	22	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	*****	0.003	0.07	
	16C	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	*****	0.003	0.05	
	16D	25	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-5.8U	*****	0.006	0.15	
	17A	19	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.02	
	18A	8	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
8	**TOTAL:**	4822						**14.44**
	19A	7	CG - GENERAL COMMERCIAL	CM		0.015	0.11	
9	**TOTAL:**	4829						**14.55**

Note:
Zoning Coefficients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.
*** The average sewer coefficient is 1 units per 20 acres => 1 du/20 acres x 0.001 cfs = 0.0001 cfs/acre = 0.0001**
**** The average sewer coefficient is 1 units per 5 acres => 1 du/5 acres x 0.001 cfs = 0.0002 cfs/acre = 0.0002**
***** The average sewer coefficient is 1 units per 2 acres => 1 du/2 acres x 0.001 cfs = 0.0005 cfs/acre = 0.0005**
****** ZONE RPD sewer coefficient # units per acre => # du/acre x 0.001 cfs**
******* 497 Dwelling Units on approximately 143 acres lots => 0.001 cfs x 497 units/142 acres = 0.0035 cfs/acre = 0.004**

SEWER TRIBUTARY AREA ZONING MAP

(HASLEY CYN. ROAD TO TRUNK SEWER)

LEGEND:

- RL1 - Rural Land 1 (1 du / 1 ac)
- RL2 - Rural Land 2 (1 du / 2 ac)
- RL5 - Rural Land 5 (1 du / 5 ac)
- RL10 - Rural Land 10 (1 du / 10 ac)
- RL20 - Rural Land 20 (1 du / 20 ac)
- H2 - Large Lot Residential (0-2 du/ac)
- H5 - Suburban Residential (0-5 du/ac)
- H18 - Medium Density Residential (9-18 du/ac)
- H30 - Urban Residential (18-30 du/ac)
- CG - General Commercial
- CM - Major Commercial
- IL - Light Industrial
- IO - Office and Professional
- P - Public and Semi-Public
- OS-NF - Open Space National Forest
- OS-C - Open Space Conservation
- OS-PR - Open Space Parks and Recreation
- OS-BLM - Bureau of Land Management
- OS-W - Water
- SP - Specific Plan

(2) – SEWER REACH NUMBER
1A –SEWER SUB–TRIBUTARY AREA
ΣA –TOTAL SEWER FLOW AREAS (ACRE)
ΣQ –TOTAL SEWER FLOW RATE (CFS)
– TRACT BOUNDARY
– SEWER TRIBUTARY AREA BOUNDARY

N

600 300 0 600 1200 1800
GRAPHIC SCALE (IN FEET)
1 inch = 600 ft.

OWNER/DEVELOPER:
SFI LOS VALLES LLC
28909 HASLEY CANYON ROAD, SANTA CLARITA, CA 91384
PH: (661) 295-3900 FAX: (661) 295-9835

LEGAL DESCRIPTION:
PORTION OF THE NORTHWEST QUARTER OF SECTION 2 & THE NORTH EAST QUARTER OF SECTION 3, T4N, R17W, SBM IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

SEWER AREA STUDY

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP NO.
052584
IN THE UNINCORPORATED TERRITORY OF COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

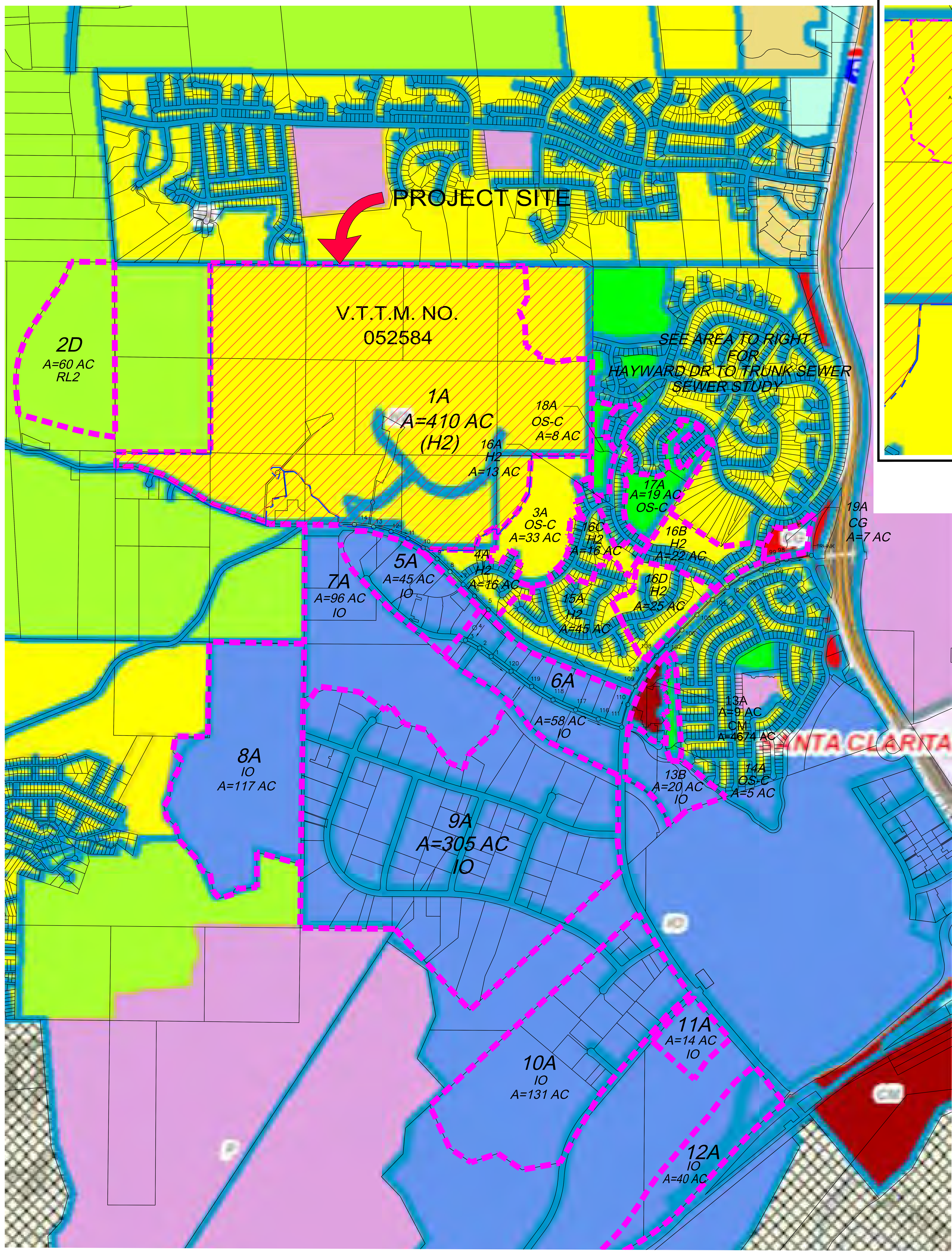
REGISTERED PROFESSIONAL ENGINEER CHARLES A. GILMAN No. 54155 Exp. 12-31-17 CIVIL STATE OF CALIFORNIA

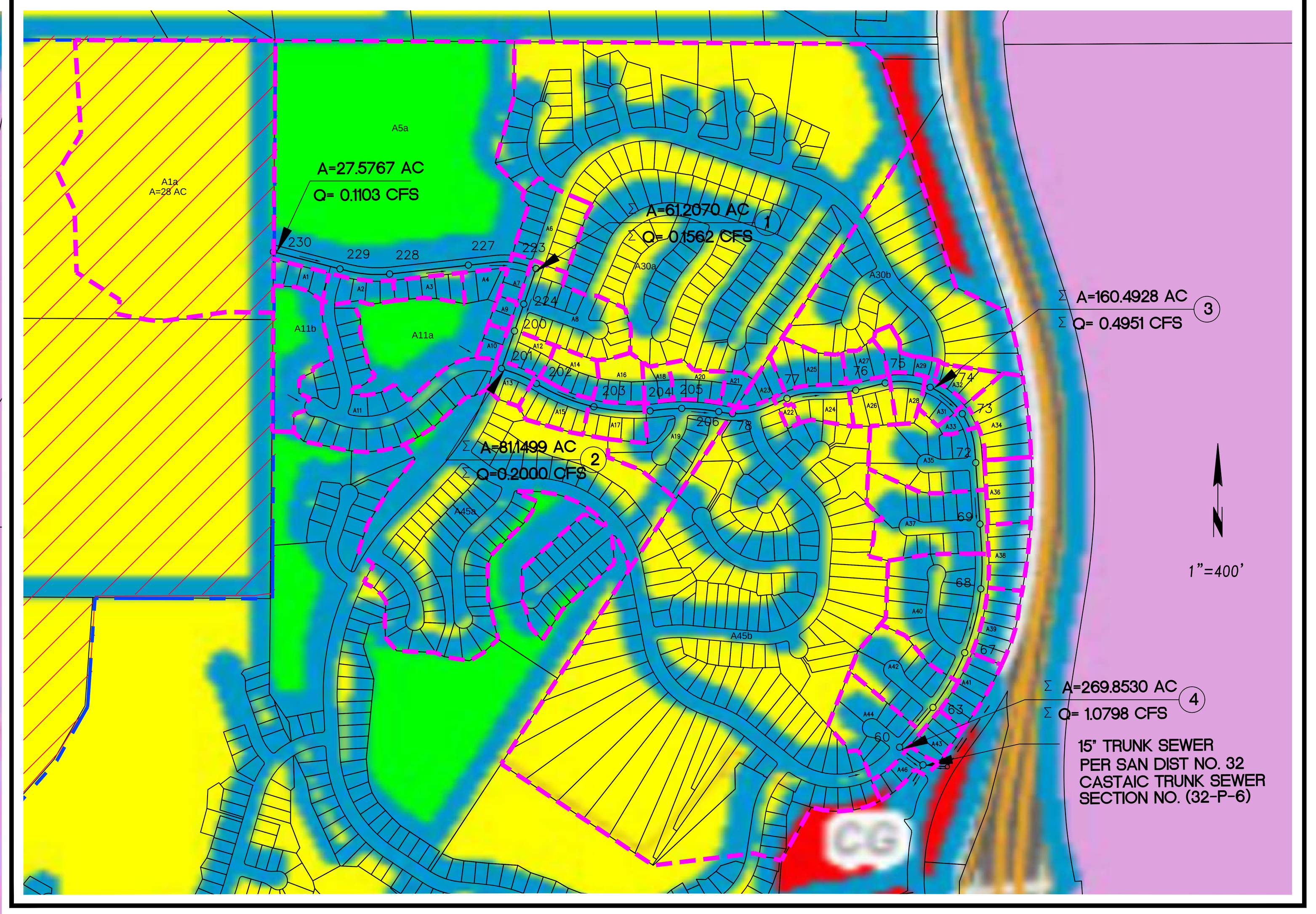
DRAWN BY	R.M.		
CHECKED BY	C.A.G.		
DESIGNED BY	R.M.		
DATE CHANGED	CHANGED BY	REVISIONS	

PREPARED BY:
LAND DESIGN CONSULTANTS, INC.
Land Planning, Civil Engineering, Surveying & Environmental Services
2700 Foothill Blvd., Suite 200, Pasadena, California 91007
Ph.: (626) 578-7000, Fax: (626) 578-7373
http://www.ldcla.com
Charles A. Gilman, R.P.E. No. C54155 — DATE

LDC
Proj. No. 11018-001
SHEET 1 OF 6

x:\PROJ\11018001\PLANNING\SEWER AREA STUDY\SEWER STUDY for 4th submittal\SEWER TRIBUTARY AREA MAP ZONING.dwg Feb 05, 2016 4:39 pm RMONES





SEWER TRIBUTARY AREA ZONING MAP

(HAYWARD DRIVE TO TRUNK SEWER)

LEGEND:

- RL1 - Rural Land 1 (1 du / 1 ac)
- RL2 - Rural Land 2 (1 du / 2 ac)
- RL5 - Rural Land 5 (1 du / 5 ac)
- RL10 - Rural Land 10 (1 du / 10 ac)
- RL20 - Rural Land 20 (1 du / 20 ac)
- H2 - Large Lot Residential (0-2 du/ac)
- H5 - Suburban Residential (0-5 du/ac)
- H18 - Medium Density Residential (9-18 du/ac)
- H30 - Urban Residential (18-30 du/ac)
- CG - General Commercial
- CM - Major Commercial
- IL - Light Industrial
- IO - Office and Professional
- P - Public and Semi-Public
- OS-NF - Open Space National Forest
- OS-C - Open Space Conservation
- OS-PR - Open Space Parks and Recreation
- OS-BLM - Bureau of Land Management
- OS-W - Water
- SP - Specific Plan

(2) – SEWER REACH NUMBER
1A –SEWER SUB–TRIBUTARY AREA
ΣA –TOTAL SEWER FLOW AREAS (ACRE)
ΣQ –TOTAL SEWER FLOW RATE (CFS)
– TRACT BOUNDARY
– SEWER TRIBUTARY AREA BOUNDARY

600 300 0 600 1200 1800
GRAPHIC SCALE (IN FEET)
1 inch = 600 ft.

SEWER TRIBUTARY AREA ZONING MAP

EXIST. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
PROJECT SITE	**A1a**	**27.5767**	**H2 - RESIDENTIAL, (0-2 DU / AC)**	**A2-2**		**0.002**	0.0552	
	A1	0.8661	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0026	
	A2	1.0688	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0032	
	A3	1.0658	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0032	
	A4	0.7818	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0023	
	A5a	27.5195	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0275	
	A6	2.3283	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0070	
	A7	0.6021	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0018	
1	**TOTAL:**	**61.8091**						**0.1028**
	A8	3.4472	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0103	
	A9	0.4135	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0012	
	A10	0.5512	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0017	
	A11	6.9160	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0207	
	A11a	4.9869	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0050	
	A11b	3.0260	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0030	
	A12	0.8607	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0026	
	A13	0.4725	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0014	
2	**TOTAL:**	**82.4831**						**0.1488**
	A14	1.2327	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0037	
	A15	1.1041	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0033	
	A16	1.2888	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0039	
	A17	0.929	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0028	
	A18	0.6496	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0019	
	A19	2.9372	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0088	
	A20	1.0975	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0033	
	A21	0.4561	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0014	
	A22	0.1927	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0012	
	A23	0.7455	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0045	
	A24	0.8728	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0052	
	A25	1.5675	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0094	
	A26	0.8456	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0051	
	A27	0.8737	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0052	
	A28	0.6118	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0037	
	A29	0.9655	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0058	
	A30a	49.2872	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.1479	
	A30b	12.3524	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0741	
3	**TOTAL:**	**160.4928**						**0.4399**
	A31	0.4263	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0026	
	A32	0.9095	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0055	
	A33	0.222	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0013	
	A34	2.2959	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0138	
	A35	3.341	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0200	
	A36	1.7868	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0107	
	A37	3.8249	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0229	
	A38	1.5334	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0092	
	A39	1.4711	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0088	
	A40	4.5884	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0275	
	A41	1.329	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0080	
	A42	2.7991	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0168	
	A43	1.0544	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0063	
	A44	2.3289	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0140	
	A45a	23.8043	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0714	
	A45b	56.926	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.3416	
	A46	0.7192	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0043	
4	**TOTAL:**	**269.8530**						**1.0247**

PROP. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
PROJECT SITE	**A1a**	**27.5767**	**497 SINGLE FAMILY LOTS**	**A2-2**	*	**0.004**	0.1103	
	A1	0.8661	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0026	
	A2	1.0688	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0032	
	A3	1.0658	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0032	
	A4	0.7818	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0023	
	A5a	27.5195	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0275	
	A6	2.3283	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0070	
	A7	0.6021	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0018	
1	**TOTAL:**	**61.8091**						**0.1580**
	A8	3.4472	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0103	
	A9	0.4135	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0012	
	A10	0.5512	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0017	
	A11	6.9160	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0207	
	A11a	4.9869	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0050	
	A11b	3.0260	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.0030	
	A12	0.8607	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0026	
	A13	0.4725	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0014	
2	**TOTAL:**	**82.4831**						**0.2040**
	A14	1.2327	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0037	
	A15	1.1041	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0033	
	A16	1.2888	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0039	
	A17	0.929	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0028	
	A18	0.6496	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0019	
	A19	2.9372	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0088	
	A20	1.0975	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0033	
	A21	0.4561	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0014	
	A22	0.1927	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0012	
	A23	0.7455	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0045	
	A24	0.8728	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0052	
	A25	1.5675	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0094	
	A26	0.8456	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0051	
	A27	0.8737	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0052	
	A28	0.6118	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0037	
	A29	0.9655	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0058	
	A30a	49.2872	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.1479	
	A30b	12.3524	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0741	
3	**TOTAL:**	**160.4928**						**0.4951**
	A31	0.4263	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0026	
	A32	0.9095	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0055	
	A33	0.222	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0013	
	A34	2.2959	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0138	
	A35	3.341	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0200	
	A36	1.7868	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0107	
	A37	3.8249	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0229	
	A38	1.5334	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0092	
	A39	1.4711	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0088	
	A40	4.5884	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0275	
	A41	1.329	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0080	
	A42	2.7991	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0168	
	A43	1.0544	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0063	
	A44	2.3289	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0140	
	A45a	23.8043	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U		0.003	0.0714	
	A45b	56.926	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.3416	
	A46	0.7192	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U		0.006	0.0043	
4	**TOTAL:**	**269.8530**						**1.0798**

Note:
Zoning Coeffiecients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.
ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs = 3 du/1 acre x 0.001 cfs = 0.003
= 5.8 du/1 acre x 0.001 cfs = 0.006
*** 497 Dwelling Units on approximately 143 acres lots => 0.001 cfs x 497 units/142 acres = 0.0035 cfs/acre = 0.004**

OWNER/DEVELOPER:
SFI LOS VALLES LLC
28909 HASLEY CANYON ROAD, SANTA CLARITA, CA 91384
PH.: (661) 295-3900 FAX: (661) 295-9835

LEGAL DESCRIPTION:
PORTION OF THE NORTHWEST QUARTER OF SECTION 2 & THE NORTH EAST QUARTER OF
SECTION 3, T4N, R17W, SBM IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

SEWER AREA STUDY

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP NO.
052584
IN THE UNINCORPORATED TERRITORY OF COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

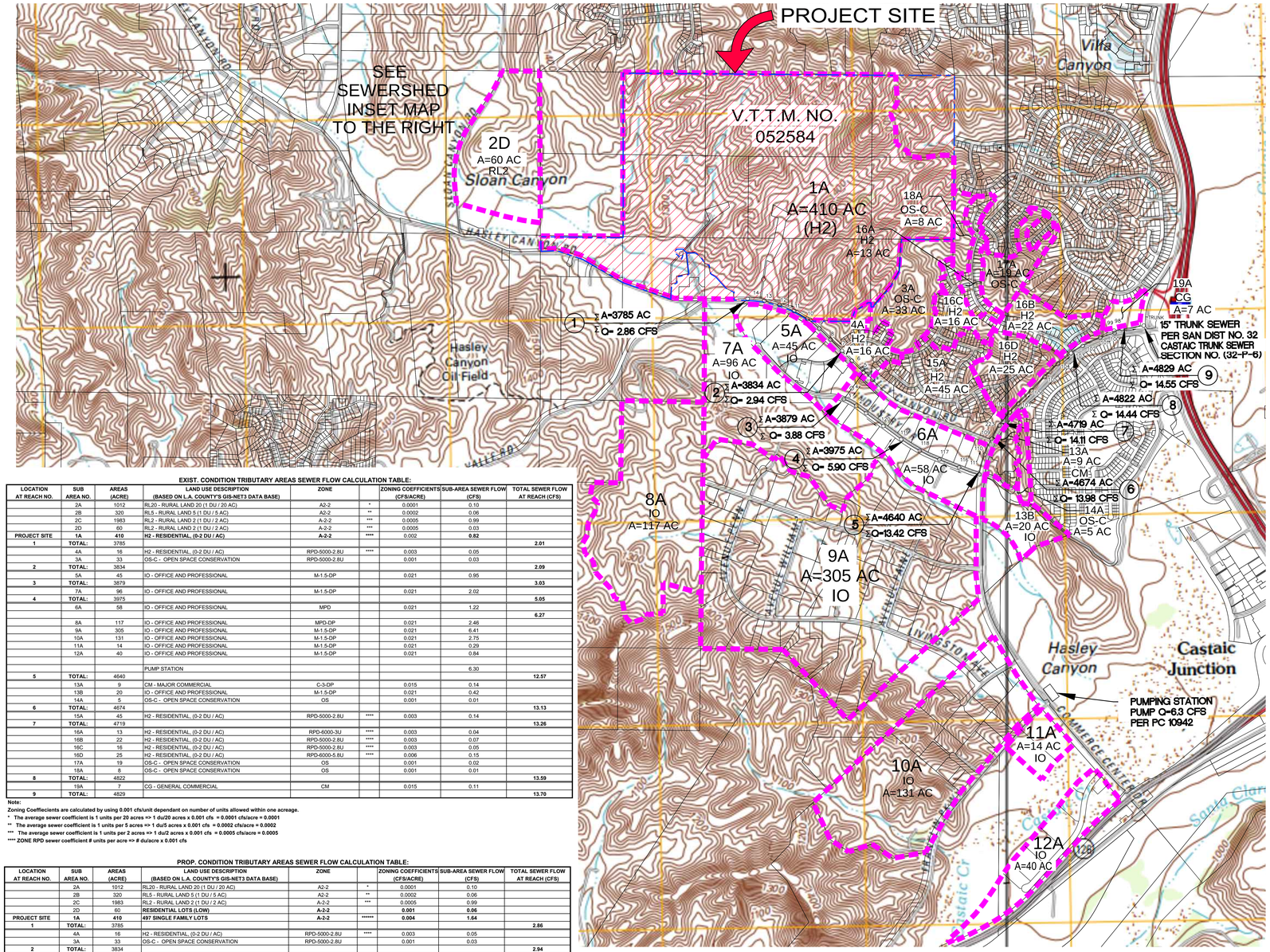
PREPARED BY:
LAND DESIGN CONSULTANTS, INC.
Land Planning, Civil Engineering, Surveying & Environmental Services
2700 Foothill Blvd., Suite 200, Pasadena, California 91007
Ph.: (626) 578-7000, Fax: (626) 578-7373
http://www.ldcla.com
Charles A. Gilman, R.P.E. No. C54155 DATE

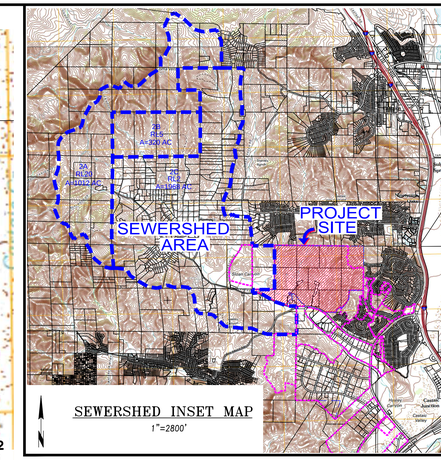
REGISTERED PROFESSIONAL ENGINEER CHARLES A. GILMAN No. 54155 Exp. 12-31-17 CIVIL STATE OF CALIFORNIA

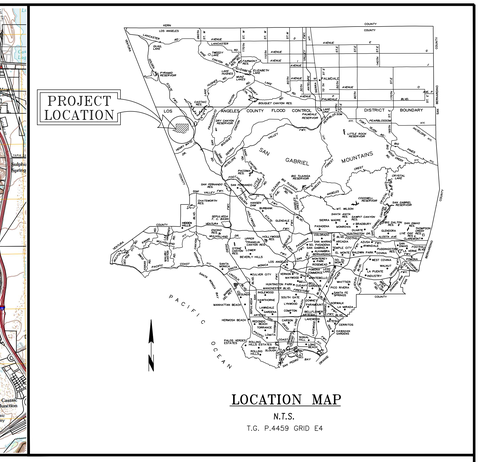
DRAWN BY R.M.
CHECKED BY C.A.G.
DESIGNED BY R.M.
DATE CHANGED | CHANGED BY | REVISIONS

Proj. No. 11018-001
SHEET 2 OF 6

J:\PROJ\1018001\PLANNING\SEWER AREA STUDY\SEWER STUDY for 4th submittal\SEWER TRIBUTARY AREA MAP ZONING (HAYWARD).dwg Feb 09, 2016 4:41 pm RMONES







EXIST. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
	2A	1012	RL20 - RURAL LAND 20 (1 DU / 20 AC)	A2-2	*	0.0001	0.10	
	2B	320	RL5 - RURAL LAND 5 (1 DU / 5 AC)	A2-2	**	0.0002	0.06	
	2C	1983	RL2 - RURAL LAND 2 (1 DU / 2 AC)	A-2-2	***	0.0005	0.99	
	2D	60	RL2 - RURAL LAND 2 (1 DU / 2 AC)	A-2-2	***	0.0005	0.03	
PROJECT SITE	**1A**	**410**	**H2 - RESIDENTIAL, (0-2 DU / AC)**	**A-2-2**	****	0.002	**0.82**	
1	**TOTAL:**	3785						**2.01**
	4A	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.05	
	3A	33	OS-C - OPEN SPACE CONSERVATION	RPD-5000-2.8U		0.001	0.03	
2	**TOTAL:**	3834						**2.09**
	5A	45	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.95	
3	**TOTAL:**	3879						**3.03**
	7A	96	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.02	
4	**TOTAL:**	3975						**5.05**
	6A	58	IO - OFFICE AND PROFESSIONAL	MPD		0.021	1.22	
								6.27
	8A	117	IO - OFFICE AND PROFESSIONAL	MPD-DP		0.021	2.46	
	9A	305	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	6.41	
	10A	131	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.75	
	11A	14	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.29	
	12A	40	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.84	
			PUMP STATION				6.30	
5	**TOTAL:**	4640						**12.57**
	13A	9	CM - MAJOR COMMERCIAL	C-3-DP		0.015	0.14	
	13B	20	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.42	
	14A	5	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
6	**TOTAL:**	4674						**13.13**
	15A	45	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.14	
7	**TOTAL:**	4719						**13.26**
	16A	13	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-3U	****	0.003	0.04	
	16B	22	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.07	
	16C	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.05	
	16D	25	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-5.8U	****	0.006	0.15	
	17A	19	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.02	
	18A	8	OS-C - OPEN SPACE CONSERVATION	OS		0.001	0.01	
8	**TOTAL:**	4822						**13.59**
	19A	7	CG - GENERAL COMMERCIAL	CM		0.015	0.11	
9	**TOTAL:**	4829						**13.70**

Note:
Zoning Coefficients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.
*** The average sewer coefficient is 1 units per 20 acres => 1 du/20 acres x 0.001 cfs = 0.0001 cfs/acre = 0.0001**
**** The average sewer coefficient is 1 units per 5 acres => 1 du/5 acres x 0.001 cfs = 0.0002 cfs/acre = 0.0002**
***** The average sewer coefficient is 1 units per 2 acres => 1 du/2 acres x 0.001 cfs = 0.0005 cfs/acre = 0.0005**
****** ZONE RPD sewer coefficient # units per acre => # du/acre x 0.001 cfs**

PROP. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE		ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
	2A	1012	RL20 - RURAL LAND 20 (1 DU / 20 AC)	A2-2	*	0.0001	0.10	
	2B	320	RL5 - RURAL LAND 5 (1 DU / 5 AC)	A2-2	**	0.0002	0.06	
	2C	1983	RL2 - RURAL LAND 2 (1 DU / 2 AC)	A-2-2	***	0.0005	0.99	
	2D	60	**RESIDENTIAL LOTS (LOW)**	**A-2-2**		**0.001**	**0.06**	
PROJECT SITE	**1A**	**410**	**497 SINGLE FAMILY LOTS**	**A-2-2**	******	**0.004**	**1.64**	
1	**TOTAL:**	3785						**2.86**
	4A	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	****	0.003	0.05	
	3A	33	OS-C - OPEN SPACE CONSERVATION	RPD-5000-2.8U		0.001	0.03	
2	**TOTAL:**	3834						**2.94**
	5A	45	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.95	
3	**TOTAL:**	3879						**3.88**
	7A	96	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.02	
4	**TOTAL:**	3975						**5.90**
	6A	58	IO - OFFICE AND PROFESSIONAL	MPD		0.021	1.22	
								7.12
	8A	117	IO - OFFICE AND PROFESSIONAL	MPD-DP		0.021	2.46	
	9A	305	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	6.41	
	10A	131	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	2.75	
	11A	14	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.29	
	12A	40	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.84	
			PUMP STATION				6.30	
5	**TOTAL:**	4640						**13.42**
	13A	9	CM - MAJOR COMMERCIAL	C-3-DP		0.015	0.14	
	13B	20	IO - OFFICE AND PROFESSIONAL	M-1.5-DP		0.021	0.42	
	14A	5	OS-C - OPEN SPACE CONSERVATION	CS		0.001	0.01	
6	**TOTAL:**	4674						**13.98**
	15A	45	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	*****	0.003	0.14	
7	**TOTAL:**	4719						**14.11**
	16A	13	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-3U	*****	0.003	0.04	
	16B	22	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	*****	0.003	0.07	
	16C	16	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-5000-2.8U	*****	0.003	0.05	
	16D	25	H2 - RESIDENTIAL, (0-2 DU / AC)	RPD-6000-5.8U	*****	0.006	0.15	
	17A	19	OS-C - OPEN SPACE CONSERVATION	CS		0.001	0.02	
	18A	8	OS-C - OPEN SPACE CONSERVATION	CS		0.001	0.01	
8	**TOTAL:**	4822						**14.44**
	19A	7	CG - GENERAL COMMERCIAL	CM		0.015	0.11	
9	**TOTAL:**	4829						**14.55**

Note:
Zoning Coefficients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.
*** The average sewer coefficient is 1 units per 20 acres => 1 du/20 acres x 0.001 cfs = 0.0001 cfs/acre = 0.0001**
**** The average sewer coefficient is 1 units per 5 acres => 1 du/5 acres x 0.001 cfs = 0.0002 cfs/acre = 0.0002**
***** The average sewer coefficient is 1 units per 2 acres => 1 du/2 acres x 0.001 cfs = 0.0005 cfs/acre = 0.0005**
****** ZONE RPD sewer coefficient # units per acre => # du/acre x 0.001 cfs**
******* 497 Dwelling Units on approximately 143 acres lots => 0.001 cfs x 497 units/142 acres = 0.0035 cfs/acre = 0.004**

SEWER TRIBUTARY AREA TERRAIN MAP

(HASLEY CYN. ROAD TO TRUNK SEWER)

LEGEND:

RL1	– RURAL LAND 1 (1 DU / 1 AC)
RL2	– RURAL LAND 2 (1 DU / 2 AC)
RL5	– RURAL LAND 5 (1 DU / 5 AC)
RL10	– RURAL LAND 10 (1 DU / 10 AC)
RL20	– RURAL LAND 20 (1 DU / 20 AC)
H2	– LARGE LOT RESIDENTIAL (0–2 DU/AC)
H5	– SUBBURBAN RESIDENTIAL (0–5 DU/AC)
H18	– MEDIUM DENSITY RESIDENTIAL (9–18 DU/AC)
H30	– URBAN RESIDENTIAL (18–30 DU/AC)
CG	– GENERAL COMMERCIAL
CM	– MAJOR COMMERCIAL
IL	– LIGHT INDUSTRIAL
IO	– OFFICE AND PROFESSIONAL
OS-NF	– OPEN SPACE NATIONAL FOREST
OS-C	– OPEN SPACE CONSERVATION
OS-PR	– OPEN SPACE PARKS AND RECREATION
OS-BLM	– BUREAU OF LAND MANAGEMENT
OS-W	– OPEN SPACE WATER
SP	– SPECIFIC PLAN
1A	–SEWER SUB–TRIBUTARY AREA
ΣA	–TOTAL SEWER FLOW AREAS (ACRE)
ΣQ	–TOTAL SEWER FLOW RATE (CFS)
	– TRACT BOUNDARY
	– SEWER TRIBUTARY AREA BOUNDARY

N

600 300 0 600 1200 1800
GRAPHIC SCALE (IN FEET)
1 inch = 600 ft.

OWNER/DEVELOPER:
SFI LOS VALLES LLC
28909 HASLEY CANYON ROAD, SANTA CLARITA, CA 91384
PH: (661) 295-3900 FAX: (661) 295-9835

LEGAL DESCRIPTION:
PORTION OF THE NORTHWEST QUARTER OF SECTION 2 & THE NORTH EAST QUARTER OF SECTION 3, T4N, R17W, SBM IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

SEWER AREA STUDY

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP NO.
052584
IN THE UNINCORPORATED TERRITORY OF COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER CHARLES A. GILMAN No. 54155 Exp. 12-31-17 CIVIL STATE OF CALIFORNIA

DRAWN BY	R.M.		
CHECKED BY	C.A.G.		
DESIGNED BY	R.M.		
DATE CHANGED	CHANGED BY	REVISIONS	

PREPARED BY:
LAND DESIGN CONSULTANTS, INC.
Land Planning, Civil Engineering, Surveying & Environmental Services
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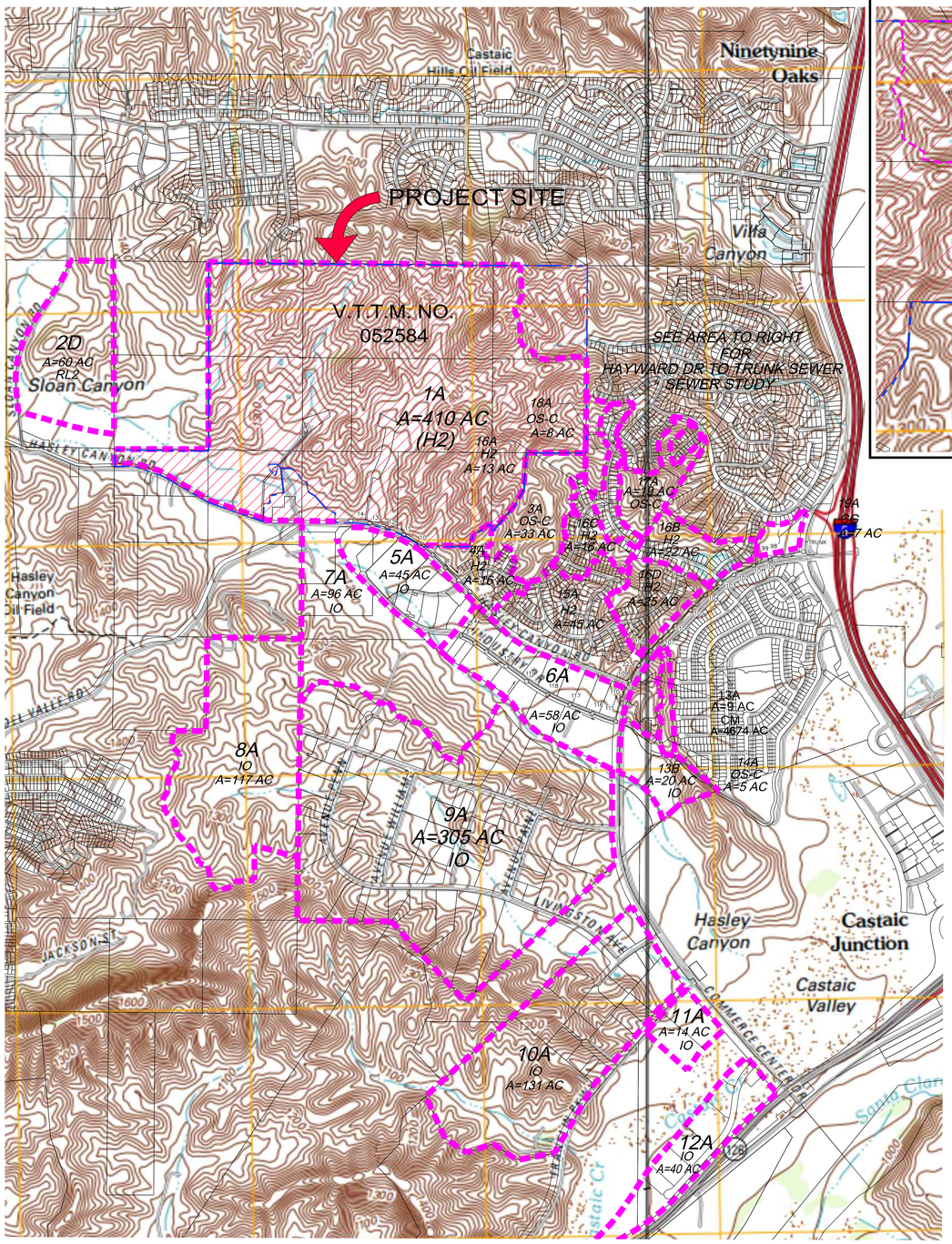
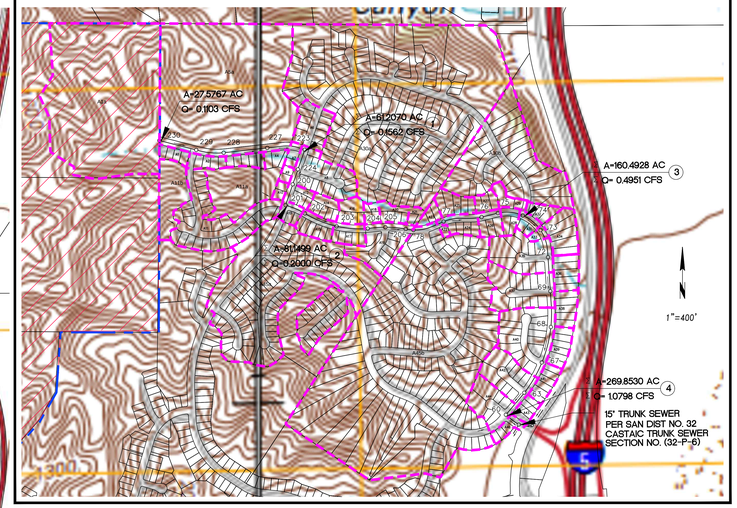
Charles A. Gilman, R.P.E. No. C54155 DATE

LDC
Proj. No. 11018-001
SHEET 3 OF 6

x:\PROJ11\11018001\PLANNING\SEWER STUDY\SEWER AREA STUDY\SEWER TRIBUTARY AREA MAP TERRAIN.dwg Feb 09, 2016 4:42 pm RMONES





SEWER TRIBUTARY AREA TERRAIN MAP

(HAYWARD DRIVE TO TRUNK SEWER)

LEGEND:

RL1	– RURAL LAND 1 (1 DU / 1 AC)
RL2	– RURAL LAND 2 (1 DU / 2 AC)
RL5	– RURAL LAND 5 (1 DU / 5 AC)
RL10	– RURAL LAND 10 (1 DU / 10 AC)
RL20	– RURAL LAND 20 (1 DU / 20 AC)
H2	– LARGE LOT RESIDENTIAL (0–2 DU/AC)
H5	– SUBBURBAN RESIDENTIAL (0–5 DU/AC)
H18	– MEDIUM DENSITY RESIDENTIAL (9–18 DU/AC)
H30	– URBAN RESIDENTIAL (18–30 DU/AC)
CG	– GENERAL COMMERCIAL
CM	– MAJOR COMMERCIAL
IL	– LIGHT INDUSTRIAL
IO	– OFFICE AND PROFESSIONAL
OS-NF	– OPEN SPACE NATIONAL FOREST
OS-C	– OPEN SPACE CONSERVATION
OS-PR	– OPEN SPACE PARKS AND RECREATION
OS-BLM	– BUREAU OF LAND MANAGEMENT
OS-W	– OPEN SPACE WATER
SP	– SPECIFIC PLAN
1A	–SEWER SUB–TRIBUTARY AREA
ΣA	–TOTAL SEWER FLOW AREAS (ACRE)
ΣQ	–TOTAL SEWER FLOW RATE (CFS)
	– TRACT BOUNDARY
	– SEWER TRIBUTARY AREA BOUNDARY

600 300 0 600 1200 1800

GRAPHIC SCALE (IN FEET)
1 inch = 600 ft.

EXIST. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE	ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
PROJECT SITE	A1a	27.5767	H2 - RESIDENTIAL, (0-2 DU / AC)	A2-2	0.002	0.0552	
	A1	0.8661	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0026	
	A2	1.0688	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0032	
	A3	1.0658	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0032	
	A4	0.7818	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0023	
	A5a	27.5195	OS-C - OPEN SPACE CONSERVATION	OS	0.001	0.0275	
	A6	2.3283	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0070	
	A7	0.6021	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0018	
1	TOTAL:	61.8091					0.1028
	A8	3.4472	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0103	
	A9	0.4135	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0012	
	A10	0.5512	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0017	
	A11	6.9160	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0207	
	A11a	4.9869	OS-C - OPEN SPACE CONSERVATION	OS	0.001	0.0050	
	A11b	3.0260	OS-C - OPEN SPACE CONSERVATION	OS	0.001	0.0030	
	A12	0.8607	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0026	
	A13	0.4725	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0014	
2	TOTAL:	82.4831					0.1488
	A14	1.2327	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0037	
	A15	1.1041	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0033	
	A16	1.2888	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0039	
	A17	0.929	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0028	
	A18	0.6496	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0019	
	A19	2.9372	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0088	
	A20	1.0975	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0033	
	A21	0.4561	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0014	
	A22	0.1927	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0012	
	A23	0.7455	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0045	
	A24	0.8728	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0052	
	A25	1.5675	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0094	
	A26	0.8456	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0051	
	A27	0.8737	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0052	
	A28	0.6118	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0037	
	A29	0.9655	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0058	
	A30a	49.2872	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.1479	
	A30b	12.3524	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0741	
3	TOTAL:	160.4928					0.4399
	A31	0.4263	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0026	
	A32	0.9095	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0055	
	A33	0.222	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0013	
	A34	2.2959	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0138	
	A35	3.341	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0200	
	A36	1.7868	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0107	
	A37	3.8249	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0229	
	A38	1.5334	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0092	
	A39	1.4711	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0088	
	A40	4.5884	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0275	
	A41	1.329	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0080	
	A42	2.7991	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0168	
	A43	1.0544	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0063	
	A44	2.3289	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0140	
	A45a	23.8043	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0714	
	A45b	56.926	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.3416	
	A46	0.7192	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0043	
4	TOTAL:	269.8530					1.0247

PROP. CONDITION TRIBUTARY AREAS SEWER FLOW CALCULATION TABLE:

LOCATION AT REACH NO.	SUB AREA NO.	AREAS (ACRE)	LAND USE DESCRIPTION (BASED ON L.A. COUNTY'S GIS-NET3 DATA BASE)	ZONE	ZONING COEFFICIENTS (CFS/ACRE)	SUB-AREA SEWER FLOW (CFS)	TOTAL SEWER FLOW AT REACH (CFS)
PROJECT SITE	A1a	27.5767	497 SINGLE FAMILY LOTS	A2-2 *	0.004	0.1103	
	A1	0.8661	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0026	
	A2	1.0688	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0032	
	A3	1.0658	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0032	
	A4	0.7818	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0023	
	A5a	27.5195	OS-C - OPEN SPACE CONSERVATION	OS	0.001	0.0275	
	A6	2.3283	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0070	
	A7	0.6021	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0018	
1	TOTAL:	61.8091					0.1580
	A8	3.4472	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0103	
	A9	0.4135	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0012	
	A10	0.5512	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0017	
	A11	6.9160	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0207	
	A11a	4.9869	OS-C - OPEN SPACE CONSERVATION	OS	0.001	0.0050	
	A11b	3.0260	OS-C - OPEN SPACE CONSERVATION	OS	0.001	0.0030	
	A12	0.8607	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0026	
	A13	0.4725	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0014	
2	TOTAL:	82.4831					0.2040
	A14	1.2327	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0037	
	A15	1.1041	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0033	
	A16	1.2888	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0039	
	A17	0.929	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0028	
	A18	0.6496	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0019	
	A19	2.9372	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0088	
	A20	1.0975	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0033	
	A21	0.4561	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0014	
	A22	0.1927	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0012	
	A23	0.7455	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0045	
	A24	0.8728	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0052	
	A25	1.5675	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0094	
	A26	0.8456	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0051	
	A27	0.8737	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0052	
	A28	0.6118	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0037	
	A29	0.9655	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0058	
	A30a	49.2872	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.1479	
	A30b	12.3524	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0741	
3	TOTAL:	160.4928					0.4951
	A31	0.4263	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0026	
	A32	0.9095	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0055	
	A33	0.222	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0013	
	A34	2.2959	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0138	
	A35	3.341	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0200	
	A36	1.7868	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0107	
	A37	3.8249	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0229	
	A38	1.5334	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0092	
	A39	1.4711	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0088	
	A40	4.5884	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0275	
	A41	1.329	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0080	
	A42	2.7991	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0168	
	A43	1.0544	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0063	
	A44	2.3289	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0140	
	A45a	23.8043	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-3U	0.003	0.0714	
	A45b	56.926	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.3416	
	A46	0.7192	H5 - RESIDENTIAL, (0-5 DU / AC)	RPD-6000-5.8U	0.006	0.0043	
4	TOTAL:	269.8530					1.0798

Note:

Zoning Coefficients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.

ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs = 3 du/1 acre x 0.001 cfs = 0.003

= 5.8 du/1 acre x 0.001 cfs = 0.006

*** 497 Dwelling Units on approximately 143 acres lots => 0.001 cfs x 497 units/142 acres = 0.0035 cfs/acre = 0.004**

OWNER/DEVELOPER:

SFI LOS VALLES LLC

28909 HASLEY CANYON ROAD, SANTA CLARITA, CA 91384
PH: (661) 295-3900 FAX: (661) 295-9835

LEGAL DESCRIPTION:

PORTION OF THE NORTHWEST QUARTER OF SECTION 2 & THE NORTH EAST QUARTER OF SECTION 3, T4N, R17W, SBM IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

SEWER AREA STUDY

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP NO.

052584

IN THE UNINCORPORATED TERRITORY OF COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

SEWER TRIBUTARY AREA TERRAIN MAP

REGISTERED PROFESSIONAL ENGINEER CHARLES A. GILMAN No. 54155 Exp. 12-31-17 CIVIL STATE OF CALIFORNIA

DRAWN BY R.M.			
CHECKED BY C.A.G.			
DESIGNED BY R.M.			
DATE CHANGED	CHANGED BY	REVISIONS	

PREPARED BY:

LAND DESIGN CONSULTANTS, INC.
Land Planning, Civil Engineering, Surveying & Environmental Services
2700 Foothill Blvd., Suite 200, Pasadena, California 91007
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http://www.ldcla.com

Charles A. Gilman, R.P.E. No. C54155 DATE

LDC

Proj. No. 11018-001

SHEET 4 OF 6

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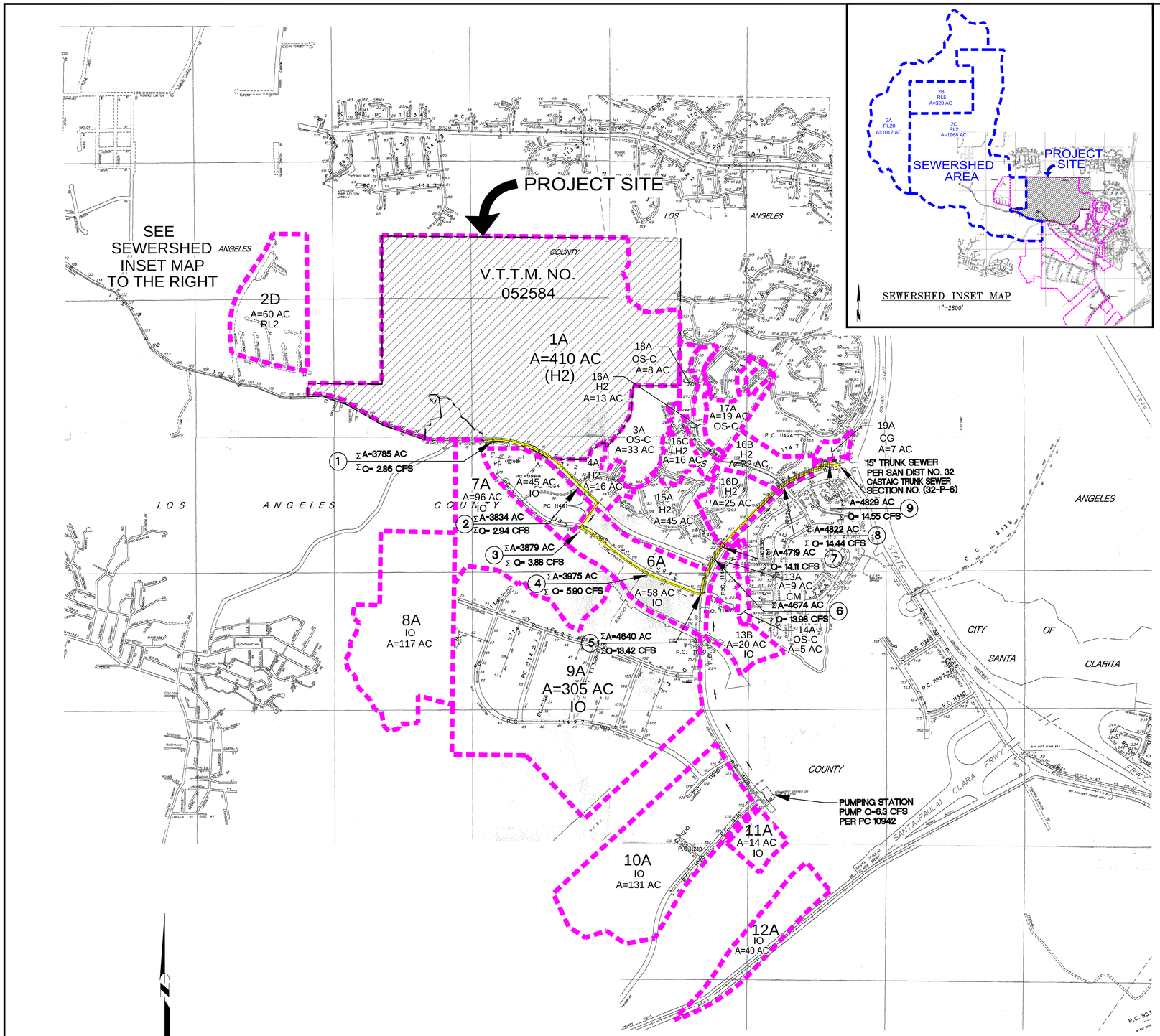


SEWERSHED INSET MAP

1"=2800'

SEWER AREA STUDY TABLE (HASLEY CANYON ROAD TO TRUNK)

Street Name	Segment M.H. #	Segment M.H. #	Pipe Size (in.)	Pipe Slope (%)	Capacity 1/2 Full(<15") (cfs)	Capacity 3/4 Full(>15") (cfs)	Area	Area (Acres)	Area total per segment (Acres)	Zoning	Zoning Coeff (cfs/acre) or cfs/unit	Calculated Peak Flow (cfs)	Cumulated Peak Flow (cfs)	Flow Depth (ft)	PC or CI Construction Plan #	% Full Flow Depth/ (0.75 X Pipe Dia.)	% Full Calculated Flow/ Capacity	Study of Ex. Pipe Capacity	Comments
							2A	1012		A-2-2	0.0001	0.10							
							2B	320		A-2-2	0.0002	0.06							
							2C	1983		A-2-2	0.0005	0.99							
							2D	**60**		**A-2-2**	**0.0010**	0.06							
							1A	**410**		**A-2-2**	**0.0040**	1.64							
HASLEY CYN RD.	14	13	15	1.00		5.82			*3785*				*2.86*	*0.59*	PC 11572	63%	49%		
HASLEY CYN RD.	13	12	15	1.00		5.82			*3785*				*2.86*	*0.59*	PC 11572	63%	49%		
HASLEY CYN RD.	12	11	15	1.00		5.82			*3785*				*2.86*	*0.59*	PC 11572	63%	49%		
HASLEY CYN RD.	11	10	15	0.93		5.61			*3785*				*2.86*	*0.60*	PC 11572	64%	51%		
HASLEY CYN RD.	10	9	15	0.93		5.61			*3785*				*2.86*	*0.60*	PC 11572	64%	51%		
HASLEY CYN RD.	9	8	15	0.93		5.61			*3785*				*2.86*	*0.60*	PC 11572	64%	51%		
HASLEY CYN RD.	8	7	15	0.93		5.61			*3785*				*2.86*	*0.60*	PC 11572	64%	51%		
							4A	16		RPD-5000-2.8U	0.0030	0.05							
							3A	33		OS	0.0010	0.03							
HASLEY CYN RD.	7	6	15	2.60		9.40			*3834*				*2.94*	*0.46*	PC 11491	49%	31%		
HASLEY CYN RD.	6	5	15	3.00		10.09			*3834*				*2.94*	*0.45*	PC 11491	48%	29%		
	5	4	15	3.84		11.42			*3834*				*2.94*	*0.42*	PC 11491	45%	26%		
	4	3	15	3.98		11.63			*3834*				*2.94*	*0.42*	PC 11491	45%	25%		
							5A	45		M-1.5-DP	0.0210	0.95							
INDUSTRY DR.	3	2	15	1.08		6.05			*3879*				*3.88*	*0.69*	PC 11491	74%	64%		
INDUSTRY DR.	2	1	15	2.88		9.89			*3879*				*3.88*	*0.52*	PC 10942	55%	39%		
INDUSTRY DR.	1	120	15	2.88		9.89			*3879*				*3.88*	*0.52*	PC 10942	55%	39%		
INDUSTRY DR.	120	119	15	3.65		11.13			*3879*				*3.88*	*0.49*	PC 10942	52%	35%		
							7A	96		M-1.5-DP	0.0210	2.02							
INDUSTRY DR.	119	118	15	1.92		8.07			*3975*				*5.90*	*0.75*	PC 10942	80%	73%		
INDUSTRY DR.	118	117	15	1.60		7.37			*3975*				*5.90*	*0.80*	PC 10942	85%	80%		
INDUSTRY DR.	117	116	18	1.42		11.41			*3975*				*5.90*	*0.73*	PC 10942	65%	52%		
INDUSTRY DR.	116	111	18	1.42		11.41			*3975*				*5.90*	*0.73*	PC 10942	65%	52%		
							6A	58		MPD	0.0210	1.22							
													7.12						
							8A	117		MPD-DP	0.0210	2.46							
							9A	305		M-1.5-DP	0.0210	6.41							
							10A	131		M-1.5-DP	0.0210	2.75							
							11A	14		M-1.5-DP	0.0210	0.29							
							12A	40		M-1.5-DP	0.0210	0.84							
													********	***19.86***					
										PUMP STATION, Q=		********	***6.30***		PC 11477				
COMMERCE CENTE	111	110	21	0.36		8.72			*4640*				*13.42*	*1.63*	PC 10942	124%	154%	UNDER PRESSURE	10.26cfs max
COMMERCE CENTE	110	109	21	0.36		8.72			*4640*				*13.42*	*1.63*	PC 10942	124%	154%	UNDER PRESSURE	10.26cfs max
							13A	9		C-3-DP	0.0150	0.14							
							13B	20		M-1.5-DP	0.0210	0.42							
							14A	5		OS	0.0010	0.01							
HASLEY CYN RD.	109	223	21	0.36		8.72			*4674*				*13.98*	*1.63*	PC 10942	124%	160%	UNDER PRESSURE	10.26cfs max
							15A	45		RPD-5000-2.8U	0.0030	0.14							
HASLEY CYN RD.	223	108	21	0.36		8.72			*4719*				*14.11*	*1.63*				UNDER PRESSURE	10.26cfs max
HASLEY CYN RD.	108	107	18	3.32		17.46			*4719*				*14.11*	*0.96*	PC 10942	85%	81%		
HASLEY CYN RD.	107	106	18	3.84		18.78			*4719*				*14.11*	*0.91*	PC 10942	81%	75%		
HASLEY CYN RD.	106	105	18	3.16		17.04			*4719*				*14.11*	*0.98*	PC 10942	87%	83%		
HASLEY CYN RD.	105	104	18	1.90		13.21			*4719*				*14.11*	*1.20*	PC 10942	107%	107%	EXCEEDS CAPACTIY	
HASLEY CYN RD.	104	103	18	0.92		9.18			*4719*				*14.11*	*1.39*	PC 10942	124%	154%	UNDER PRESSURE	10.80cfs max
							16A	13		RPD-6000-3U	0.0030	0.04							
							16B	22		RPD-5000-2.8U	0.0030	0.07							
							16C	16		RPD-5000-2.8U	0.0030	0.05							
							16D	25		RPD-6000-5.8U	0.0060	0.15							
							17A	19		OS	0.0010	0.02							
							18A	8		OS	0.0010	0.01							
HASLEY CYN RD.	103	102	18	0.98		9.48			*4822*				*14.44*	*1.39*	PC 10942	124%	152%	UNDER PRESSURE	11.15cfs max
HASLEY CYN RD.	102	101	18	0.92		9.18			*4822*				*14.44*	*1.39*	PC 10942	124%	157%	UNDER PRESSURE	10.80cfs max
HASLEY CYN RD.	101	100	18	0.92		9.18			*4822*				*14.44*	*1.39*	PC 10942	124%	157%	UNDER PRESSURE	10.80cfs max
HASLEY CYN RD.	100	99	18	0.92		9.18			*4822*				*14.44*	*1.39*	PC 10942	124%	157%	UNDER PRESSURE	10.80cfs max
HASLEY CYN RD.	99	98	18	1.40		11.33			*4822*				*14.44*	*1.39*	PC 10942	124%	127%	UNDER PRESSURE	13.33cfs max
							19A	7		CM	0.0150	0.11							
HASLEY CYN RD.	98	TRUNK	18	2.64		15.57			*4829*				*14.55*	*1.07*	PC 10942	95%	93%		

Note:

1. Calculated using Kutter's Formula with n=0.013 (as in S-C4 graph in PC Procedural Manual)
2. Zoning Coefficients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.
   ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs = 3 du/1 acre x 0.001 cfs = 0.003
   = 5.8 du/1 acre x 0.001 cfs = 0.006
3. For pipes > 15" ,% Full should be calculated by taking flow depth divided by 0.75 times the pipe diameter
4. **** 19.86 cfs is not using for down stream cumulated peak flow calculation. We were using Q=2,828 gpm = 6.3 cfs the design pump rate.

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

- (2) – SEWER REACH NUMBER
- 1A – SEWER SUB-TRIBUTARY AREA
- ΣA – TOTAL SEWER FLOW AREAS (ACRE)
- ΣQ – TOTAL SEWER FLOW RATE (CFS)
- TRACT BOUNDARY
- SEWER TRIBUTARY AREA BOUNDARY
- MAINLINE SEWER FROM PROJECT SITE TO TRUNK LINE
- OVERLOADED EXISTING MAINLINE SEWER SEGMENT TO BE GRADED

GRAPHIC SCALE (IN FEET)
1 inch = 600 ft.

SEWER AREA STUDY MAP
(HASLEY CYN. ROAD TO TRUNK SEWER)

OWNER/DEVELOPER:
SFI LOS VALLES LLC
28909 HASLEY CANYON ROAD, SANTA CLARITA, CA 91384
PH: (661) 295-3900 FAX (661) 295-9835

LEGAL DESCRIPTION:
PORTION OF THE NORTHWEST QUARTER OF SECTION 2 & THE NORTH EAST QUARTER OF SECTION 3, T4N, R17W, SBM IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

SEWER AREA STUDY

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP NO.
052584
IN THE UNINCORPORATED TERRITORY OF COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER CHARLES A. GILLMAN No. 54155 Exp. 12-31-17 CIVIL STATE OF CALIFORNIA

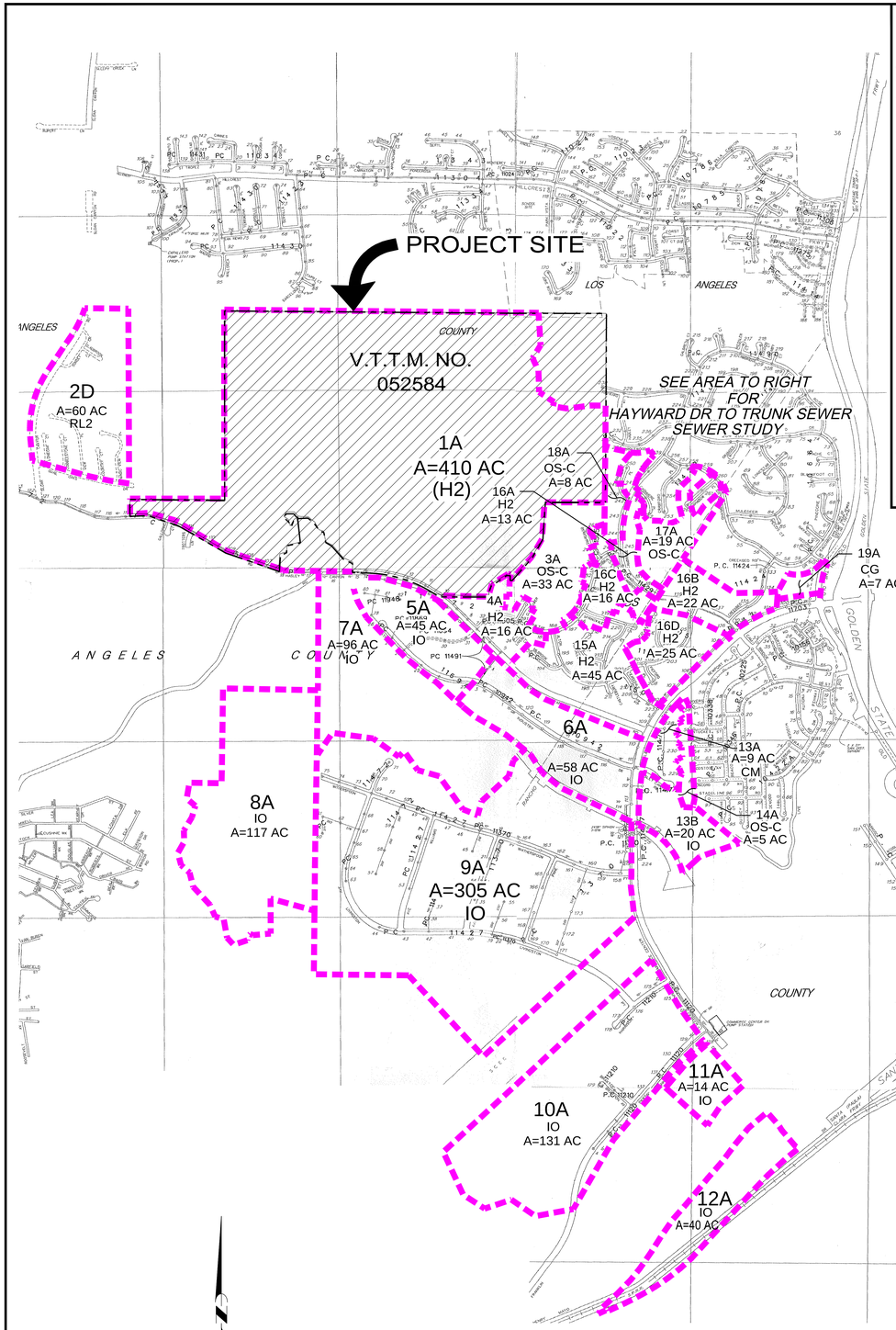
DRAWN BY	R.M.		
CHECKED BY	C.A.G.		
DESIGNED BY	R.M.		
DATE CHANGED	CHANGED BY	REVISIONS	

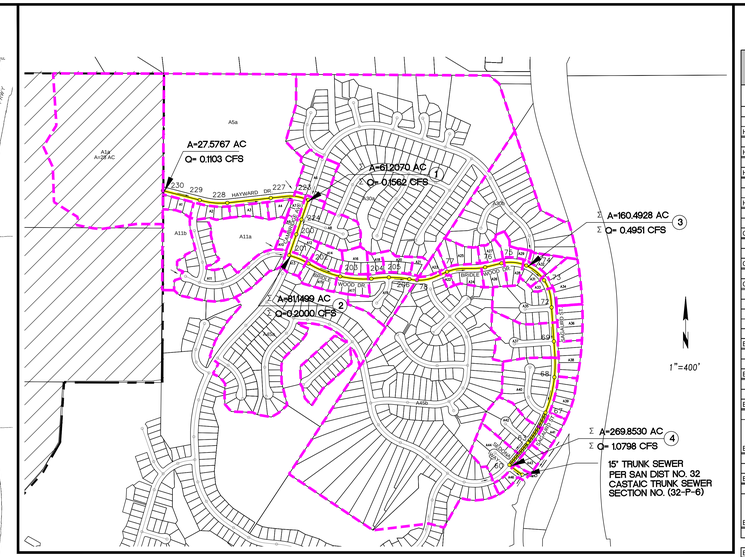
PREPARED BY:
LAND DESIGN CONSULTANTS, INC.
Land Planning, Civil Engineering, Surveying & Environmental Services
2700 Foothill Blvd., Suite 200, Pasadena, California 91007
Ph.: (626) 578-7000, Fax: (626) 578-7373
http://www.ldcla.com

Charles A. Gillman, R.P.E. No. C54155 DATE

LDC
Proj. No. 11018-001
SHEET 5 OF 6

J:\PROJ\11018001\PLANNING\2012-07 SEWER AREA STUDY\SEWER AREA STUDY MAP.dwg 08/06/12 14:01:23 hdhong





SEWER AREA STUDY (HAYWARD TO TRUNK)

(HAYWARD DRIVE TO TRUNK SEWER)

SEWER AREA STUDY TABLE (HAYWARD TO TRUNK)

Street Name	Segment M.H. #	Segment M.H. #	Pipe Size (in.)	Pipe Slope (%)	Capacity 1/2 Full(<15") (cfs)	Capacity 3/4 Full(>15") (cfs)	Area	Area (Acres)	Area total per segment (Acres)	Zoning	Zoning Coeff (cfs/acre) or cfs	Calculated Peak Flow (cfs)	Cumulated Peak Flow (cfs)	Flow Depth (ft)	PC or CI Construction Plan #	% Full Flow Depth/ (0.5 X Pipe Dia)	% Full Calculated Flow/ Capacity	Study of Ex. Pipe Capacity	Comments
							A1a	**27.5767**		**A2-2**	**0.0040**	**0.1103**							**PROP. SITE**
							A1	0.8661		RPD-6000-3U	0.0030	0.0026							
Hayward Drive	230	229	8	5.25	1.25				28.4428				*0.1129*	0.10	PC11488	30%	9%		
							A2	1.0688		RPD-6000-3U	0.0030	0.0032							
Hayward Drive	229	228	8	7.24	1.46				29.5116	RPD-6000-3U			*0.1161*	0.10	PC11488	30%	8%		
							A3	1.0658		RPD-6000-3U	0.0030	0.0032							
Hayward Drive	228	227	8	7.80	1.52				30.5774				*0.1193*	0.10	PC11488	30%	8%		
							A4	0.7818		RPD-6000-3U	0.0030	0.0023							
							A5a	27.5195		OS	0.0010	0.0275							
Hayward Drive	227	223	8	3.00	0.94				30.4359		0.0030		*0.1492*	0.13	PC11488	39%	16%		
							A6	2.3283		RPD-6000-3U	0.0030	0.0070							
							A7	0.6021		RPD-6000-3U	0.0030	0.0018							
Cambridge Avenue	223	224	8	3.60	1.03				61.8091				*0.1580*	0.13	PC11488	39%	15%		
							A8	3.4472		RPD-6000-3U	0.0030	0.0103							
							A9	0.4135		RPD-6000-3U	0.0030	0.0012							
Cambridge Avenue	224	200		5.68	1.31				65.6698				*0.1695*	0.12	PC11488	36%	13%		
							A10	0.5512		RPD-6000-3U	0.0030	0.0017							
Cambridge Avenue	200	201	8	5.68	1.30				66.2210				*0.1712*	0.12	PC11489	36%	13%		
							A11	6.9160		RPD-6000-3U	0.0030	0.0207							
							A11a	4.9869		OS	0.0010	0.0050							
							A11b	3.0260		OS	0.0010	0.0030							
							A12	0.8607		RPD-6000-3U	0.0030	0.0026							
							A13	0.4725		RPD-6000-3U	0.0030	0.0014							
Bridlewood Drive	201	202	8	3.80	1.06				82.4831				*0.2040*	0.14	PC11489	42%	19%		
							A14	1.2327		RPD-6000-3U	0.0030	0.0037							
							A15	1.1041		RPD-6000-3U	0.0030	0.0033							
Bridlewood Drive	202	203	8	3.64	1.04				84.8199				*0.2110*	0.15	PC11489	45%	20%		
							A16	1.2888		RPD-6000-3U	0.0030	0.0039							
							A17	0.9290		RPD-6000-3U	0.0030	0.0028							
Bridlewood Drive	203	204	8	8.76	1.61				87.0377				*0.2176*	0.12	PC11489	36%	14%		
							A18	0.6496		RPD-6000-3U	0.0030	0.0019							
Bridlewood Drive	204	205	8	11.84	1.72				87.6873				*0.2196*	0.12	PC11489	36%	13%		**MAX ALLOWABLE SLOPE 10%**
							A19	2.9372		RPD-6000-3U	0.0030	0.0088							
							A20	1.0975		RPD-6000-3U	0.0030	0.0033							
Bridlewood Drive	205	206	8	7.04	1.44				91.7220				*0.2317*	0.13	PC11489	39%	16%		
							A21	0.4561		RPD-6000-3U	0.0030	0.0014							
Bridlewood Drive	206	78	8	10.80	1.72				92.1781				*0.2330*	0.12	PC11489	36%	14%		**MAX ALLOWABLE SLOPE 10%**
							A22	0.1927		RPD-6000-5.8U	0.0060	0.0012							
							A23	0.7455		RPD-6000-5.8U	0.0060	0.0045							
Bridlewood Drive	78	77	8	6.24	1.36				93.1163				*0.2387*	0.14	PC10664	42%	18%		
							A24	0.8728		RPD-6000-5.8U	0.0060	0.0052							
							A25	1.5675		RPD-6000-5.8U	0.0060	0.0094							
Bridlewood Drive	77	76	8	7.92	1.53				95.5566				*0.2533*	0.14	PC10664	42%	17%		
							A26	0.8456		RPD-6000-5.8U	0.0060	0.0051							
							A27	0.8737		RPD-6000-5.8U	0.0060	0.0052							
Bridlewood Drive	76	75	8	8.96	1.63				97.2759				*0.2636*	0.13	PC10664	39%	16%		
							A28	0.6118		RPD-6000-5.8U	0.0060	0.0037							
							A29	0.9655		RPD-6000-5.8U	0.0060	0.0058							
Bridlewood Drive	75	74	8	9.88	1.71				98.8532				*0.2731*	0.13	PC10664	39%	16%		
							A30a	49.2872		RPD-6000-3U	0.0030	0.1479							
							A30b	12.3524		RPD-6000-5.8U	0.0060	0.0741							
							A31	0.4263		RPD-6000-5.8U	0.0060	0.0026							
							A32	0.9095		RPD-6000-5.8U	0.0060	0.0055							
Saguard Street	74	73	8	8.76	1.61				161.8286				*0.5031*	0.18	PC10664	55%	31%		
							A33	0.2220		RPD-6000-5.8U	0.0060	0.0013							
							A34	2.2959		RPD-6000-5.8U	0.0060	0.0138							
Saguard Street	73	72	8	8.92	1.63				164.3465				*0.5182*	0.18	PC10664	55%	32%		
							A35	3.3410		RPD-6000-5.8U	0.0060	0.0200							
							A36	1.7868		RPD-6000-5.8U	0.0060	0.0107							
Saguard Street	72	69	8	8.20	1.56				169.4743				*0.5490*	0.19	PC10664	58%	35%		
							A37	3.8249		RPD-6000-5.8U	0.0060	0.0229							
							A38	1.5334		RPD-6000-5.8U	0.0060	0.0092							
Saguard Street	69	68	8	7.92	1.52				174.8326				*0.5811*	0.20	PC10664	61%	38%		
							A39	1.4711		RPD-6000-5.8U	0.0060	0.0088							
Saguard Street	68	67	8	2.40	0.84				176.3037				*0.5899*	0.27	PC10664	82%	70%		
							A40	4.5884		RPD-6000-5.8U	0.0060	0.0275							
							A41	1.3290		RPD-6000-5.8U	0.0060	0.0080							
Saguard Street	67	63	8	0.60	0.42				182.2211				*0.6254*	0.42	PC10664	127%	149%		**EXCEEDS CAPACITY**
							A42	2.7991		RPD-6000-5.8U	0.0060	0.0168							
							A43	1.0544		RPD-6000-5.8U	0.0060	0.0063							
Saguard Street	63	60	8	1.16	0.59				186.0746				*0.6486*	0.35	PC10664	106%	110%		**EXCEEDS CAPACITY**
							A44	2.3289		RPD-6000-5.8U	0.0060	0.0140							
							A45a	23.8043		RPD-6000-3U	0.0030	0.0714							
							A45b	56.9260		RPD-6000-5.8U	0.0060	0.3416							
							A46	0.7192		RPD-6000-5.8U	0.0060	0.0043							
Sedona Way	60	TRUNK	8	6.44	1.38				269.8530				*1.0798*	0.29	PC10664	88%	78%		
15" TRUNK SEWER PER SAN DIST NO. 32 CASTAIC TRUNK SEWER SEC. NO. (32-P-6)																			

Note:

1. Calculated using Kutter's Formula with n=0.013 (as in S-C4 graph in PC Procedural Manual)
2. Zoning Coefficients are calculated by using 0.001 cfs/unit dependant on number of units allowed within one acreage.
   ZONE RPD sewer coefficient is # units per acre => # du/acre x 0.001 cfs = 3 du/1 acre x 0.001 cfs = 0.003
   = 5.8 du/1 acre x 0.001 cfs = 0.006
3. For pipes < 15" , % full should be calculated by taking flow depth divided by 0.50 times the pipe diameter

LEGEND

- CLAY SEWERS MAINTAINED BY SMD... 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

1A, A1 –SEWER SUB–TRIBUTARY AREA

ΣA –TOTAL SEWER FLOW AREAS (ACRE)

ΣQ –TOTAL SEWER FLOW RATE (CFS)

– TRACT BOUNDARY

– SEWER TRIBUTARY AREA BOUNDARY

– MAINLINE SEWER FROM PROJECT SITE TO TRUNK LINE

– OVERLOADED EXISTING MAINLINE SEWER SEGMENT TO BE GRADED

SEWER AREA STUDY MAP

600 300 0 600 1200 1800

GRAPHIC SCALE (IN FEET)
1 inch = 600 ft.

OWNER/DEVELOPER:

SFI LOS VALLES LLC
28909 HASLEY CANYON ROAD, SANTA CLARITA, CA 91384
PH: (661) 295-3900 FAX: (661) 295-9835

LEGAL DESCRIPTION:

PORTION OF THE NORTHWEST QUARTER OF SECTION 2 & THE NORTH EAST QUARTER OF SECTION 3, T4N, R17W, SBM IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

SEWER AREA STUDY

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP NO.

052584

IN THE UNINCORPORATED TERRITORY OF COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

DRAWN BY	R.M.		
CHECKED BY	C.A.G.		
DESIGNED BY	R.M.		
DATE CHANGED	CHANGED BY	REVISIONS	

REGISTERED PROFESSIONAL ENGINEER CHARLES A. GILMAN No. 54155 Exp. 12-31-17 CIVIL STATE OF CALIFORNIA

PREPARED BY:

LAND DESIGN CONSULTANTS, INC.
Land Planning, Civil Engineering, Surveying & Environmental Services
2700 Foothill Blvd., Suite 200, Pasadena, California 91007
Ph.: (626) 578-7000, Fax: (626) 578-7373
http://www.ldcla.com

Charles A. Gilman, RPE No. C54155 DATE

LDC

Proj. No. 11018-001

SHEET 6 OF 6

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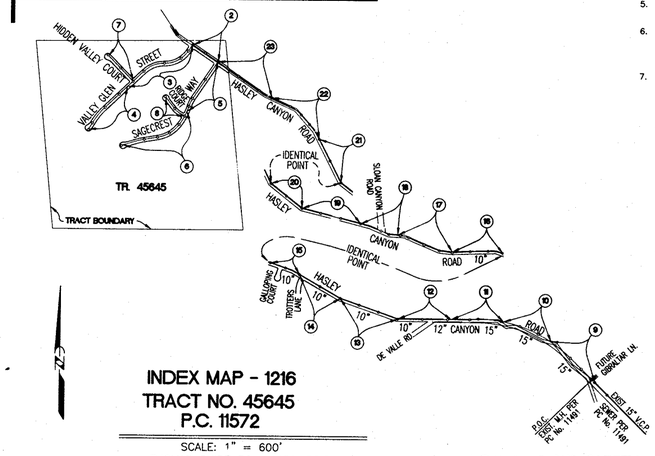
Appendix D

As-Built Sewer Plans

BENCH MARK

NEWHALL (1993)
RD BM TAG IN SE COR CONC BASE OF FIRE HYP 19FT S/O C/L HASLEY CYN RD 1.2MI W/O DEL VALLE RD IN FRONT OF MOBILE HOME PARK 0.15MI E/O ROMERO CYN RD 41FT W/O PP #1001579H

ELEV. 1382.246 B.M. No. L 4562



INDEX MAP - 1216
TRACT NO. 45645
P.C. 11572

SCALE: 1" = 600'
THOMAS GUIDE PG. 4459-B3/B4

NOTE: NUMBER IN CIRCLE INDICATES PAGE NUMBER

NO.	REVISION	REVISED BY	APPROVED BY	DATE

BUILDING AND SAFETY
LOCAL OFFICE
SANTA CLARITA

STORMWATER POLLUTION CONTROL REQUIREMENTS FOR SEWER CONSTRUCTION

DOUBLE SCALE

1. Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheet flow, swales, area drains, natural drainage courses, or wind.
2. Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.
3. Fuels, oils, solvents, and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
4. Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
5. Trash and construction-related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
6. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.
7. Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.

CA001 – DEWATERING OPERATIONS
CA002 – PAVING OPERATIONS
CA003 – STRUCTURE CONSTRUCTION AND PAINTING
CA010 – MATERIAL DELIVERY AND STORAGE
CA020 – SOLID WASTE MANAGEMENT
CA021 – HAZARDOUS WASTE MANAGEMENT
CA023 – CONCRETE WASTE MANAGEMENT
CA024 – SANITARY/SEPTIC WASTE MANAGEMENT
CA030 – VEHICLE AND EQUIPMENT CLEANING
CA031 – VEHICLE AND EQUIPMENT FUELING
CA032 – VEHICLE AND EQUIPMENT MAINTENANCE
ESC01 – SCHEDULING
ESC02 – PRESERVATION OF EXISTING VEGETATION
ESC10 – SEEDING AND PLANTING
ESC11 – MULCHING
ESC20 – GEOTEXTILES AND MATS
ESC21 – DUST CONTROLS
ESC22 – TEMPORARY STREAM CROSSING
ESC23 – CONSTRUCTION ROAD STABILIZATION
ESC24 – STABILIZED CONSTRUCTION ENTRANCE
ESC54 – STORM DRAIN INLET PROTECTION

STANDARD PLANS:

THE FOLLOWING LATEST REVISED STANDARD PLANS ON FILE IN THE OFFICE OF THE FOLLOWING DEPARTMENT SHALL APPLY IN THE CONSTRUCTION OF THIS PROJECT.

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

LEGEND	2000-0
MINIMUM PUBLIC SAFETY REQUIREMENTS	6008-0
BRICK MANHOLE	*203-0
STANDARD MANHOLE STEP	2015-0
BEDDING FOR SEWER PIPE	2021-0
CRADLING AND ENCASEMENT	2023-0
WYE OR TEE SUPPORT	2024-0
ALLOWABLE TRENCH WIDTHS	2027-0
LOCKING MANHOLE FRAME AND COVER	*210-0
NON-REINFORCED PRECAST CONCRETE MANHOLE	2001-0
BREAK INTO EXISTING MANHOLE	2010-0
SPECIAL HOUSE LATERALS	*222-0
EROSION PROTECTION IN STEEP SLOPES	2026-0
ANCHOR BLOCKS	*221-0
JACKING STEEL CASING FOR SEWER PIPE	2028-0
CHIMNEYS	*220-0
TERMINAL CLEANOUT STRUCTURE	*204-0

* REFERS TO A.P.W.A. STD. DRAWING NO.

NO CONNECTION FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS UNTIL A PERMIT FOR INDUSTRIAL WASTEWATER DISCHARGE HAS BEEN ISSUED BY THE SANITATION DISTRICTS FOR THE SAID CONNECTION

BEFORE BREAKING INTO OR CONSTRUCTION ON A COUNTY SANITATION DISTRICT SEWER AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT A SANITATION DISTRICT INSPECTOR SHALL BE NOTIFIED BY PHONE AT (661) 266-4683 SO THAT REQUIRED INSPECTIONS CAN BE MADE.

~~ISSUE NO HOUSE LATERAL CONNECTIONS PERMITS UNTIL OUTLET P.C. 11491 IS ACCEPTED FOR PUBLIC USE BY LOS ANGELES COUNTY~~

THIS SEWER PRIVATE CONTRACT ACCEPTED FOR PUBLIC USE
02-03-2005
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

PRIVATE CONTRACT SEWER GENERAL NOTES

1. A sewer construction permit shall be obtained and a fee paid for construction inspection and record plans to the Department of Public Works at the Permit Counter, 900 South Fremont Avenue, 8th Floor, Alhambra, at least 72 hours prior to starting work under this permit. Copies of all other required permits, such as Road Excavation, Caltrans, etc., must be filed with the permit application.
2. Prior to issuance of any permit, the contractor shall file a permit for excavations and trenches from the State of California Division of Industrial Safety, and a Certificate of Worker's Compensation Insurance with the Department of Public Works named as the Certificate Holder to be notified 30 days prior to cancellation of policy.
3. If work is done in a State Highway, a permit must be obtained from the State of California Division of Highways, 120 South Spring Street, Los Angeles, California.
4. When work is within a contract city, the contractor must contact the Director of Public Works of that city, to determine the location to pay the inspection fee.
5. The contractor shall contact the district office listed on the "Application for Construction Permit" to arrange for an acceptable construction start date.
6. Approval of this plan by the County of Los Angeles does not constitute a representation as to accuracy of the location of or the existence or non-existence of any underground utility pipe or structure within the limits of this project. This note applies to all pages.
7. All work shall be in accordance with the latest approved edition of the "Standard Specifications for Public Works Construction, including supplements and the latest Special Provisions for the Construction of Sanitary Sewers and shall be prosecuted only in the presence of the Department of Public Works
8. The contractor's attention is directed to Section 7-10.4.1 of the Standard Specifications for Public Works Construction in regard to safety orders and shall conform to the "Minimum Public Safety Requirements" as shown on Los Angeles Department of Public Works' Standard S-2.
9. Elevations are in feet above U.S.C. & G.S. sea level datum of 1929.
10. No revisions shall be made in these plans without the approval of the Director of Public Works.
11. No representative of the Department of Public Works will survey or lay out any portion of the work.
12. Grades to which this improvement is to be constructed are shown on plans and profiles. Grade points for top of curbs, centerline of streets, or centerline of alleys, are shown by circles on profiles at all points between designated points. The grade shall be established so as to conform to a straight line drawn between said designated points.
13. The private engineer shall furnish the Department of Public Works with grade sheets and stationing for all house laterals and "Y" or "T" branches and shall provide stakes for them at their proper locations with stationing plainly marked. All house laterals shall be constructed in a straight alignment at right angles from the main line sewer except as shown on the plans. House laterals from chimneys shall not have an angle of less than 45 degrees with the M.L. sewer. Any change in alignment shall be requested in writing by the private engineer.
14. The private engineer shall furnish the house lateral depth at the property line below the top of curb elevation for each house lateral on the grade sheet.

CONSTRUCTION NOTES

1. Provide survey stakes on the property line or property lines produced at right angles to the sewer line at the centerline of each manhole
2. Vitrified clay pipe joints shall be type "D" or "G" per standard specifications section 208-2.
3. If a powerpole is within three feet of the sewer, the sewer shall be encased per standard plan S-23, case II, two feet on each side from the point of interference.
4. All joints between cast iron pipe and vitrified caly shall be made with a rubber sleeve joint, type "D" (with bushing if necessary) per standard specifications section 208-2.
5. House laterals to be constructed with inverts at the property line 6 feet below curb grade except as noted.
6. Wye or tee branches may be used for connections to the mainline sewers except as noted
7. During the course of construction, it is determined that there is less than four feet of cover over the top of a mainline or house lateral V.C.P. sewer which is not indicated on the plans, the pipes shall be encased per standard plan S-23, case II, unless otherwise approved by the director of Public Works.
8. All structures shall be either brick sewer manholes per standard plan S-3 or precast concrete sewer manholes per standard plan S-36, or reinforced precast concrete manhole per standard plan S-6, except as noted.
9. resurface all trenches within paved areas to meet Los Angeles County Public Works or California State Highway requirements in accordance with the permits.
10. Full compliance with section 306-1.3.4. of the standard specification will be required for backfill in street certification of backfill compaction and sand equivalents by a qualified civil engineer shall be provided by the permitee prior to the issuance of a certificate of partial acceptance.
11. All backfill and fills outside of the street right of way shall be compacted to 90% of the maximum density as determined by ASTM soil compaction test D 1557-78 method "D" unless otherwise specified. This shall be certified by a qualified civil engineer. This certification shall be submitted to the Construction Division of the Department of Public Works prior to the acceptance of the work by the county.
12. Manhole tops in unimproved rights of way to be six inches above finished grade. Contractor to verify that manholes located in roadway shoulder conform to this requirement.
13. Sewers to be tested for leakage per section 306-1/4 of the standard specifications and special provisions.
14. Manhole tops along Hasley Canyon Road will be required to have a 5'x5'x4" thick A.C. pad around the rim. See Detail 1 on page 13.

55493

RECORD PLANS

PAGE 1

PROFILE, ALIGNMENT AND GRADE OF
SANITARY SEWERS
TO BE CONSTRUCTED IN
TRACT NO. 45645 PC NO. 11572
INDEX 1216
12 SHEETS: 23 PAGES

COUNTY OF LOS ANGELES CALIFORNIA

JAMES A. NOYES DIRECTOR OF PUBLIC WORKS

APPROVED BY LAND DEVELOPMENT DIVISION
BY [signature] ASSISTANT DIVISION ENGINEER DATE 3/27/01

SUBMITTED BY [signature] SUBDIVISION PLAN CHECKING SECTION DATE 3/27/01

APPROVED: COUNTY SANITATION DISTRICT
OF LOS ANGELES CALIF.
JAMES F. STAHL – CHIEF ENGINEER and GENERAL MANAGER

COUNTY SANITATION DISTRICT NO. 32

BY [signature] OFFICE ENGINEER DATE: 4/2/01

PRIVATE ENGINEERS NOTICE TO CONTRACTORS:

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS IS REQUIRED BY A SEARCH OF AVAILABLE RECORDS TO THE BEST OF OUR KNOWLEDGE. THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING. PRIOR TO EXCAVATION THE CONTRACTOR SHALL CALL TOLL FREE 1-800-422-4133 TO VERIFY THE UNDERGROUND LOCATION OF GAS AND TELEPHONE LINES. THE CONTRACTOR SHALL ALSO CALL MR. RAY CUMMINGS OF GENERAL TELEPHONE COMPANY AT 1-805-948 4871 SO THAT THEY CAN MARK THE LOCATION OF UNDERGROUND TELEPHONE LINES.

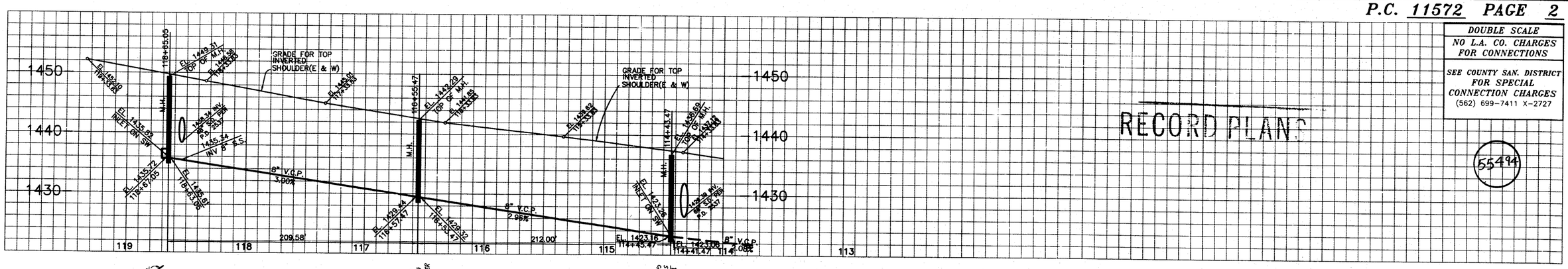
RCE No. 21649 DATE 3/20/01

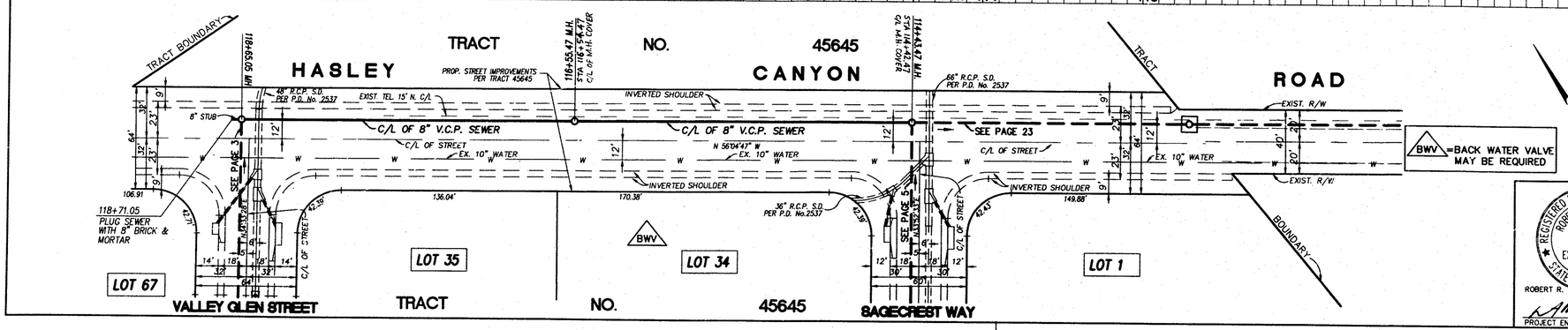
P.C. 11572 PAGE 2

DOUBLE SCALE
NO L.A. CO. CHARGES FOR CONNECTIONS
SEE COUNTY SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES
(562) 699-7411 X-2727

RECORD PLANS

55494





BWV =BACK WATER VALVE MAY BE REQUIRED

SCALE: VERT.: 1"= 8'
HORIZ.: 1"=40'
25 0 50 100

REGISTERED PROFESSIONAL ENGINEER ROBERT R. SIMS No. 21649 EXP. 9-30-01 CIVIL STATE OF CALIFORNIA
ROBERT R. SIMS
PROJECT ENGINEER DATE 3/20/01

SANITARY SEWER PLANS IN
TR. NO. 45645 P.C. NO. 11572

REVIEWED BY LAND DEVELOPMENT DIVISION
BY [signature] SUBDIVISION PLAN CHECKING SECTION DATE 3-27-01

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

LDC LAND DESIGN CONSULTANTS, INC.
Land Planning, Civil Engineering, Surveying & Environmental Services
25570 Rye Canyon Road, Suite G
Valencia, CA 91355
(661) 775-3940

94023-019
Project No.

DWG

TR. NO. 45645 P.C. 11572

1

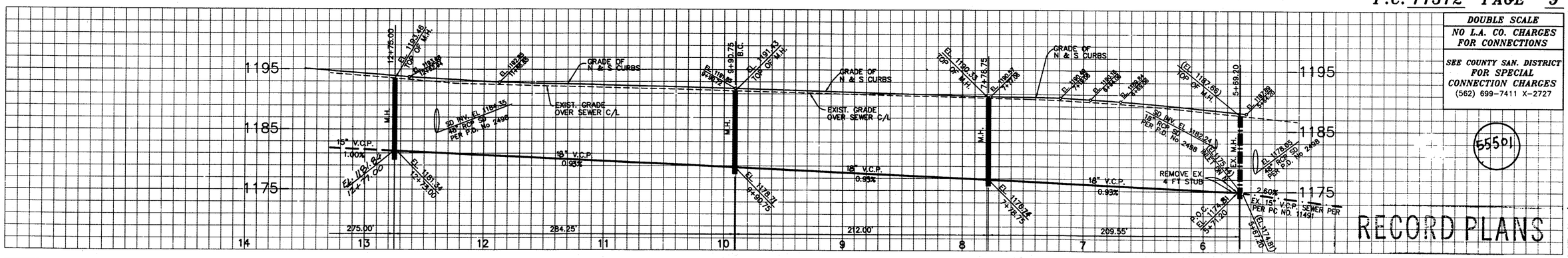
TR. NO. 45084 P.C. 11572

P.C. 11572 PAGE 9

DOUBLE SCALE
NO L.A. CO. CHARGES FOR CONNECTIONS

SEE COUNTY SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES
(562) 699-7411 X-2727

55501



RECORD PLANS

C/L SEWER DATA				
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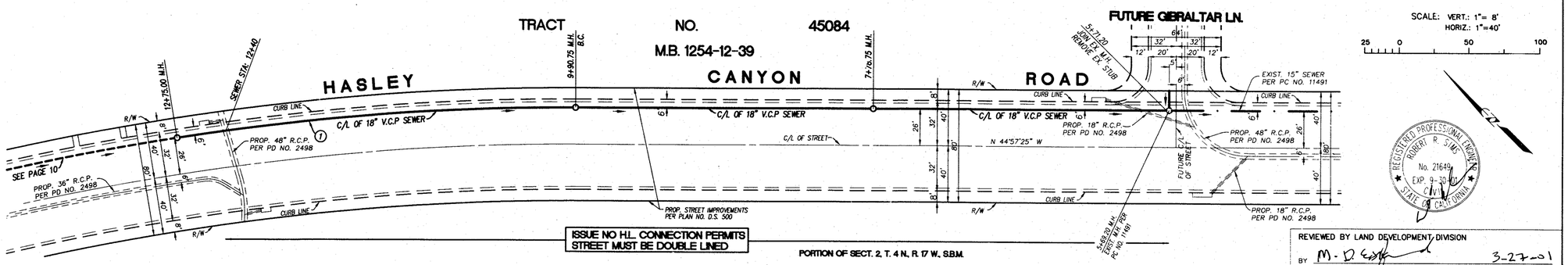


REGISTERED PROFESSIONAL ENGINEER ROBERT R. SIMS No. 21649 EXP. 9-30-01 CIVIL STATE OF CALIFORNIA

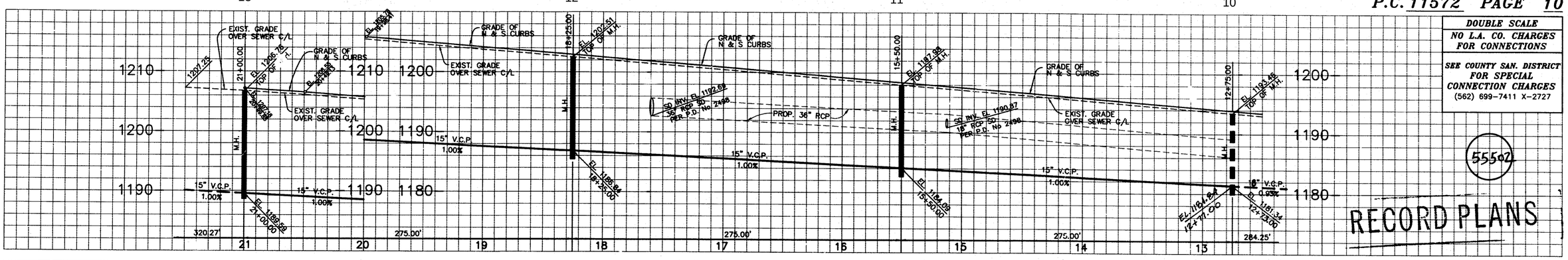
REVIEWED BY LAND DEVELOPMENT DIVISION
BY M. D. Esp 3-27-01
SUBDIVISION PLAN CHECKING SECTION DATE

P.C. 11572 PAGE 10

DOUBLE SCALE
NO L.A. CO. CHARGES FOR CONNECTIONS

SEE COUNTY SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES
(562) 699-7411 X-2727

55502



RECORD PLANS

C/L SEWER DATA				
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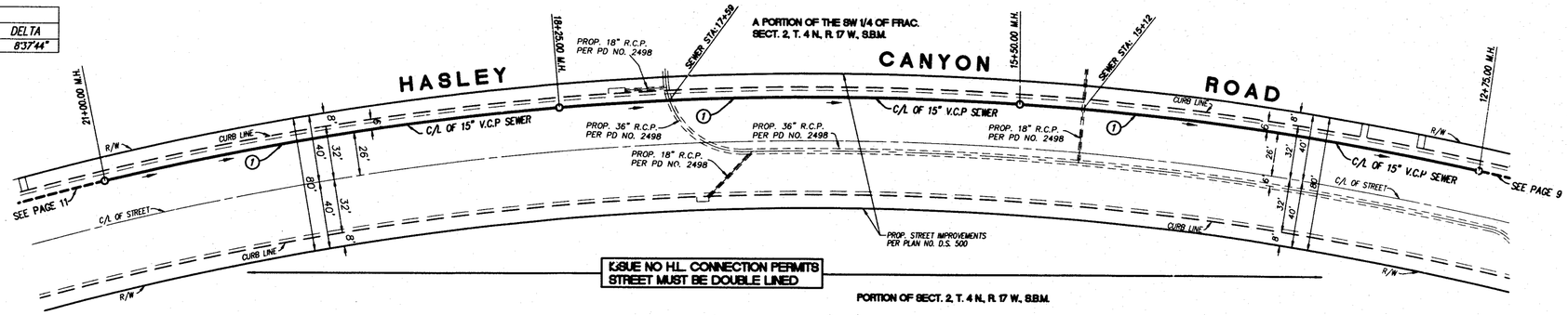
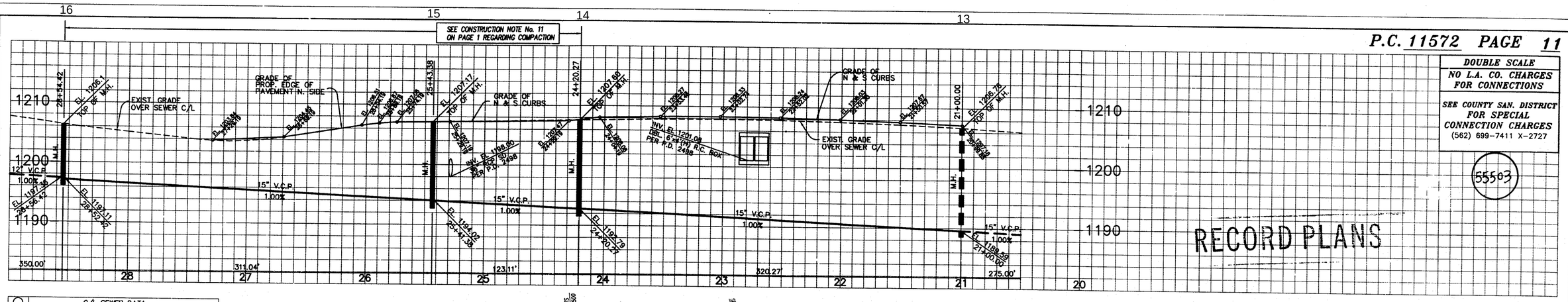


REGISTERED PROFESSIONAL ENGINEER ROBERT R. SIMS No. 21649 EXP. 9-30-01 CIVIL STATE OF CALIFORNIA

REVIEWED BY LAND DEVELOPMENT DIVISION
BY M. D. Esp 3-27-01
SUBDIVISION PLAN CHECKING SECTION DATE

TR. NO. 45645 P.C. 11572

P.C. 11572 PAGE 11



DOUBLE SCALE
NO L.A. CO. CHARGES FOR CONNECTIONS
SEE COUNTY SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES (562) 699-7411 X-2727

55503

C/L SEWER DATA			
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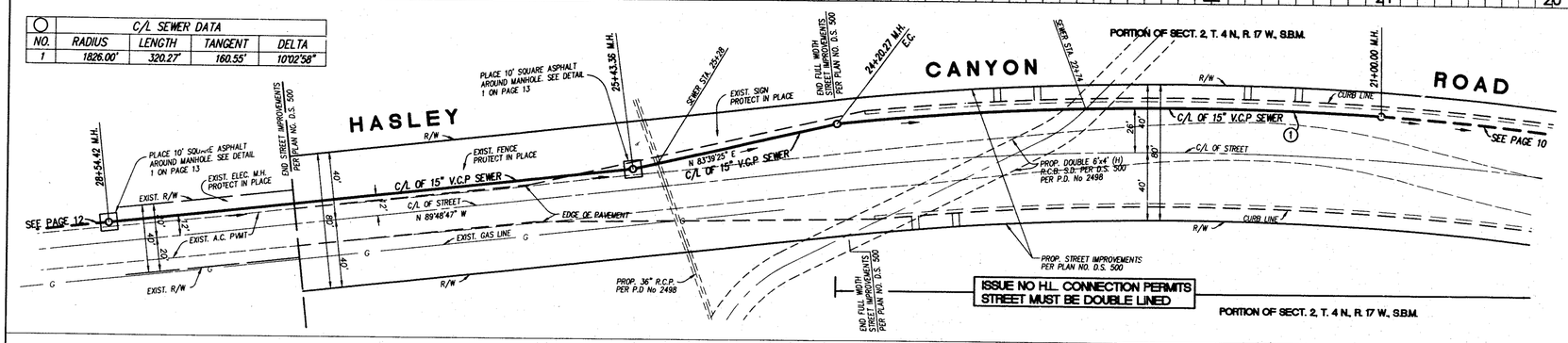
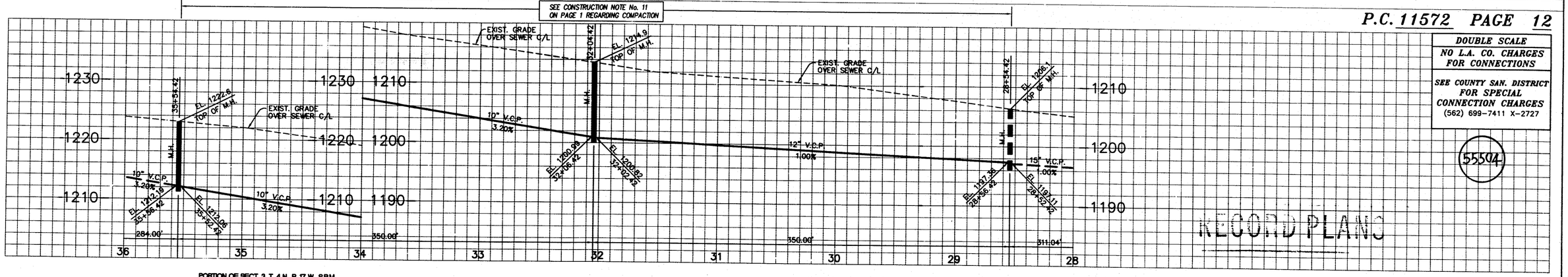


SCALE: VERT.: 1" = 8'
HORIZ.: 1" = 40'

REGISTERED PROFESSIONAL ENGINEER ROBERT R. SIMS No. 21649 EXP. 9-30-01 CIVIL STATE OF CALIFORNIA

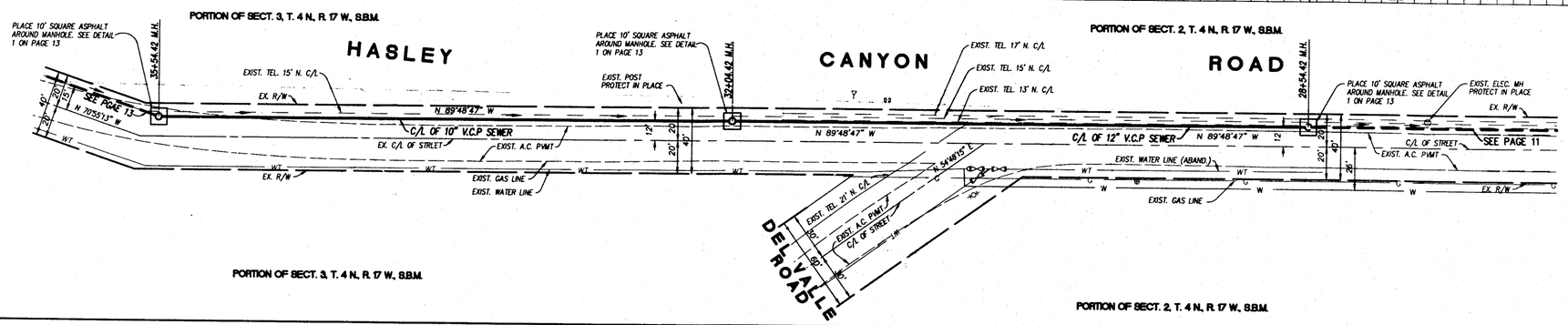
REVIEWED BY LAND DEVELOPMENT DIVISION
BY M. D. Espinoza 3-27-01
SUBDIVISION PLAN CHECKING SECTION DATE

P.C. 11572 PAGE 12



DOUBLE SCALE
NO L.A. CO. CHARGES FOR CONNECTIONS
SEE COUNTY SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES (562) 699-7411 X-2727

55504

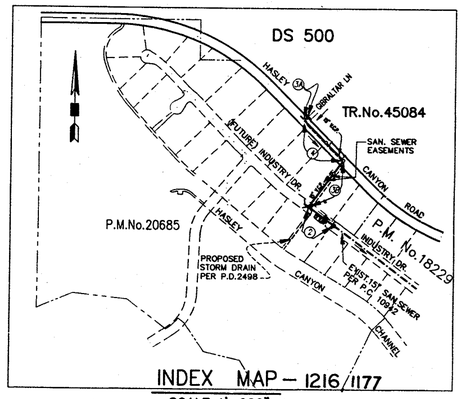


SCALE: VERT.: 1" = 8'
HORIZ.: 1" = 40'

REGISTERED PROFESSIONAL ENGINEER ROBERT R. SIMS No. 21649 EXP. 9-30-01 CIVIL STATE OF CALIFORNIA

REVIEWED BY LAND DEVELOPMENT DIVISION
BY M. D. Espinoza 3-27-01
SUBDIVISION PLAN CHECKING SECTION DATE

BENCH MARK: L 3976
RD BM TAG IN CB 4 FT N/O BCR 70 FT N & 32 FT E/O C/L INT THE OLD ROAD & HASLEY CYN RD OFF-RAMP (● SHELL GAS STATION)
NEWHALL QUAD. (1993) ELEV. 1065.652



INDEX MAP – 1216/1177
SCALE 1'=600'

THOMAS GUIDE PAGES 4459/F-5,G-5

PC No.11491 DS No.500

NOTE: NUMBERS IN CIRCLES INDICATE PAGE NUMBERS.

BUILDING AND SAFETY
SANTA CLARITA OFFICE

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED SLOPE OF SEWER TO 2.40% ON PAGE 3A STA. 1+02 TO STA. 1+14	42890	M.D. Espinoza	10-16-00

STORMWATER POLLUTION CONTROL REQUIREMENTS FOR SEWER CONSTRUCTION

1. Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheetflow, swales, area drains, natural drainage courses or wind.
2. Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.
3. Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
4. Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
5. Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
6. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.
7. Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.

The following BMPs as outlined in, but not limited to, the Best Management Practices Handbook, California Stormwater Quality Task Force, Sacramento, California, 1993, or the latest revised edition,may apply during construction (additional measures may be required if deemed appropriate by County):

CA001 – DEWATERING OPERATIONS	ESC10 – SEEDING AND PLANTING
CA002 – PAVING OPERATIONS	ESC11 – MULCHING
CA003 – STRUCTURE CONSTRUCTION AND PAINTING	ESC20 – GEOTEXTILES AND MATS
CA010 – MATERIAL DELIVERY AND STORAGE	ESC21 – DUST CONTROLS
CA020 – SOLID WASTE MANAGEMENT	ESC22 – TEMPORARY STREAM CROSSING
CA021 – HAZARDOUS WASTE MANAGEMENT	ESC23 – CONSTRUCTION ROAD STABILIZATION
CA023 – CONCRETE WASTE MANAGEMENT	ESC24 – STABILIZED CONSTRUCTION ENTRANCE
CA024 – SANITARY/SEPTIC WASTE MANAGEMENT	ESC54 – STORM DRAIN INLET PROTECTION
CA030 – VEHICLE AND EQUIPMENT CLEANING	
CA031 – VEHICLE AND EQUIPMENT FUELING	
CA032 – VEHICLE AND EQUIPMENT MAINTENANCE	
ESC01 – SCHEDULING	
ESC02 – PRESERVATION OF EXISTING VEGETATION	

STANDARD PLANS:

THE FOLLOWING LATEST REVISED STANDARD PLANS ON FILE IN THE OFFICE OF THE FOLLOW APPLY IN THE CONSTRUCTION OF THIS PROJECT.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

APWA 200-2	PRECAST CONCRETE MANHOLE
APWA 203-0	BRICK SEWER MANHOLE
APWA 207-1	PRECAST REINFORCED CONCRETE MANHOLE BASE.
APWA 210-2	MANHOLE FRAME AND COVER.
APWA 222-0	HOUSE CONNECTION SEWER
APWA 223-0	HOUSE CONNECTION REMODELING
APWA 225-1	BLANKET PROTECTION FOR PIPES

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

2000-0	LEGEND FOR SANITARY SEWER PLANS AND PROFILES AND DISTRICT MAPS.
2021-0	BEDDING FOR SEWER PIPE
2023-1	CRADLING AND ENCASEMENT.
2024-0	WYE OR TEE SUPPORT
2027-0	ALLOWABLE TRENCH WIDTHS
6000-0	MINIMUM PUBLIC SAFETY REQUIREMENTS
2015-0	STANDARD MANHOLE STEP
2100-0	REQUIREMENTS FOR SAN. SEWERS NEAR WATER MAINS

DOUBLE SCALE

REFER TO PC 11694 (PM20685-01) APPROVED ON 08/23/04 FOR INFORMATION RELATIVES TO THE NEW ALIGNMENT OF SEWER MAIN LINE ON PAGE 5

THIS SEWER ~~PRIVATE CONTRACT~~ ACCEPTED ~~FOR PUBLIC USE~~
04/10/2003
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

PRIOR TO ACCEPTANCE FOR MAINTENANCE ALL SANITARY SEWER EASEMENT MUST BE RECORDED.

NO CONNECTION FOR THE DISPOSAL OF INDUSTRIAL WASTES SHELL BE MADE TO SEWER SHOWN ON THESE DRAWINGS UNTIL A PERMIT FOR INDUSTRIAL WASTEWATER DISCHARGE HAS BEEN ISSUED BY THE SANITATION DISTRICTS FOR SAID CONNECTION.

BEFORE BREAKING INTO OR CONSTRUCTION ON A COUNTY SANITATION DISTRICT SEWER AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, A SANITATION DISTRICT INSPECTOR SHALL BE NOTIFIED BY PHONE AT: (805)266-4683, SO THAT REQUIRED INSPECTIONS CAN BE MADE.

PRIVATE CONTRACT SEWER GENERAL NOTES

1. A SEWER CONSTRUCTION PERMIT SHALL BE OBTAINED AND A FEE PAID FOR CONSTRUCTION INSPECTION AND RECORD PLANS TO THE DEPARTMENT OF PUBLIC WORKS AT THE PERMIT COUNTER, 900 SOUTH FREMONT AVENUE, 8TH FLOOR, ALHAMBRA, AT LEAST 72 HOURS PRIOR TO STARTING WORK UNDER THIS CONTRACT. COPIES OF ALL OTHER REQUIRED PERMITS, SUCH AS ROAD EXCAVATION, CALTRANS ETC. MUST BE FILED WITH THE PERMIT APPLICATION.
2. PRIOR TO ISSUANCE OF ANY PERMIT,THE CONTRACTOR SHALL FILE A PERMIT FOR EXCAVATIONS AND TRENCHES FROM THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY,AND A CERTIFICATE OF WORKERS' COMPENSATION INSURANCE WITH THE DEPARTMENT OF PUBLIC WORKS NAMED AS THE CERTIFICATE HOLDER TO BE NOTIFIED 30 DAYS PRIOR TO CANCELLATION OF POLICY.
3. IF WORK IS TO BE DONE IN A STATE HIGHWAY, A PERMIT MUST BE OBTAINED FROM THE STATE OF CALIFORNIA DIVISION OF HIGHWAY, 120 SOUTH SPRING STREET, LOS ANGELES, CALIFORNIA.
4. WHEN WORK IS WITHIN A CONTRACT CITY, THE CONTRACTOR MUST CONTACT THE DIRECTOR OF PUBLIC WORKS OF THAT CITY TO DETERMINE THE LOCATION TO PAY THE INSPECTION FEE.
5. THE CONTRACTOR SHALL CONTACT THE DISTRICT OFFICE LISTED ON THE "APPLICATION FOR CONSTRUCTION PERMIT" TO ARRANGE FOR AN ACCEPTABLE CONSTRUCTION START DATE, AND SHALL NOTIFY THE CONSTRUCTION DIVISION BY TELEPHONE (818)458-3129 AT LEAST TWENTY-FOUR HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
6. APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO ACCURACY OF THE LOCATION OF OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAGES.
7. ALL WORK SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, INCLUDING SUPPLEMENTS AND THE SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SANITARY SEWERS, AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE DEPARTMENT OF PUBLIC WORKS PERSONNEL.
8. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 7-10.4.1 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION IN REGARD TO SAFETY ORDERS AND SHALL CONFORM TO THE "MINIMUM PUBLIC SAFETY REQUIREMENTS" AS SHOWN ON LOS ANGELES DEPARTMENT OF PUBLIC WORKS' STANDARD S-2.
9. ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929.
10. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.
11. NO REPRESENTATIVE OF THE DEPARTMENT OF PUBLIC WORKS WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
12. GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTERLINE OF STREETS, OR CENTERLINE OF ALLEYS, ARE SHOWN BY CIRCLES ON PROFILES AT ALL POINTS BETWEEN DESIGNATED POINTS.THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
13. THE PRIVATE ENGINEER SHALL FURNISH THE DEPARTMENT OF PUBLIC WORKS WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND "Y"OR"T" BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHIMNEYS SHALL NOT HAVE AN ANGLE OF LESS THAN 45F WITH THE M.L. SEWER ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
14. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE TOP CURB ELEVATION FOR EACH HOUSE LATERAL ON THE GRADE SHEET.

CONSTRUCTION NOTES

1. PROVIDE SURVEY STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTERLINE OF EACH MANHOLE.
2. VITRIFIED CLAY PIPE JOINTS SHALL BE TYPE "D" OR "G" PER STANDARD SPECIFICATIONS SECTION 208-2.
3. IF A POWER POLE IS WITHIN THREE FEET OF THE SEWER, THE SEWER SHALL BE ENCASED PER STANDARD PLAN 2023-1, CASE II. TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
4. ALL JOINTS BETWEEN CAST IRON PIPE AND VITRIFIED CLAY PIPE SHALL BE MADE WITH A RUBBER SLEEVE JOINT, TYPE "D" (WITH BUSHING IF NECESSARY) PER STANDARD SPECIFICATIONS SECTION 208-2.
5. HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT PROPERTY LINE 6 FEET BELOW CURB GRADE EXCEPT AS NOTED.
6. WYE OR TEE BRANCHES MAY BE USED FOR CONNECTIONS TO MAINLINE SEWERS EXCEPT AS NOTED.
7. IF DURING THE COURSE OF CONSTRUCTION, IT IS DETERMINED THAT THERE IS LESS THAN FOUR FEET OF COVER OVER THE TOP OF A MAINLINE OR HOUSE LATERAL V.C.P. SEWER WHICH IS NOT INDICATED ON THE PLANS, THE PIPE SHALL BE ENCASED PER STANDARD PLANS S-23 CASE II, UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
8. ALL STRUCTURES SHALL BE EITHER BRICK SEWER MANHOLES PER STANDARD PLAN S-3 OR PRECAST CONCRETE SEWER MANHOLES PER STANDARD PLAN S-36, OR REINFORCED PRECAST CONCRETE MANHOLE PER STANDARD PLAN S-8, EXCEPT AS NOTED.
9. RESURFACE ALL TRENCHES WITHIN PAVED AREAS TO MEET LOS ANGELES COUNTY PUBLIC WORKS OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH THE PERMITS.
10. FULL COMPLIANCE WITH SECTION 306-1.3.4 OF THE STANDARD SPECIFICATIONS WILL BE REQUIRED FOR BACKFILL IN STREETS. CERTIFICATION OF BACKFILL COMPACTION AND SAND EQUIVALENTS BY A QUALIFIED CIVIL ENGINEER SHALL BE PROVIDED BY THE PERMITTEE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF PARTIAL ACCEPTANCE.
11. ALL BACKFILL AND FILLS OUTSIDE OF STREET RIGHT OF WAY SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM SOIL COMPACTION TEST D 1557-78 METHOD "D" UNLESS OTHERWISE SPECIFIED. THIS SHALL BE CERTIFIED BY A QUALIFIED CIVIL ENGINEER. THIS CERTIFICATION SHALL BE SUBMITTED TO THE CONSTRUCTION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS PRIOR TO ACCEPTANCE OF THE WORK BY THE COUNTY.
12. MANHOLE TOPS IN IMPROVED RIGHTS OF WAY TO BE LEVEL WITH FINISHED GRADE.
13. SEWERS TO BE TESTED FOR LEAKAGE PER SECTION 306-1.4 OF THE STANDARD SPCIFICATION AND SPECIAL PROVISIONS.
14. ALL WYES AND/OR HOUSE LATERALS ARE TO BE LOCATED AT LEAST FIVE FEET APART AND WHEN POSSIBLE NOT CLOSER THAN FIVE FEET TO ANY MANHOLE.

PROFILE, ALIGNMENT AND GRADE OF SANITARY SEWERS

TO BE CONSTRUCTED IN

DS 500 PC NO. 11491

2 SHEETS: 4 PAGES

COUNTY OF LOS ANGELES CALIFORNIA

INDEX-1216, 1177

55360

HARRY W. STONE DIRECTOR OF PUBLIC WORKS

APPROVED: LAND DEVELOPMENT DIVISION

BY [signature] ASSISTANT DIVISION ENGINEER 8/8/00 DATE

SUBMITTED BY [signature] SUBDIVISION PLAN CHECKING SECTION 8/8/00 DATE

APPROVED: COUNTY SANITATION DISTRICT OF LOS ANGELES CALIF.
JAMES F. STAHL – CHIEF ENGINEER and GENERAL MANAGER

COUNTY SANITATION DISTRICT NO. 32

BY [signature] for OFFICE ENGINEER DATE: 8/9/00

PRIVATE ENGINEERS NOTICE TO CONTRACTORS:

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS IS REQUIRED BY A SEARCH OF AVAILABLE RECORDS TO THE BEST OF OUR KNOWLEDGE. THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS M.I.P. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING. PRIOR TO EXCAVATION THE CONTRACTOR SHALL CALL TOLL FREE 1-800-422-4133 TO VERIFY THE UNDERGROUND LOCATION OF GAS AND TELEPHONE LINES. THE CONTRACTOR SHALL ALSO CALL MR. RAY CUMMINGS OF GENERAL TELEPHONE COMPANY AT 1-805-948 4871 SO THAT THEY CAN MARK THE LOCATION OF UNDERGROUND TELEPHONE LINES.

[signature] RCE NO. 42890 03/14/00 DATE

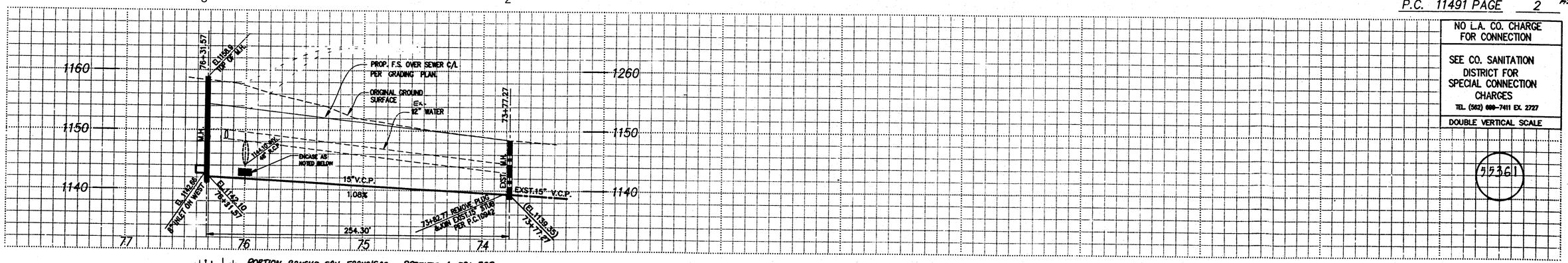
P.C. 11491 PAGE 2

NO L.A. CO. CHARGE FOR CONNECTION

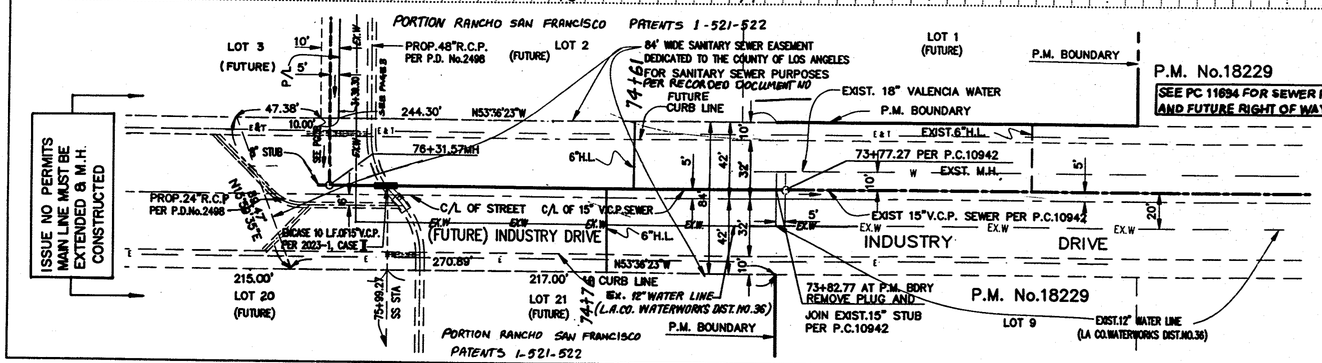
SEE CO. SANITATION DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411 EX. 2727

DOUBLE VERTICAL SCALE

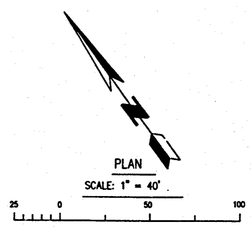
55361



RECORD PLANS



ISSUE NO PERMITS MAIN LINE MUST BE EXTENDED & M.H. CONSTRUCTED



REGISTERED PROFESSIONAL ENGINEER JOKA SARKISSIAN NO.42890 EXP.03-31-01 CIVIL STATE OF CALIFORNIA

[signature] PROJECT ENGINEER 03/14/00 DATE

SANITARY SEWER PLANS IN
DS 500 P.C. No. 11491

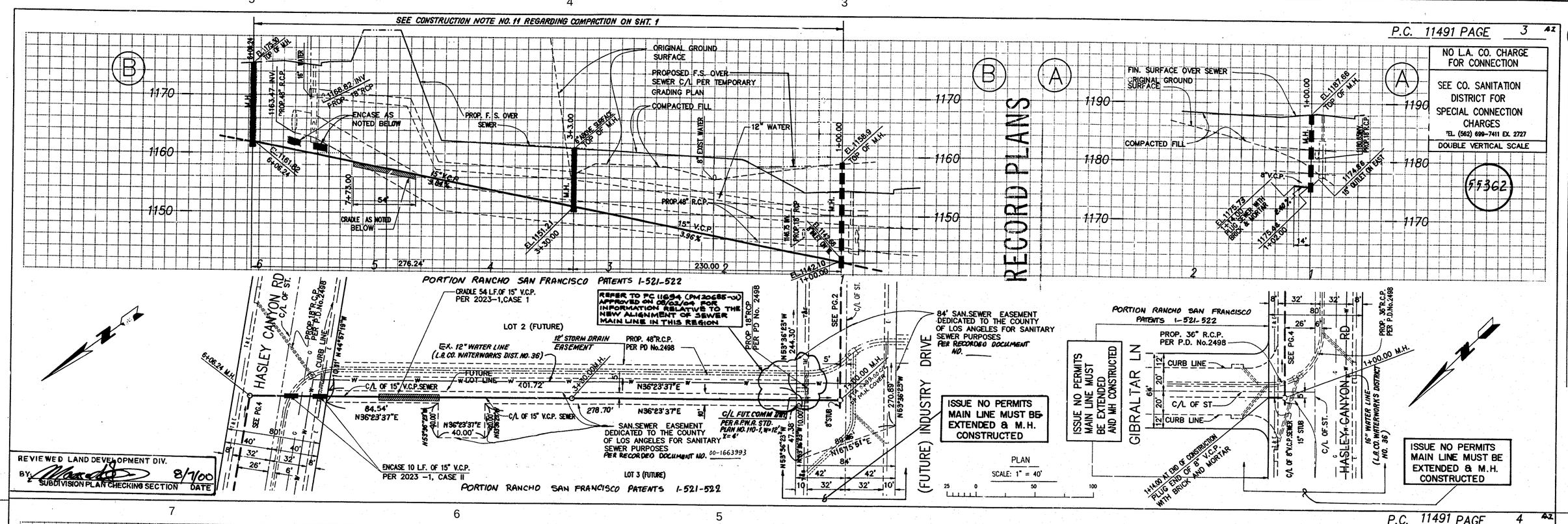
REVIEWED LAND DEVELOPMENT DIVISION
BY [signature] SUBDIVISION PLAN CHECKING SECTION 8/7/00 DATE

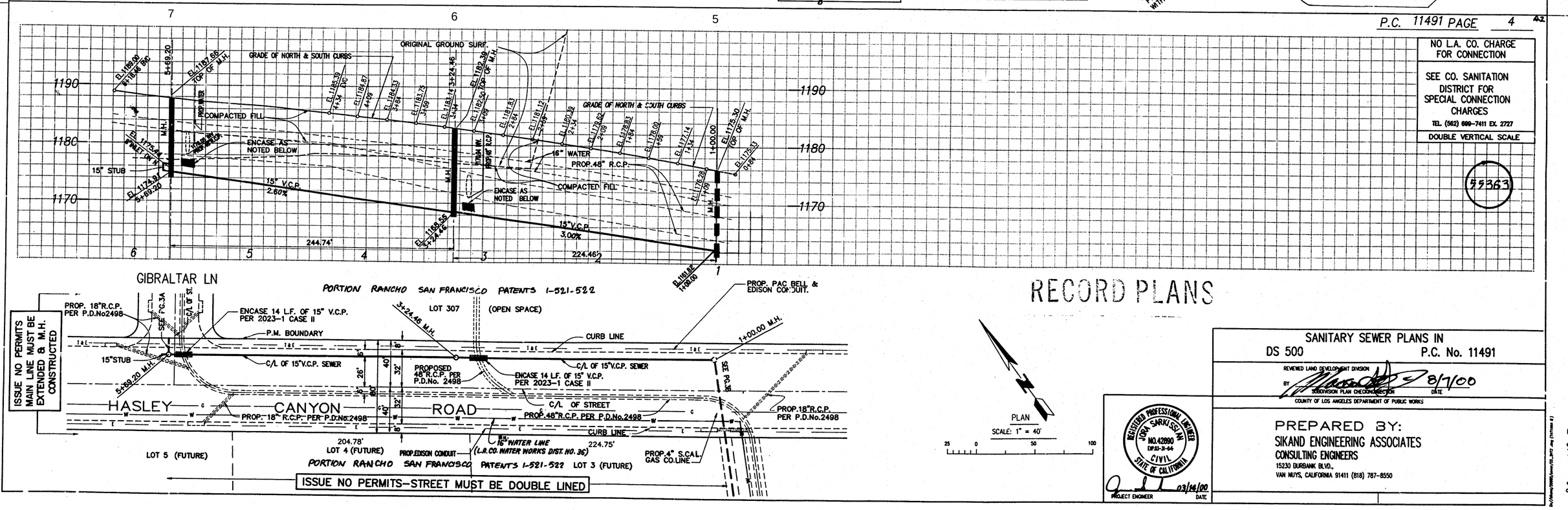
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
CONSULTING ENGINEERS
15230 BURBANK BLVD.,
VAN NUYS, CALIFORNIA 91411 (818) 787-8550

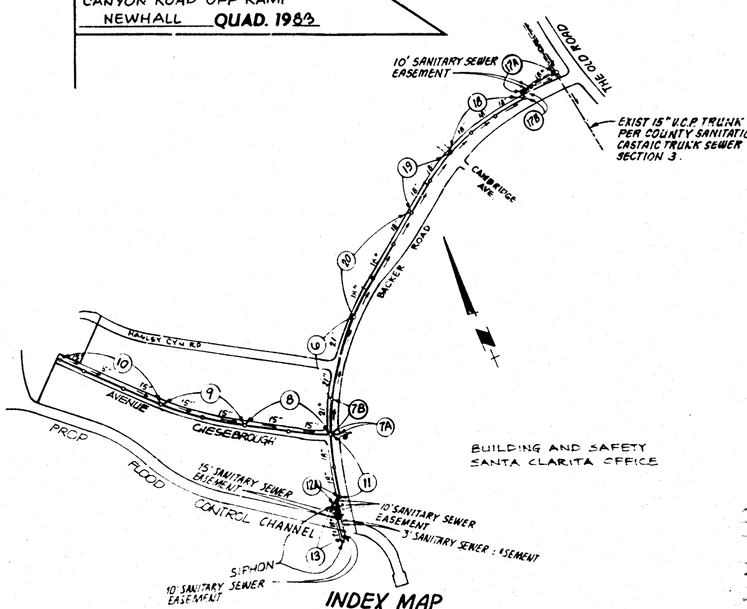
PSC002218-1

DS 500 P.C. No. 11491


SEE CONSTRUCTION NOTE NO. 11 REGARDING COMPACTION ON SHT. 1
P.C. 11491 PAGE 3
NO L.A. CO. CHARGE FOR CONNECTION
SEE CO. SANITATION DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411 EX. 2727
DOUBLE VERTICAL SCALE
55362
ORIGINAL GROUND SURFACE
PROPOSED F.S. OVER SEWER C/L PER TEMPORARY GRADING PLAN
COMPACTED FILL
ENCASE AS NOTED BELOW
PROP. F.S. OVER SEWER
12" WATER
CRADLE AS NOTED BELOW
PROP. 48" R.C.P.
15" V.C.P. 3.96%
276.24'
230.00
PORTION RANCHO SAN FRANCISCO PATENTS 1-521-522
HASLEY CANYON RD
CRADLE 54 L.F. OF 15" V.C.P. PER 2023-1, CASE 1
REFER TO PC 11694 (PM 20685-01) APPROVED ON 08/02/04 FOR INFORMATION RELATIVE TO THE NEW ALIGNMENT OF SEWER MAIN LINE IN THIS REGION
LOT 2 (FUTURE)
12' STORM DRAIN EASEMENT
EX. 12" WATER LINE (L.A. CO. WATERWORKS DIST. NO. 36)
PROP. 48" R.C.P. PER PD No. 2498
C/L OF 15" V.C.P. SEWER
N36°23'37"E
84.54'
SAN. SEWER EASEMENT DEDICATED TO THE COUNTY OF LOS ANGELES FOR SANITARY SEWER PURPOSES PER RECORDED DOCUMENT NO. 00-1663993
ENCASE 10 L.F. OF 15" V.C.P. PER 2023-1, CASE II
LOT 3 (FUTURE)
PORTION RANCHO SAN FRANCISCO PATENTS 1-521-522
84' SAN. SEWER EASEMENT DEDICATED TO THE COUNTY OF LOS ANGELES FOR SANITARY SEWER PURPOSES PER RECORDED DOCUMENT NO.
(FUTURE) INDUSTRY DRIVE
ISSUE NO PERMITS MAIN LINE MUST BE EXTENDED & M.H. CONSTRUCTED
PLAN
SCALE: 1" = 40'
ISSUE NO PERMITS MAIN LINE MUST BE EXTENDED AND MH CONSTRUCTED
GIBRALTAR LN
PORTION RANCHO SAN FRANCISCO PATENTS 1-521-522
PROP. 36" R.C.P. PER P.D. No.2498
CURB LINE
C/L OF ST.
HASLEY CANYON RD
ISSUE NO PERMITS MAIN LINE MUST BE EXTENDED & M.H. CONSTRUCTED
REVIEWED LAND DEVELOPMENT DIV.
SUBDIVISION PLAN CHECKING SECTION
8/7/00
DATE
RECORD PLANS
DS 500 P.C. No. 11491


P.C. 11491 PAGE 4
NO L.A. CO. CHARGE FOR CONNECTION
SEE CO. SANITATION DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411 EX. 2727
DOUBLE VERTICAL SCALE
55363
ORIGINAL GROUND SURF.
GRADE OF NORTH & SOUTH CURBS
COMPACTED FILL
ENCASE AS NOTED BELOW
16" WATER
PROP. 48" R.C.P.
15" V.C.P. 2.60%
15" V.C.P. 3.00%
244.74'
224.46'
GIBRALTAR LN
PORTION RANCHO SAN FRANCISCO PATENTS 1-521-522
PROP. PAC BELL & EDISON CONDUIT
PROP. 18" R.C.P. PER P.D.No2498
ENCASE 14 L.F. OF 15" V.C.P. PER 2023-1 CASE II
P.M. BOUNDARY
LOT 307 (OPEN SPACE)
CURB LINE
15" STUB
C/L OF 15" V.C.P. SEWER
PROPOSED 48" R.C.P. PER P.D.No. 2498
ENCASE 14 L.F. OF 15" V.C.P. PER 2023-1 CASE II
HASLEY CANYON ROAD
C/L OF STREET
PROP. 18" R.C.P. PER P.D.No.2498
PROP. 48" R.C.P. PER P.D.No.2498
204.78'
224.75'
LOT 4 (FUTURE)
PROP. EDISON CONDUIT
16" WATER LINE (L.A. CO. WATER WORKS DIST. NO. 36)
PROP. 4" S.C.A.L. GAS CO. LINE
LOT 5 (FUTURE)
PORTION RANCHO SAN FRANCISCO PATENTS 1-521-522
LOT 3 (FUTURE)
ISSUE NO PERMITS MAIN LINE MUST BE EXTENDED & M.H. CONSTRUCTED
ISSUE NO PERMITS-STREET MUST BE DOUBLE LINED
PLAN
SCALE: 1" = 40'
RECORD PLANS
SANITARY SEWER PLANS IN
DS 500 P.C. No. 11491
REVIEWED LAND DEVELOPMENT DIVISION
SUBDIVISION PLAN CHECKING SECTION
8/7/00
DATE
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
REGISTERED PROFESSIONAL ENGINEER
JOHN SARKISSIAN
NO. 42890
EXP. 03-31-04
CIVIL
STATE OF CALIFORNIA
03/14/00
PROJECT ENGINEER
DATE
PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
CONSULTING ENGINEERS
15230 BURBANK BLVD.,
VAN NUYS, CALIFORNIA 91411 (818) 787-8550
DS000218-2

B.M. CL 3976 ELEV. 1065.685
RDBM TAG IN CB 4 FT. N BCR 70 FT. N & 32 FT. E CL INT. OLD ROAD & HASLEY CANYON ROAD OFF RAMP
NEWHALL QUAD. 1983



INDEX MAP

SCALE: 1" = 600'

P.C. NO. 10942
P.M. NO. 18229
T.G. 123 - D4

NOTE: NUMBERS IN CIRCLES INDICATE PAGE NUMBER

DOUBLE SCALE

NO CONNECTION FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS UNTIL A PERMIT FOR INDUSTRIAL WASTEWATER DISCHARGE HAS BEEN ISSUED BY THE SANITATION DISTRICTS FOR SAID CONNECTION.

BEFORE BREAKING INTO OR CONSTRUCTION ON A COUNTY SANITATION DISTRICT SEWER AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, SANITATION DISTRICT INSPECTOR SHALL BE NOTIFIED BY PHONE (805) 947-5027 SO THAT REQUIRED INSPECTION CAN BE MADE.

IS SEWER PRIVATE CONTRACT
ACCEPTED FOR PUBLIC USE
5-8-97
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
AND DEVELOPMENT DIVISION

REVISION NO 1 DATE 3-26-91
PAGE 10, ADDED 6" H.L. @ STA. 68+65.00
APPROVED BY: Sanjiv Gilbert RCE No. 33134
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

REVISION NO. 2 DATE 9-16-91
1. REVISED KEY MAP AND NUMBER OF SHEETS / PAGES IN TITLE BLOCK ON PAGE-1.
2. VOIDED PAGES 2, 3, 4 & 5 AND SUPERSEDED WITH NEW PAGES 17, 18, 19 & 20 DUE TO ROAD RE-ALIGNMENT.
3. VOIDED PAGE 16 (BLANK PAGE)
4. ADDED SHEETS 9 & 10 (PAGES 17, 18, 19 & 20.)
5. REVISED PLAN & PROFILE ON PAGE 12 B
APPROVED BY: Sanjiv Gilbert 4/23/92 R.C.E. NO. 33134
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

REVISION NO. 3 DATE: 12-07-92
1. PAGE 13 - JOIN 18"x5" WYE TO EXIST. 18" STUB OF SIPHON M.H. @ STA. 46+90.00
APPROVED BY: Sanjiv Gilbert R.C.E. NO 33134
12/7/92 OFFICE OF THE DIRECTOR OF PUBLIC WORKS

GENERAL NOTES:

1. ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929
2. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS
3. NO REPRESENTATIVE OF THE DEPARTMENT OF PUBLIC WORKS WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK
4. GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR STREET CURBS, CENTER LINE OF STREETS OR CENTER LINE OF ALLEYS ARE SHOWN BY CIRCLES ON PROFILES. AT ALL POINTS BETWEEN DESIGNATED POINTS THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
5. THE PRIVATE ENGINEER SHALL FURNISH THE DEPARTMENT OF PUBLIC WORKS WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND "Y" OR "T" BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT LINE, EXACTLY RIGHT ANGLES TO THE MAIN SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHIMNEYS SHALL NOT HAVE AN ANGLE OF LESS THAN 45° WITH THE MAIN LINE SEWER. ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
6. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTHS AT THE PROPERTY LINE BY THE DIRECTOR OF PUBLIC WORKS. HOUSE LATERAL ON THE GRADE SHEET.
7. BEFORE WORK CAN BE STARTED, THE CONTRACTOR MUST OBTAIN A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE CONSTRUCTION DIVISION OF THE LOS ANGELES DEPARTMENT OF PUBLIC WORKS. PERMIT OFFICE NO. 6 AND PAY FEE TO THE DIRECTOR OF PUBLIC WORKS, 900 S. FREEMONT AVE., ALHAMBRA, CALIFORNIA 91803 - 8TH FLOOR, TO COVER THE COST OF CONSTRUCTION INSPECTION AND RECORD PLANS.
8. WORK TO BE DONE IN A STATE HIGHWAY A PERMIT MUST BE OBTAINED FROM THE STATE DEPARTMENT OF PUBLIC WORKS, 100 SPRING STREET, LOS ANGELES, CALIFORNIA.
9. APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ADEQUACY OF THE SOIL OR GEOLOGICAL CONDITIONS, THE ENGINEER OR OWNER ASSUMES THE RISK OF ANY LIABILITY ARISING FROM THE CONSTRUCTION OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAGES.
10. REFER TO SECTION 7.08.010 OF THE STANDARD SPECIFICATIONS REGARDING SAFETY RULES.
11. PRIOR TO THE ISSUANCE OF THE REQUIRED SEWER CONSTRUCTION PERMIT, THE CONTRACTOR SHALL OBTAIN AND FILE WITH THE DEPARTMENT OF PUBLIC WORKS COPIES OF A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE CONSTRUCTION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS, A PERMIT FOR EXCAVATIONS AND TRENCHES FROM THE STATE DIVISION OF INDUSTRIAL SAFETY AND A CERTIFICATE OF WORKER'S COMPENSATION INSURANCE WITH THE DEPARTMENT OF PUBLIC WORKS, 900 S. FREMONT AVE., ALHAMBRA, CALIFORNIA 91803 - 8TH FLOOR, NAMED AS THE CERTIFICATE HOLDER TO BE NOTIFIED 15 DAYS PRIOR TO CANCELLATION OF POLICY.

CONSTRUCTION NOTES:

1. WORK SHALL BE CONSTRUCTED ACCORDING TO THE STANDARD SPECIFICATIONS OF PUBLIC WORKS, [illegible] AND DEPARTMENT OF PUBLIC WORKS SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SANITARY SEWERS DATED JULY 31, 1989 AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE DEPARTMENT OF PUBLIC WORKS.
2. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION DIVISION TELEPHONE [illegible] DEPARTMENT OF PUBLIC WORKS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
3. HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT PROPERTY LINE 7 FEET BELOW CURB GRADE EXCEPT AS NOTED.
4. WYE OR TEE BRANCHES MAY BE USED FOR CONNECTIONS TO MAIN LINE SEWER EXCEPT AS NOTED.
5. ALL STRUCTURES SHALL BE ~~either brick lined manholes per S-6.00~~ PRECAST CONCRETE SEWER MANHOLES PER S-36 EXCEPT AS NOTED.
6. PROVIDE STUBS FOR THE FUTURE PROPERTY LINE SERVICES AT THE LOWEST PROPERTY LINE ELEVATION OF EACH MANHOLE.
7. MANHOLES OVER 15 FEET DEEP SHALL HAVE A MINIMUM OF [illegible] FEET OF VERTICAL WALL.
8. STREET [illegible] SHALL BE [illegible] DEPARTMENT OF PUBLIC WORKS.
9. [illegible] MANHOLE [illegible] PER S-[illegible] EXCEPT AS NOTED.
10. [illegible] PROPERTY LINE.
11. [illegible] DEPARTMENT OF PUBLIC WORKS.
12. [illegible] BETWEEN [illegible] STREET [illegible] SHALL BE [illegible] DEPARTMENT OF PUBLIC WORKS.
13. [illegible] SEWER [illegible] SHALL BE [illegible] DEPARTMENT OF PUBLIC WORKS.
14. [illegible] PER S-[illegible] EXCEPT AS NOTED.
15. [illegible] PERMIT FEE FOR THE COUNTY SANITATION DISTRICT.
16. [illegible] EASEMENT. CONSTRUCTION [illegible] SHALL BE SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS DEPARTMENT.

PROFILE, ALIGNMENT AND GRADE OF

SANITARY SEWERS

TO BE CONSTRUCTED IN

PARCEL MAP NO. 18229

PRIVATE CONTRACT NO. 10942

INDEX: 121W
10 SHEETS: 20 PAGES

PAGE 1

SCALE: 1" = 40' MARCH 1990

53649

PREPARED IN THE OFFICES OF
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD. VAN NUYS, CA 91411, TEL (818) 787-8550
BY: Ronald K. Sikand
REG. C.E. NO. 16913

SIPHON MANHOLE	5.8
GRADING AND ENCASEMENT	5.23

IN ADDITION THE FOLLOWING COUNTY SANITATION DISTRICT STANDARDS SHALL APPLY TO THE CONSTRUCTION OF THIS PROJECT:

STD. MANHOLE TYPE "D"	S-2-208
STD. 36" MANHOLE FRAME WITH 30" COVER	S-2-226
STD. [illegible]	S-2-[illegible]
STD. TRAFFIC MANHOLE FRAME & COVER	S-2-[illegible]

COUNTY OF LOS ANGELES CALIFORNIA

THOMAS A. DEMAGGIO
DIRECTOR OF PUBLIC WORKS

WILLIAM T. FUJIOKA
CHIEF ENGINEER

APPROVED: N. C. Katzenyler 8/15/90 APPROVED: Anthony Lee 8/27/90

TWH

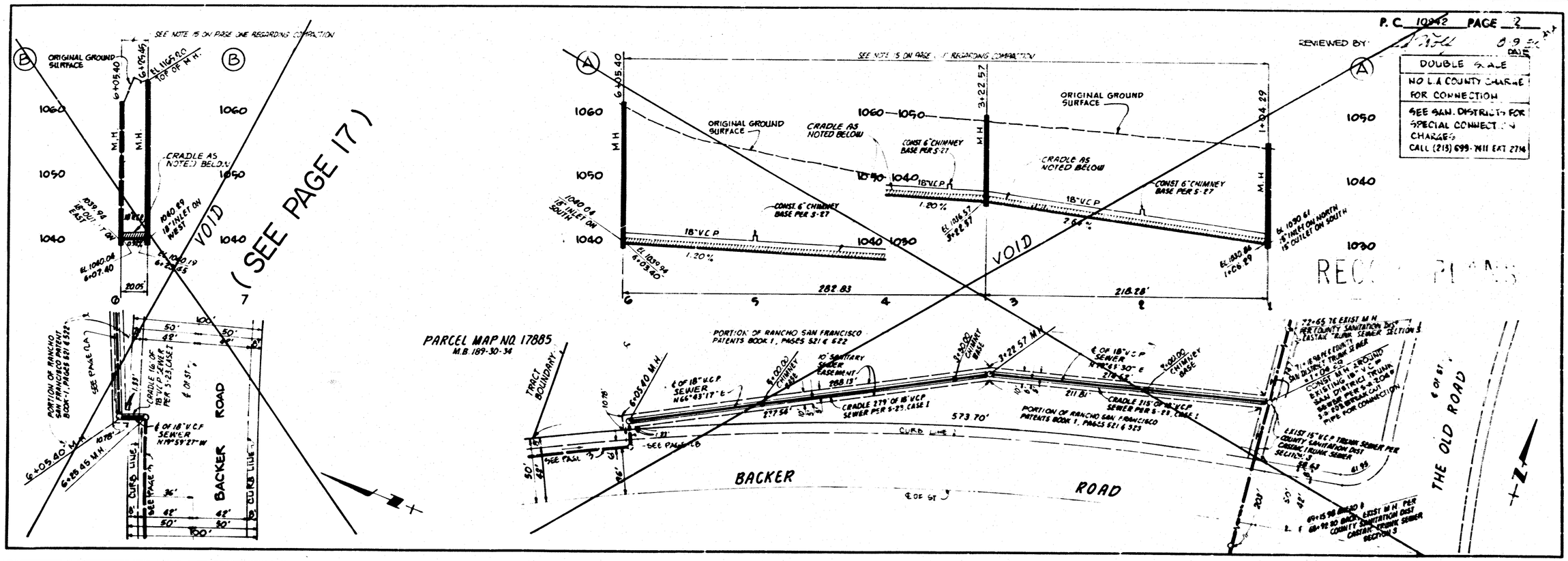
Sanjiv Gilbert 8.9.90
33134

SANTA CLARITA VALLEY

P. C. 10942 PAGE 2

REVIEWED BY: [illegible] 8-9-90 DATE

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES
CALL (213) 699-7411 EXT. 2714



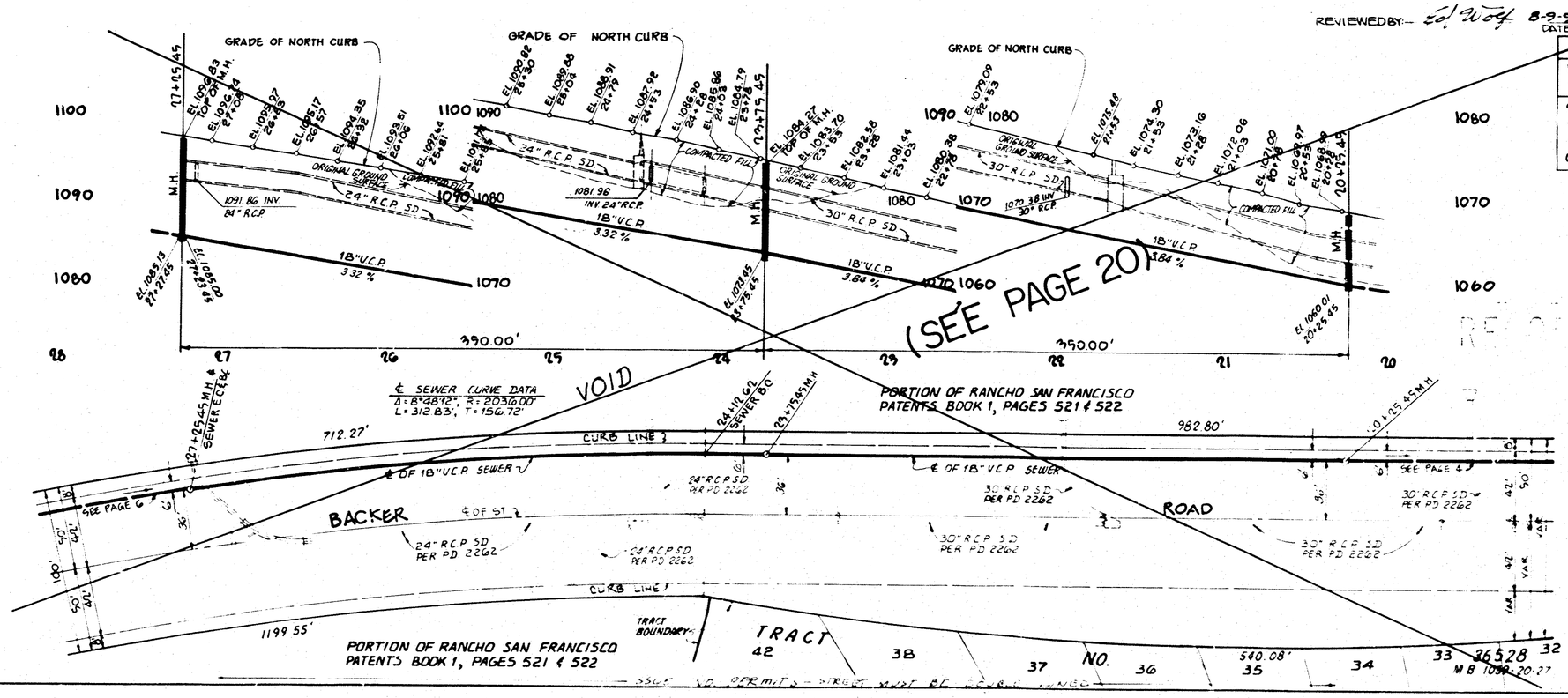
PARCEL MAP NO. 17885
M.B. 189-30-34

L.A. COUNTY SURVEY DIST. NO. 1 (213) 699-0444 12-87

020-187-3

REVIEWED BY — 8-9-90 DATE P.C. 10942 PAGE 5

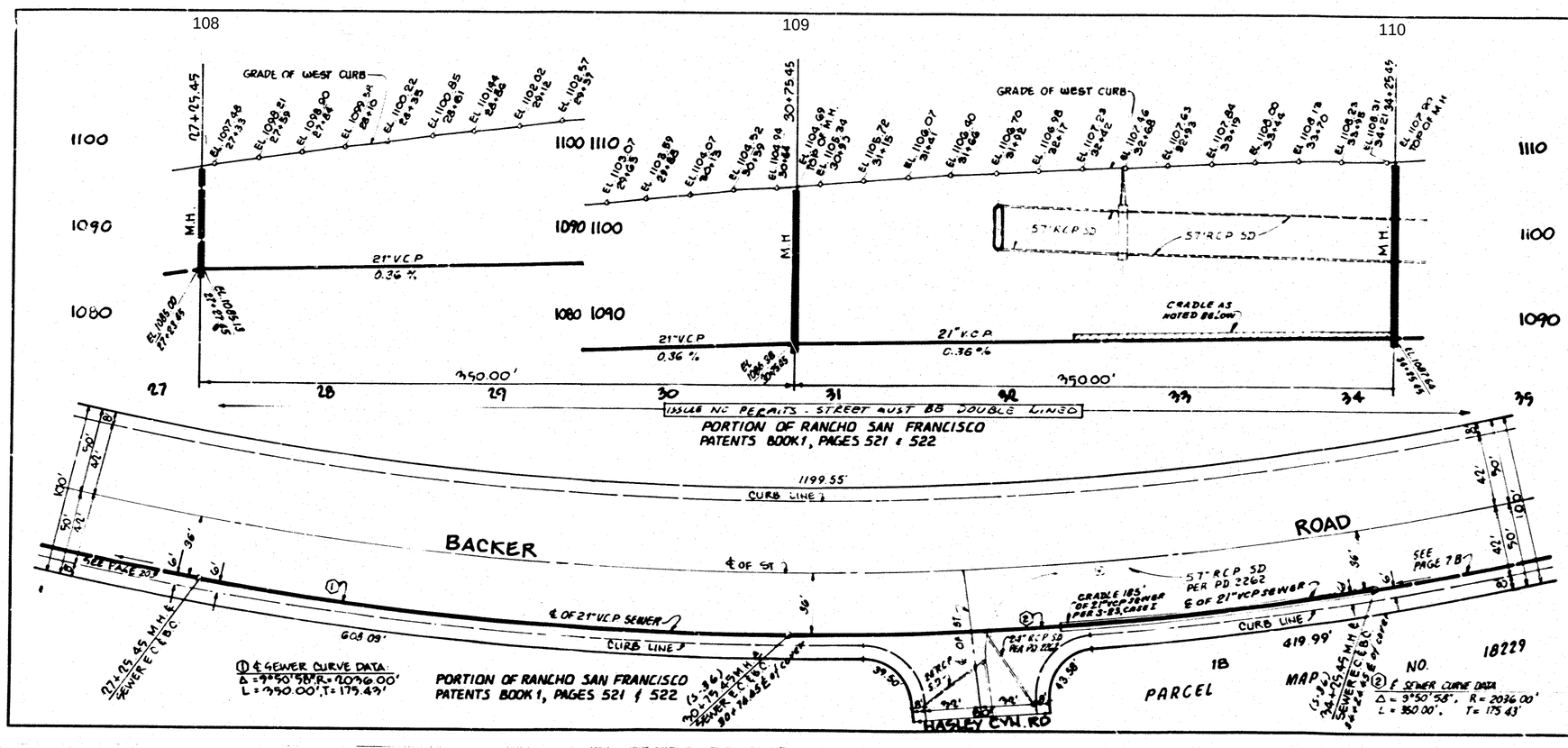
DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES
CALL (213) 699-7411 EXT 2714



REVIEWED BY — 8-9-90 DATE P.C. 10942 PAGE 6

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES
CALL (213) 699-7411 EXT 2714

53650



1020-187-5

REVIEWED BY [signature] 8-9-90 DATE P.C. 10942 PAGE 7

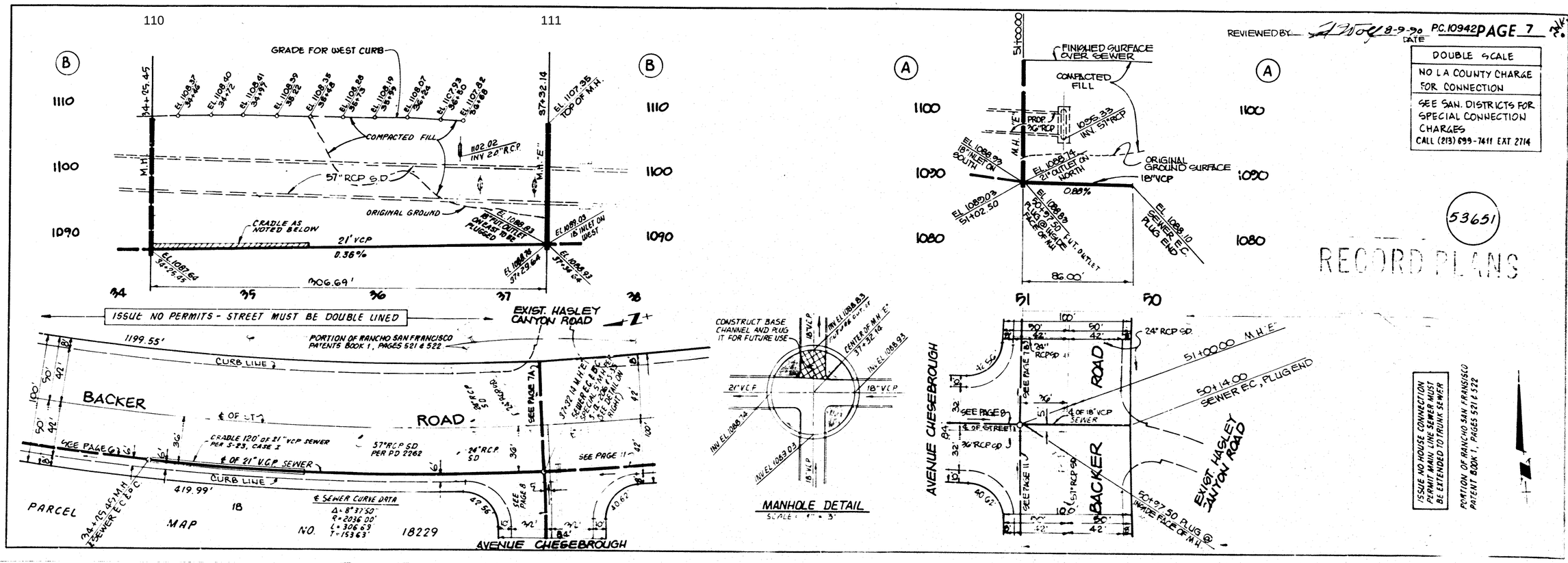
DOUBLE SCALE

NO L.A. COUNTY CHARGE FOR CONNECTION

SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES
CALL (213) 699-7411 EXT 2714

53651

RECORD PLANS



REVIEWED BY [signature] 8-9-90 DATE P.C. 10942 PAGE 8

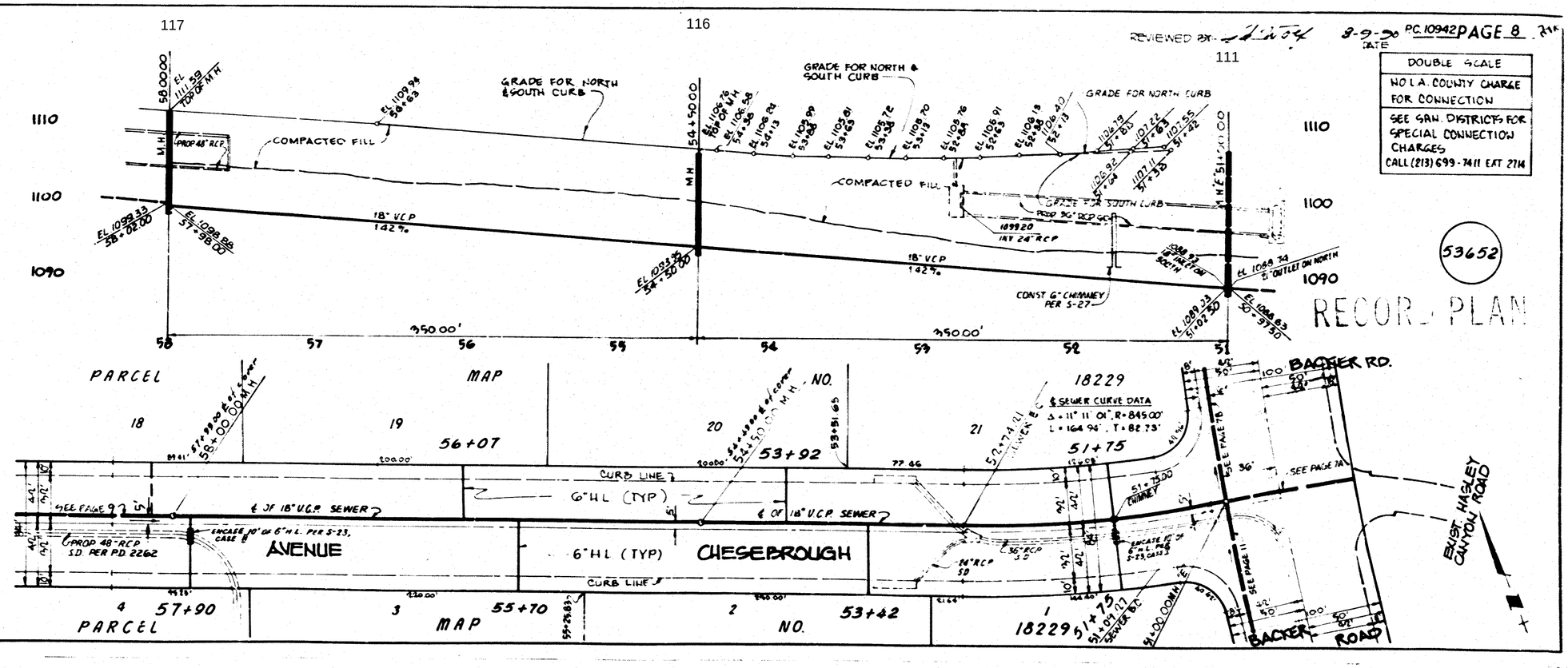
DOUBLE SCALE

NO L.A. COUNTY CHARGE FOR CONNECTION

SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES
CALL (213) 699-7411 EXT 2714

53652

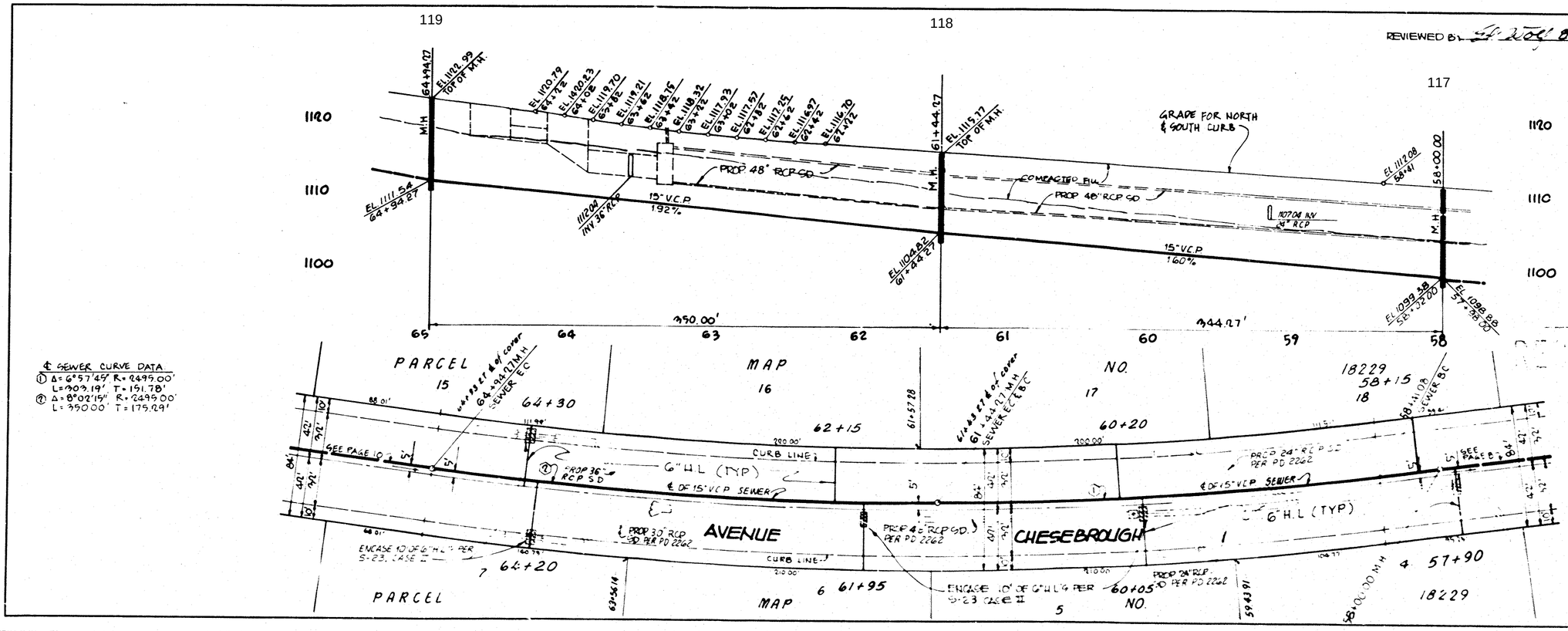
RECORD PLANS



REVIEWED BY [illegible] DATE 8-9-90 P.C.10942 PAGE 9

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES CALL (213) 699-7411 EXT. 2714

53653

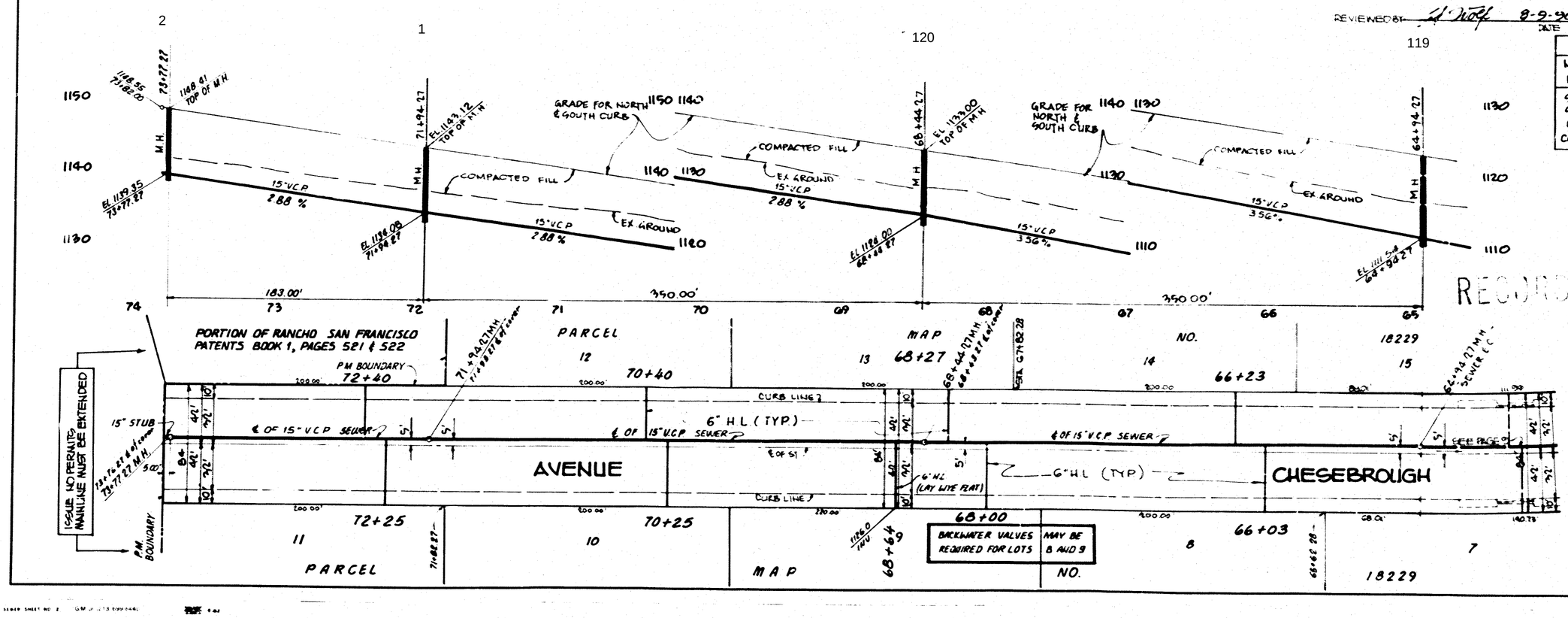


REVIEWED BY [illegible] DATE 8-9-90 P.C.10942 PAGE 10

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES CALL (213) 699-7411 EXT. 2714

53654

RECORD PLANS



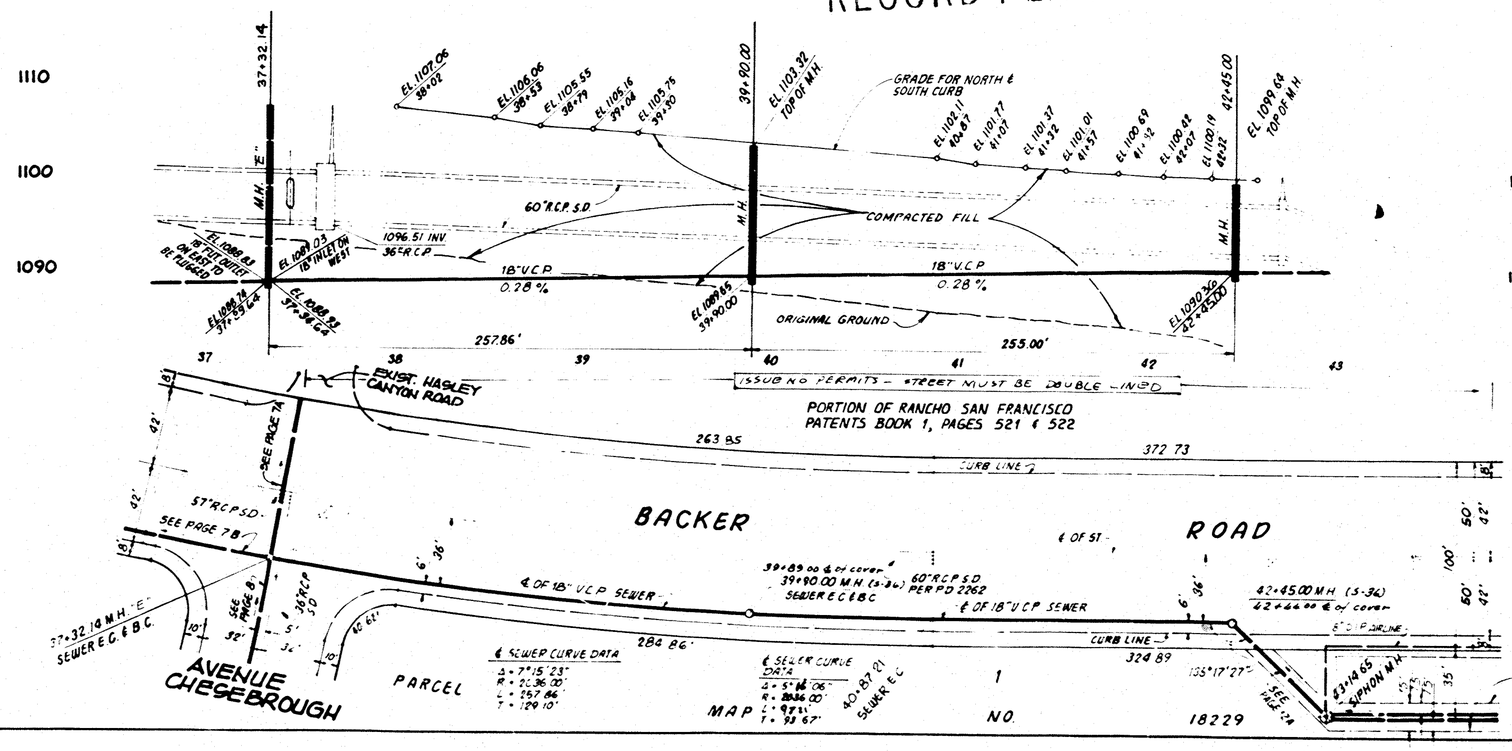
1020-187-3

RECORD PLANS

REVIEWED BY Ed Wolf DATE 8-9-90 P.C.10942 PAGE 11

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN DISTRICTS FOR SPECIAL CONNECTION CHARGES CALL (213) 699-7411 EXT 2714

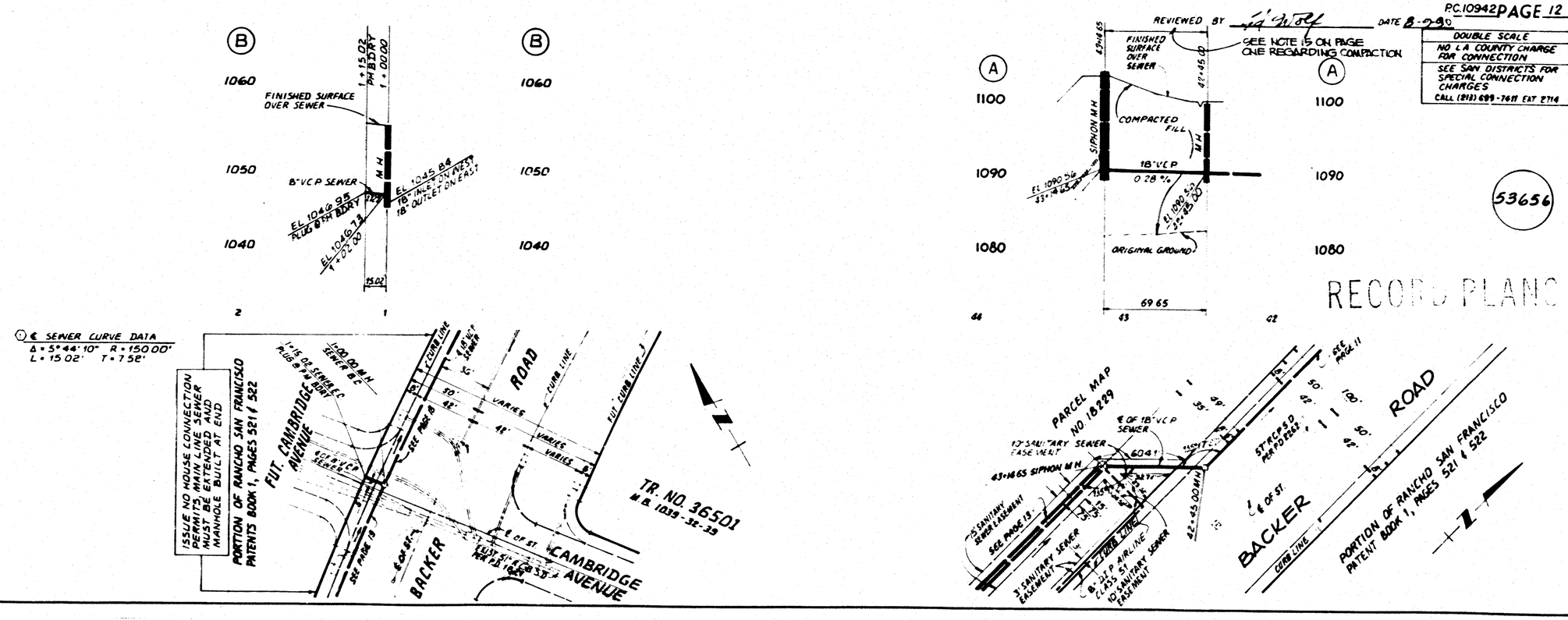
53655



REVIEWED BY Ed Wolf DATE 8-9-90 P.C.10942 PAGE 12

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN DISTRICTS FOR SPECIAL CONNECTION CHARGES CALL (213) 699-7411 EXT 2714

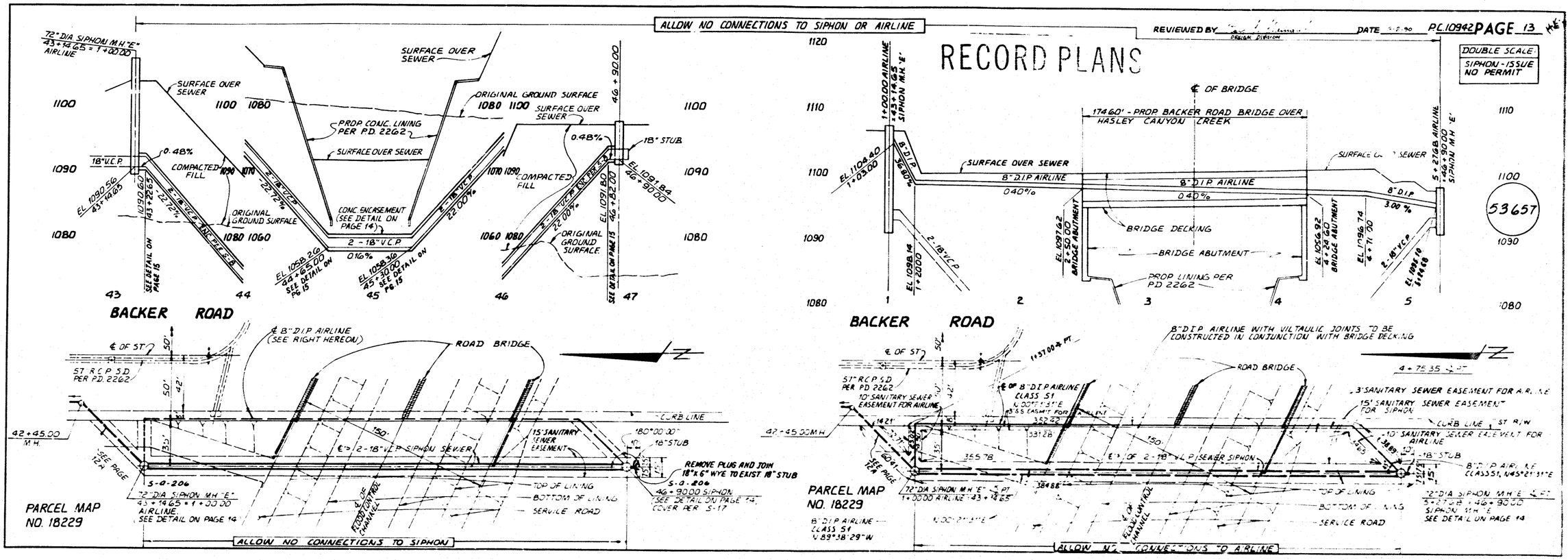
53656



RECORD PLANS

RECORD PLANS

DOUBLE SCALE: SIPHON - ISSUE NO PERMIT



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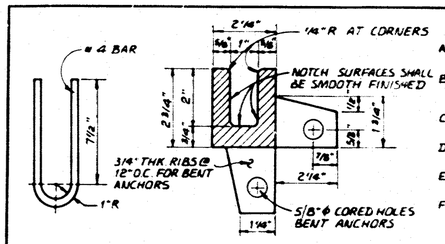


NOTES:

A CAST IRON NOTCHES SHALL BE GRAY IRON CASTING ASTM - A-48 CLASS 35B

B THE ENDS OF THE NOTCH PIECES SHALL BE PROVIDED WITH RIBS MACHINED SO THAT NOTCH SECTIONS MAY BE JOINED WITH 1/2" ϕ BOLTS

C BENT ANCHORS SHALL BE SUPPORTED IN A HORIZONTAL POSITION DURING CONCRETE POURING

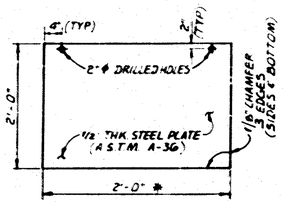
D SUBMIT SHOP DRAWINGS FOR APPROVAL OF ENGINEER PRIOR TO FABRICATION

E NOTCHES SHALL BE ON BOTH SIDES AND THE BOTTOM

F SEE SECTION 210-5 OF THE AMMENDMENTS TO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (1988 EDITION) FOR PLASTIC COATED

CAST IRON STOP LOG NOTCH & BENT ANCHOR DETAILS

NO SCALE

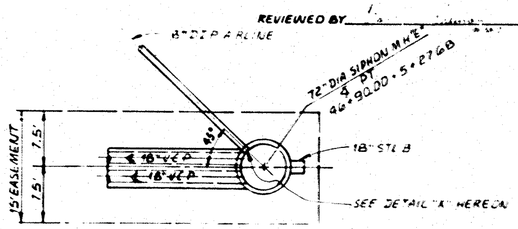


1-PIECE STOP LOG DET. #11

NO SCALE

* VERIFY DIMENSION IN FIELD BEFORE FABRICATION

** FOR COATING SEE NOTE "F" HEREON

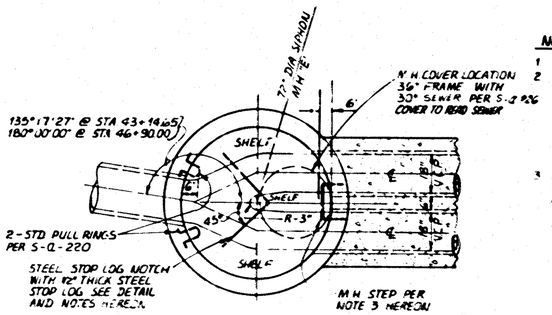


UPSTREAM MANHOLE DETAIL

SCALE: 1" = 10'

SEE DOWNSTREAM M.H. DETAIL HEREON

53658



PLAN

72" DIA. SIPHON MANHOLE "E" @ STA. 43+14.65

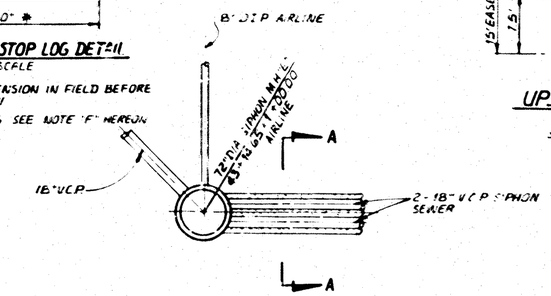
* OPPOSITE VIEW @ STA. 46+90.00

NOTES:

1 SEE SHEET 3 NOTE RE: M.H. ADJUSTMENT RINGS

2 SIPHON SHALL BE CONSTRUCTED ALONG VERTICAL CURVES HAVING NO MORE THAN 3° OF DEFLECTION AT ANY POINT ALONG THE CURVE. POINT OF DEFLECTION SHALL BE SEPARATED BY PIPE JOINT. SEE DETAIL SHOWN ON PAGE 15

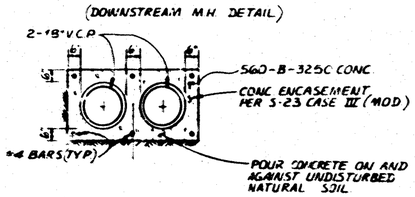
3 IN LIEU OF STAINLESS STEEL M.H. STEPS PER S-17 THE CONTRACTOR MAY SUBSTITUTE REINFORCED COPOLYMER POLYPROPYLENE PLASTIC M.H. STEPS TYPE PSP-PFS AS MANUFACTURED BY M.A. INDUSTRIES INC. EXCEPT THAT THE TOP STEP SHALL BE STAINLESS STEEL PER S-17 IN ALL CASES. A PULL RING PER S-2-220 SHALL BE INSTALLED IN LIEU OF THE BOTTOM STEP IN THE 72" DIA SIPHON MANHOLE AT STA 46+90.00



PLAN

SCALE 1" = 10'

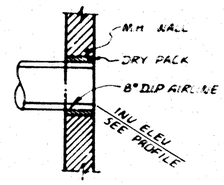
(DOWNSTREAM M.H. DETAIL)



SECTION "A-A"

SCALE: 1" = 3'

STA. 44+45.00 TO STA. 45+50.00



DETAIL "X"

NO SCALE

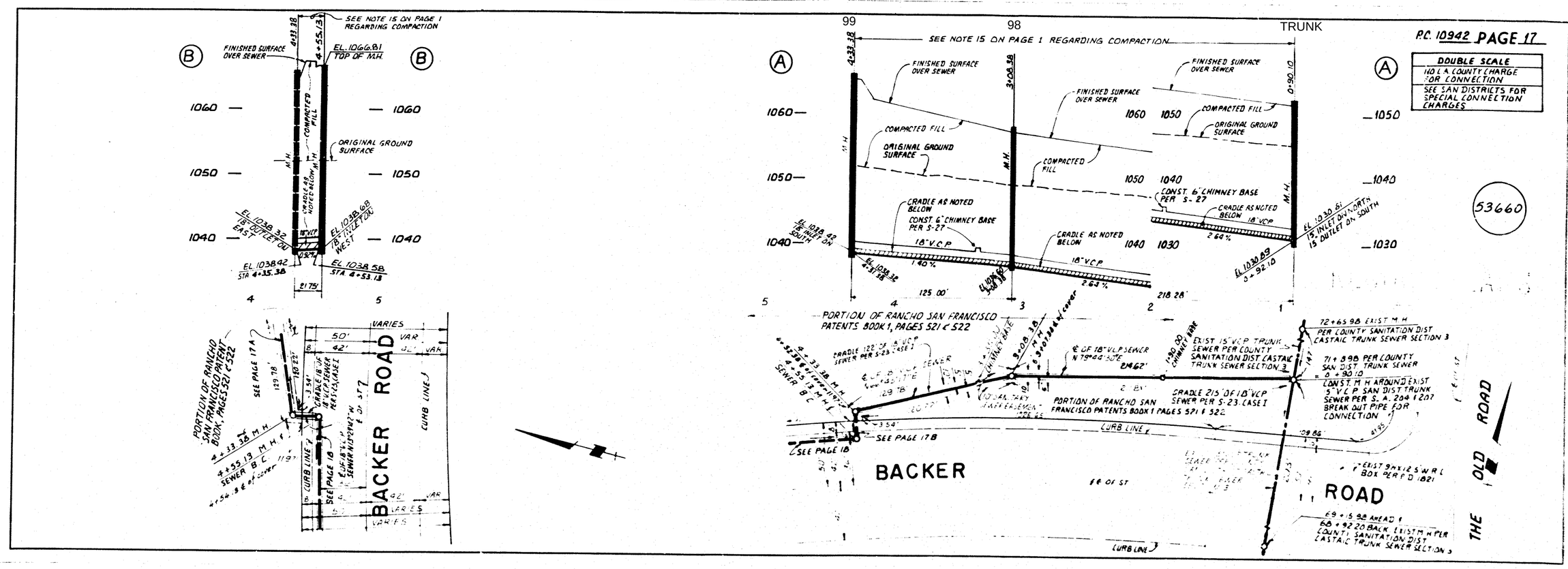
M.H. CONNECTION IS TO BE MADE BY CORE DRILLING OPENING INTO MANHOLE RISER

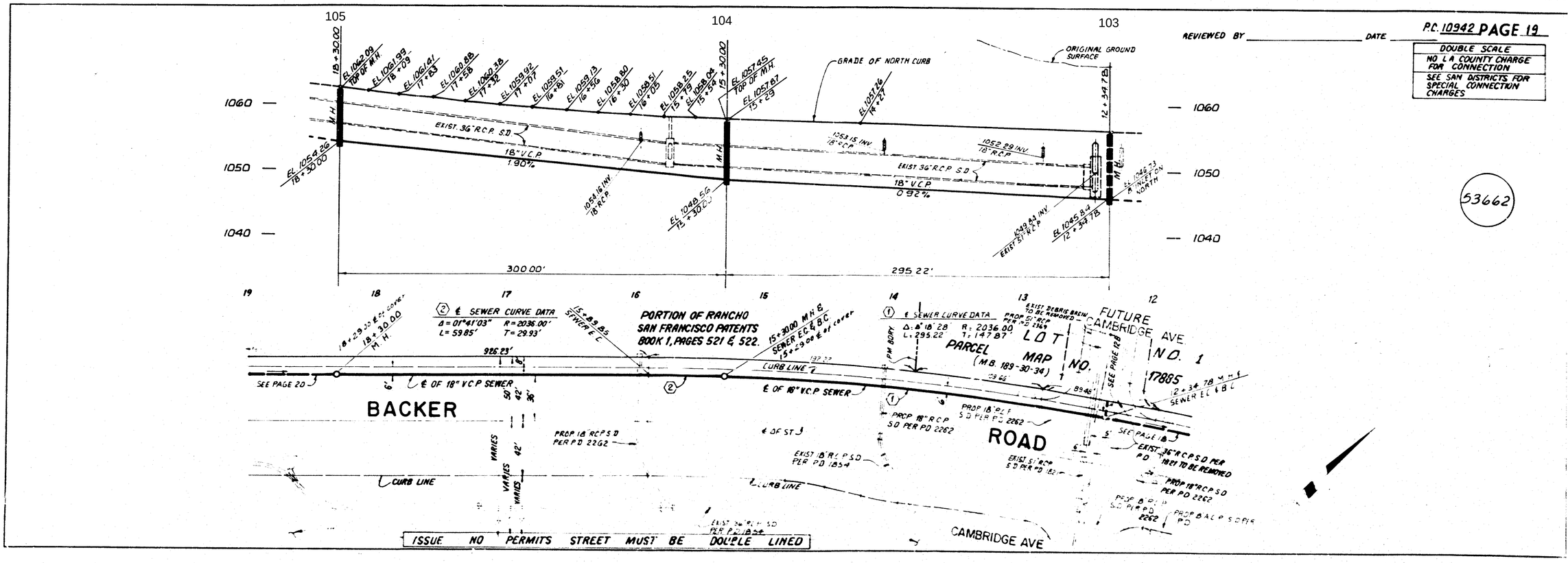
NOTES:

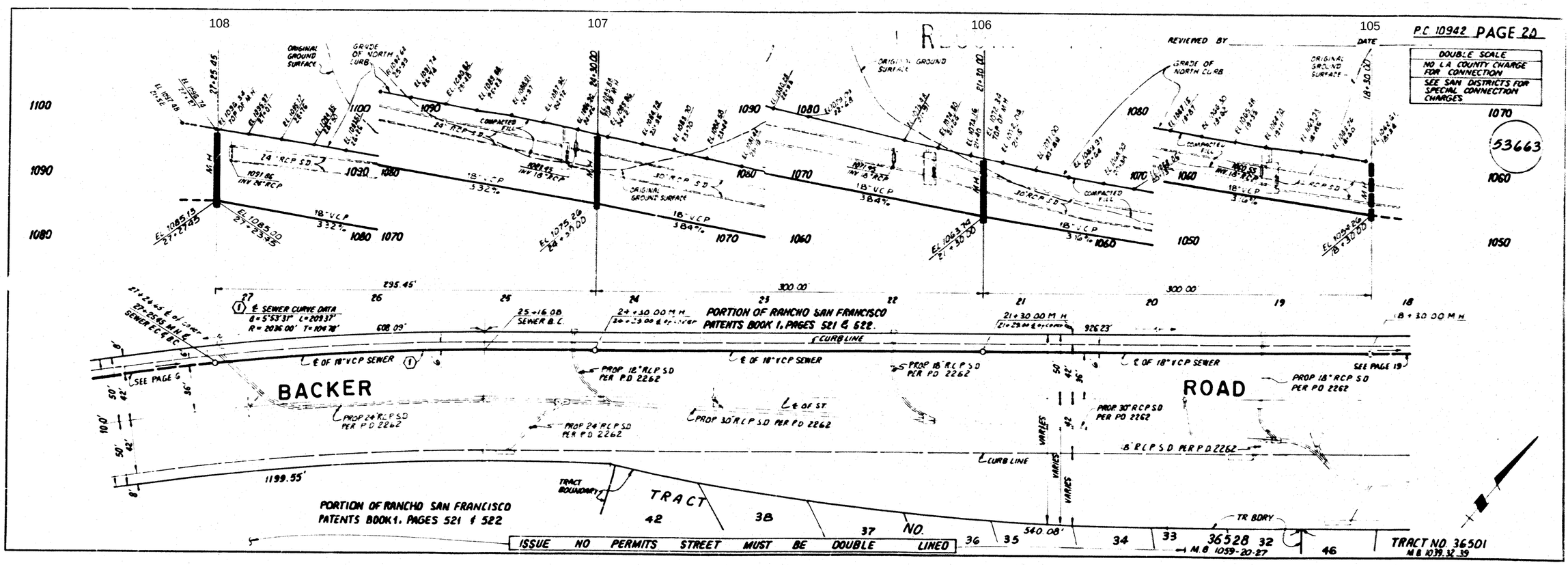
1 THE 8" D.I.P. AIRLINE AND 2-18" V.C.P. SIPHON SHALL BE CONSTRUCTED ON NATIVE SOIL OR ON COMPACTED FILL. THE FILL SHALL BE CONSOLIDATED TO NOT LESS THAN 90% RELATIVE COMPACTION

2 VCP IS VERTICAL CURVE WITH 3° MAXIMUM DEFLECTION AT PIPE JOINTS

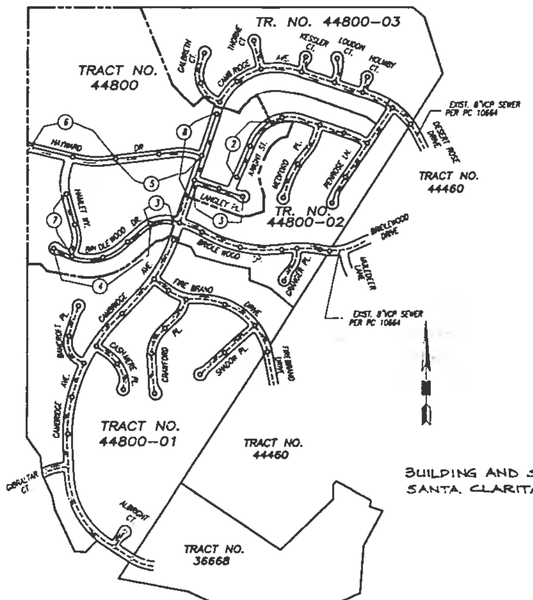
REC[illegible]


P.C. 10942 PAGE 17
DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN DISTRICTS FOR SPECIAL CONNECTION CHARGES
53660
SEE NOTE 15 ON PAGE 1 REGARDING COMPACTION
FINISHED SURFACE OVER SEWER
COMPACTED FILL
ORIGINAL GROUND SURFACE
CRADLE AS NOTED BELOW
CONST. 6" CHIMNEY BASE PER S-27
18" V.C.P.
PORTION OF RANCHO SAN FRANCISCO PATENTS BOOK 1, PAGES 521 & 522
BACKER ROAD
THE OLD ROAD
CURB LINE
SEE PAGE 17B
SEE PAGE 18
PC 10942 PAGE 18
DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN DISTRICTS FOR SPECIAL CONNECTION CHARGES
53661
ORIGINAL GROUND SURFACE
GRADE OF NORTH CURB
8" PVC S.D.
18" VCP
CRADLE AS NOTED BELOW
CONST. 6" CHIMNEY BASE PER S-27
FUTURE CAMBRIDGE AVE.
PARCEL MAP NO. 17885
LOT 1
M.B. 189-30-34
PORTION OF RANCHO SAN FRANCISCO PATENT BOOK 1, PAGES 521 & 522
SEE PAGE 17A
SEE PAGE 17B
SEE PAGE 19
BACKER ROAD
CURB LINE
CAMBRIDGE AVE.
TRACT 29
36501
M.B. 1039-32-39
ISSUE NO PERMITS, STREETS MUST BE DOUBLE LINED


P.C. 10942 PAGE 19
REVIEWED BY
DATE
DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN DISTRICTS FOR SPECIAL CONNECTION CHARGES
53662
105
104
103
GRADE OF NORTH CURB
ORIGINAL GROUND SURFACE
EXIST. 36" R.C.P. S.D.
18" V.C.P. 1.90%
18" V.C.P. 0.92%
300.00'
295.22'
PORTION OF RANCHO SAN FRANCISCO PATENTS BOOK 1, PAGES 521 & 522.
℄ SEWER CURVE DATA
Δ = 01°41'03" R = 2036.00'
L = 59.85' T = 29.93'
℄ SEWER CURVE DATA
Δ: 8°18'28 R: 2036.00
L: 295.22 T: 147.87'
PARCEL MAP NO. (M.B. 189-30-34)
LOT NO. 1
FUTURE CAMBRIDGE AVE
17885
BACKER ROAD
℄ OF 18" V.C.P. SEWER
CURB LINE
℄ OF ST
CAMBRIDGE AVE
SEE PAGE 20
SEE PAGE 18
ISSUE NO PERMITS STREET MUST BE DOUBLE LINED


P.C. 10942 PAGE 20
REVIEWED BY
DATE
DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN DISTRICTS FOR SPECIAL CONNECTION CHARGES
53663
108
107
106
105
GRADE OF NORTH CURB
ORIGINAL GROUND SURFACE
COMPACTED FILL
295.45'
300.00'
PORTION OF RANCHO SAN FRANCISCO PATENTS BOOK 1, PAGES 521 & 522.
℄ SEWER CURVE DATA
Δ = 5°53'31" L = 209.37'
R = 2036.00' T = 104.78'
608.09'
926.23'
1199.55'
℄ OF 18" V.C.P. SEWER
CURB LINE
BACKER ROAD
TRACT NO. 36528
TRACT NO. 36501
ISSUE NO PERMITS STREET MUST BE DOUBLE LINED

B.M. 3976 ELEV. 1065.685
RDBM TAG IN C.B. 4 FT N BCR 70 FT N
AND 32 FT E CL INT. OLD ROAD & HASLEY
CANYON ROAD OFF-RAMP
NEWHALL QUAD.19 83



INDEX MAP

SCALE: 1" = 600'

P.C. 11488 TRACT NO. 44800

THOMAS GUIDE PG.NO. 4459/H-3,G-4

NOTE: NUMBERS IN CIRCLES INDICATE PAGE NUMBERS

STORMWATER POLLUTION CONTROL REQUIREMENTS FOR SEWER CONSTRUCTION

1. Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheetflow, swales, area drains, natural drainage courses or wind.
2. Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.
3. Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
4. Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
5. Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
6. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.
7. Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.

The following BMPs as outlined in, but not limited to, the Best Management Practice Handbook, California Stormwater Quality Task Force, Sacramento, California, 1993, or the latest revised edition, may apply during construction (additional measures may be required if deemed appropriate by County):

CA001 – DEWATERING OPERATIONS
CA002 – PAVING OPERATIONS
CA003 – STRUCTURE CONSTRUCTION AND PAINTING
CA010 – MATERIAL DELIVERY AND STORAGE
CA020 – SOLID WASTE MANAGEMENT
CA021 – HAZARDOUS WASTE MANAGEMENT
CA023 – CONCRETE WASTE MANAGEMENT
CA024 – SANITARY/SEPTIC WASTE MANAGEMENT
CA030 – VEHICLE AND EQUIPMENT CLEANING
CA031 – VEHICLE AND EQUIPMENT FUELING
CA032 – VEHICLE AND EQUIPMENT MAINTENANCE
ESC01 – SCHEDULING
ESC02 – PRESERVATION OF EXISTING VEGETATION
ESC10 – SEEDING AND PLANTING
ESC11 – MULCHING
ESC20 – GEOTEXTILES AND MATS
ESC21 – DUST CONTROLS
ESC22 – TEMPORARY STREAM CROSSING
ESC23 – CONSTRUCTION ROAD STABILIZATION
ESC24 – STABILIZED CONSTRUCTION ENTRANCE
ESC54 – STORM DRAIN INLET PROTECTION

STANDARD PLANS:

THE FOLLOWING LATEST REVISED STANDARD PLANS ON FILE IN THE OFFICE OF THE DEPARTMENT OF PUBLIC WORKS SHALL APPLY IN THE CONSTRUCTION OF THIS PROJECT

APWA 208-0	BREAKING INTO EXISTING MANHOLES
APWA 222-0	HOUSE CONNECTION SEWER
APWA 223-0	HOUSE CONNECTION REMODELING
APWA 200-2	NON-REINFORCED PRECAST CONCRETE MANHOLE
APWA 225-1	BLANKET PROTECTION FOR PIPES
2000-0	LEGEND FOR SANITARY SEWER PLANS AND PROFILES AND DISTRICT MAPS.
2021-0	BEDDING FOR SEWER PIPE
2024-0	WYE OR TEE SUPPORT
2027-0	ALLOWABLE TRENCH WIDTHS
6008-0	MINIMUM PUBLIC SAFETY REQUIREMENTS
2015-0	STANDARD MANHOLE STEP
2023-1	CRADLING AND ENCASEMENT
2100-0	REQUIREMENTS FOR SAN. SEWERS NEAR WATER MAINS
S-25	SPECIAL HOUSE LATERALS

ISSUE NO HOUSE LATERAL CONNECTION PERMITS UNTIL OUTLET SEWER PC 11489 IS ACCEPTED FOR PUBLIC USE BY THE COUNTY OF LOS ANGELES.

LOTS 94 THROUGH 97 ARE RESTRICTED TO NO CONSTRUCTION OF RESIDENTIAL BUILDINGS AND WILL NOT BE SERVED BY THIS SEWER.

10/6/05

PRIVATE CONTRACT SEWER GENERAL NOTES

1. A SEWER CONSTRUCTION PERMIT SHALL BE OBTAINED AND A FEE PAID FOR CONSTRUCTION INSPECTION AND RECORD PLANS TO THE DEPARTMENT OF PUBLIC WORKS AT THE PERMIT COUNTER, 900 SOUTH FREMONT AVENUE, 8TH FLOOR, ALHAMBRA, AT LEAST 72 HOURS PRIOR TO STARTING WORK UNDER THIS CONTRACT. COPIES OF ALL OTHER REQUIRED PERMITS, SUCH AS ROAD EXCAVATION, CALTRANS ETC. MUST BE FILED WITH THE PERMIT APPLICATION.
2. PRIOR TO ISSUANCE OF ANY PERMIT, THE CONTRACTOR SHALL FILE A PERMIT FOR EXCAVATIONS AND TRENCHES FROM THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY AND A CERTIFICATE OF WORKERS' COMPENSATION INSURANCE WITH THE DEPARTMENT OF PUBLIC WORKS NAMED AS THE CERTIFICATE HOLDER TO BE NOTIFIED 30 DAYS PRIOR TO CANCELLATION OF POLICY.
3. IF WORK IS TO BE DONE IN A STATE HIGHWAY, A PERMIT MUST BE OBTAINED FROM THE STATE OF CALIFORNIA DIVISION OF HIGHWAY, 120 SOUTH SPRING STREET, LOS ANGELES, CALIFORNIA.
4. WHEN WORK IS WITHIN A CONTRACT CITY, THE CONTRACTOR MUST CONTACT THE DIRECTOR OF PUBLIC WORKS OF THAT CITY TO DETERMINE THE LOCATION TO PAY THE INSPECTION FEE.
5. THE CONTRACTOR SHALL CONTACT THE DISTRICT OFFICE LISTED ON THE "APPLICATION FOR CONSTRUCTION PERMIT" TO ARRANGE FOR AN ACCEPTABLE CONSTRUCTION START DATE, AND SHALL NOTIFY THE CONSTRUCTION DIVISION BY TELEPHONE (818)458-3129 AT LEAST TWENTY-FOUR HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
6. APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO ACCURACY OF THE LOCATION OF OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAGES.
7. ALL WORK SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, INCLUDING SUPPLEMENTS AND THE SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SANITARY SEWERS, AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE DEPARTMENT OF PUBLIC WORKS PERSONNEL.
8. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 7-10.4.1 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION IN REGARD TO SAFETY ORDERS AND SHALL CONFORM TO THE "MINIMUM PUBLIC SAFETY REQUIREMENTS" AS SHOWN ON LOS ANGELES DEPARTMENT OF PUBLIC WORKS' STANDARD S-2.
9. ELELVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929.
10. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.
11. NO REPRESENTATIVE OF THE DEPARTMENT OF PUBLIC WORKS WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
12. GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTERLINE OF STREETS, OR CENTERLINE OF ALLEYS, ARE SHOWN BY CIRCLES ON PROFILES AT ALL POINTS BETWEEN DESIGNATED POINTS. THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
13. THE PRIVATE ENGINEER SHALL FURNISH THE DEPARTMENT OF PUBLIC WORKS WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND "Y OR T" BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHIMNEYS SHALL NOT HAVE AN ANGLE OF LESS THAN 45? WITH THE M.L. SEWER ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
14. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE TOP CURB ELEVATION FOR EACH HOUSE LATERAL ON THE GRADE SHEET.

CONSTRUCTION NOTES

1. PROVIDE SURVEY STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTERLINE OF EACH MANHOLE.
2. VITRIFIED CLAY PIPE JOINTS SHALL BE TYPE "D" OR "G" PER STANDARD SPECIFICATIONS SECTION 208-2.
3. IF A POWER POLE IS WITHIN THREE FEET OF THE SEWER, THE SEWER SHALL BE ENCASED PER STANDARD PLAN 2023-1, CASE II. TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
4. ALL JOINTS BETWEEN CAST IRON PIPE AND VITRIFIED CLAY PIPE SHALL BE MADE WITH A RUBBER SLEEVE JOINT, TYPE "D" (WITH BUSHING IF NECESSARY) PER STANDARD SPECIFICATIONS SECTION 208-2.
5. HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT PROPERTY LINE 6 FEET BELOW CURB GRADE EXCEPT AS NOTED.
6. WYE OR TEE BRANCHES MAY BE USED FOR CONNECTIONS TO MAINLINE SEWERS EXCEPT AS NOTED.
7. IF DURING THE COURSE OF CONSTRUCTION, IT IS DETERMINED THAT THERE IS LESS THAN FOUR FEET OF COVER OVER THE TOP OF A MAINLINE OR HOUSE LATERAL V.C.P. SEWER WHICH IS NOT INDICATED ON THE PLANS, THE PIPE SHALL BE ENCASED PER STANDARD PLANS S-23 CASE II, UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
8. ALL STRUCTURES SHALL BE EITHER BRICK SEWER MANHOLES PER STANDARD PLAN S-3 OR PRECAST CONCRETE SEWER MANHOLES PER STANDARD PLAN S-36, OR REINFORCED PRECAST CONCRETE MANHOLE PER STANDARD PLAN S-6, EXCEPT AS NOTED.
9. RESURFACE ALL TRENCHES WITHIN PAVED AREAS TO MEET LOS ANGELES COUNTY PUBLIC WORKS OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH THE PERMITS.
10. FULL COMPLIANCE WITH SECTION 306-1.3.4 OF THE STANDARD SPECIFICATIONS WILL BE REQUIRED FOR BACKFILL IN STREETS. CERTIFICATION OF BACKFILL COMPACTION AND SAND EQUIVALENTS BY A QUALIFIED CIVIL ENGINEER SHALL BE PROVIDED BY THE PERMITTEE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF PARTIAL ACCEPTANCE.
11. ALL BACKFILL AND FILLS OUTSIDE OF STREET RIGHT OF WAY SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM SOIL COMPACTION TEST D 1557-78 METHOD "D" UNLESS OTHERWISE SPECIFIED. THIS SHALL BE CERTIFIED BY A QUALIFIED CIVIL ENGINEER. THIS CERTIFICATION SHALL BE SUBMITTED TO THE CONSTRUCTION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS PRIOR TO ACCEPTANCE OF THE WORK BY THE COUNTY.
12. MANHOLE TOPS IN IMPROVED RIGHTS OF WAY TO BE LEVEL WITH FINISHED GRADE.
13. SEWERS TO BE TESTED FOR LEAKAGE PER SECTION 306-1.4 OF THE STANDARD SPECIFICATION AND SPECIAL PROVISIONS.
14. ALL WYES AND/OR HOUSE LATERALS ARE TO BE LOCATED AT LEAST FIVE FEET APART AND WHEN POSSIBLE NOT CLOSER THAN FIVE FEET TO ANY MANHOLE

RECORD PLANS

PROFILE, ALIGNMENT AND GRADE OF SANITARY SEWERS

55299

TO BE CONSTRUCTED IN

TR.NO. 44800 PC NO. 11488

4 SHEETS: 8 PAGES

COUNTY OF LOS ANGELES CALIFORNIA

INDEX NO 1215

HARRY W. STONE DIRECTOR OF PUBLIC WORKS

APPROVED BY LAND DEVELOPMENT DIVISION

BY ______ ASSISTANT DIVISION ENGINEER DATE

SUBMITTED BY ______ SUBDIVISION PLAN CHECKING SECTION DATE

APPROVED: COUNTY SANITATION DISTRICT OF LOS ANGELES CALIF.

CHARLES W. CARRY – CHIEF ENGINEER and GENERAL MANAGER

COUNTY SANITATION DISTRICT NO. 32

BY Tenney Sugai for OFFICE ENGINEER DATE: 12-27-99

PRIVATE ENGINEERS NOTICE TO CONTRACTORS:

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS IS REQUIRED BY A SEARCH OF AVAILABLE RECORDS TO THE BEST OF OUR KNOWLEDGE. THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING. PRIOR TO EXCAVATION THE CONTRACTOR SHALL CALL TOLL FREE 1-800-422-4133 TO VERIFY THE UNDERGROUND LOCATION OF GAS AND TELEPHONE LINES. THE CONTRACTOR SHALL ALSO CALL MR. RAY CUMMINGS OF GENERAL TELEPHONE COMPANY AT 1-805-948 4871 SO THAT THEY CAN MARK THE LOCATION OF UNDERGROUND TELEPHONE LINES.

RCE NO. 42890 11/03/99 DATE

TR. NO. 44800 PC 11488

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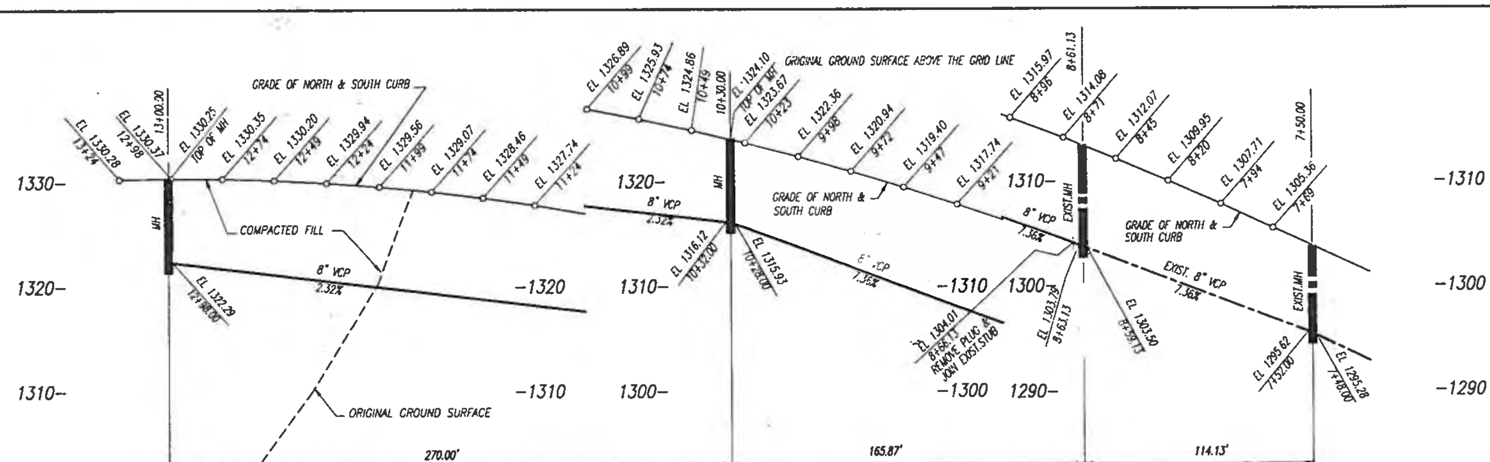


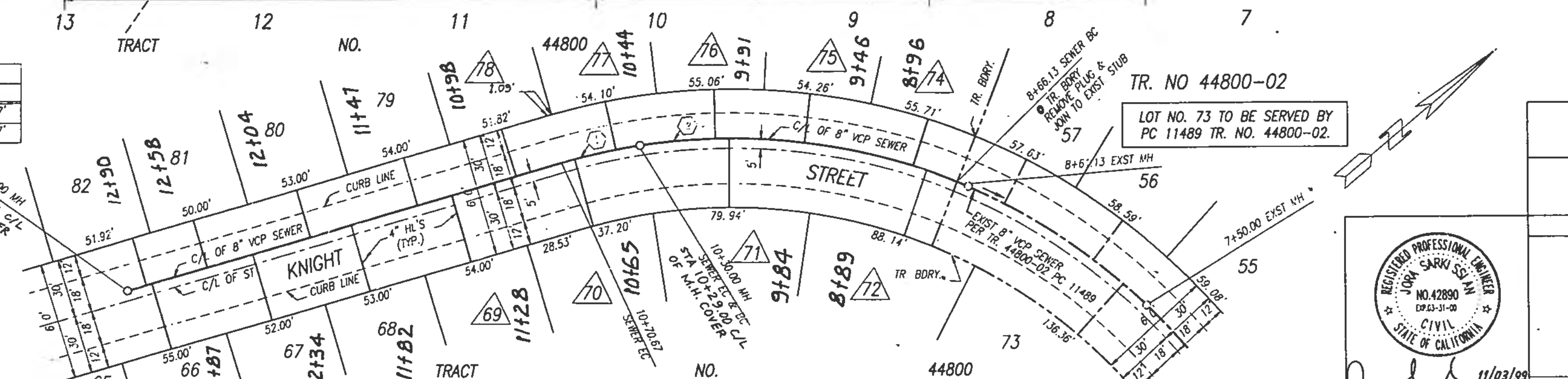
DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES TEL. (562) 699-7411 EXT. 2727

RECORD PLANS

55300

C/L SEWER CURVE DATA				
⬡	△	R	L	T
1	7°38'24"	305.00'	40.67'	20.37'
2	30°47'04"	305.00'	163.87'	83.97'

△ INDICATES BACKWATER VALVE MAY BE REQUIRED FOR LOT.



LOT NO. 73 TO BE SERVED BY PC 11489 TR. NO. 44800-02.

PLAN

SCALE: 1" = 40'

SANITARY SEWER PLANS IN
TR. NO . 44800 PC NO. 11488

REVIEWED LAND DEVELOPMENT DIVISION

BY ______ SUBDIVISION PLAN CHECKING SECTION 12/21/99 DATE

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

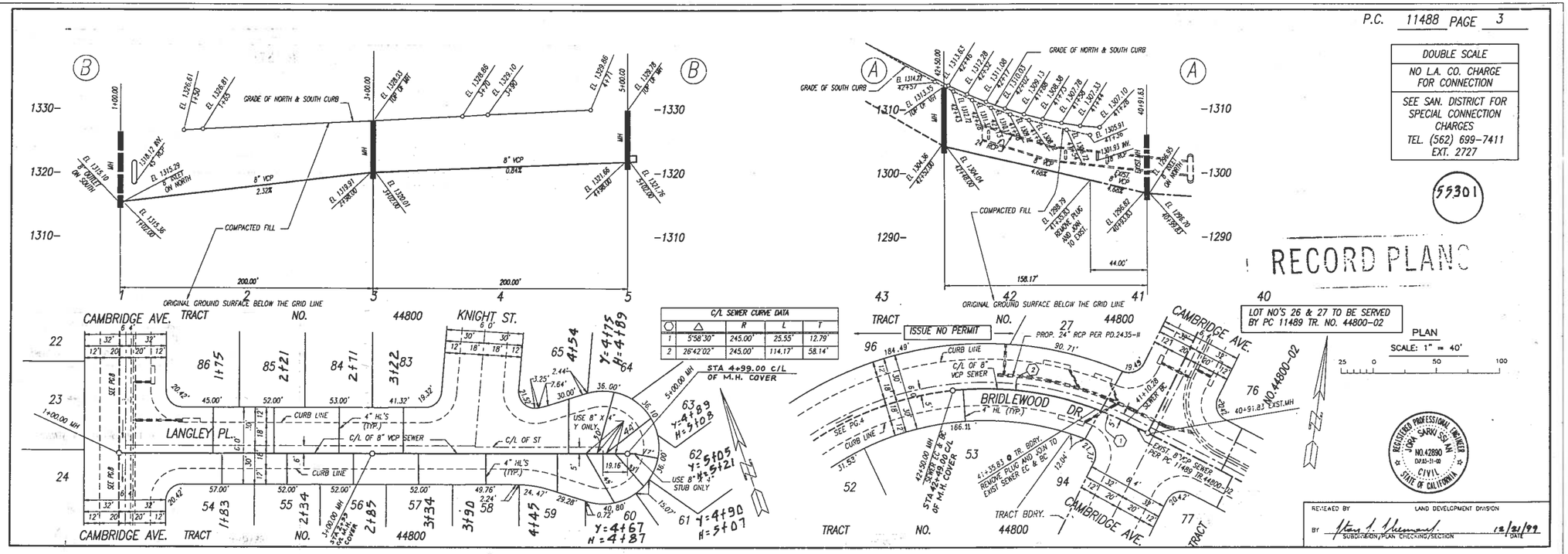
REGISTERED PROFESSIONAL ENGINEER JORA SARKISSIAN NO.42890 EXP.03-31-00 CIVIL STATE OF CALIFORNIA

PROJECT ENGINEER 11/03/99 DATE

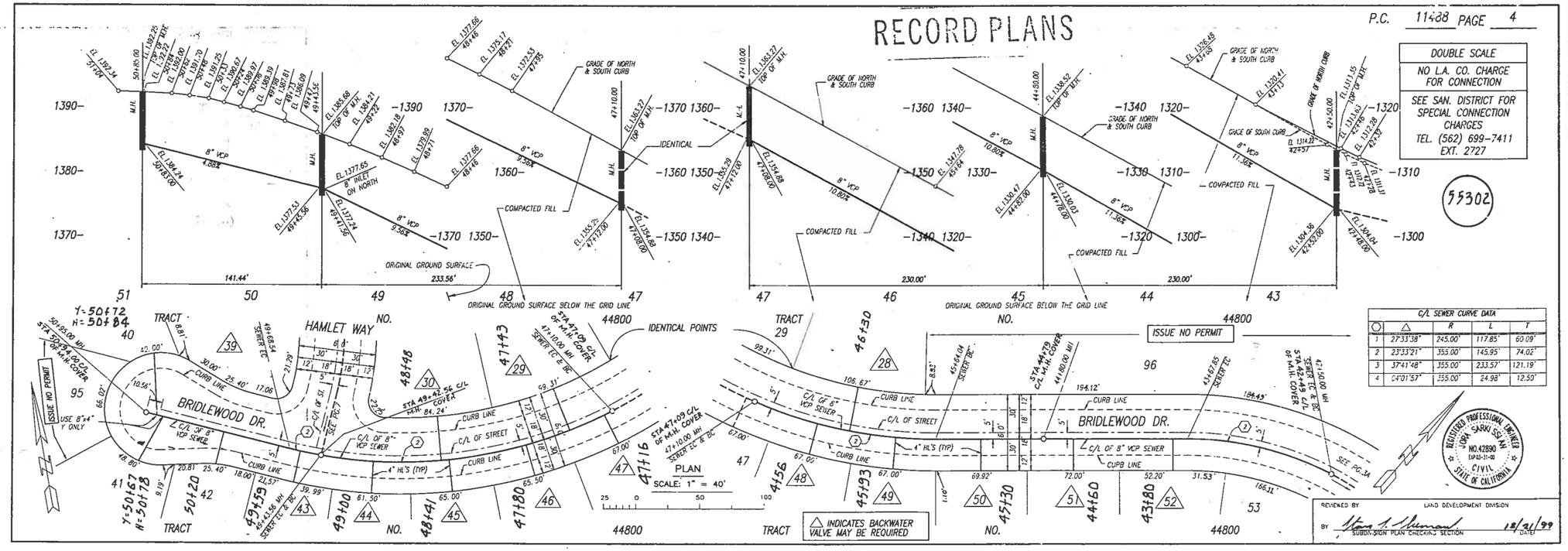
SIKAND ENGINEERING ASSOCIATES
CONSULTING ENGINEERS
15230 BURBANK BLVD.,
VAN NUYS, CALIFORNIA 91411 (818) 787-8550

/sikand/44800/sewer/sht-01

P.C. 11488 PAGE 3



P.C. 11488 PAGE 4



PC 11488

JR NO. 44800

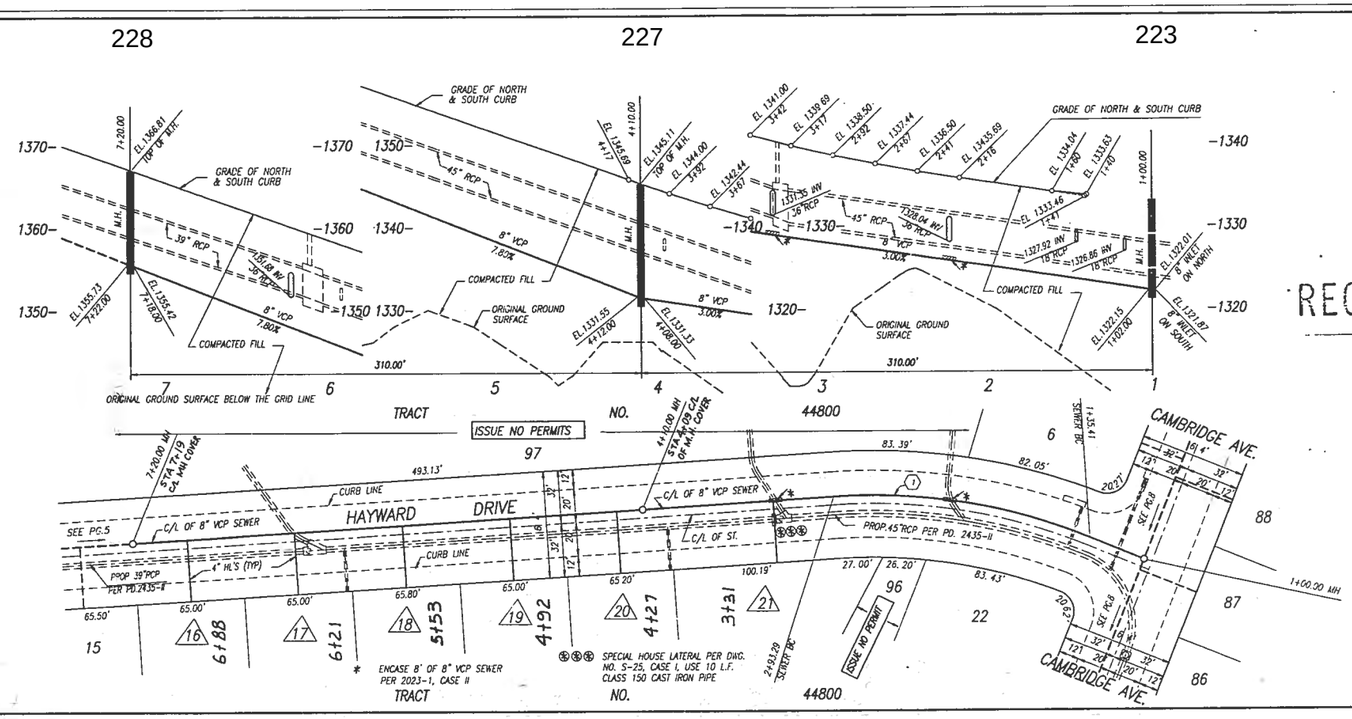
S

P.C. 11488 PAGE 5

DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411 EXT. 2727

55303

RECORD PLANS



C/L SEWER CURVE DATA				
○	△	R	L	T
1	25°28'51"	355.00'	157.88'	80.27'

△ INDICATES BACKWATER VALVE MAY BE REQUIRED FOR LOT.

REGISTERED PROFESSIONAL ENGINEER IORA SARKISSIAN NO.42890 EXP.03-31-00 CIVIL STATE OF CALIFORNIA

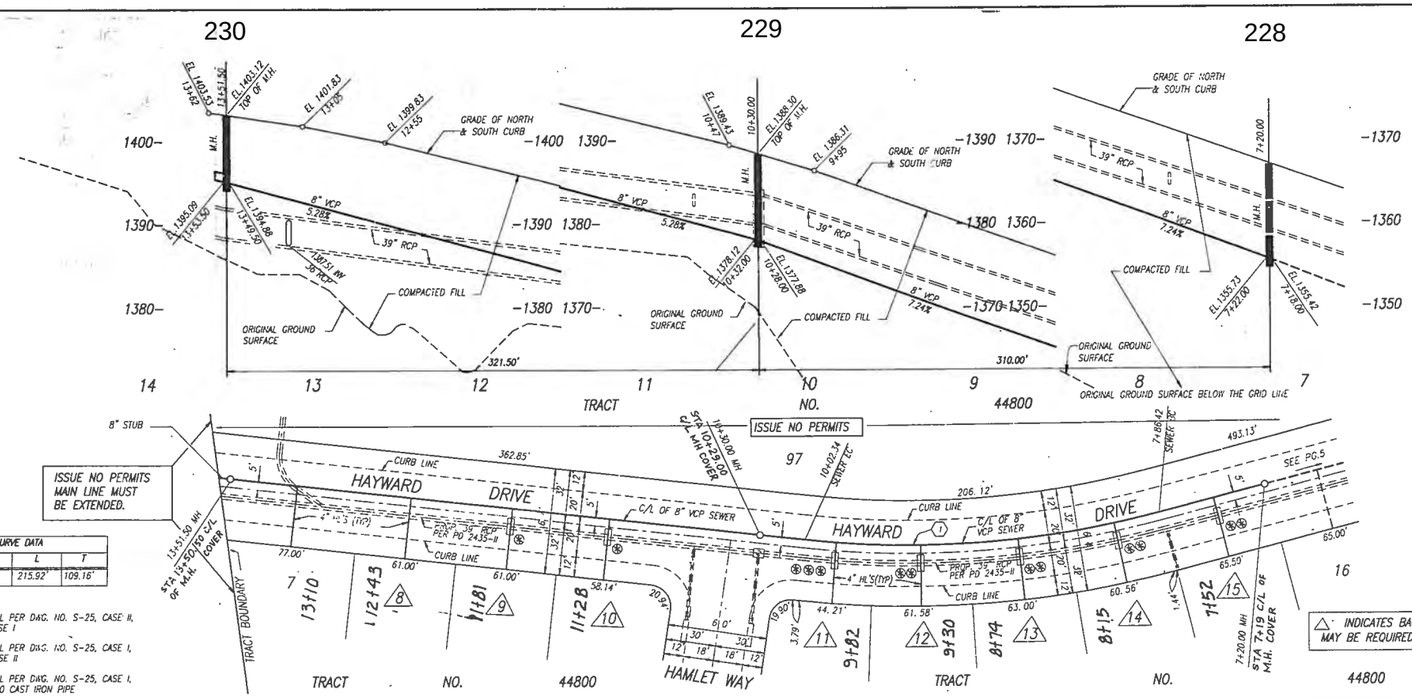
REVIEWED BY LAND DEVELOPMENT DIVISION
BY SUBDIVISION PLAN CHECKING SECTION 12/21/99 DATE

P.C. 11488 PAGE 6

DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411 EXT. 2727

55304

RECORD PLANS



C/L SEWER CURVE DATA				
○	△	R	L	T
1	20°47'31"	595.00'	215.92'	109.16'

⊛ SPECIAL HOUSE LATERAL PER DWG. NO. S-25, CASE II, CRADLE PER 2023, CASE I

⊛⊛ SPECIAL HOUSE LATERAL PER DWG. NO. S-25, CASE I, ENCASE PER 2023, CASE II

⊛⊛⊛ SPECIAL HOUSE LATERAL PER DWG. NO. S-25, CASE I, USE 10 L.F. CLASS 150 CAST IRON PIPE

△ INDICATES BACKWATER VALVE MAY BE REQUIRED FOR LOT.

REGISTERED PROFESSIONAL ENGINEER IORA SARKISSIAN NO.42890 EXP.03-31-00 CIVIL STATE OF CALIFORNIA

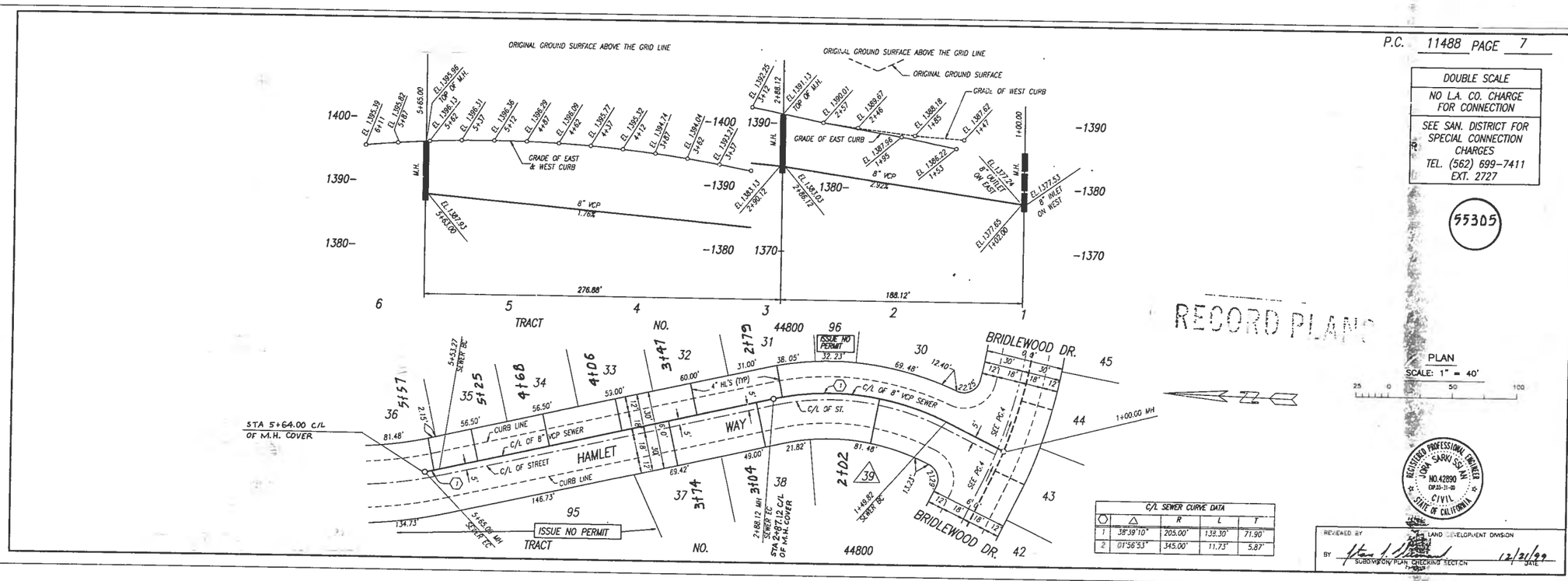
REVIEWED BY LAND DEVELOPMENT DIVISION
BY SUBDIVISION PLAN CHECKING SECTION 12/21/99 DATE

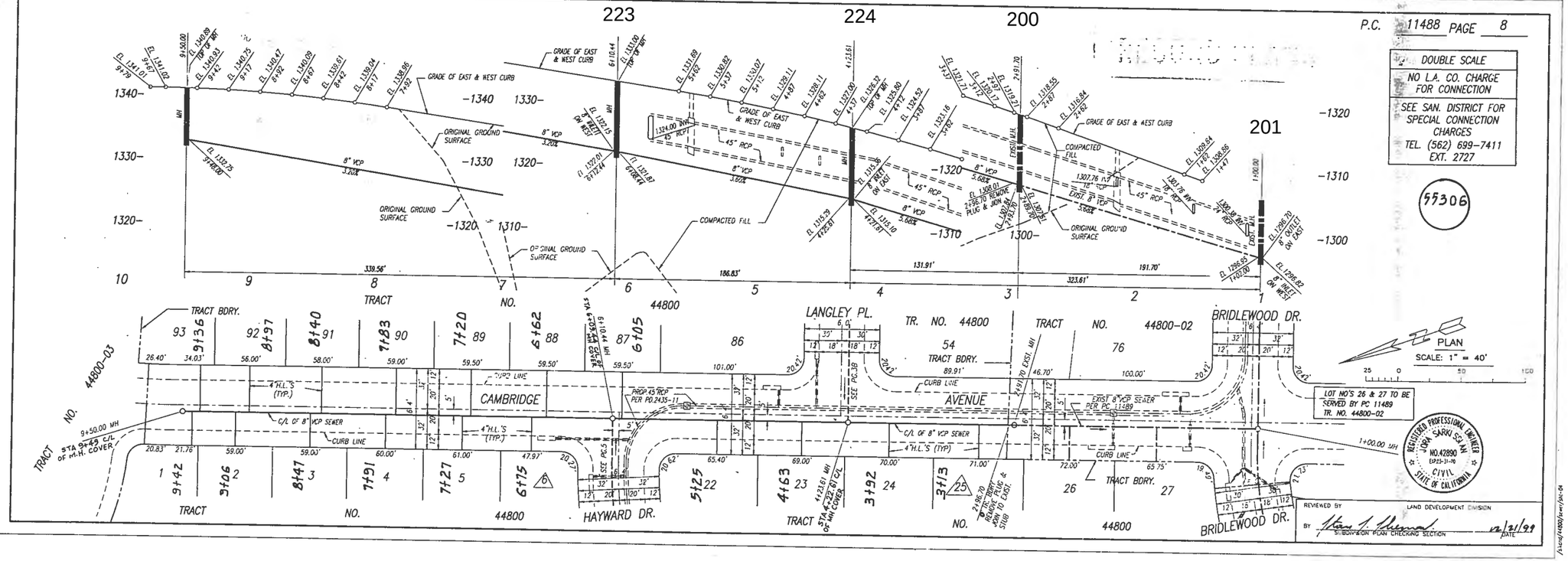
BC 11488 TR. NO. 44800

(3)

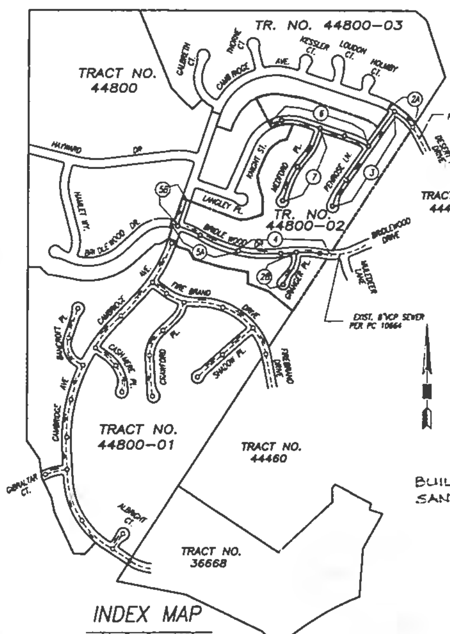
(2)

(1)


P.C. 11488 PAGE 7
DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411 EXT. 2727
55305
RECORD PLANS
ORIGINAL GROUND SURFACE ABOVE THE GRID LINE
ORIGINAL GROUND SURFACE
GRADE OF EAST & WEST CURB
GRADE OF EAST CURB
8" VCP 1.76%
8" VCP 2.92%
276.88'
188.12'
TRACT NO. 44800
ISSUE NO PERMIT
BRIDLEWOOD DR.
HAMLET WAY
CURB LINE
C/L OF 8" VCP SEWER
C/L OF ST.
C/L OF STREET
4" HL'S (TYP)
STA 5+64.00 C/L OF M.H. COVER
STA 2+88.12 C/L OF M.H. COVER
1+00.00 MH
SEE PC 4
PLAN
SCALE: 1" = 40'
C/L SEWER CURVE DATA
1 38°39'10" 205.00' 138.30' 71.90'
2 01°56'53" 345.00' 11.73' 5.87'
REGISTERED PROFESSIONAL ENGINEER
JOHN SARKI SALAM
NO. 42890
EXP. 03-31-00
CIVIL
STATE OF CALIFORNIA
REVIEWED BY
LAND DEVELOPMENT DIVISION
SUBDIVISION PLAN CHECKING SECTION
12/21/99
DATE


P.C. 11488 PAGE 8
DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411 EXT. 2727
55306
223
224
200
201
GRADE OF EAST & WEST CURB
ORIGINAL GROUND SURFACE
COMPACTED FILL
8" VCP 3.20%
8" VCP 5.68%
45" RCP
339.56'
186.83'
131.91'
191.70'
323.61'
TRACT NO. 44800
TRACT NO. 44800-02
TR. NO. 44800
LANGLEY PL.
CAMBRIDGE AVENUE
HAYWARD DR.
BRIDLEWOOD DR.
TRACT BDRY.
CURB LINE
C/L OF 8" VCP SEWER
4" H.L.'S (TYP.)
STA 9+49 C/L OF M.H. COVER
1+00.00 MH
PLAN
SCALE: 1" = 40'
LOT NO'S 26 & 27 TO BE SERVED BY PC 11489 TR. NO. 44800-02
REGISTERED PROFESSIONAL ENGINEER
JOHN SARKI SALAM
NO. 42890
EXP. 03-31-00
CIVIL
STATE OF CALIFORNIA
REVIEWED BY
LAND DEVELOPMENT DIVISION
SUBDIVISION PLAN CHECKING SECTION
12/21/99
DATE

B.M. 3976 ELEV. 1065.685
RDBM TAG IN C.B. 4 FT N BCR 70 FT N AND 32 FT E C.L. INT. OLD ROAD & HASLEY CANYON ROAD OFF-RAMP
NEWHALL QUAD.19 83



INDEX MAP
SCALE: 1" = 600'

P.C. 11489 TRACT NO. 44800-02
THOMAS GUIDE PG.NO. 4459/H-3,G-4
NOTE: NUMBERS IN CIRCLES INDICATE PAGE NUMBERS

BUILDING AND SAFETY
SANTA CLARITA OFFICE

STORMWATER POLLUTION CONTROL REQUIREMENTS FOR SEWER CONSTRUCTION

1. Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheetflow, swales, area drains, natural drainage courses or wind.
2. Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.
3. Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
4. Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
5. Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
6. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.
7. Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.

The following BMPs as outlined in, but not limited to, the Best Management Practice Handbook, California Stormwater Quality Task Force, Sacramento, California, 1993, or the latest revised edition,may apply during construction (additional measures may be required if deemed appropriate by County):

CA001 – DEWATERING OPERATIONS
CA002 – PAVING OPERATIONS
CA003 – STRUCTURE CONSTRUCTION AND PAINTING
CA010 – MATERIAL DELIVERY AND STORAGE
CA020 – SOLID WASTE MANAGEMENT
CA021 – HAZARDOUS WASTE MANAGEMENT
CA023 – CONCRETE WASTE MANAGEMENT
CA024 – SANITARY/SEPTIC WASTE MANAGEMENT
CA030 – VEHICLE AND EQUIPMENT CLEANING
CA031 – VEHICLE AND EQUIPMENT FUELING
CA032 – VEHICLE AND EQUIPMENT MAINTENANCE
ESC01 – SCHEDULING
ESC02 – PRESERVATION OF EXISTING VEGETATION

ESC10 – SEEDING AND PLANTING
ESC11 – MULCHING
ESC20 – GEOTEXTILES AND MATS
ESC21 – DUST CONTROLS
ESC22 – TEMPORARY STREAM CROSSING
ESC23 – CONSTRUCTION ROAD STABILIZATION
ESC24 – STABILIZED CONSTRUCTION ENTRANCE
ESC54 – STORM DRAIN INLET PROTECTION

STANDARD PLANS:

THE FOLLOWING LATEST REVISED STANDARD PLANS ON FILE IN THE OFFICE OF THE DEPARTMENT OF PUBLIC WORKS SHALL APPLY IN THE CONSTRUCTION OF THIS PROJECT.

APWA 208-0	BREAKING INTO EXISTING MANHOLES
APWA 222-0	HOUSE CONNECTION SEWER
APWA 223-0	HOUSE CONNECTION REMODELING
APWA 200-2	NON-REINFORCED PRECAST CONCRETE MANHOLE
APWA 225-1	BLANKET PROTECTION FOR PIPES
2000-0	LEGEND FOR SANITARY SEWER PLANS AND PROFILES AND DISTRICT MAPS.
2021-0	BEDDING FOR SEWER PIPE
2024-0	WYE OR TEE SUPPORT
2027-0	ALLOWABLE TRENCH WIDTHS
6008-0	MINIMUM PUBLIC SAFETY REQUIREMENTS
2015-0	STANDARD MANHOLE STEP
2023-1	CRADLING AND ENCASEMENT
2100-0	REQUIREMENTS FOR SAN. SEWERS NEAR WATER MAINS

LOTS 98 THROUGH 105 ARE RESTRICTED TO NO CONSTRUCTION OF RESIDENTIAL BUILDINGS AND WILL NOT BE SERVED BY THIS SEWER

10/6/05
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

PRIVATE CONTRACT SEWER GENERAL NOTES

1. A SEWER CONSTRUCTION PERMIT SHALL BE OBTAINED AND A FEE PAID FOR CONSTRUCTION INSPECTION AND RECORD PLANS TO THE DEPARTMENT OF PUBLIC WORKS AT THE PERMIT COUNTER, 900 SOUTH FREMONT AVENUE, 8TH FLOOR, ALHAMBRA, AT LEAST 72 HOURS PRIOR TO STARTING WORK UNDER THIS CONTRACT. COPIES OF ALL OTHER REQUIRED PERMITS, SUCH AS ROAD EXCAVATION, CALTRANS ETC. MUST BE FILED WITH THE PERMIT APPLICATION.
2. PRIOR TO ISSUANCE OF ANY PERMIT,THE CONTRACTOR SHALL FILE A PERMIT FOR EXCAVATIONS AND TRENCHES FROM THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY,AND A CERTIFICATE OF WORKERS' COMPENSATION INSURANCE WITH THE DEPARTMENT OF PUBLIC WORKS NAMED AS THE CERTIFICATE HOLDER TO BE NOTIFIED 30 DAYS PRIOR TO CANCELLATION OF POLICY.
3. IF WORK IS TO BE DONE IN A STATE HIGHWAY, A PERMIT MUST BE OBTAINED FROM THE STATE OF CALIFORNIA DIVISION OF HIGHWAY, 120 SOUTH SPRING STREET, LOS ANGELES, CALIFORNIA.
4. WHEN WORK IS WITHIN A CONTRACT CITY, THE CONTRACTOR MUST CONTACT THE DIRECTOR OF PUBLIC WORKS OF THAT CITY TO DETERMINE THE LOCATION TO PAY THE INSPECTION FEE
5. THE CONTRACTOR SHALL CONTACT THE DISTRICT OFFICE LISTED ON THE "APPLICATION FOR CONSTRUCTION PERMIT" TO ARRANGE FOR AN ACCEPTABLE CONSTRUCTION START DATE, AND SHALL NOTIFY THE CONSTRUCTION DIVISION BY TELEPHONE (818)458-3129 AT LEAST TWENTY-FOUR HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
6. APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO ACCURACY OF THE LOCATION OF OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAGES.
7. ALL WORK SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, INCLUDING SUPPLEMENTS AND THE SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SANITARY SEWERS, AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE DEPARTMENT OF PUBLIC WORKS PERSONNEL.
8. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 7-10.4.1 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION IN REGARD TO SAFETY ORDERS AND SHALL CONFORM TO THE "MINIMUM PUBLIC SAFETY REQUIREMENTS" AS SHOWN ON LOS ANGELES DEPARTMENT OF PUBLIC WORKS' STANDARD S-2.
9. ELELVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929.
10. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.
11. NO REPRESENTATIVE OF THE DEPARTMENT OF PUBLIC WORKS WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
12. GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTERLINE OF STREETS, OR CENTERLINE OF ALLEYS, ARE SHOWN BY CIRCLES ON PROFILES AT ALL POINTS BETWEEN DESIGNATED POINTS.THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
13. THE PRIVATE ENGINEER SHALL FURNISH THE DEPARTMENT OF PUBLIC WORKS WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND "Y"OR"T" BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHIMNEYS SHALL NOT HAVE AN ANGLE OF LESS THAN 45° WITH THE M.L. SEWER ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
14. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE TOP CURB ELEVATION FOR EACH HOUSE LATERAL ON THE GRADE SHEET

CONSTRUCTION NOTES

1. PROVIDE SURVEY STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTERLINE OF EACH MANHOLE.
2. VITRIFIED CLAY PIPE JOINTS SHALL BE TYPE "D" OR "G" PER STANDARD SPECIFICATIONS SECTION 208-2
3. IF A POWER POLE IS WITHIN THREE FEET OF THE SEWER, THE SEWER SHALL BE ENCASED PER STANDARD PLAN 2023-1, CASE II. TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
4. ALL JOINTS BETWEEN CAST IRON PIPE AND VITRIFIED CLAY PIPE SHALL BE MADE WITH A RUBBER SLEEVE JOINT, TYPE "D" (WITH BUSHING IF NECESSARY) PER STANDARD SPECIFICATIONS SECTION 208-2
5. HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT PROPERTY LINE 6 FEET BELOW CURB GRADE EXCEPT AS NOTED.
6. WYE OR TEE BRANCHES MAY BE USED FOR CONNECTIONS TO MAINLINE SEWERS EXCEPT AS NOTED.
7. IF DURING THE COURSE OF CONSTRUCTION, IT IS DETERMINED THAT THERE IS LESS THAN FOUR FEET OF COVER OVER THE TOP OF A MAINLINE OR HOUSE LATERAL V.C.P. SEWER WHICH IS NOT INDICATED ON THE PLANS, THE PIPE SHALL BE ENCASED PER STANDARD PLANS S-23 CASE I, UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
8. ALL STRUCTURES SHALL BE EITHER BRICK SEWER MANHOLES PER STANDARD PLAN S-3 OR PRECAST CONCRETE SEWER MANHOLES PER STANDARD PLAN S-36, OR REINFORCED PRECAST CONCRETE MANHOLE PER STANDARD PLAN S-6, EXCEPT AS NOTED.
9. RESURFACE ALL TRENCHES WITHIN PAVED AREAS TO MEET LOS ANGELES COUNTY PUBLIC WORKS OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH THE PERMITS.
10. FULL COMPLIANCE WITH SECTION 306-1.3.4 OF THE STANDARD SPECIFICATIONS WILL BE REQUIRED FOR BACKFILL IN STREETS. CERTIFICATION OF BACKFILL COMPACTION AND SAND EQUIVALENTS BY A QUALIFIED CIVIL ENGINEER SHALL BE PROVIDED BY THE PERMITTEE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF PARTIAL ACCEPTANCE.
11. ALL BACKFILL AND FILLS OUTSIDE OF STREET RIGHT OF WAY SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM SOIL COMPACTION TEST D 1557-78 METHOD "D" UNLESS OTHERWISE SPECIFIED. THIS SHALL BE CERTIFIED BY A QUALIFIED CIVIL ENGINEER. THIS CERTIFICATION SHALL BE SUBMITTED TO THE CONSTRUCTION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS PRIOR TO ACCEPTANCE OF THE WORK BY THE COUNTY.
12. MANHOLE TOPS IN IMPROVED RIGHTS OF WAY TO BE LEVEL WITH FINISHED GRADE.
13. SEWERS TO BE TESTED FOR LEAKAGE PER SECTION 306-1.4 OF THE STANDARD SPECIFICATION AND SPECIAL PROVISIONS
14. ALL WYES AND/OR HOUSE LATERALS ARE TO BE LOCATED AT LEAST FIVE FEET APART AND WHEN POSSIBLE NOT CLOSER THAN FIVE FEET TO ANY MANHOLE.

RECORD PLANS

PROFILE, ALIGNMENT AND GRADE OF
SANITARY SEWERS
TO BE CONSTRUCTED IN
TR.NO. 44800-02 PC NO. 11489
4 SHEETS: 7 PAGES
COUNTY OF LOS ANGELES, CALIFORNIA
INDEX NO

HARRY W. STONE DIRECTOR OF PUBLIC WORKS

APPROVED BY LAND DEVELOPMENT DIVISION
BY ________ ASSISTANT DIVISION ENGINEER DATE

SUBMITTED BY ________ SUBDIVISION PLAN CHECKING SECTION DATE

APPROVED COUNTY SANITATION DISTRICT OF LOS ANGELES, CALIF.
CHARLES W. CARRY – CHIEF ENGINEER and GENERAL MANAGER
COUNTY SANITATION DISTRICT NO. 32
BY ________ DATE: 12-27-99

PRIVATE ENGINEERS NOTICE TO CONTRACTORS:

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS IS REQUIRED BY A SEARCH OF AVAILABLE RECORDS TO THE BEST OF OUR KNOWLEDGE. THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING. PRIOR TO EXCAVATION THE CONTRACTOR SHALL CALL TOLL FREE 1-800-422-4133 TO VERIFY THE UNDERGROUND LOCATION OF GAS AND TELEPHONE LINES. THE CONTRACTOR SHALL ALSO CALL MR. RAY CUMMINGS OF GENERAL TELEPHONE COMPANY AT 1-800-948 4871 SO THAT THEY CAN MARK THE LOCATION OF UNDERGROUND TELEPHONE LINES.

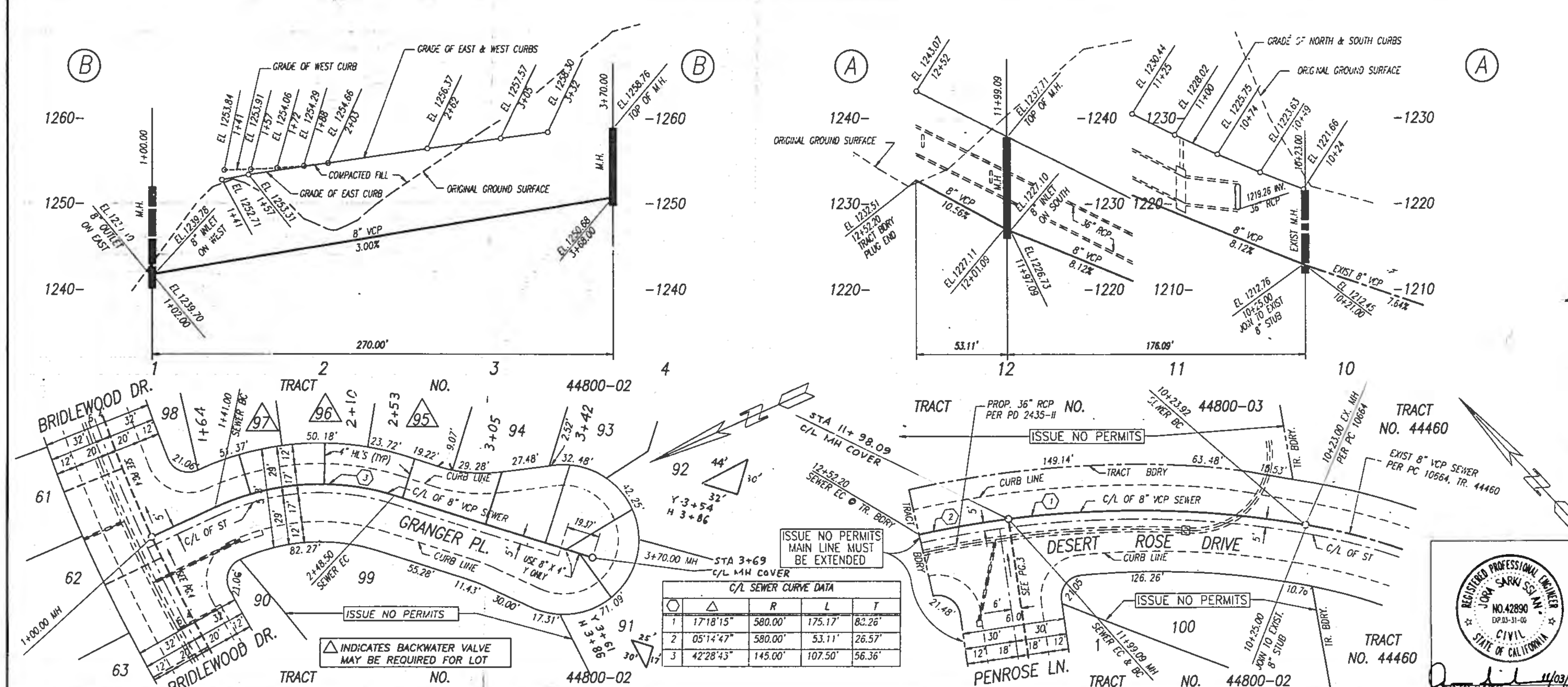
RCE NO. 42890 11/03/99 DATE

56126

(1)

TR. NO. 44800-02 PC 11489

P.C. 11489 PAGE 2



C/L SEWER CURVE DATA

⬡	△	R	L	T
1	17°18'15"	580.00'	175.17'	88.26'
2	05°14'47"	580.00'	53.11'	26.57'
3	42°28'43"	145.00'	107.50'	56.36'

DOUBLE SCALE

NO L.A. CO. CHARGE FOR CONNECTION

SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES
TEL. (562) 699-7411
EXT. 2727

56127

RECORD PLANS

PLAN
SCALE: 1" = 40'

REGISTERED PROFESSIONAL ENGINEER JORA SARKISSIAN NO.42890 EXP.03-31-00 CIVIL STATE OF CALIFORNIA

PROJECT ENGINEER 11/03/99 DATE

SANITARY SEWER PLANS IN TR. NO . 44800-02 PC NO. 11489

REVIEWED LAND DEVELOPMENT DIVISION
BY ________ SUBDIVISION PLAN CHECKING SECTION 12/21/99 DATE

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

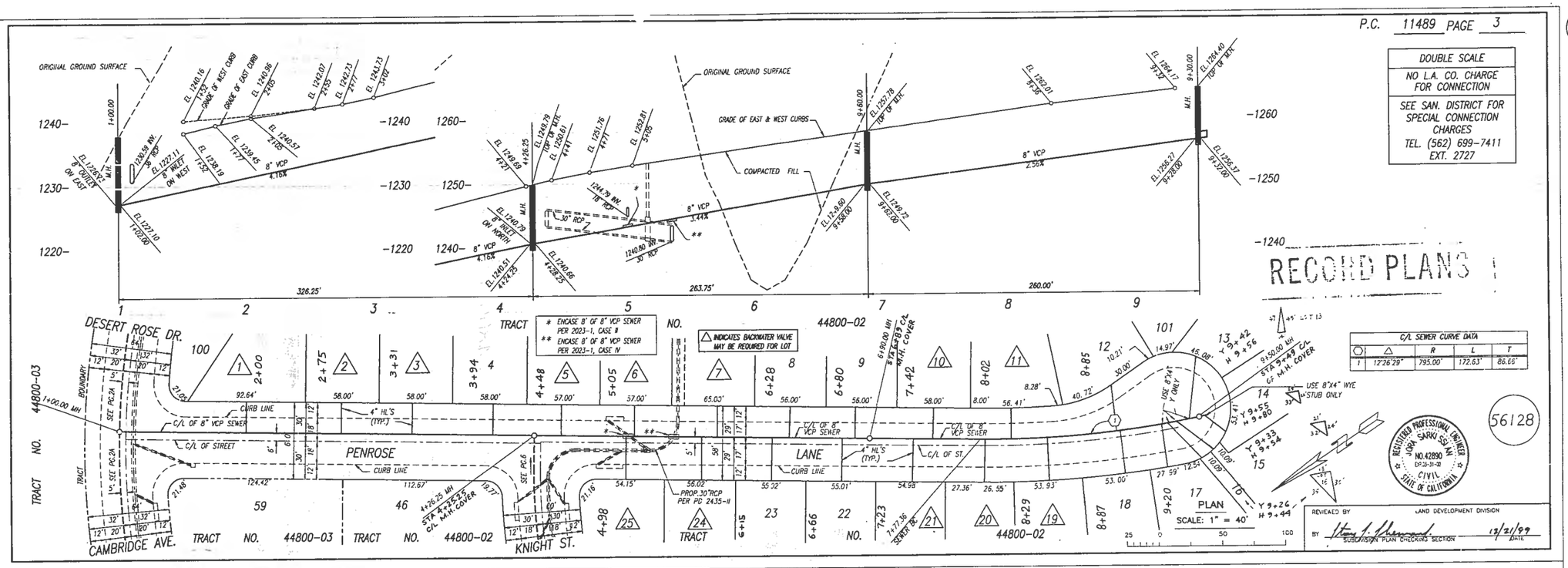
SIKAND ENGINEERING ASSOCIATES
CONSULTING ENGINEERS
15230 BURBANK BLVD.,
VAN NUYS, CALIFORNIA 91411 (818) 787-8550

L.A. COUNTY SEWER SHEET NO. 1 VALLEY BOY GRAPHICS

x:\sikand\44800-02\sewer\dwg\Sershl-01.dwg

P.C. 11489 PAGE 3

DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES TEL. (562) 699-7411 EXT. 2727



C/L SEWER CURVE DATA				
○	△	R	L	T
1	12°26'29"	795.00'	172.63'	86.66'

RECORD PLANS

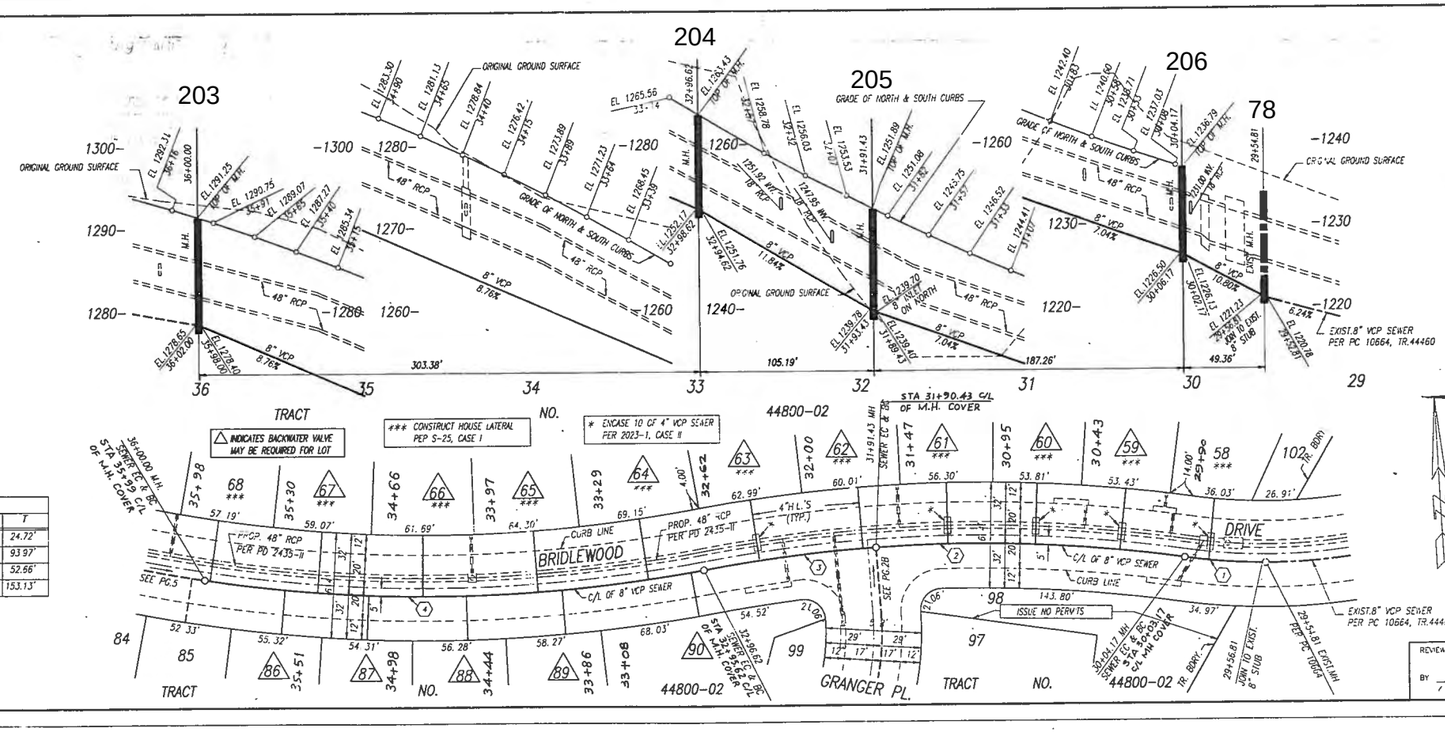
56128

REVIEWED BY LAND DEVELOPMENT DIVISION
BY SUBDIVISION PLAN CHECKING SECTION DATE 12/21/99

P.C. 11489 PAGE 4

DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES TEL. (562) 699-7411 EXT. 2727

56129



C/L SEWER CURVE DATA				
○	△	R	L	T
1	07°58'00"	355.00'	49.36'	24.72'
2	11°59'16"	895.00'	187.26'	93.97'
3	06°44'03"	895.00'	105.19'	52.66'
4	19°12'25"	905.00'	303.38'	153.13'

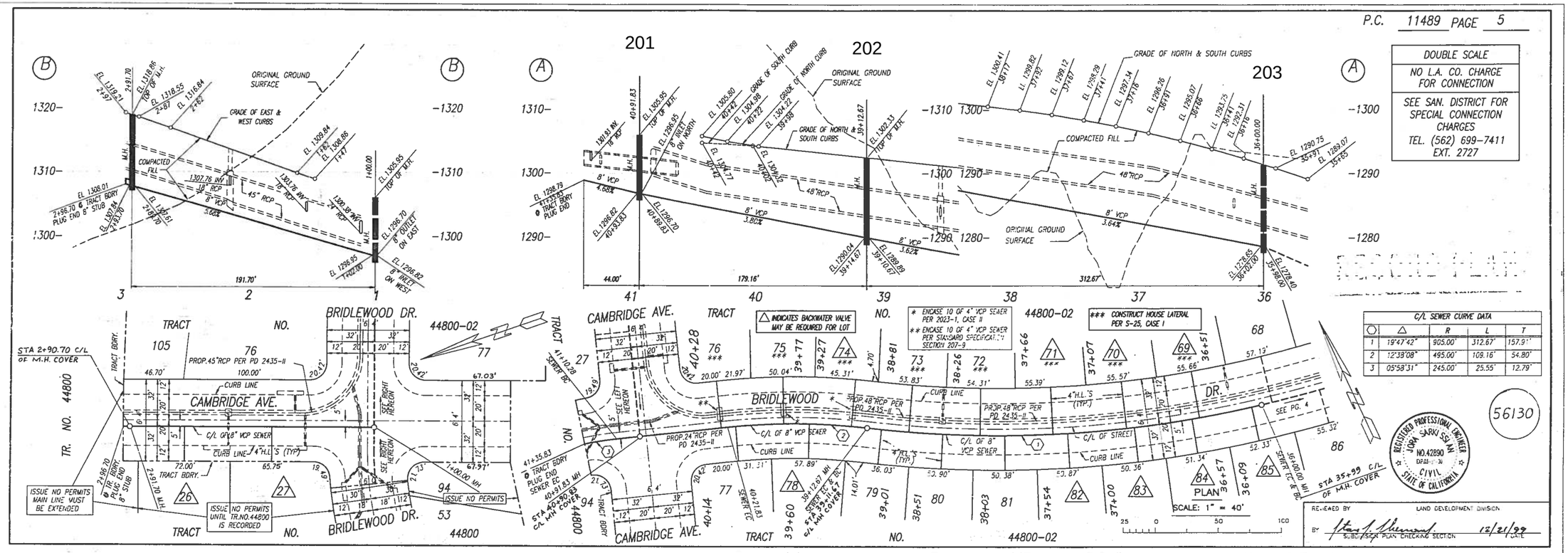
REVIEWED BY LAND DEVELOPMENT DIVISION
BY SUBDIVISION PLAN CHECKING SECTION DATE 12/21/99

PC 11489

TR. NO. 44800-02

P.C. 11489 PAGE 5

DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES TEL. (562) 699-7411 EXT. 2727



C/L SEWER CURVE DATA				
○	△	R	L	T
1	19°47'42"	905.00'	312.67'	157.91'
2	12°38'08"	495.00'	109.16'	54.80'
3	05°58'31"	245.00'	25.55'	12.79'

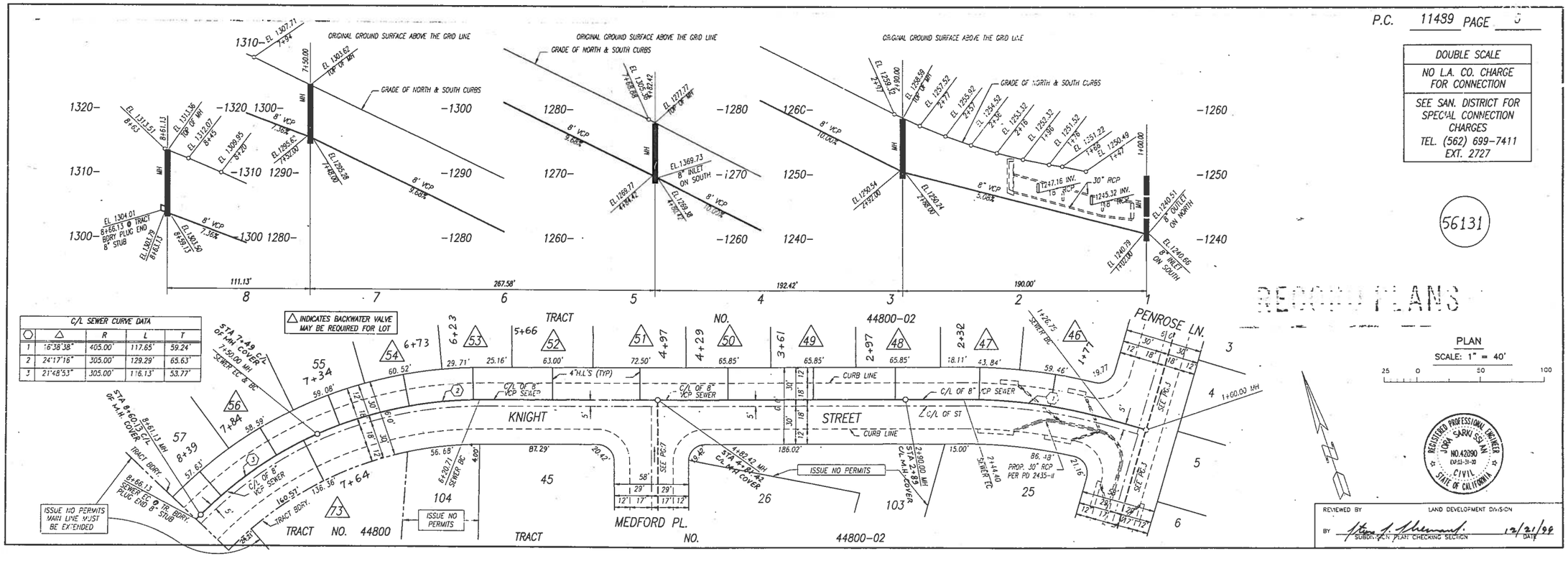
56130

REGISTERED PROFESSIONAL ENGINEER JOHN SARKIS SSI NO. 42890 EXP. 01-31-00 CIVIL STATE OF CALIFORNIA

REVIEWED BY LAND DEVELOPMENT DIVISION
BY SUBDIVISION PLAN CHECKING SECTION DATE 12/21/99

P.C. 11489 PAGE 3

DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES TEL. (562) 699-7411 EXT. 2727



C/L SEWER CURVE DATA				
○	△	R	L	T
1	16°38'38"	405.00'	117.65'	59.24'
2	24°17'16"	305.00'	129.29'	65.63'
3	21°48'53"	305.00'	116.13'	53.77'

56131

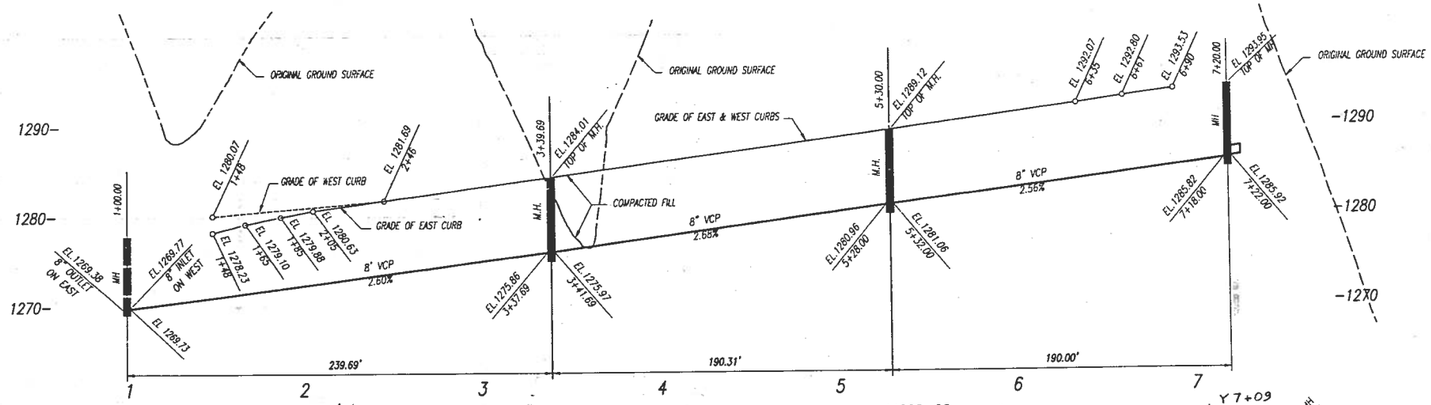
REGISTERED PROFESSIONAL ENGINEER JOHN SARKIS SSI NO. 42890 EXP. 01-31-00 CIVIL STATE OF CALIFORNIA

REVIEWED BY LAND DEVELOPMENT DIVISION
BY SUBDIVISION PLAN CHECKING SECTION DATE 12/21/99

BC 11489 SD-0084 .0N JT

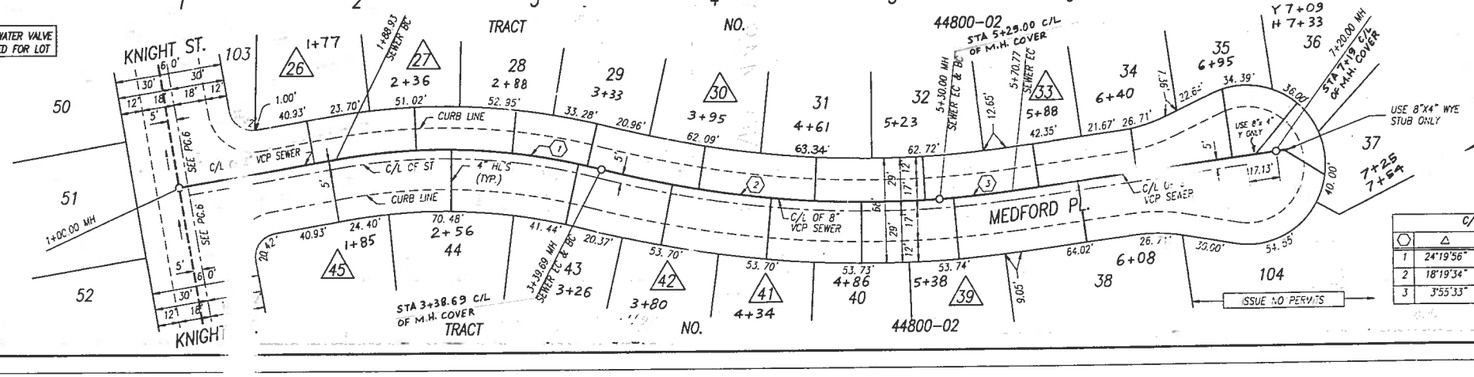
P.C. 11489 PAGE 7

DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES TEL. (562) 699-7411 EXT. 2727



RECORD PLANS

△ INDICATES BACKWATER VALVE MAY BE REQUIRED FOR LOT



PLAN
SCALE: 1" = 40'

56132

REGISTERED PROFESSIONAL ENGINEER JORGE SARKISSIAN NO.42890 EXP.03-31-00 CIVIL STATE OF CALIFORNIA

C/L SEWER CURVE DATA				
	Δ	R	L	T
1	24°19'56"	355.00'	150.76'	76.53'
2	18°19'34"	595.00'	190.31'	95.97'
3	3°55'33"	595.00'	40.77	20.39'

REVIEWED BY LAND DEVELOPMENT DIVISION
BY SUBDIVISION PLAN CHECKING SECTION DATE 12/21/99

P.C. _____ PAGE _____

DOUBLE SCALE
NO L.A. CO. CHARGE FOR CONNECTION
SEE SAN. DISTRICT FOR SPECIAL CONNECTION CHARGES TEL. (562) 699-7411 EXT. 2727

VOID

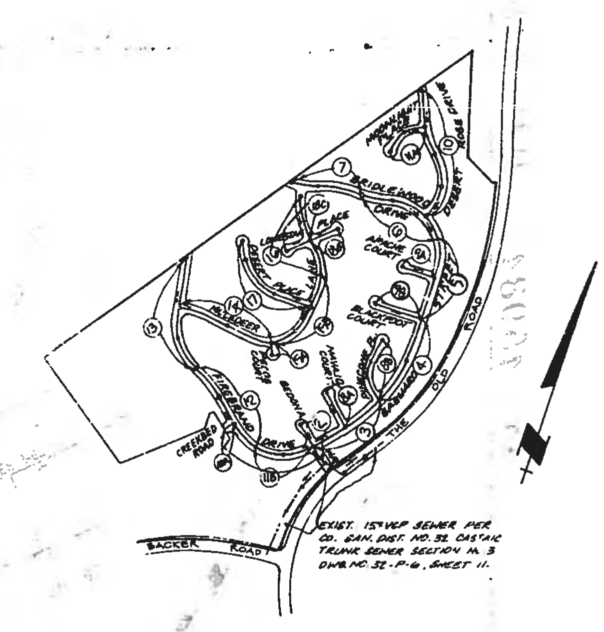
REVIEWED BY BUILDING & SAFETY/LAND DEVELOPMENT DIVISION
BY SUBDIVISION PLAN CHECKING SECTION DATE

(A)

PC 11489

TR. NO. 44800-02

B.M. CL. 3976 ELEV. 1065.685
RDBM TAG IN CB 4 FT N BCR 70 FT N & 32 FT E C/L INT. THE OLD ROAD & HASLEY CN. ROAD OFFRAMP
NEWHALL QUAD. 1983



INDEX MAP
SCALE: 1" = 600'
P.C. 10664
TRACT NO. 44460

NOTE: NUMBERS IN CIRCLES INDICATE PAGE NUMBERS.

DOUBLE SCALE

CONSTRUCTION NOTES: CONT'D.

16. FULL COMPLIANCE WITH PART IV OF THE SPECIAL PROVISIONS IS REQUIRED FOR THE INSTALLATION OF A.B.S. COMPOSITE PIPE.
17. MANHOLE WATER STOP GASKETS AND CLAMPS ARE REQUIRED FOR THE CONNECTION OF A.B.S. COMPOSITE PIPE TO MANHOLE STRUCTURES.
18. A.B.S. SOLID WALL PIPE MUST BE USED FOR WYE AND HOUSE LATERAL CONNECTIONS TO A.B.S. COMPOSITE MAINLINE SEWER PIPE.
19. A.B.S. COMPOSITE PIPE SHALL BE BEDDED IN CONFORMANCE WITH THE TABLE IN SECTION B-3.1 PART IV OF THE SPECIAL PROVISIONS.
20. 3 DEGREE DEFLECTION COUPLERS MUST BE USED TO ACCOMPLISH RADIUS OF CURVATURE LESS THAN 380'.

BEFORE BREAKING INTO OR CONSTRUCTION ON A COUNTY SANITATION DISTRICT SEWER AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, SANITATION DISTRICT INSPECTOR SHALL BE NOTIFIED BY PHONE (818) 962-8605 SO THAT REQUIRED INSPECTION CAN BE MADE.

NO CONNECTION FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS UNTIL A PERMIT FOR INDUSTRIAL WASTEWATER DISCHARGE HAS BEEN ISSUED BY THE SANITATION DISTRICTS FOR SAID CONNECTION

LOT 291 IS AN OPEN SPACE LOT RESTRICTED TO NO CONSTRUCTION & WILL NOT BE SERVED BY THIS SEWER.

GENERAL NOTES:

1. ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929.
2. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.
3. NO REPRESENTATIVE OF THE DEPARTMENT OF PUBLIC WORKS WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
4. GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTER LINE OF STREETS, OR CENTER LINE OF ALLEYS ARE SHOWN BY CIRCLES ON PROFILES. AT ALL POINTS BETWEEN DESIGNATED POINTS THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
5. THE PRIVATE ENGINEER SHALL FURNISH THE DEPARTMENT OF PUBLIC WORKS WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND "Y" OR "T" BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHIMNEYS SHALL NOT HAVE AN ANGLE OF LESS THAN 45° WITH THE MAIN LINE SEWER. ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
6. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE TOP OF CURB ELEVATION FOR EACH HOUSE LATERAL ON THE GRADE SHEET.
7. BEFORE WORK CAN BE STARTED, THE CONTRACTOR MUST OBTAIN A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE CONST. DIV. OF THE LOS ANGELES DEPARTMENT OF PUBLIC WORKS, PERMIT OFFICE NO. 6 AND PAY A FEE TO THE DIRECTOR OF PUBLIC WORKS, 2250 ALCAZAR ST., LOS ANGELES, CALIFORNIA 90033, TO COVER THE COST OF CONSTRUCTION INSPECTION AND RECORD PLANS.
8. IF WORK IS TO DONE IN A STATE HIGHWAY, A PERMIT MUST BE OBTAINED FROM THE STATE OF CALIFORNIA, DIVISION OF HIGHWAYS, 120 SOUTH SPRING STREET, LOS ANGELES, CALIFORNIA.
9. APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION OF OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE, OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAGES.
10. REFER TO SECTION 7.10.4.1 OF THE STANDARD SPECIFICATIONS, REGARDING SAFETY ORDERS.
11. PRIOR TO THE ISSUANCE OF THE REQUIRED SEWER CONSTRUCTION PERMIT, THE CONTRACTOR SHALL OBTAIN AND FILE WITH THE DEPARTMENT OF PUBLIC WORKS COPIES OF A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE CONST. DIV. OF THE DEPARTMENT OF PUBLIC WORKS, A PERMIT FOR EXCAVATIONS AND TRENCHES FROM THE STATE OF CALIFORNIA, A DIVISION OF INDUSTRIAL SAFETY AND A CERTIFICATE OF WORKER'S COMPENSATION INSURANCE WITH THE DEPARTMENT OF PUBLIC WORKS, 2250 ALCAZAR ST., LOS ANGELES, CALIFORNIA 90033, ROOM [illegible] NAMED AS THE CERTIFICATE HOLDER TO BE NOTIFIED 30 DAYS PRIOR TO CANCELLATION OF POLICY.

CONSTRUCTION NOTES:

1. WORK SHALL BE CONSTRUCTED ACCORDING TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (1985 EDITION WITH 1986 SUPPLEMENTS) AND DEPT. OF PUBLIC WORKS SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SANITARY SEWERS DATED SEPT. 21, 1976 AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE COUNTY DEPT. OF PUBLIC WORKS.
2. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION DIVISION BY TELEPHONE, 226-8281, AT LEAST TWENTY-FOUR HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
3. HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT PROPERTY LINE 6 FEET BELOW CURB GRADE EXCEPT AS NOTED.
4. WYE OR TEE BRANCHES MAY BE USED FOR CONNECTIONS TO MAINLINE SEWERS EXCEPT AS NOTED.
4A. WYE BRANCHES ONLY MAY BE USED FOR CONNECTIONS TO MAINLINE SEWERS IF A.B.S.C.P. IS USED.
5. ALL STRUCTURES SHALL BE EITHER BRICK MANHOLES PER S-3 OR PRECAST CONCRETE MANHOLES PER S-36, EXCEPT AS NOTED.
6. PROVIDE STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTER LINE OF EACH MANHOLE.
7. MANHOLE TOPS IN UNIMPROVED RIGHTS OF WAY TO BE SIX INCHES ABOVE FINISHED GRADE.
8. VITRIFIED CLAY PIPE JOINTS SHALL BE TYPE "D" OR "G" PER STANDARD SPECIFICATIONS SECTION 208-2.
9. IF A POWER POLE IS WITHIN THREE FEET OF THE SEWER, THE SEWER SHALL BE ENCASED, PER S-23, CASE II, TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
10. IF DURING THE COURSE OF CONSTRUCTION IT IS DETERMINED THAT THERE IS LESS THAN FOUR FEET OF COVER OVER THE TOP OF A MAIN LINE OR HOUSE LATERAL V.C.P. SEWER WHICH IS NOT INDICATED ON THE PLANS, THE PIPE SHALL BE ENCASED PER S-23, CASE II UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
11. ALL JOINTS BETWEEN CAST IRON PIPE AND VITRIFIED CLAY PIPE SHALL BE MADE WITH A RUBBER SLEEVE JOINT, TYPE "C" OR "D", (WITH BUSHING IF NECESSARY) PER STANDARD SPECIFICATIONS, SECTION 208-2.
11A. ALL JOINTS BETWEEN CAST IRON PIPE AND A.B.S.C.P. SHALL BE MADE WITH APPROVED FITTINGS.
12. SEWERS TO BE TESTED FOR LEAKAGE PER SECTION 306-1.4 OF THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
13. RESURFACE ALL TRENCHES WITHIN PAVED AREAS TO MEET LOS ANGELES COUNTY PUBLIC WORKS OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH PERMITS.
14. FULL COMPLIANCE WITH SECTION 306-1.3.4 OF THE STANDARD SPECS. WILL BE REQUIRED FOR BACKFILL IN STREETS. CERTIFICATION OF BACKFILL COMPACTION AND SAND EQUIVALENTS BY A QUALIFIED, REGISTERED TESTING LABORATORY SHALL BE PROVIDED BY THE PERMITTEE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF PARTIAL ACCEPTANCE.
15. SPECIAL BACKFILL IN EASEMENT CONSTRUCTION: (A) BACKFILL TRENCH AND REPLACE OTHER EARTH SO AS TO ACHIEVE THE NATURAL OR FINISHED GRADES AND SLOPES SHOWN ON THE GRADING PLAN APPROVED FOR THIS DEVELOPMENT BY THE LAND DEVELOPMENT DIVISION. (B) ALL BACKFILL AND EARTH REPLACED SHALL BE COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DENSITY PER A.S.T.M. STD. METHOD OF TEST D1557 AS MODIFIED. ACCEPTABLE CERTIFICATION OF SUCH COMPACTION SHALL BE SUBMITTED TO THE CONSTRUCTION DIVISION, DEPT. OF PUBLIC WORKS.

PROFILE, ALIGNMENT AND GRADE OF

PAGE 1

SANITARY SEWERS

TO BE CONSTRUCTED IN

TRACT NO. 44460

PRIVATE CONTRACT NO. 10664

INDEX A-90
9 SHEETS; 18 PAGES

52411

SCALE: VERT. 1" = 8, HORIZ. 1" = 40' JANUARY, 1987

PREPARED IN THE OFFICES OF
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD. VAN NUYS
CALIFORNIA 91411 (818) 787-8550

BY: R.A. Greenwood
REG. C.E. No. 29220

REGISTERED CIVIL ENGINEER · RANDALL A. GREENWOOD · No. 29220 · EXP. 3-31-90 · CIVIL · STATE OF CALIFORNIA

THE FOLLOWING LATEST REVISED STANDARD PLANS ON FILE IN THE OFFICE OF THE DEPARTMENT OF PUBLIC WORKS SHALL APPLY IN THE CONSTRUCTION OF THIS PROJECT:

LEGEND	S-1
MINIMUM PUBLIC SAFETY REQUIREMENTS	S-2
BRICK MANHOLE	S-3
STANDARD MANHOLE STEP	S-17
BEDDING FOR SEWER PIPE	S-21
CRADLING AND ENCASEMENT	S-23
WYE OR TEE SUPPORT	S-28
ALLOWABLE TRENCH WIDTHS	S-33
LOCKING MANHOLE FRAME AND COVER	S-35
NON-REINFORCED PRECAST CONCRETE MANHOLE	S-36
SPECIAL HOUSE LATERALS	S-25
CHIMNEY PIPE AND BASE	S-27

IN ADDITION THE FOLLOWING COUNTY SANITATION DISTRICT STANDARDS SHALL APPLY TO THE CONSTRUCTION OF THIS PROJECT:

STANDARD MANHOLE TYPE "D"	S-A-206
STANDARD 24" MANHOLE FRAME & COVER	S-A-207

COUNTY OF LOS ANGELES, CALIFORNIA

THOMAS A. TIDEMANSON
DIRECTOR OF PUBLIC WORKS

CHARLES W. CARRY
CHIEF ENGINEER
CO. SAN DIST. NO. 32

APPROVED Carl L. Blum 9/3/87 (DATE)
APPROVED [signature] 9/4/87 OFFICE ENGINEER

CHECKED [signature] 8/31/87 (DATE)
REG. C.E. NO. 16841

SANTA CLARITA BLDG. DIST. 8.2

TR. NO. 44460 PC 10664 ①

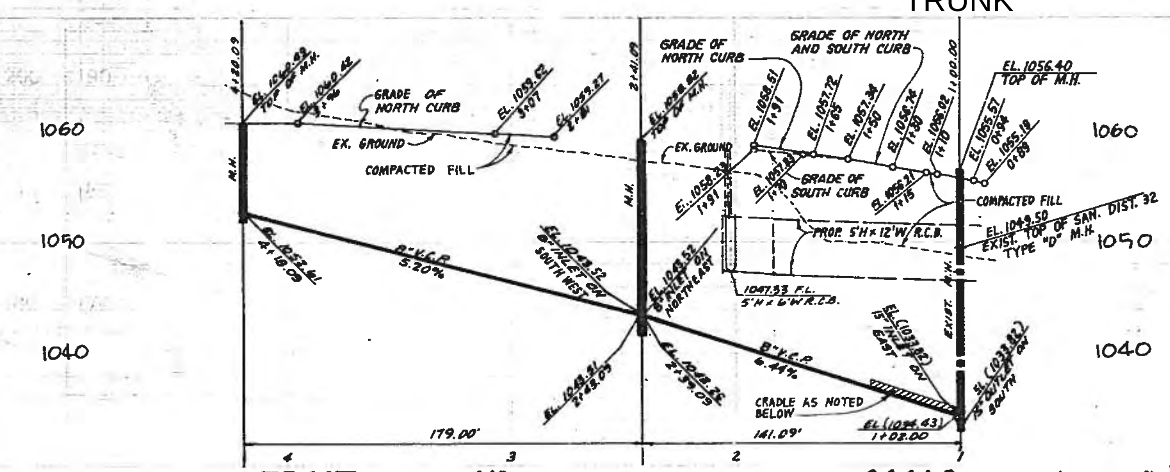
REVIEWED BY Santiago G. Ibalio 8/31/87 (DATE) P.C. 10664 PAGE 2

60

EW TRUNK

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52412



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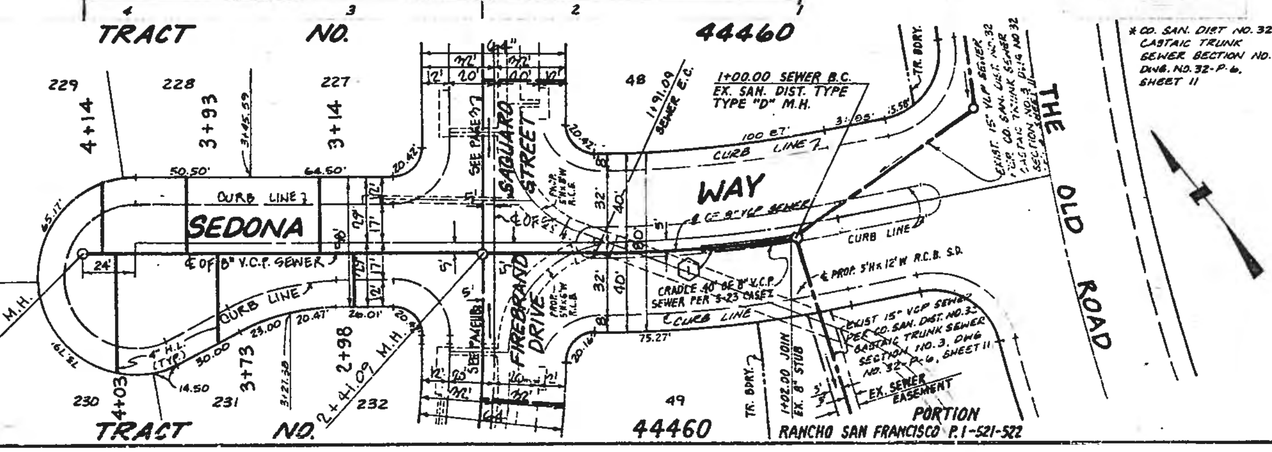
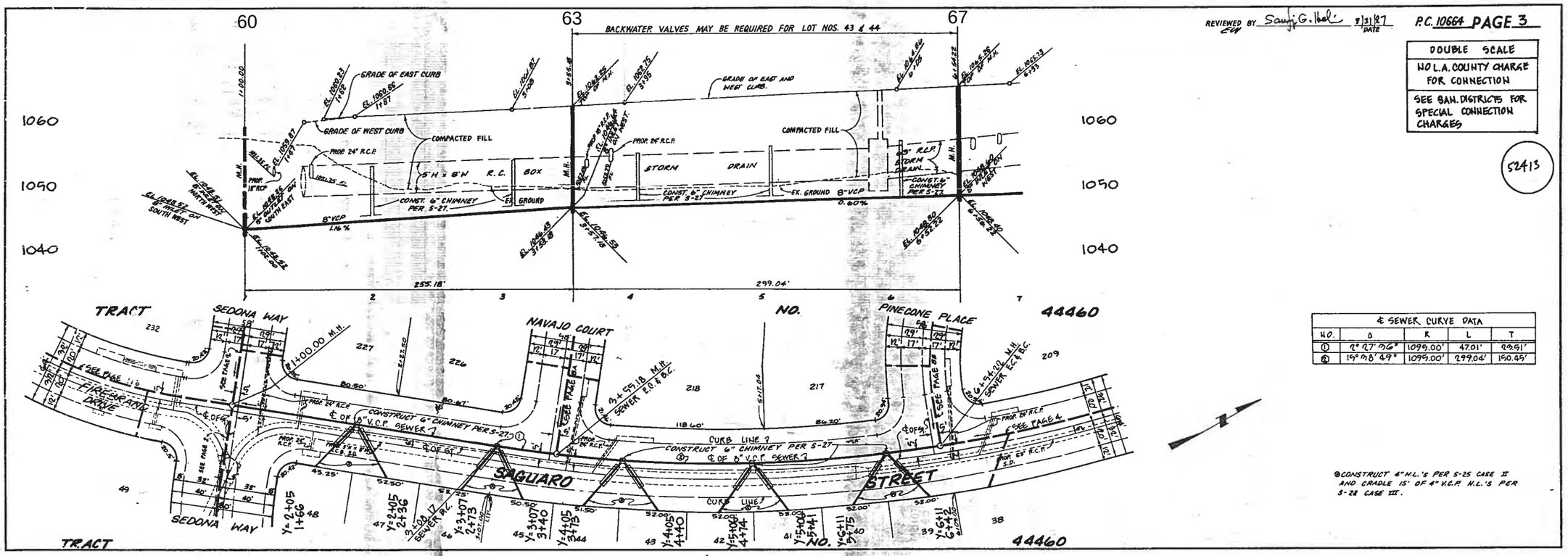


⑪

REVIEWED BY Sanjiv G. Ibali 8/31/87 DATE — P.C. 10664 PAGE 3

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52413



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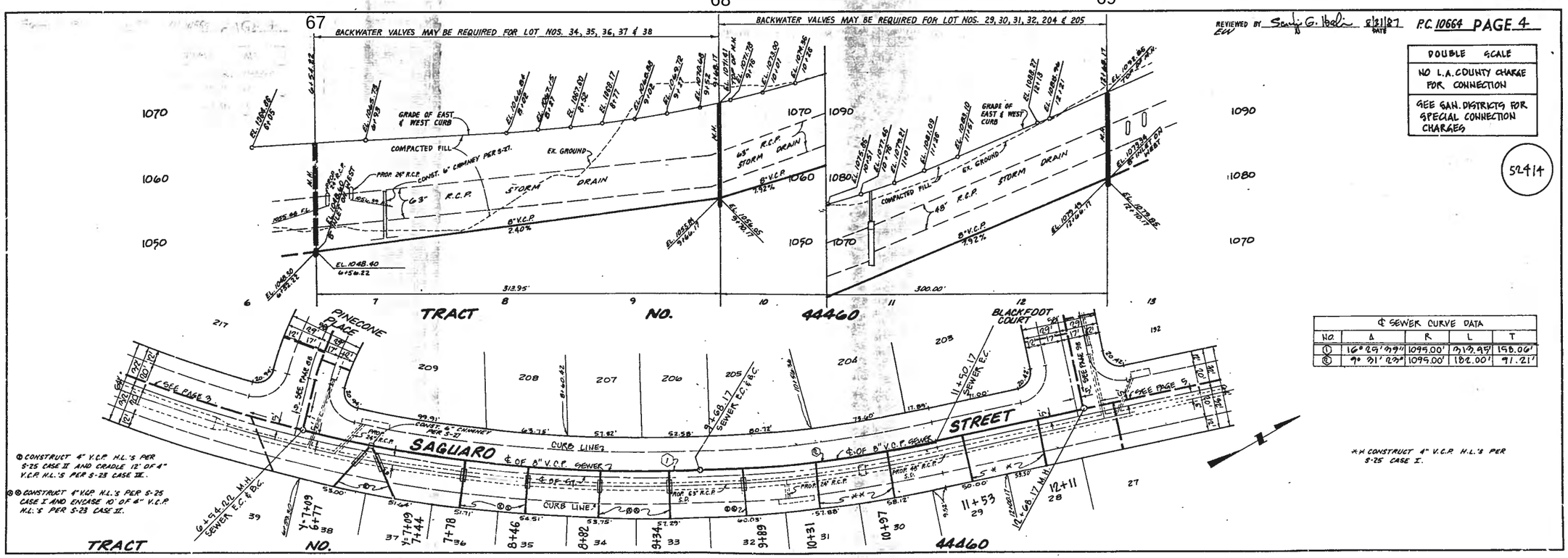
NO.	Δ	R	L	T
①	2° 27' 36"	1099.00'	47.01'	23.51'
②	16° 38' 49"	1099.00'	299.04'	150.45'

② CONSTRUCT 4" H.L.'S PER S-25 CASE II AND CRADLE 15' OF 4" V.C.P. H.L.'S PER S-28 CASE III.

REVIEWED BY Sanjiv G. Ibali 8/31/87 DATE — P.C. 10664 PAGE 4

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52414



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NO.	Δ	R	L	T
①	16° 29' 39"	1099.00'	313.95'	158.06'
②	9° 31' 23"	1099.00'	182.00'	91.21'

⊗ CONSTRUCT 4" V.C.P. H.L.'S PER S-25 CASE II AND CRADLE 12' OF 4" V.C.P. H.L.'S PER S-23 CASE III.

⊗⊗ CONSTRUCT 4" V.C.P. H.L.'S PER S-25 CASE I AND ENCASE 10' OF 4" V.C.P. H.L.'S PER S-23 CASE II.

** CONSTRUCT 4" V.C.P. H.L.'S PER S-25 CASE I.

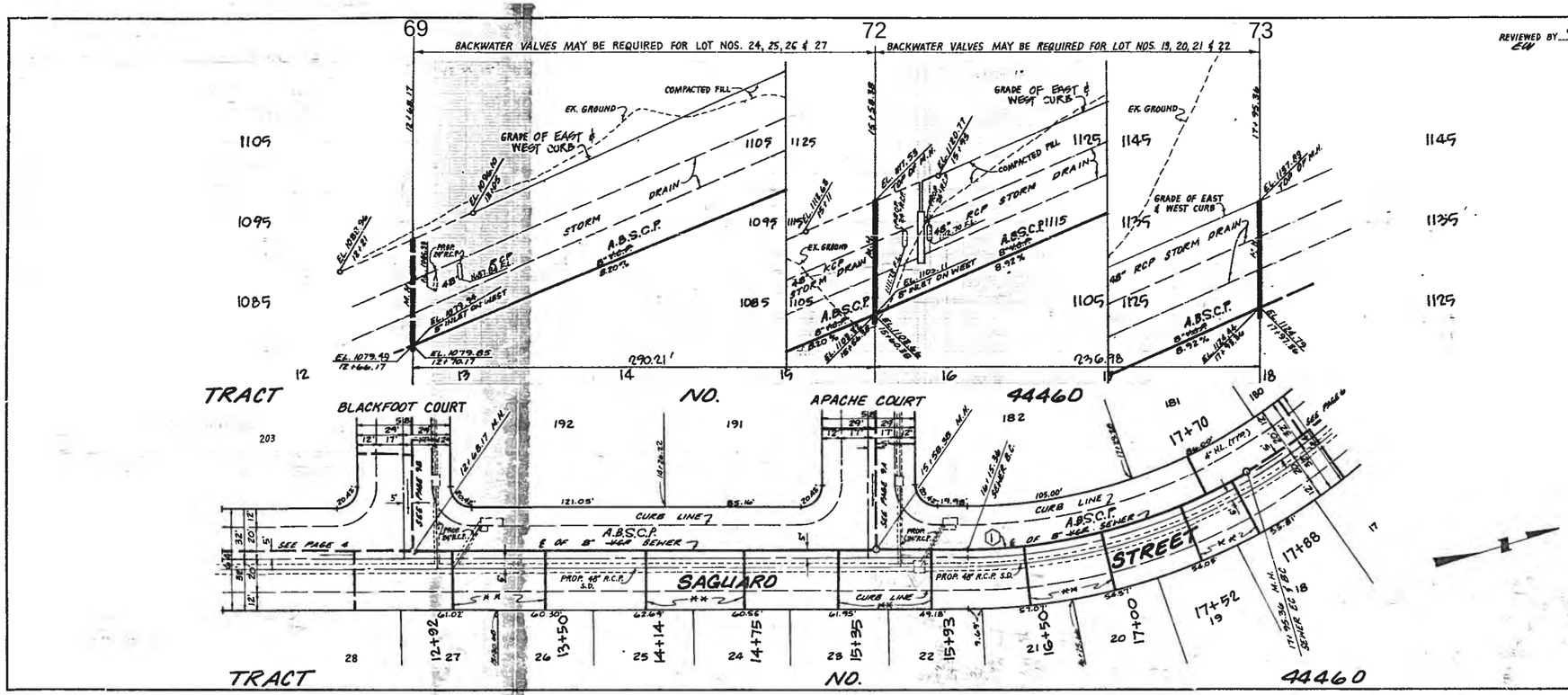
(9)

REVIEWED BY Sandy G. Hall 8/31/87 DATE
EW

P.C. 10664 PAGE 5

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52415



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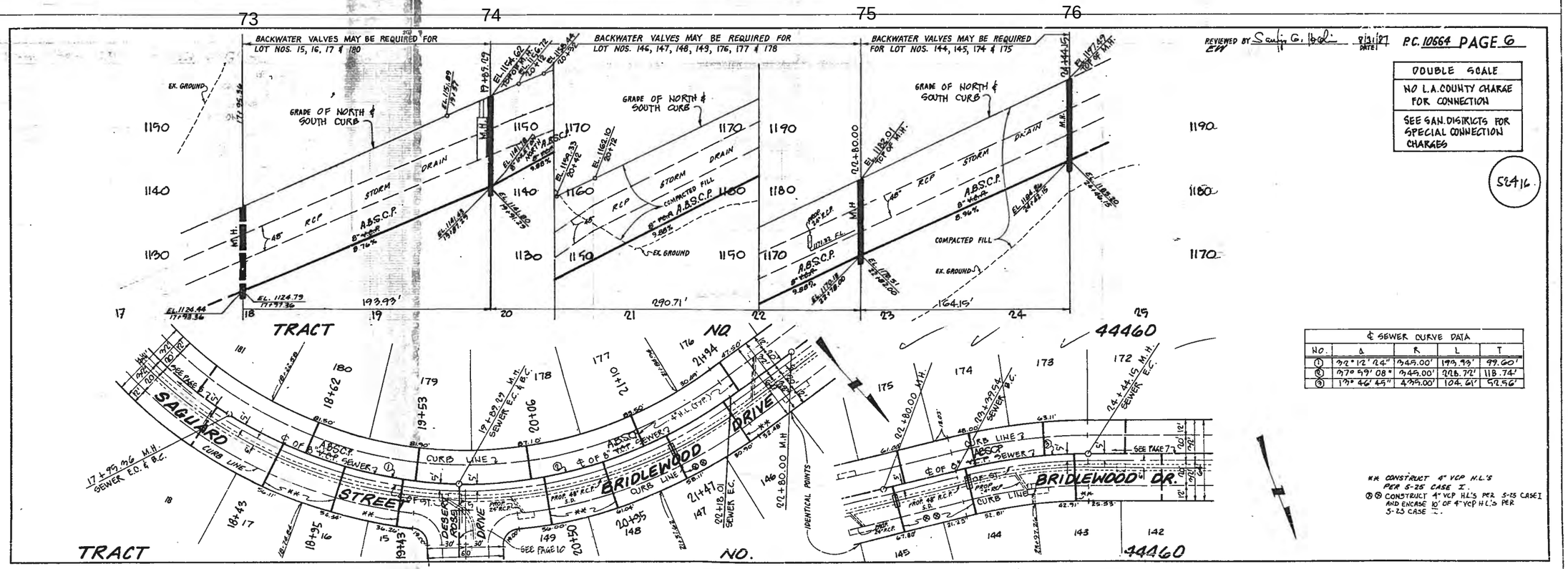
NO	Δ	R	L	T
1	29° 59' 06"	345.00'	180.00'	92.10'

REVIEWED BY Sandy G. Hall 8/31/87 DATE
EW

P.C. 10664 PAGE 6

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52416



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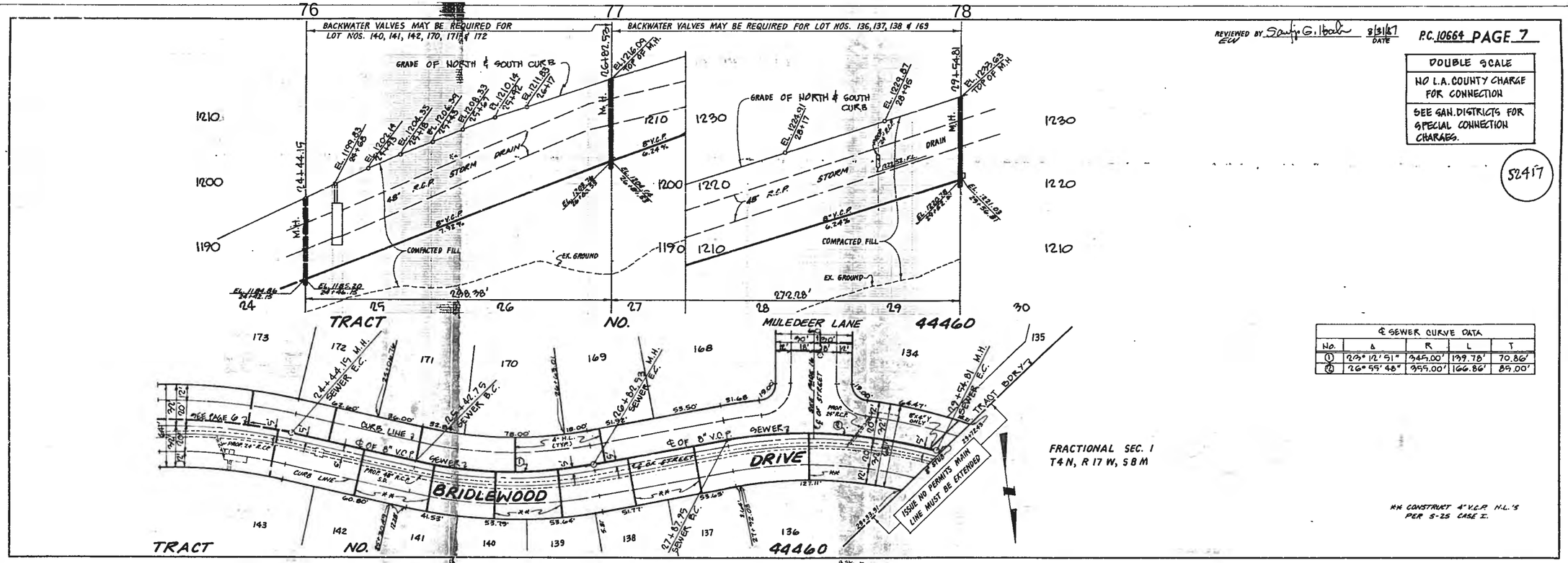
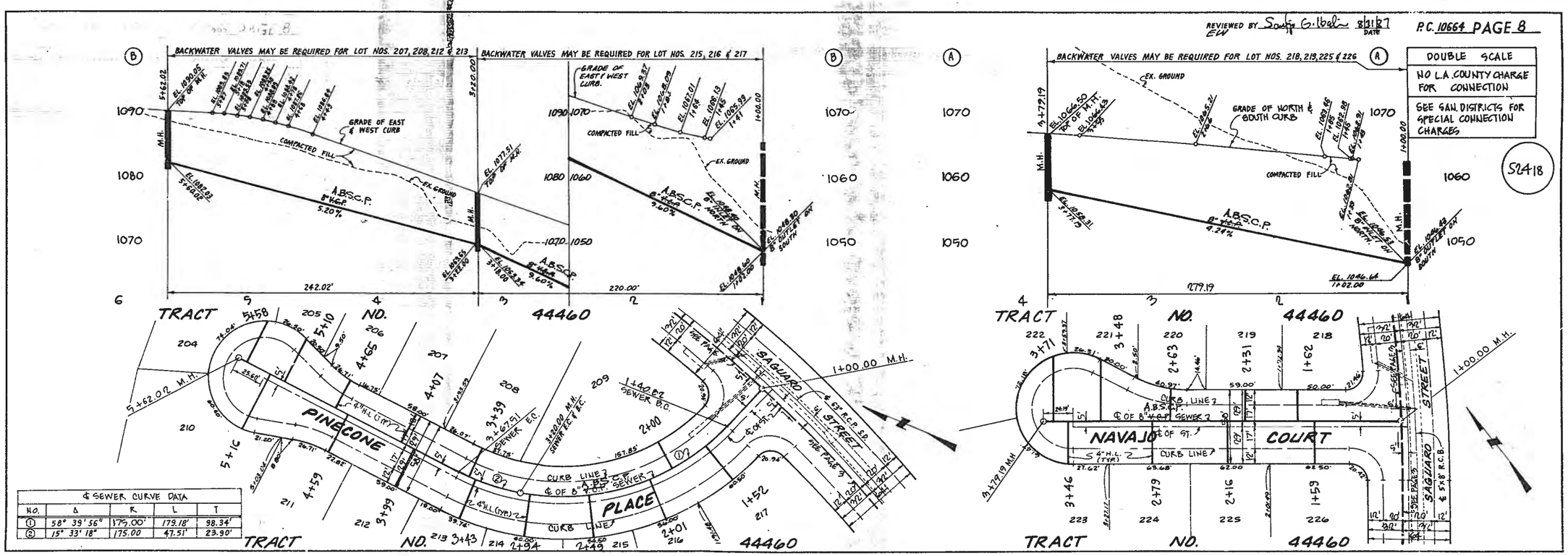
NO.	Δ	R	L	T
1	32° 12' 24"	345.00'	193.93'	99.60'
2	37° 59' 08"	345.00'	228.72'	118.74'
3	17° 46' 45"	335.00'	104.61'	52.56'

L.A. COUNTY SEWER SHEET NO. 1 G.M. Jr. (213) 699-8446 9-82

(8)

(7)


BACKWATER VALVES MAY BE REQUIRED FOR LOT NOS. 140, 141, 142, 170, 171 & 172
BACKWATER VALVES MAY BE REQUIRED FOR LOT NOS. 136, 137, 138 & 169
REVIEWED BY EW
DATE
P.C. 10664 PAGE 7
DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES.
52417
GRADE OF NORTH & SOUTH CURB
STORM DRAIN
48" R.C.P.
8" V.C.P.
COMPACTED FILL
EX. GROUND
M.H.
TRACT NO. 44460
MULEDEER LANE
BRIDLEWOOD DRIVE
CURB LINE
℄ OF 8" V.C.P. SEWER
℄ OF STREET
SEWER B.C.
SEWER E.C.
TRACT BDY.
ISSUE NO PERMITS MAIN LINE MUST BE EXTENDED
FRACTIONAL SEC. 1 T4N, R17W, SBM
** CONSTRUCT 4" V.C.P. H.L.'S PER S-25 CASE I.
℄ SEWER CURVE DATA
No. Δ R L T
① 23° 12' 51" 345.00' 139.78' 70.86'
② 26° 55' 48" 355.00' 166.86' 85.00'

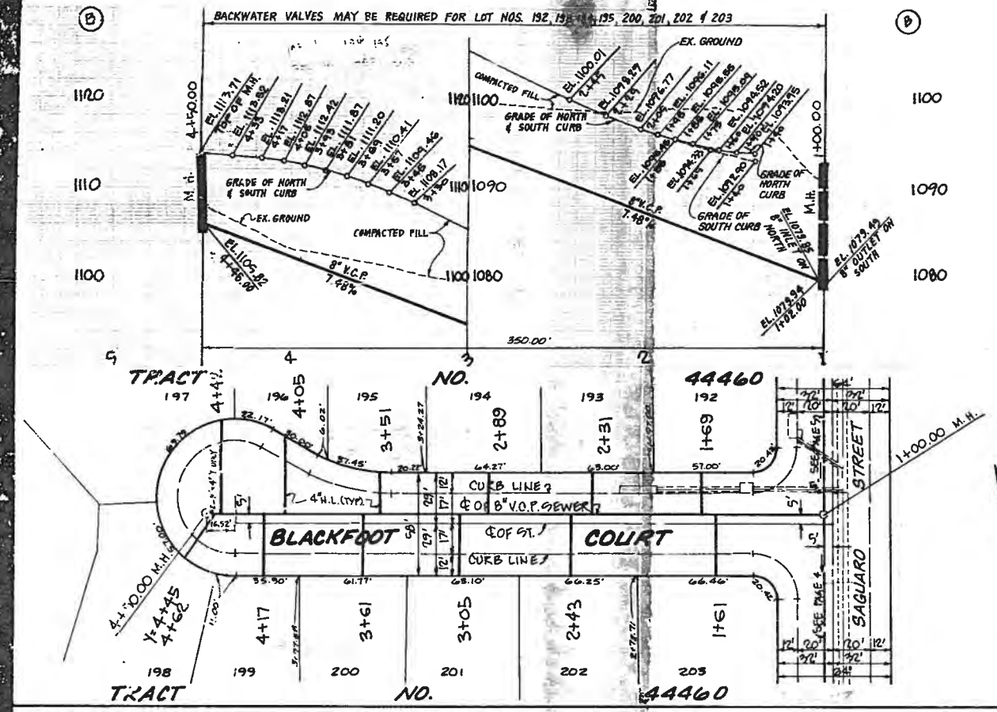

REVIEWED BY EW
DATE
P.C. 10664 PAGE 8
DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES
52418
BACKWATER VALVES MAY BE REQUIRED FOR LOT NOS. 207, 208, 212 & 213
BACKWATER VALVES MAY BE REQUIRED FOR LOT NOS. 215, 216 & 217
BACKWATER VALVES MAY BE REQUIRED FOR LOT NOS. 218, 219, 225 & 226
GRADE OF EAST & WEST CURB
GRADE OF NORTH & SOUTH CURB
COMPACTED FILL
EX. GROUND
A.B.S.C.P.
M.H.
TRACT NO. 44460
PINECONE PLACE
SAGUARO STREET
NAVAJO COURT
CURB LINE
℄ OF 8" V.C.P. SEWER
℄ OF ST.
4" H.L. (TYP.)
SEWER B.C.
SEWER E.C.
℄ SEWER CURVE DATA
No. Δ R L T
① 58° 39' 56" 179.00' 179.18' 98.34'
② 15° 33' 18" 175.00 47.51' 23.90'

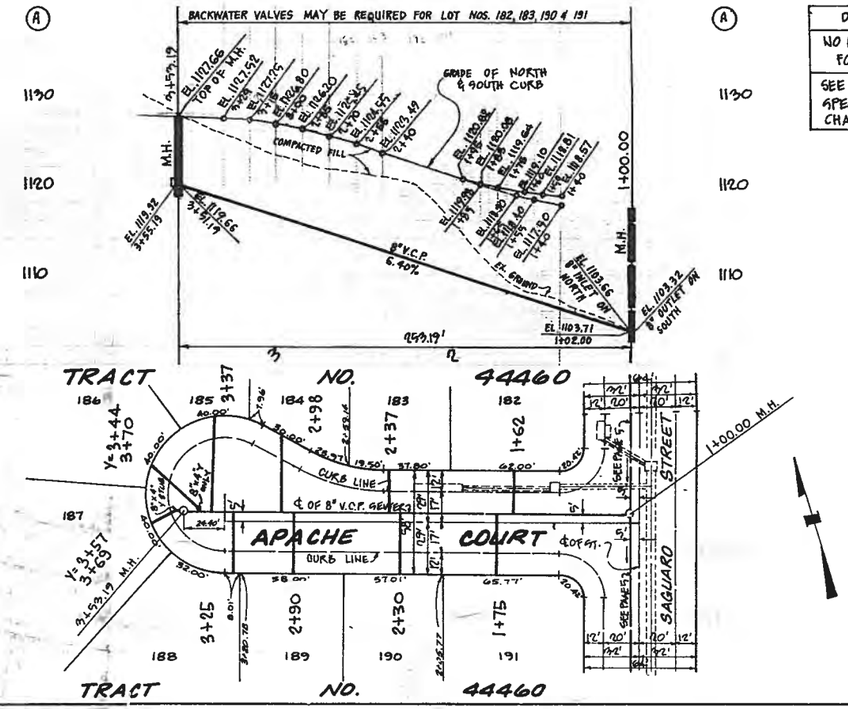
REVIEWED BY Sandy G. Ibeli 8/31/87 DATE

P.C. 10664 PAGE 9

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52419



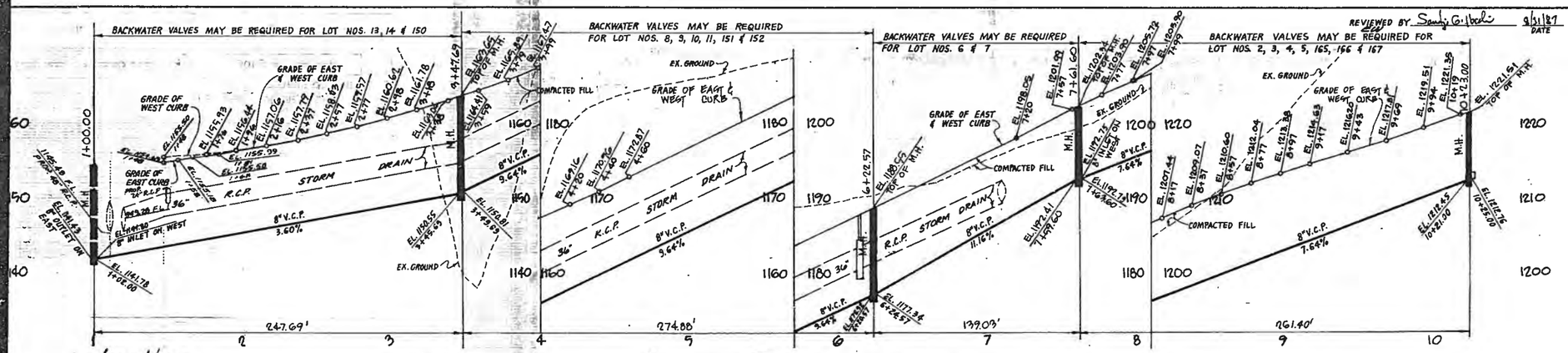


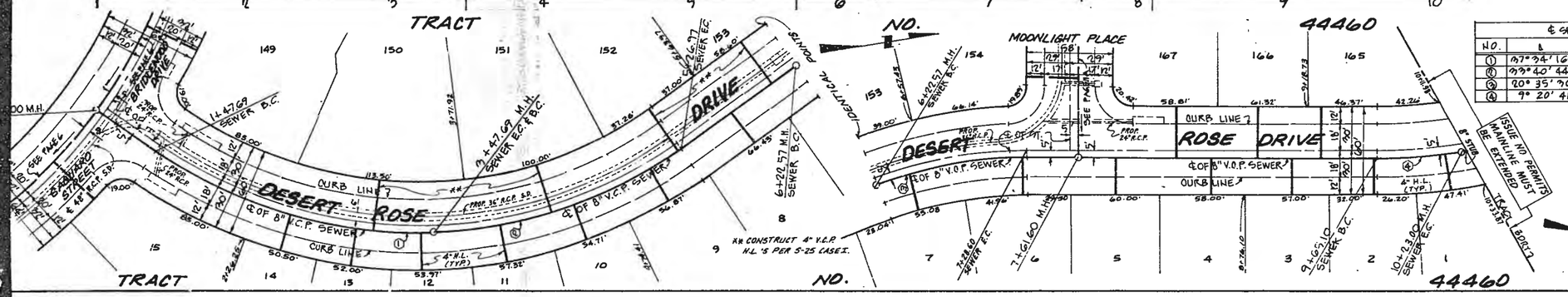
REVIEWED BY Sandy G. Ibeli 8/31/87 DATE

P.C. 10664 PAGE 10

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52420





℄ SEWER CURVE DATA				
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②	33° 40' 44"	305.00'	179.28'	92.31'
③	20° 35' 36"	295.00'	106.03'	53.59'
④	9° 20' 41"	355.00'	57.90'	29.01'

FRACTIONAL SEC. 1
T4N, R17W, SBM

G.M. Jr. (213) 699-8440 1-82

(2)

PC 10664 OF 10664 ON FILE

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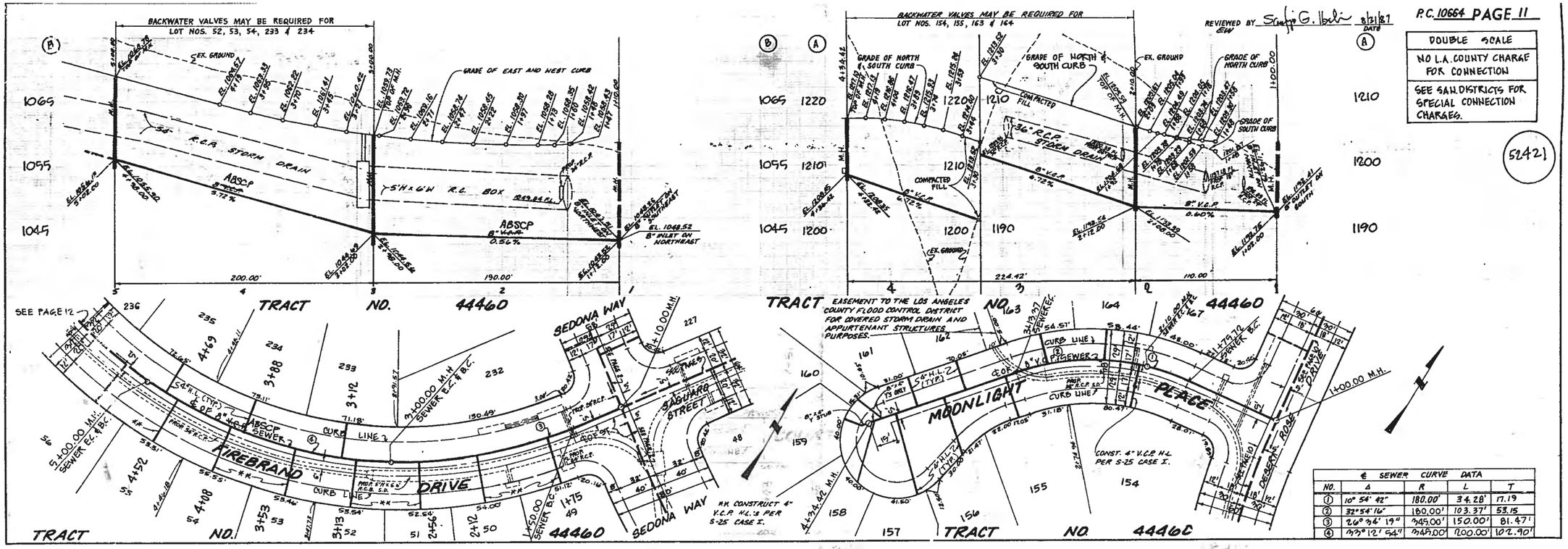
REVIEWED BY Sandy G. Ibali 8/31/87 DATE
EW

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES.

52421



℄ SEWER CURVE DATA				
NO.	Δ	R	L	T
1	10° 54' 42"	180.00'	34.28'	17.19
2	32° 54' 16"	180.00'	103.37'	53.15
3	26° 36' 19"	345.00'	150.00'	81.47'
4	77° 12' 54"	750.00'	100.00'	102.90'

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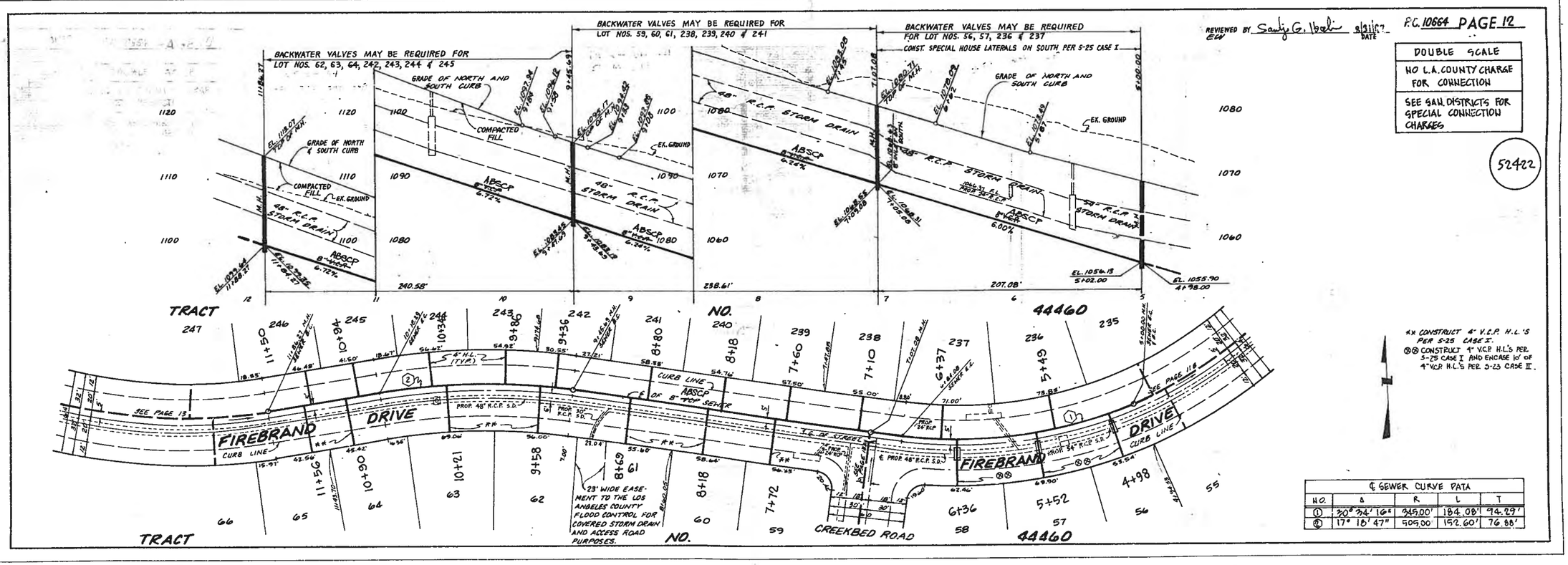
REVIEWED BY Sandy G. Ibali 8/31/87 DATE
EW

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52422



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NO.	Δ	R	L	T
1	30° 34' 16"	345.00'	184.08'	94.29'
2	17° 18' 47"	505.00	152.60'	76.88'

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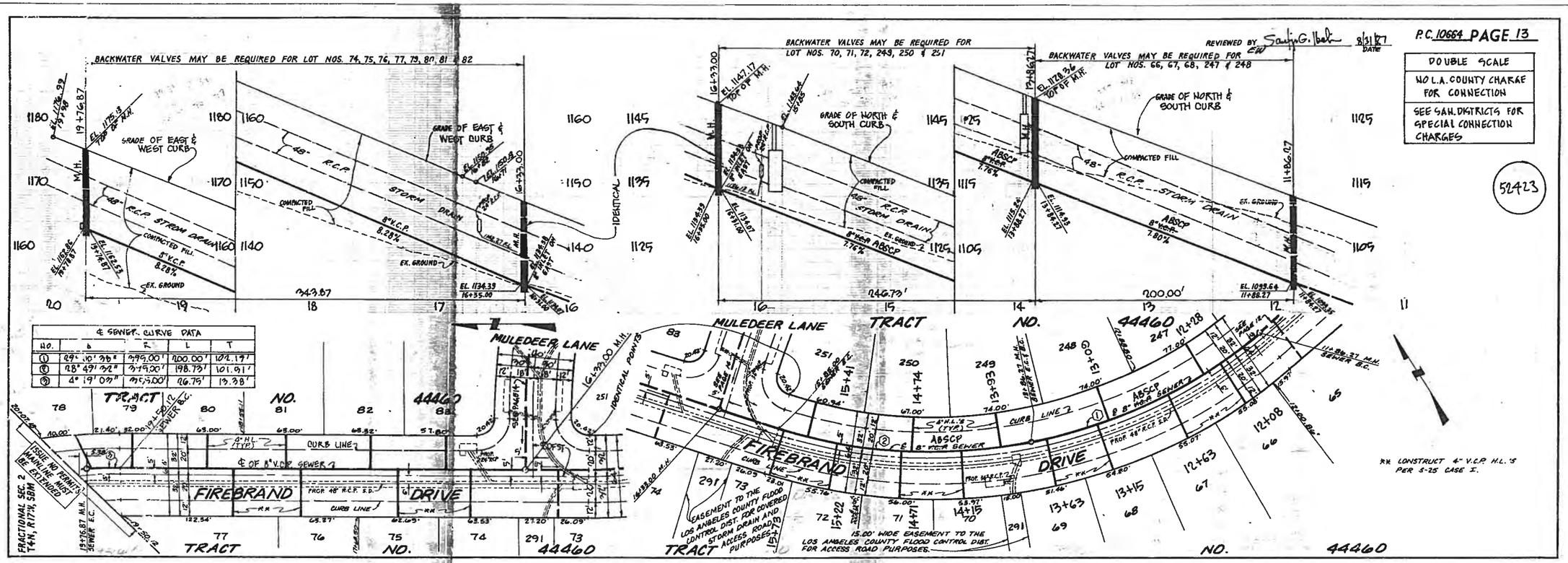
REVIEWED BY EW Sanford G. Ibele 8/31/87 DATE

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52423



℄ SEWER CURVE DATA				
NO.	Δ	R	L	T
1	29° 10' 36"	399.00'	200.00'	102.19'
2	28° 49' 02"	399.00'	198.73'	101.91'
3	4° 19' 07"	365.00'	26.75'	13.38'

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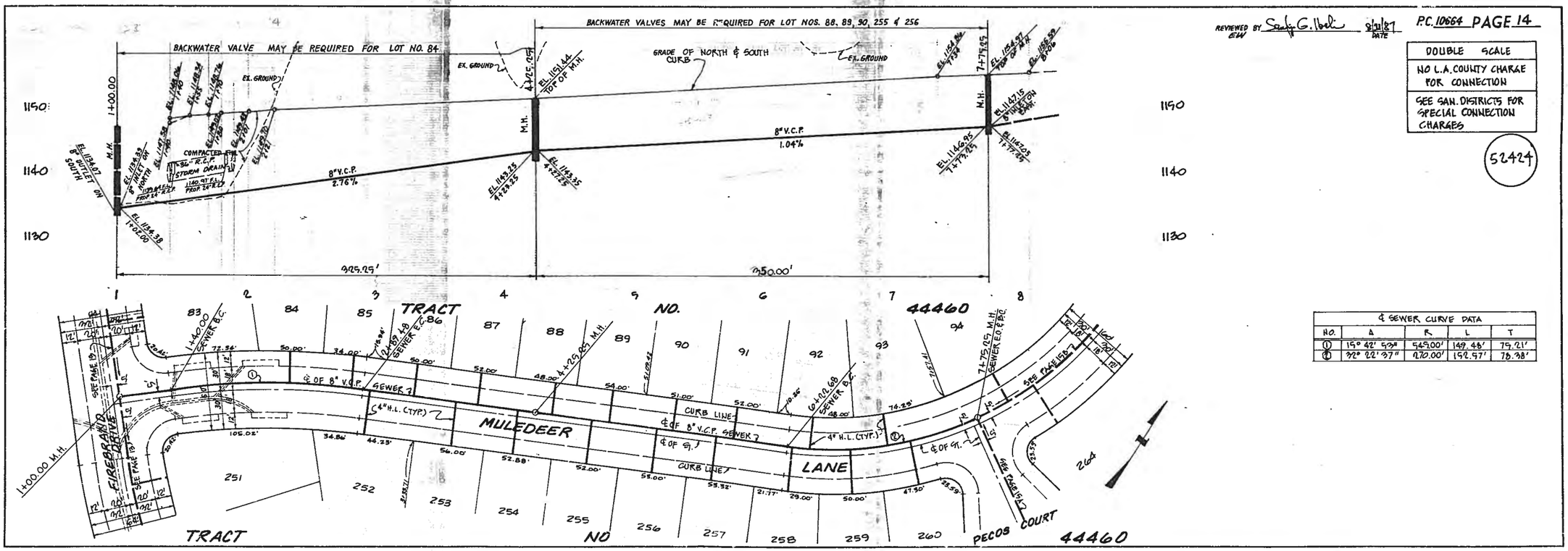
REVIEWED BY EW Sanford G. Ibele 8/31/87 DATE

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52424



℄ SEWER CURVE DATA				
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1	15° 42' 53"	545.00'	149.48'	75.21'
2	32° 22' 37"	270.00'	152.57'	78.38'

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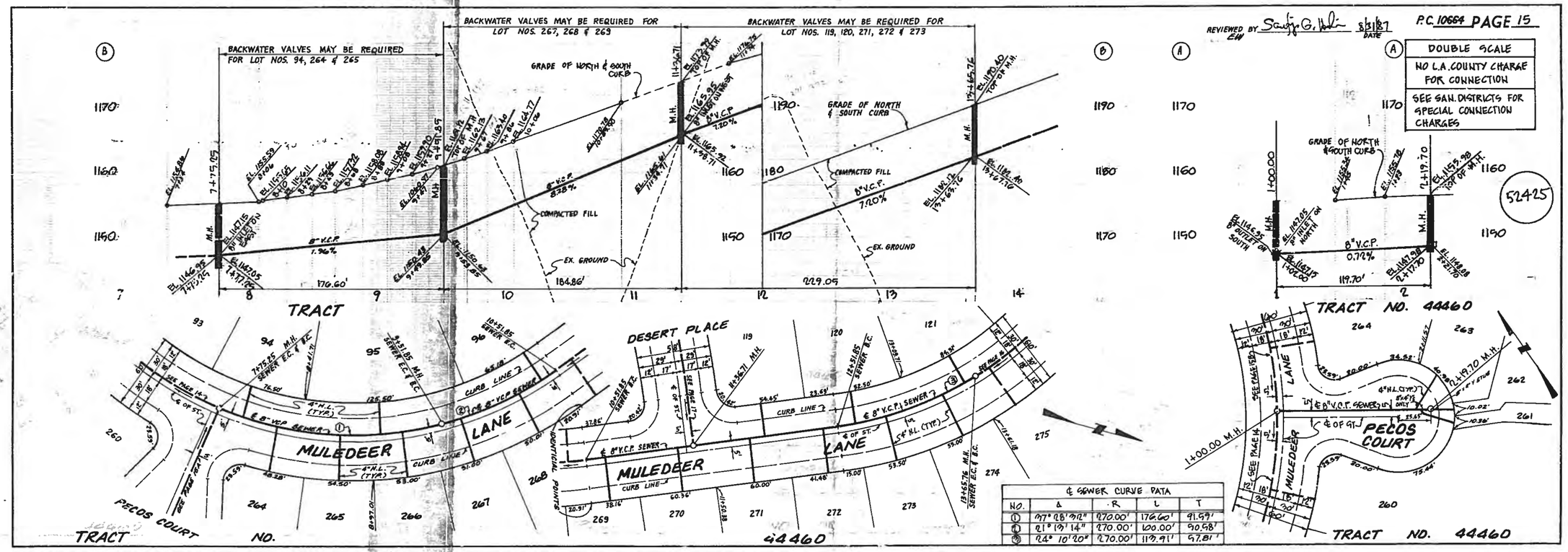
REVIEWED BY EW Sandy G. Hall 8/31/87 DATE

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52425



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REVIEWED BY EW Sandy G. Hall 8/31/87 DATE

DOUBLE SCALE
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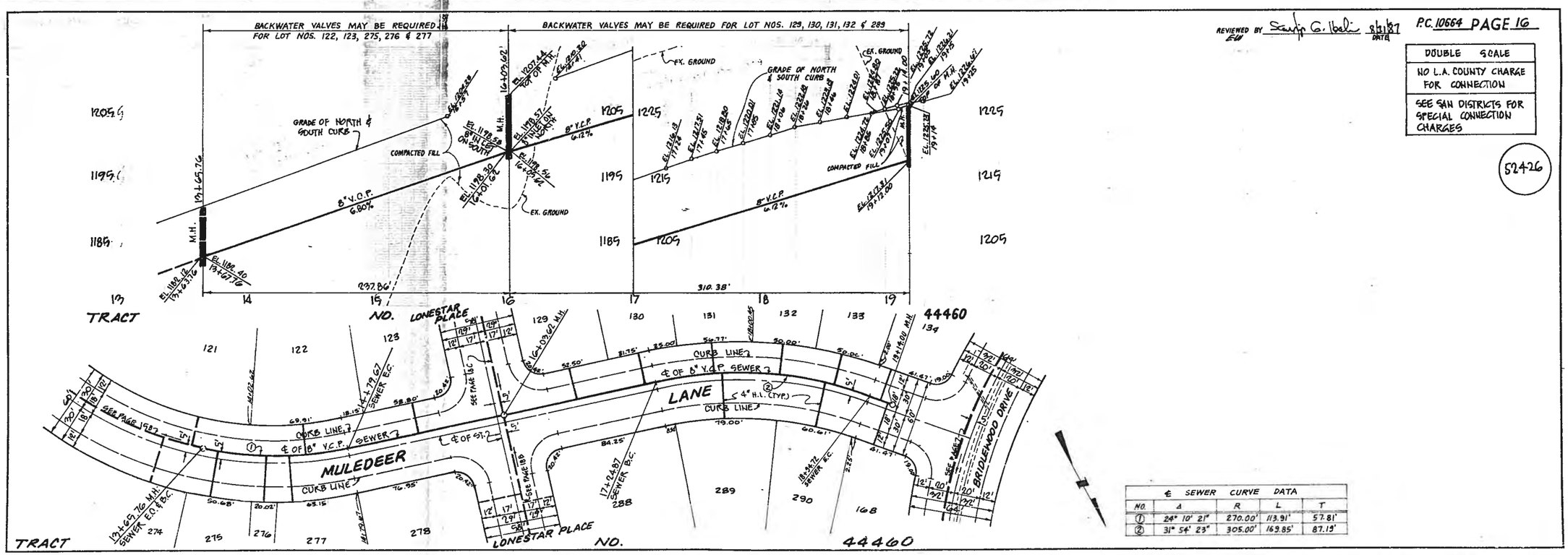
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

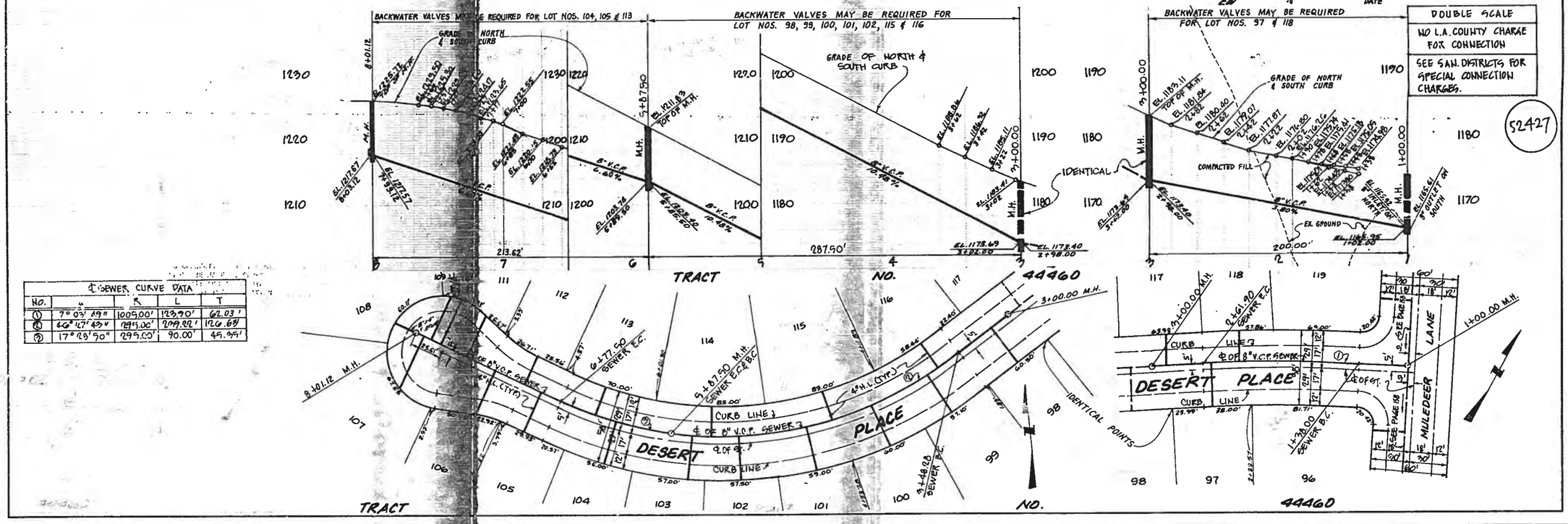
52426



REVIEWED BY EW Sandy G. Hall 8/31/87 DATE

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES.

52427



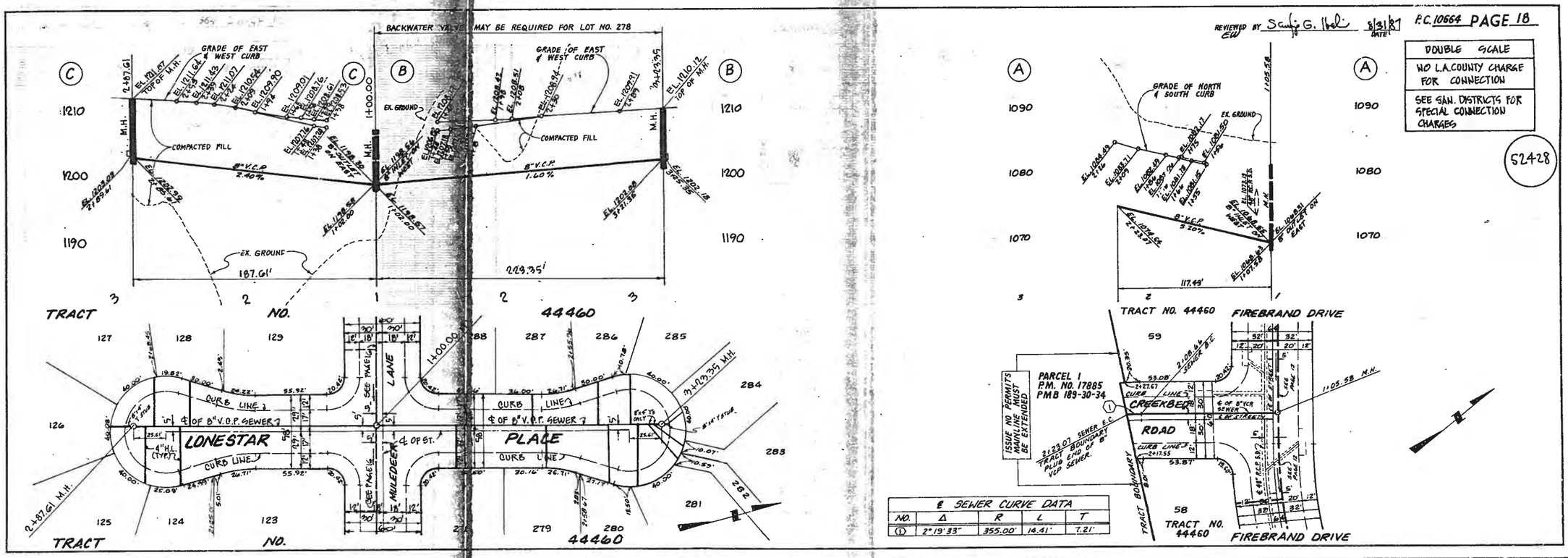
℄ SEWER CURVE DATA

NO.	Δ	R	L	T
①	7°03'49"	1005.00'	123.90'	62.03'
②	40°47'49"	195.00'	209.22'	110.69'
③	17°03'50"	295.00'	90.00'	45.45'

REVIEWED BY EW Sandy G. Hall 8/31/87 DATE

DOUBLE SCALE
NO L.A. COUNTY CHARGE FOR CONNECTION
SEE SAN. DISTRICTS FOR SPECIAL CONNECTION CHARGES

52428



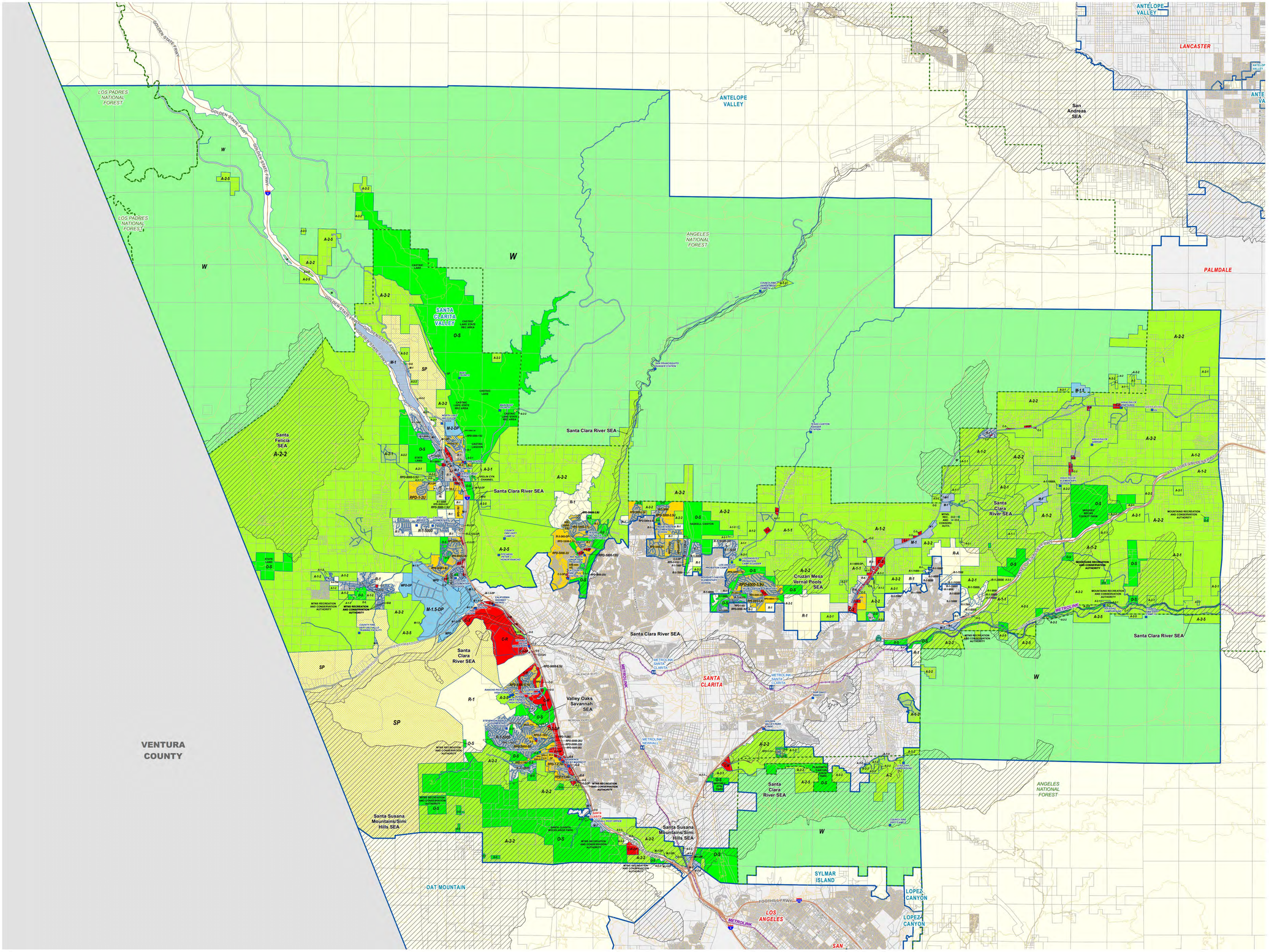
℄ SEWER CURVE DATA

NO.	Δ	R	L	T
①	2°19'33"	355.00'	14.41'	7.21'

LK. NO. 4 APPO. NO. 10884

Appendix E

Santa Clarita Valley Area Plan Zoning Map



Los Angeles County General Plan

SANTA CLARITA VALLEY AREA PLAN

Zoning Map

LEGEND

- R-1 - Single-family residence
- R-2 - Two-family residence
- R-3-(1)U - Limited multiple residence
- R-4-(1)U - Unlimited residence
- R-A - Residential agriculture
- RPD - Residential planned development
- A-1 - Light agriculture
- A-2 - Heavy agriculture
- C-H - Commercial highway
- C-1 - Restricted business
- C-2 - Neighborhood commercial
- C-3 - Unlimited commercial
- C-M - Commercial manufacturing
- CPD - Commercial planned development
- C-R - Commercial recreation
- M-1 - Light manufacturing
- M-2 - Heavy manufacturing
- M-3 - Unclassified
- M-4 - Unlimited manufacturing
- M-2.5 - Aircraft, heavy industrial
- MPD - Manufacturing industrial planned development
- D-2 - Desert-Mountain
- IT - Institutional
- SP - Specific Plan
- B-1 - Buffer strip
- B-2 - Corner buffer
- R-R - Resort and recreation
- W - Watershed
- P-R - Restricted parking
- SR-D - Scientific research and development
- O-S - Open space
- A-C - Arts and crafts
- MXD - Mixed use development

Base Features

- Parcels
- City / Unincorporated Community Boundary
- Surrounding City
- Surrounding Unincorporated Community
- Water Feature
- National Forest

Overlays

- Significant Ecological Areas

Transit Lines

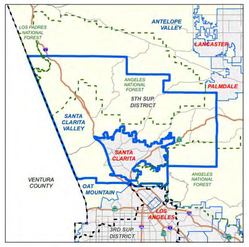
- Metrolink Stations
- Metro Rail Stations
- Metrolink
- Transitways
- Light Rail - Existing
- Light Rail - Proposed
- Light Rail - Under Construction

NOTES:

The location of zoning boundaries is as accurate as can be portrayed at this scale. For more precise boundary locations, please contact the Land Development Coordinating Center (LDCC) at (213) 974-6411.

Parcel boundaries are from the parcel database maintained by the Department of Public Works and the Assessor's Office. Parcels shown on the map reflect the most recent update from the Assessor's Office as of February 2012.

VICINITY MAP:



KEY MAP:

Current as of: September 2012

LOS ANGELES COUNTY
Department of Regional Planning
320 W. Temple St.
Los Angeles, CA 90012

Scale in Feet

0 3,500 7,000 10,500 14,000

APPENDIX 5.15.4-1

Southern California Edison Will Serve Letter, July 29, 2013

Will Serve Letter Only

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

DATE: 07/29/13

COMPANY: Los Valles Residential Project

SUBJECT: 28801 Hasley Canyon Rd, Santa Clarita.

Your project is located in Southern California Edison (SCE) service territory. SCE will serve the above subject project's electrical requirements per the California Public Utilities Commission and Federal Energy Regulatory Commission tariffs.

SCE may need to conduct utility studies, where applicable, to assess whether additions or modifications to the existing electric infrastructure are required to serve this project as indicated in Appendix (B) attached hereto. This Will-Serve letter does not imply that either: (i) these studies have been completed, or (ii) that any required California Environmental Quality Act (CEQA) analysis of project-related electric utility impacts has been conducted.

I am the SCE Representative currently assigned to this project. SCE or Applicant will design and construct all required electrical infrastructure to serve this project provided you enter into the applicable contractual agreements with SCE identify scope of electrical utility work required, and supply the following information:

- Site plans as required
- Required contracts and agreements (fully executed)
- Applicable fees
- Local permits
- Required easement documents

Your project will be scheduled for construction once SCE has all the necessary information for your project and you have submitted or agreed to the applicable requirements as stated above, and paid any necessary fees.

If your project will not require SCE services, please notify us so that we can update our records.

SCE appreciates your business. If you have any questions, please feel free to call me at (661) 607-0512.

Sincerely,

Joshua Yanez

SCE Design Service Representative

Enclosure: Appendix B

Appendix B

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

DATE: 07/29/13

COMPANY: Los Valles Residential Project

SUBJECT: 28801 Hasley Canyon Rd, Santa Clarita.

As your Southern California Edison representative for this project, I am committed to providing you with excellent customer service. The following information is intended to help explain SCE's planning and permitting process for the electric infrastructure needed to serve your Project.

Depending on the scope of work necessary to serve your project (electric facility installation, removal, relocation, rearrangement and/or replacement), it may be necessary for you to submit an Advanced Engineering Fee. This Fee will be applied to certain expenses associated with preliminary design and engineering work required to estimate the cost for SCE to perform the electric work associated with your project. Please note: Depending on factors such as resource constraints, construction or relocation of SCE facilities requirements, the need for environmental review, and so forth, delays in meeting your projected completion date may occur. To help minimize the potential for delays it is imperative that you provide all requested information as early as possible.

If the project results in the need for SCE to perform work on SCE electrical facilities that operate at between 50 and 200 kilovolts (kV), please be advised these facilities are subject to the California Public Utilities Commission's (CPUC's) General Order 131-D (GO 131-D) Permit to Construct (PTC) requirements. For the CPUC PTC review, the CPUC acts as the lead agency under the California Environmental Quality Act (CEQA). Depending on the scope of SCE's work, certain exemptions to the PTC requirements may be available. If no exemptions are available, the PTC application preparation and environmental approval process could take a minimum of 24 - 48 months.

If you anticipate that your project will require work to be performed on SCE electrical facilities operated at between 50 kV and 200 kV, please inform me at your earliest possible convenience for further assistance to determine the potential G.O.131-D permitting requirements and/or permitting exemption(s).

In order for SCE to determine the required electrical utility work necessary to support your project, and to determine any permitting requirements and costs associated with constructing these facilities, project plans and a completed Customer Project Information Sheet will need to be submitted.

If you have any additional questions, please feel free to call me at (661) 607-0512.

Sincerely,

Joshua Yanez

SCE Design Representative

APPENDIX 5.15.4-2

Southern California Edison Will Serve Letter, August 14, 2013

Will Serve Letter Only

SOUTHERN CALIFORNIA
EDISON
An *EDISON INTERNATIONAL* Company

DATE: 08/14/13

COMPANY: SFI Los Valles, LLC

SUBJECT: TR052584, Hasley Canyon Rd. & Del Valle Rd., Castaic

Your project is located in Southern California Edison (SCE) service territory. SCE will serve the above subject project's electrical requirements per the California Public Utilities Commission and Federal Energy Regulatory Commission tariffs.

SCE may need to conduct utility studies, where applicable, to assess whether additions or modifications to the existing electric infrastructure are required to serve this project as indicated in Appendix (B) attached hereto. This Will-Serve letter does not imply that either: (i) these studies have been completed, or (ii) that any required California Environmental Quality Act (CEQA) analysis of project-related electric utility impacts has been conducted.

I am the SCE Representative currently assigned to this project. SCE or Applicant will design and construct all required electrical infrastructure to serve this project provided you enter into the applicable contractual agreements with SCE identify scope of electrical utility work required, and supply the following information:

- Site plans as required
- Required contracts and agreements (fully executed)
- Applicable fees
- Local permits
- Required easement documents

Your project will be scheduled for construction once SCE has all the necessary information for your project and you have submitted or agreed to the applicable requirements as stated above, and paid any necessary fees.

If your project will not require SCE services, please notify us so that we can update our records.

SCE appreciates your business. If you have any questions, please feel free to call me at (661) 607-0512.

Sincerely,

Joshua Jenez

SCE Design Service Representative

Enclosure: Appendix B

APPENDIX 5.15.4-3

Southern California Gas Company E-Mail Correspondence, July 25, 2013

Kathleen,

Based on the information provided, your consumption for a single family residence with the follow appliances (one water heater, dryer, gas stove, and fire place) will be ranging from 110-260 MBTU/hour. One Gas BBQ is 20-60 MBTU/Hour. MBTU=thousand British thermal unit.
Also, this website << http://www.socalgas.com/for-your-business/builders-and-construction/ >>might help in some analysis.

Let me know if you need more information.

James Chuang

From: Chuang, Wan-Che <WCChuang@semprautilities.com>
Sent: Thursday, July 25, 2013 9:10 AM
To: Kathleen King
Cc: Baker, Blair E
Subject: RE: Southern California Gas Company: Service for proposed development
Attachments: 28801 Hasley Canyon Road.pdf

Morning Kathleen,

- Does the Southern California Gas Company provide natural gas service to the proposed project? Yes, we have a service running along Hasley Canyon road.
- What is the average daily, monthly, and yearly natural gas consumption for residential, commercial, institutional, and industrial uses? Our gas consumptions depends on the end use. There are too many variables in this question.
- What size gas mains and pipes currently serve the proposed project site? There are no active company pipelines currently within your project site.
- Can you please provide a map with all natural gas infrastructure that is located around the proposed project site and within the boundaries of the proposed project site? See attachment
- Will the Southern California Gas Company be able to adequately serve the proposed project's needs for natural gas service? Yes.
- Does the Southern California Gas Company foresee any problems or difficulties in regards to providing natural gas service to the proposed project site? If so, does the Southern California Gas Company have any solutions (e.g., mitigation measures, Best Management Practices) that could be implemented within the design of the proposed project site? Based on the information provided in the email, there is not enough information to foresee any natural gas service issues.

Please let me know if you have any additional questions.

James Chuang
Environmental Specialist/Land Planner
Environmental Programs
Southern California Gas Company - Sempra Energy utility
(213) 244 - 5817 - office
WCChuang@semprautilities.com

From: Kathleen King [mailto:KKing@impactsciences.com]
Sent: Thursday, July 25, 2013 8:41 AM
To: Baker, Blair E
Cc: Chuang, Wan-Che
Subject: RE: Southern California Gas Company: Service for proposed development

Good Morning James,

I wanted to check with you and make sure you didn't have any questions regarding the service letter request for the Los Valles Proposed Project in the Santa Clarita Valley Region We are meeting with the applicant tomorrow and wanted to give them a date of when we might have the public utilities, including the gas utility, chapter ready for them to review. If possible could you let me know when the Gas Company will be able to respond to the questions included in the letter?.

Thank you again for all of your help, and please let me know if you have any questions.

Best,
Kathleen King
Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road, Suite C
Camarillo, CA. 93012
Office: (805) 437-1900
Cell: (323) 459-7942

From: Baker, Blair E [mailto:BEBaker@semprautilities.com]
Sent: Wednesday, July 10, 2013 10:56 AM
To: Kathleen King
Cc: Chuang, Wan-Che
Subject: RE: Southern California Gas Company: Service for proposed development

Thank you Kathleen. We are working on providing you the information that you requested. Please direct any questions to James Chuang who I have included in this email. Thanks

Blair Baker
Team Lead – Natural Resources & Land Planning
Southern California Gas Company
555 W. Fifth St.
GT17E2
Los Angeles, CA 90013
Office: 213.244.4610
Mobile: 626.616.2595
bebaker@semprautilities.com

From: Kathleen King [mailto:KKing@impactsciences.com]
Sent: Wednesday, July 10, 2013 10:55 AM
To: Baker, Blair E
Subject: FW: Southern California Gas Company: Service for proposed development

Good Morning Blair,
I received the email below from Crystal Yancey-York explaining that she had forwarded my request for information from the Southern California Gas Company to you. I wanted to provide you with the project description so that you may be better able to answer the questions which we are requesting information for. Please feel free to contact me if you have any further questions and thank you in advance for your time. The project description (followed by the questions) are below.

Our firm is currently preparing the Draft Environmental Impact Report for the Los Valles Residential Project proposed in the Santa Clarita Region of unincorporated Los Angeles County.

The proposed Project will be developed on 430.4 acres of land owned by the Applicant with primary access from Hasley Canyon Road. The property is located at 28801 Hasley Canyon Road.

The Project will be comprised of a single-family residential development of 497 dwelling units all on lot sizes above 7,000 square feet, together with significant community amenities for residents and the public including a community recreation center controlled by a homeowner's association, an approximately 19-acre community park, seven private recreation lots which provide neighborhood park amenities, and approximately 5 miles of pedestrian trails and accompanying infrastructure and public and private roadways (The Project).

The EIR will analyze the Project as described above and offer alternatives to help mitigate significant impacts to the surrounding environment. The final plan will be determined based on site constraints and environmental factors analyzed during the CEQA process including providing opportunities for incorporating low-impact development strategies into the project. Approximately 232 acres, comprising over 50 percent of the Property, will be preserved as recreational and open space. In addition, the Project will utilize the existing infrastructure and grading work to the maximum extent feasible, and provide additional homeownership opportunities.

Our interest is to provide as much detailed information concerning gas service impacts in the Draft EIR as possible. In response to this objective, we would appreciate your input regarding the following questions:

- Does the Southern California Gas Company provide natural gas service to the proposed project?
- What is the average daily, monthly, and yearly natural gas consumption for residential, commercial, institutional, and industrial uses?
- What size gas mains and pipes currently serve the proposed project site?
- Can you please provide a map with all natural gas infrastructure that is located around the proposed project site and within the boundaries of the proposed project site?
- Will the Southern California Gas Company be able to adequately serve the proposed project's needs for natural gas service?
- Does the Southern California Gas Company foresee any problems or difficulties in regards to providing natural gas service to the proposed project site? If so, does the Southern California Gas Company have any solutions (e.g., mitigation measures, Best Management Practices) that could be implemented within the design of the proposed project site?

Thank you for your assistance in answering these questions and providing the requested information. As there are time constraints in preparing the draft EIR, we would appreciate your responses no later than August 5, 2013. Furthermore, if you have any additional concerns which I

have not addressed, or need additional project description information please feel free to call me at 805-437-1900.

Best,

Kathleen King
Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road Suite C
Camarillo, Ca 93012
Office:(805) 437-1900 ext. 246
Cell: (323) 459-7942
kking@impactsciences.com

From: Yancey-York, Crystal [mailto:CYancey-York@semprautilities.com]
Sent: Wednesday, July 10, 2013 10:45 AM
To: Kathleen King
Cc: Baker, Blair E
Subject: RE: Southern California Gas Company: Service for proposed development

Yes, I did. My apologies for the delayed response but I was on vacation all last week and am playing catch up. I have copied Blair Baker on this email as his group would be responding to your request.

Thank you,
Crystal Yancey-York
Southern California Gas Co.
Env. Programs Manager
213-244-5819
Cell: 714-222-9642

From: Kathleen King [mailto:KKing@impactsciences.com]
Sent: Wednesday, July 10, 2013 10:12 AM
To: Yancey-York, Crystal
Subject: RE: Southern California Gas Company: Service for proposed development

Good Morning Ms. Yancey-York,
I just wanted to confirm that you had received my email below. If you could please let me know if you prefer a service letter be sent in the mail or if the email will suffice I would greatly appreciate. Thank you again for your time and assistance.

Best,

Kathleen King
Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road, Suite C

Camarillo, CA. 93012
Office: (805) 437-1900
Cell: (323) 459-7942

From: Kathleen King
Sent: Wednesday, July 03, 2013 11:05 AM
To: 'CYancey-York@semprautilities.com'
Subject: Southern California Gas Company: Service for proposed development

Good Morning Ms. Yancey-York,
My name is Kathleen King and I am a Staff Planner at Impact Sciences. We are currently working on composing an Environmental Impact Report for a proposed project in Los Angeles County. We need to include the existing conditions for the project area in our document. We would like to send a letter to the Gas Company requesting this information and providing a brief description of the project, or if you would prefer I can send it in an email. (I have included the questions below as a reference).

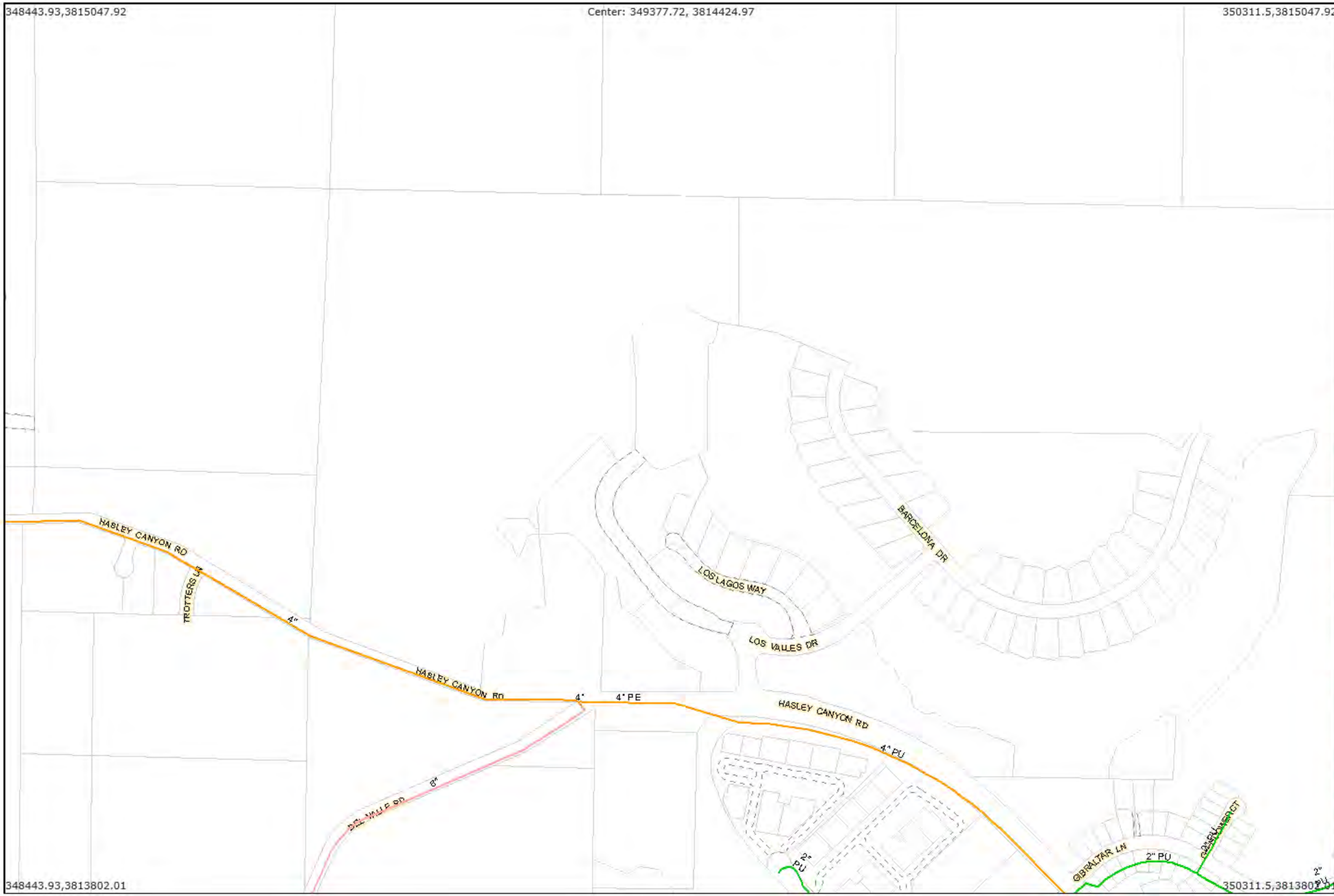
Ron Goodman provided me with your name as a point of contact for gathering this type of information. However, if these questions should be directed to a different person/department if you could please provide me with their contact information I would greatly appreciate it. If you would prefer a letter to be sent can you please provide me with the address and department which it should be addressed to.

The questions are:

- Does the Southern California Gas Company provide natural gas service to the proposed project?
- What is the average daily, monthly and yearly natural gas consumption for residential, commercial, institutional, and industrial uses?
- What size gas mains and pipes currently serve the proposed project site?
- Can you please provide a map with all natural gas infrastructure that is located around the proposed project site and within the boundaries of the proposed project site?
- Will the Southern California Gas Company be able to adequately serve the proposed project's needs for natural gas service?
- Does the Southern California Gas Company foresee any problems or difficulties in regards to providing natural gas service to the proposed project site? If so, does the Southern California Gas Company have any solutions (e.g., mitigation measures, Best Management Practices) that could be implemented within the design of the proposed project site?

Thank you for your help and please feel free to contact me if you have any questions. (I will not be back in the office until Monday but you can reach me on my cell or through email).

Best,
Kathleen King
Staff Planner
Impact Sciences, Inc.
803 Camarillo Springs Road, Suite C
Camarillo, CA. 93012
Office: (805) 437-1900
Cell: (323) 459-7942



100m 400ft

Map Title: 28801 Hasley Canyon Road

Printed By: CORP\WCChuang

Printed Date: 7/25/2013

LIABILITY STATEMENT The facilities and their depiction on these maps are believed to be reasonably accurate, but the maps are not to be used in lieu of field verification or calling USA at 800-422-4133. NO WARRANTY expressed or implied (including of merchantability or of fitness for a particular purpose) is made as to any matter, including but not limited to, the design, size, type or location of the facilities, their presence or absence, the accuracy of the maps, the means used to transmit the data, absence of viruses (if transmitted electronically, by disk or diskette), data translation or transmission errors or omissions, compatibility with the user's system or its ability to interpret the data correctly or at all, or any other matter. The Gas Company has no liability for damages (direct, indirect, consequential, incidental or punitive) arising from the transmission, receipt or use by others of the maps or information contained in the maps. "Certain technology used under license from AT&T Intellectual Property I, L.P. Copyright © 1998 - 2007 AT&T Intellectual Property I, L.P. All rights Reserved."

Southern California Gas Company

A Sempra Energy utility

APPENDIX 6.0-1

Project Alternatives Traffic Analysis and Methodology

PROJECT ALTERNATIVES TRAFFIC

Project Alternatives Traffic Impact Analysis and Methodology

Section 5.14 Transportation/Traffic summarizes the analysis of the eight study intersections evaluated for potential traffic impacts due to the Project based on the methodology and criteria of the County of Los Angeles Department of Public Works Traffic and Lighting Division.

The forecast trip generation is of the Project at build-out is provided on page 5.14-21. As stated therein, the Project is forecast to generate 4,756 daily trip ends (2,378 inbound, 2,378 outbound) during a typical weekday. Similarly, during the weekday AM and PM peak hours, the Project is forecast to generate 373 trips (93 inbound, 280 outbound) and 502 trips (316 inbound, 186 outbound), respectively.

The analysis of traffic impacts at the study intersections due to the Project is summarized on Table 5.14-10. As shown on Table 5.14-10, the Project-related traffic impacts at the eight study intersections is determined to be less than significant during the weekday AM and PM peak hours. The Project is calculated to contribute to a cumulatively significant traffic impact at the Commerce Center Drive/Henry Mayo Drive intersection. However, this cumulative traffic impact is completely mitigated through the grade-separated interchange project currently under construction at this location.

The related traffic impacts of the Project Alternatives were evaluated through analysis and comparison to the findings of the forecast traffic effects due to the Project.

Project Alternative 2: Existing Entitlement

The Project Alternative 4 description represents no change to the existing entitlement at the project site. Project Alternative 4 proposes to construct a total of 209 single-family homes on lots greater than 15,000 square feet. Additionally, Project Alternative 4 would construct an approximately 243-acre private golf course facility, which would include a practice range, nursery, maintenance yard, parking, and a clubhouse. The vehicular access associated with Project Alternative 4 is assumed to be consistent with the access scheme currently planned for the proposed Los Valles project.

<u>Project Alternative 2 Trip Generation</u>

The trip generation forecast for Project Alternative 4 is summarized in ***Table 2A***. As presented in *Table 2A*, Project Alternative 4 is expected to generate 77 inbound trips and 131 outbound trips during the weekday AM peak hour. During the weekday PM peak hour, Project Alternative 4 is expected to generate 158 inbound trips and 126 outbound trips. Over a 24-hour period, Project Alternative 4 project is forecast to generate 1,612 inbound trips and 1,613 outbound trips during a typical weekday.

TABLE 4A - PROJECT ALTERNATIVE 4
PROJECT TRIP GENERATION [1]

05-Jun-14

LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Detached Housing [3]	209 DU	2,000	39	118	157	133	78	211
Golf Course [4]	243 Acres	1,225	38	13	51	25	48	73
NET INCREASE		**3,225**	**77**	**131**	**208**	**158**	**126**	**284**

[1] Source: ITE "Trip Generation", 8th Edition, 2008.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 210 (Single Family Detached Housing) trip generation average rates.
- Daily Trip Rate: 9.57 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.75 trips/dwelling unit; assume 25% inbound/75% outbound
- PM Peak Hour Trip Rate: 1.01 trips/dwelling unit; 63% inbound/37% outbound

[4] ITE Land Use Code 430 (Golf Course) trip generation average rates.
- Daily Trip Rate: 5.04 trips/acre; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.21 trips/acre; assume 74% inbound/26% outbound
- PM Peak Hour Trip Rate: 0.30 trips/acre; 34% inbound/66% outbound

Project Alternative 2 Traffic Impact Analysis

Traffic impact analyses of Project Alternative 4 were prepared for the five signalized study intersections as well as the unsignalized intersection of Del Valle Road/Hasley Canyon Road using the ICU methodology and application of the County of Los Angeles' significant traffic impact criteria. The two roundabout intersections were evaluated using the HCM method of analysis based on the County's traffic study guidelines. The traffic impact analyses were prepared for the Existing With Project Alternative 4 and Future Cumulative With Project Alternative 4 conditions. Calculation worksheets for the Project Alternative 4 traffic analyses are included as Appendix XX. Summaries of the traffic impact analyses for Project Alternative 4 are provided below:

- Existing With Project Alternative 4 Condition: As shown in column [2] of ***Table 2B***, application of the County's threshold criteria to the "Existing With Alternative 4" condition indicates that Project Alternative 4 is not expected to create a significant impact at any of the eight study intersections during the weekday AM and PM peak hours. Incremental but not significant impacts are noted at all the study intersections.

- Future Cumulative With Project Alternative 4 Condition: As summarized in column [3] of *Table 2B*, application of the County's threshold criteria to the "With Related Projects" scenario indicates that Project Alternative 4 is expected to contribute to a significant impact at the intersection of Commerce Center Drive/Henry Mayo Drive (SR-126) during the weekday AM and PM peak hours. Incremental but not significant impacts are noted at the remaining study intersections.

As indicated in *Table 2B* and discussed above, Project Alternative 4 is expected to contribute to a significant impact at the intersection of Commerce Center Drive/Henry Mayo Drive (SR-126) during the weekday AM and PM peak hours in the year 2023 Future Cumulative With Project Alternative 4 conditions. The study intersection forecast to be significantly impacted by the Project Alternative 4 under the 2023 Future Cumulative With Project Alternative 4 scenario is also forecast to be significantly impacted in the year 2023 Future With Project scenario under the current Los Valles project description using the Los Angeles County threshold criteria. Thus, the 2023 Future Cumulative With Project Alternative 4 analysis did not result in the identification of any impacts that were not previously disclosed. In summary, the 2023 Future Cumulative With Project Alternative 4 analysis did not result in the identification of any impacts that were not previously disclosed in the Traffic Study for the Project.

The recommended transportation mitigation measures for the proposed Los Valles project would mitigate the forecast Project Alternative 4 impacts based on the ICU intersection analysis methodology and significance thresholds of Los Angeles County.

TABLE 4B - PROJECT ALTERNATIVE 4
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

5-Jun-14

NO.	INTERSECTION	PEAK HOUR	[1] EXISTING V/C or Delay	[1] EXISTING LOS	[2] EXISTING W/ PROPOSED PROJECT V/C or Delay	[2] EXISTING W/ PROPOSED PROJECT LOS	[2] CHANGE V/C [(2)-(1)]	[2] SIGNIF. IMPACT	[3] YEAR 2023 W/ RELATED PROJECTS V/C or Delay	[3] YEAR 2023 W/ RELATED PROJECTS LOS	[3] CHANGE V/C [(3)-(1)]	[3] SIGNIF. IMPACT	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE V/C or Delay	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE LOS	[4] CHANGE V/C [(4)-(1)]	[4] MITI-GATED
1	Del Valle Road/	AM	0.383	A	0.393	A	0.010	NO	0.406	A	0.023	NO	---	---	---	---
	Hasley Canyon Road	PM	0.369	A	0.382	A	0.013	NO	0.399	A	0.030	NO	---	---	---	---
2	Commerce Center Drive/	AM	0.379	A	0.421	A	0.042	NO	0.435	A	0.056	NO	---	---	---	---
	Hasley Canyon Road	PM	0.340	A	0.372	A	0.032	NO	0.388	A	0.048	NO	---	---	---	---
3	Commerce Center Drive/	AM	0.374	A	0.380	A	0.006	NO	0.484	A	0.110	NO	---	---	---	---
	Franklin Parkway	PM	0.552	A	0.559	A	0.007	NO	0.626	B	0.074	NO	---	---	---	---
4	Commerce Center Drive/	AM	0.482	A	0.494	A	0.012	NO	1.115	F	0.633	YES	[B]	---	---	YES
	Henry Mayo Drive (SR-126)	PM	0.744	C	0.751	C	0.007	NO	1.215	F	0.471	YES	[B]	---	---	YES
4A	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.630	B	---	---
	SR-126 Westbound Ramps	PM	---	---	---	---	---	---	---	---	---	---	0.500	A	---	---
4B	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.415	A	---	---
	Henry Mayo Drive	PM	---	---	---	---	---	---	---	---	---	---	0.389	A	---	---
5	The Old Road/	AM	0.745	C	0.750	C	0.005	NO	0.752	C	0.007	NO	---	---	---	---
	Hillcrest Parkway	PM	0.538	A	0.545	A	0.007	NO	0.549	A	0.011	NO	---	---	---	---
6	The Old Road/	AM	0.733	C	0.742	C	0.009	NO	0.745	C	0.012	NO	---	---	---	---
	I-5 Freeway SB Ramps - Sedona Way	PM	0.539	A	0.550	A	0.011	NO	0.553	A	0.014	NO	---	---	---	---
7	The Old Road - I-5 Freeway SB On-Ramp/	AM	9.88	A	10.67	B	0.79	NO	11.73	B	1.85	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	11.32	B	12.49	B	1.17	NO	13.01	B	1.69	NO	---	---	---	---
8	I-5 Freeway NB Ramps/	AM	7.92	A	8.18	A	0.26	NO	8.53	A	0.61	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	9.92	A	11.31	B	1.39	NO	11.31	B	1.39	NO	---	---	---	---

[A] According to Los Angeles County Department of Public Works "Traffic Impact Analysis Report Guidelines, " January 1997, a transportation impact on an intersection shall be deemed significant in accordance with the following table:

Final V/C	LOS	Project Related Increase in V/C
> 0.71 - 0.80	C	equal to or greater than 0.04
> 0.81 - 0.90	D	equal to or greater than 0.02
> 0.91	E,F	equal to or greater than 0.01

[B] Cumulative mitigation will result in the intersection of Commerce Center Drive and Henry Mayo Drive (SR-126) to be a grade-separated intersection under future conditions. See Intersection Nos. 4A and 4B.

[C] Roundabout Intersection. Delay shown in seconds per vehicle.

Project Alternative 3: Alternate Grading

The Project Alternative 3 description represents a reduced grading development program. Under Project Alternative 3, the number of residential units would be reduced from 497 to 328 single family dwelling units. Primary vehicular access to the Project site under this Alternative would continue to be via Hasley Canyon Road. However, Project Alternative 3 would eliminate the one of the secondary access connections to existing Barcelona Drive located north of the Project site. The proposed connection to Hayward Drive for secondary access would be maintained.

Project Alternative 3 Trip Generation

The trip generation forecast for Project Alternative 3 is summarized in ***Table Alt. 3 – 1***. As presented in *Table Alt. 3 – 1*, Project Alternative 3 is expected to generate 246 trips (62 inbound, 184 outbound) during the weekday AM peak hour. During the weekday PM peak hour, Project Alternative 3 is expected to generate 331 trips (209 inbound, 122 outbound trips). Over a 24-hour period, Project Alternative 3 project is forecast to generate 3,139 trips (approximately 1,570 inbound, 1,570 outbound) during a typical weekday. Thus, Project Alternative 3 would generate approximately 34% fewer weekday daily and peak hour trips as compared to the Project

Table Alt. 3-1
PROJECT TRIP GENERATION [1]

09-Mar-15

LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Detached Housing [3]	328 DU	3,139 [3]	62	184	246	209	122	331
NET INCREASE		**3,139**	**62**	**184**	**246**	**209**	**122**	**331**

[1] Source: ITE "Trip Generation", 8th Edition, 2008.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 210 (Single Family Detached Housing) trip generation average rates.
- Daily Trip Rate: 9.57 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.75 trips/dwelling unit; assume 25% inbound/75% outbound
- PM Peak Hour Trip Rate: 1.01 trips/dwelling unit; 63% inbound/37% outbound

Project Alternative 3 Traffic Impact Analysis

A traffic impact analysis of Project Alternative 3 was prepared for the eight study intersections. In preparing the traffic analysis, a modified Project assignment was prepared based on the elimination of the Barcelona Drive connection for secondary access. ***Figure Alt. 3 – 1*** provides the forecast assignment of Project Alternative 3 trips to the site access points and study intersections. The primary change was shifting the approximate 10% of site-generated trips originally assigned to the Barcelona Drive access as part of the Project to the Hasley Canyon Road access (5%) and Hayward Drive access (5%).

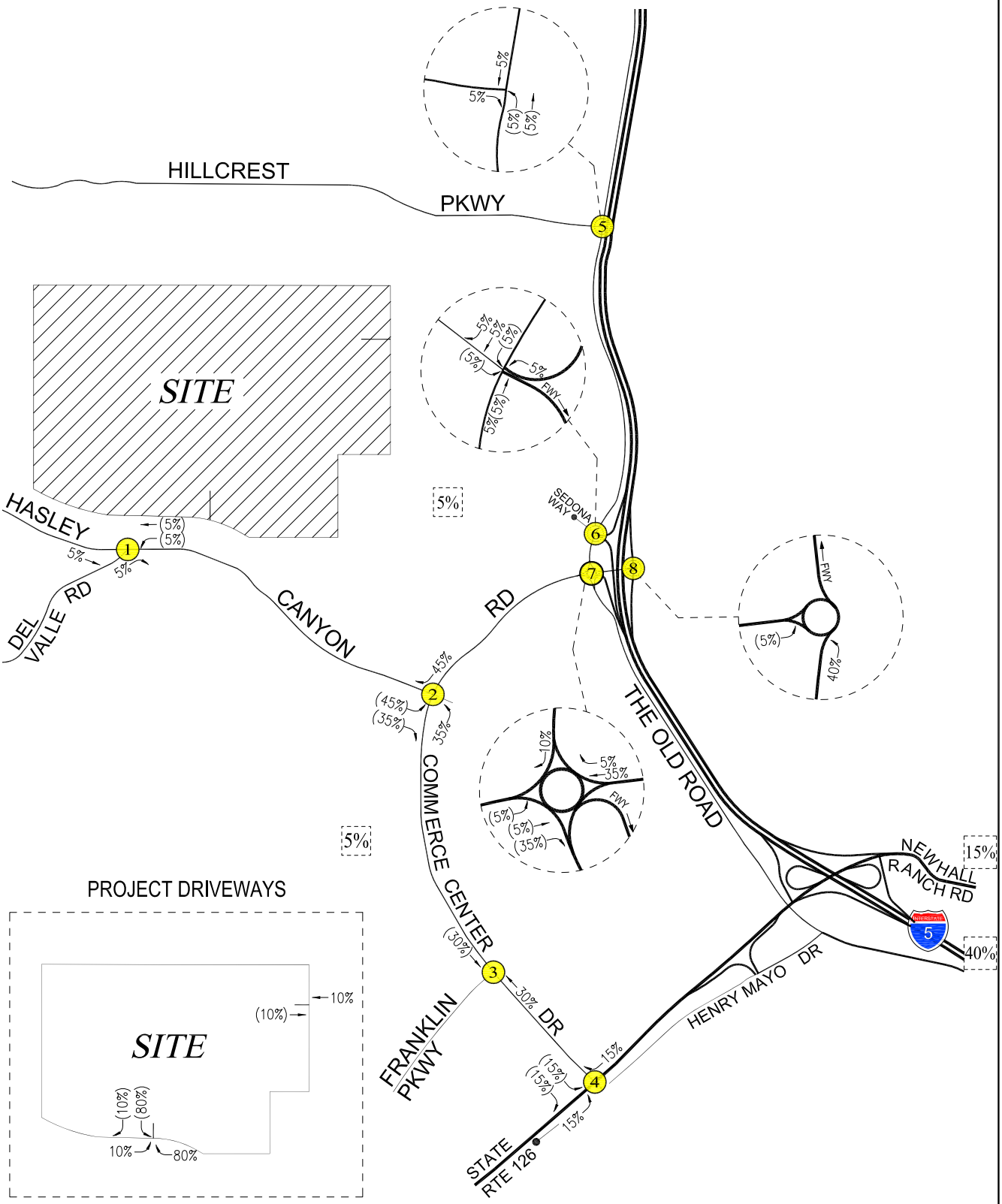


FIGURE ALT. 3-1
PROJECT TRIP DISTRIBUTION
ALTERNATIVE 3

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

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Table Alt. 3 – 2 provides the summary of the traffic analysis prepared for the study intersections for Project Alternative 3. As shown on the table, the direct traffic impacts of the Project Alternative 3 are forecast to be less than significant. The Project Alternative 3 is calculated to contribute to a cumulative traffic impact at the Commerce Center Drive/Henry Mayo Drive intersection. This impact is similar to the Project although the contribution from site-generated traffic is slightly less. As with the Project, the cumulative traffic impact is completely mitigated at the intersection based on the grade-separated interchange project. In summary, the Project Alternative 3 would have no residual traffic impacts, similar to the Project.

Table Alt. 3-2
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

9-Mar-15

NO.	INTERSECTION	PEAK HOUR	[1] EXISTING V/C or Delay	[1] EXISTING LOS	[2] EXISTING W/ PROPOSED PROJECT V/C or Delay	[2] EXISTING W/ PROPOSED PROJECT LOS	[2] CHANGE V/C [(2)-(1)]	[2] SIGNIF. IMPACT	[3] YEAR 2023 W/ RELATED PROJECTS V/C or Delay	[3] YEAR 2023 W/ RELATED PROJECTS LOS	[3] CHANGE V/C [(3)-(1)]	[3] SIGNIF. IMPACT	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE V/C or Delay	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE LOS	[4] CHANGE V/C [(4)-(1)]	[4] MITI-GATED
1	Del Valle Road/	AM	0.383	A	0.393	A	0.010	NO	0.406	A	0.023	NO	---	---	---	---
	Hasley Canyon Road	PM	0.369	A	0.383	A	0.014	NO	0.400	A	0.031	NO	---	---	---	---
2	Commerce Center Drive/	AM	0.379	A	0.428	A	0.049	NO	0.441	A	0.062	NO	---	---	---	---
	Hasley Canyon Road	PM	0.340	A	0.393	A	0.053	NO	0.408	A	0.068	NO	---	---	---	---
3	Commerce Center Drive/	AM	0.374	A	0.385	A	0.011	NO	0.486	A	0.112	NO	---	---	---	---
	Franklin Parkway	PM	0.552	A	0.560	A	0.008	NO	0.663	B	0.111	NO	---	---	---	---
4	Commerce Center Drive/	AM	0.482	A	0.497	A	0.015	NO	1.118	F	0.636	YES	[B]	---	---	YES
	Henry Mayo Drive (SR-126)	PM	0.744	C	0.751	C	0.007	NO	1.215	F	0.471	YES	[B]	---	---	YES
4A	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.631	B	---	---
	SR-126 Westbound Ramps	PM	---	---	---	---	---	---	---	---	---	---	0.500	A	---	---
4B	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.416	A	---	---
	Henry Mayo Drive	PM	---	---	---	---	---	---	---	---	---	---	0.389	A	---	---
5	The Old Road/	AM	0.745	C	0.748	C	0.003	NO	0.749	C	0.004	NO	---	---	---	---
	Hillcrest Parkway	PM	0.538	A	0.544	A	0.006	NO	0.549	A	0.011	NO	---	---	---	---
6	The Old Road/	AM	0.733	C	0.743	C	0.010	NO	0.747	C	0.014	NO	---	---	---	---
	I-5 Freeway SB Ramps - Sedona Way	PM	0.539	A	0.552	A	0.013	NO	0.555	A	0.016	NO	---	---	---	---
7	The Old Road - I-5 Freeway SB On-Ramp/	AM	9.88	A	10.15	B	0.27	NO	12.08	B	2.20	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	11.32	A	12.63	B	1.31	NO	13.16	B	1.84	NO	---	---	---	---
8	I-5 Freeway NB Ramps/	AM	7.92	A	7.95	A	0.03	NO	8.50	A	0.58	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	9.92	A	10.90	B	0.98	NO	11.59	B	1.67	NO	---	---	---	---

[A] According to Los Angeles County Department of Public Works "Traffic Impact Analysis Report Guidelines, " January 1997, a transportation impact on an intersection shall be deemed significant in accordance with the following table:

Final V/C	LOS	Project Related Increase in V/C
> 0.71 - 0.80	C	equal to or greater than 0.04
> 0.81 - 0.90	D	equal to or greater than 0.02
> 0.91	E,F	equal to or greater than 0.01

[B] Cumulative mitigation will result in the intersection of Commerce Center Drive and Henry Mayo Drive (SR-126) to be a grade-separated intersection under future conditions. See Intersection Nos. 4A and 4B.

[C] Roundabout Intersection. Delay shown in seconds per vehicle.

Project Alternative 4: Revised Site Plan

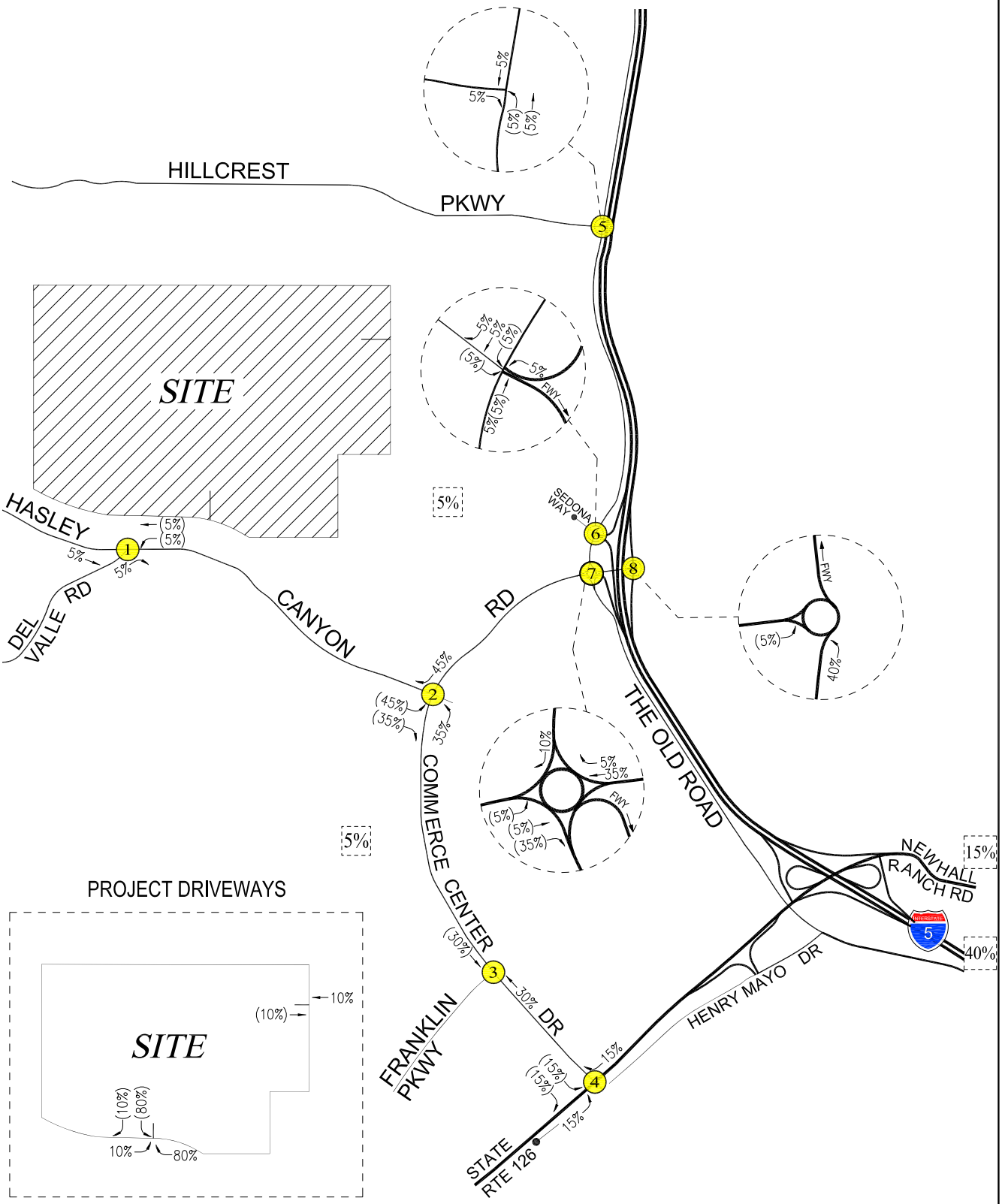
The Project Alternative 4 description represents a revised site plan. Under Project Alternative 4, the number of residential units would be 497 single family dwelling units, which is the same as the Project. Primary vehicular access to the Project site under this Alternative would continue to be via Hasley Canyon Road. However, Project Alternative 4 would eliminate the one of the secondary access connections to existing Barcelona Drive located north of the Project site. The proposed connection to Hayward Drive for secondary access would be maintained.

Project Alternative 4 Trip Generation

The number of residential units proposed for Project Alternative 4 is the same as the Project. Therefore, there are no differences in the number of site generated trips in comparing the Project Alternative 4 to the Project.

Project Alternative 4 Traffic Impact Analysis

A traffic impact analysis of Project Alternative 4 was prepared for the eight study intersections. In preparing the traffic analysis, a modified Project assignment was prepared based on the elimination of the Barcelona Drive connection for secondary access. ***Figure Alt. 4 – 1*** provides the forecast assignment of Project Alternative 4 trips to the site access points and study intersections. Similar to Project Alternative 3, the primary change was shifting the approximate 10% of site-generated trips originally assigned to the Barcelona Drive access as part of the Project to the Hasley Canyon Road access (5%) and Hayward Drive access (5%).



XX = INBOUND PERCENTAGES
(XX) = OUTBOUND PERCENTAGES

NOT TO SCALE

FIGURE ALT. 4-1
PROJECT TRIP DISTRIBUTION
ALTERNATIVE 4

LINSCOTT, LAW & GREENSPAN, engineers

LOS VALLES PROJECT

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Table Alt. 4 – 1 provides the summary of the traffic analysis prepared for the study intersections for Project Alternative 4. As shown on the table, the direct traffic impacts of the Project Alternative 4 are forecast to be less than significant. The Project Alternative 4 is calculated to contribute to a cumulative traffic impact at the Commerce Center Drive/Henry Mayo Drive intersection. This impact is the same as the Project. As with the Project, the cumulative traffic impact is completely mitigated at the intersection based on the grade-separated interchange project. In summary, the Project Alternative 4 would have no residual traffic impacts, similar to the Project.

Table Alt. 4-1
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

9-Mar-15

NO.	INTERSECTION	PEAK HOUR	[1] EXISTING V/C or Delay	[1] EXISTING LOS	[2] EXISTING W/ PROPOSED PROJECT V/C or Delay	[2] EXISTING W/ PROPOSED PROJECT LOS	[2] CHANGE V/C [(2)-(1)]	[2] SIGNIF. IMPACT	[3] YEAR 2023 W/ RELATED PROJECTS V/C or Delay	[3] YEAR 2023 W/ RELATED PROJECTS LOS	[3] CHANGE V/C [(3)-(1)]	[3] SIGNIF. IMPACT	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE V/C or Delay	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE LOS	[4] CHANGE V/C [(4)-(1)]	[4] MITI-GATED
1	Del Valle Road/	AM	0.383	A	0.398	A	0.015	NO	0.412	A	0.029	NO	---	---	---	---
	Hasley Canyon Road	PM	0.369	A	0.391	A	0.022	NO	0.408	A	0.039	NO	---	---	---	---
2	Commerce Center Drive/	AM	0.379	A	0.452	A	0.073	NO	0.466	A	0.087	NO	---	---	---	---
	Hasley Canyon Road	PM	0.340	A	0.436	A	0.096	NO	0.452	A	0.112	NO	---	---	---	---
3	Commerce Center Drive/	AM	0.374	A	0.391	A	0.017	NO	0.492	A	0.118	NO	---	---	---	---
	Franklin Parkway	PM	0.552	A	0.564	A	0.012	NO	0.631	B	0.079	NO	---	---	---	---
4	Commerce Center Drive/	AM	0.482	A	0.505	A	0.023	NO	1.126	F	0.644	YES	[B]	---	---	YES
	Henry Mayo Drive (SR-126)	PM	0.744	C	0.758	C	0.014	NO	1.218	F	0.474	YES	[B]	---	---	YES
4A	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.635	B	---	---
	SR-126 Westbound Ramps	PM	---	---	---	---	---	---	---	---	---	---	0.502	A	---	---
4B	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.421	A	---	---
	Henry Mayo Drive	PM	---	---	---	---	---	---	---	---	---	---	0.389	A	---	---
5	The Old Road/	AM	0.745	C	0.749	C	0.004	NO	0.751	C	0.006	NO	---	---	---	---
	Hillcrest Parkway	PM	0.538	A	0.548	A	0.010	NO	0.553	A	0.015	NO	---	---	---	---
6	The Old Road/	AM	0.733	C	0.749	C	0.016	NO	0.753	C	0.020	NO	---	---	---	---
	I-5 Freeway SB Ramps - Sedona Way	PM	0.539	A	0.558	A	0.019	NO	0.561	A	0.022	NO	---	---	---	---
7	The Old Road - I-5 Freeway SB On-Ramp/	AM	9.88	A	11.71	B	1.83	NO	13.03	B	3.15	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	11.32	A	13.44	B	2.12	NO	14.03	B	2.71	NO	---	---	---	---
8	I-5 Freeway NB Ramps/	AM	7.92	A	8.27	A	0.35	NO	8.62	A	0.70	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	9.92	A	11.47	B	1.55	NO	12.22	B	2.30	NO	---	---	---	---

[A] According to Los Angeles County Department of Public Works "Traffic Impact Analysis Report Guidelines, " January 1997, a transportation impact on an intersection shall be deemed significant in accordance with the following table:

Final V/C	LOS	Project Related Increase in V/C
> 0.71 - 0.80	C	equal to or greater than 0.04
> 0.81 - 0.90	D	equal to or greater than 0.02
> 0.91	E,F	equal to or greater than 0.01

[B] Cumulative mitigation will result in the intersection of Commerce Center Drive and Henry Mayo Drive (SR-126) to be a grade-separated intersection under future conditions. See Intersection Nos. 4A and 4B.

[C] Roundabout Intersection. Delay shown in seconds per vehicle.

APPENDIX 6.0-2

Mixed-Use Development Alternative Analysis

Memorandum

To: iStar Financial
From: THE CONCORD GROUP
Date: February 27, 2013
Re**:** Retail Development Opportunity at the Planned Los Valles Development in Santa Clarita Valley

The management of iStar Financial (iStar) is pursuing the development of the 430-acre Los Valles property (Site) located near Castaic in unincorporated Los Angeles County. Current plans call for 498 residential lots and community amenities including trails, parks, open space and a working vineyard.

At this time, the regional planning authority is suggesting that iStar include approximately 15,000-50,000 square feet of retail space to the plan. As such, iStar required a letter of opinion in order to determine the market opportunity, if any, for developing retail on the Site. To meet this objective, The Concord Group (TCG) evaluated the location, physical characteristics and proposed development of Los Valles, and assessed the retail performance of the surrounding area and its impact on the Site. In context, TCG has also provided market advisory services related to the Site dating back to 2004, and most recently in October 2012, and has completed several market analyses for other developments across the Santa Clarita Valley.

In TCG's opinion, retail is not considered a viable use for the Los Valles property. The reasons supporting our opinion are listed below:

- *Limited visibility with interior setting:* The Site is located along an interior stretch of Hasley Canyon Road, primarily carrying through traffic from sparsely dense households located west of the Site and 'Monday-Friday' employment uses immediately south along Industry Drive.

- *Superiorly located shopping centers along I-5 currently struggling:* Despite having strong visibility and convenient access, several retail nodes have multiple in-line retail spaces available for lease. The Rite-Aid Shopping Center anchored by Ralph's at 31970 Castaic Road has 13 available in-line spaces out of a total of 27 – nearly 50 percent vacant. The Tutor Time Center at 29485 Old Road has 5 empty spaces out of 13.

- *Significant vacancy in immediate area and greater Castaic:* The three-mile radius surrounding the Site has nearly 500,000 square feet of retail space, of which 19% (96,000 sf) was vacant as of the 4th quarter in 2012 (per CoStar). In greater Castaic, the Chambers of Commerce lists a total of 239 retail locations, of which 30% (72 spaces) was vacant in January 2013 (per Castaic Business Census 2013).

- *Lack of critical mass surrounding Site:* Despite adding up to 498 homes on-site, the immediate area appears to lack enough homes to support additional retail – the nearest households located west are over one mile away, and are limited in number given the rural, ranch-style product. The area to the south only includes 'Monday-Friday' industrial/flex employment uses, while the area to the north is constrained by access. Overall, retailers are unlikely to consider the interior location of the Site and lack of true critical mass as favorable conditions.

- *Existing retail needs served by centers located in close proximity:* Three shopping centers, including a Ralph's anchored center, are located within 1.5 miles of the Site. Tenant types include grocery, quick-serve and convenience, which provide ample amenities for immediate residents and workers.

- *Retail development inconsistent with proposed enclave-feel at community:* The Los Valles community plan includes single-family homes with significant open space amenities such as parks, trails, ponds, vineyards and citrus groves. Including street-front retail will likely detract from the residential market opportunity and potentially constrain the overall synergy of planned uses.

The above summary was completed by Raj Panchal under the direction of Richard M. Gollis. Should you have any questions related to our conclusion, feel free to contact us at 949-717-6450.

APPENDIX 6.0-3

Project Alternatives Traffic Analyses

Table Alt. 2
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

9-Nov-15

NO.	INTERSECTION	PEAK HOUR	[1] EXISTING V/C or Delay	[1] EXISTING LOS	[2] EXISTING W/ PROPOSED PROJECT V/C or Delay	[2] EXISTING W/ PROPOSED PROJECT LOS	[2] CHANGE V/C [(2)-(1)]	[2] SIGNIF. IMPACT	[3] YEAR 2023 W/ RELATED PROJECTS V/C or Delay	[3] YEAR 2023 W/ RELATED PROJECTS LOS	[3] CHANGE V/C [(3)-(1)]	[3] SIGNIF. IMPACT	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE V/C or Delay	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE LOS	[4] CHANGE V/C [(4)-(1)]	[4] MITI-GATED
1	Del Valle Road/	AM	0.383	A	0.393	A	0.010	NO	0.497	A	0.114	NO	---	---	---	---
	Hasley Canyon Road	PM	0.369	A	0.382	A	0.013	NO	0.486	A	0.117	NO	---	---	---	---
2	Commerce Center Drive/	AM	0.379	A	0.421	A	0.042	NO	0.469	A	0.090	NO	---	---	---	---
	Hasley Canyon Road	PM	0.340	A	0.372	A	0.032	NO	0.470	A	0.130	NO	---	---	---	---
3	Commerce Center Drive/	AM	0.374	A	0.380	A	0.006	NO	0.667	B	0.293	NO	---	---	---	---
	Franklin Parkway	PM	0.552	A	0.559	A	0.007	NO	0.834	D	0.282	NO	---	---	---	---
4	Commerce Center Drive/	AM	0.482	A	0.494	A	0.012	NO	1.276	F	0.794	NO	[B]	---	---	---
	Henry Mayo Drive (SR-126)	PM	0.744	C	0.751	C	0.007	NO	1.845	F	1.101	YES	[B]	---	---	YES
4A	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.631	B	---	---
	SR-126 Westbound Ramps	PM	---	---	---	---	---	---	---	---	---	---	0.500	A	---	---
4B	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.418	A	---	---
	Henry Mayo Drive	PM	---	---	---	---	---	---	---	---	---	---	0.389	A	---	---
5	The Old Road/	AM	0.745	C	0.750	C	0.005	NO	0.777	C	0.032	NO	---	---	---	---
	Hillcrest Parkway	PM	0.538	A	0.545	A	0.007	NO	0.567	A	0.029	NO	---	---	---	---
6	The Old Road/	AM	0.733	C	0.742	C	0.009	NO	0.758	C	0.025	NO	---	---	---	---
	I-5 Freeway SB Ramps - Sedona Way	PM	0.539	A	0.550	A	0.011	NO	0.571	A	0.032	NO	---	---	---	---
7	The Old Road - I-5 Freeway SB On-Ramp/	AM	9.88	A	11.71	B	1.83	NO	13.94	B	4.06	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	11.32	A	13.44	B	2.12	NO	14.09	B	2.77	NO	---	---	---	---
8	I-5 Freeway NB Ramps/	AM	7.92	A	8.27	A	0.35	NO	9.75	A	1.83	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	9.92	A	11.47	B	1.55	NO	12.12	B	2.20	NO	---	---	---	---

[A] According to Los Angeles County Department of Public Works "Traffic Impact Analysis Report Guidelines, " January 1997, a transportation impact on an intersection shall be deemed significant in accordance with the following table:

Pre-Project V/C	LOS	Project Related Increase in V/C
> 0.71 - 0.80	C	equal to or greater than 0.04
> 0.81 - 0.90	D	equal to or greater than 0.02
> 0.91	E,F	equal to or greater than 0.01

[B] Cumulative mitigation will result in the intersection of Commerce Center Drive and Henry Mayo Drive (SR-126) to be a grade-separated intersection under future conditions. See Intersection Nos. 4A and 4B.

[C] Roundabout Intersection. Delay shown in seconds per vehicle.

Table 3-2
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

5-Nov-15

NO.	INTERSECTION	PEAK HOUR	[1] EXISTING V/C or Delay	[1] EXISTING LOS	[2] EXISTING W/ PROPOSED PROJECT V/C or Delay	[2] EXISTING W/ PROPOSED PROJECT LOS	[2] CHANGE V/C [(2)-(1)]	[2] SIGNIF. IMPACT	[3] YEAR 2023 W/ RELATED PROJECTS V/C or Delay	[3] YEAR 2023 W/ RELATED PROJECTS LOS	[3] CHANGE V/C [(3)-(1)]	[3] SIGNIF. IMPACT	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE V/C or Delay	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE LOS	[4] CHANGE V/C [(4)-(1)]	[4] MITI-GATED
1	Del Valle Road/	AM	0.383	A	0.393	A	0.010	NO	0.497	A	0.114	NO	---	---	---	---
	Hasley Canyon Road	PM	0.369	A	0.383	A	0.014	NO	0.487	A	0.118	NO	---	---	---	---
2	Commerce Center Drive/	AM	0.379	A	0.428	A	0.049	NO	0.483	A	0.104	NO	---	---	---	---
	Hasley Canyon Road	PM	0.340	A	0.393	A	0.053	NO	0.491	A	0.151	NO	---	---	---	---
3	Commerce Center Drive/	AM	0.374	A	0.385	A	0.011	NO	0.667	B	0.293	NO	---	---	---	---
	Franklin Parkway	PM	0.552	A	0.560	A	0.008	NO	0.835	D	0.283	NO	---	---	---	---
4	Commerce Center Drive/	AM	0.482	A	0.497	A	0.015	NO	1.280	F	0.798	NO	[B]	---	---	---
	Henry Mayo Drive (SR-126)	PM	0.744	C	0.751	C	0.007	NO	1.845	F	1.101	YES	[B]	---	---	YES
4A	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.631	B	---	---
	SR-126 Westbound Ramps	PM	---	---	---	---	---	---	---	---	---	---	0.500	A	---	---
4B	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.418	A	---	---
	Henry Mayo Drive	PM	---	---	---	---	---	---	---	---	---	---	0.389	A	---	---
5	The Old Road/	AM	0.745	C	0.748	C	0.003	NO	0.774	C	0.029	NO	---	---	---	---
	Hillcrest Parkway	PM	0.538	A	0.544	A	0.006	NO	0.567	A	0.029	NO	---	---	---	---
6	The Old Road/	AM	0.733	C	0.743	C	0.010	NO	0.760	C	0.027	NO	---	---	---	---
	I-5 Freeway SB Ramps - Sedona Way	PM	0.539	A	0.552	A	0.013	NO	0.573	A	0.034	NO	---	---	---	---
7	The Old Road - I-5 Freeway SB On-Ramp/	AM	9.88	A	11.71	B	1.83	NO	14.51	B	4.63	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	11.32	A	13.44	B	2.12	NO	14.29	B	2.97	NO	---	---	---	---
8	I-5 Freeway NB Ramps/	AM	7.92	A	8.27	A	0.35	NO	9.71	A	1.79	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	9.92	A	11.47	B	1.55	NO	12.44	B	2.52	NO	---	---	---	---

[A] According to Los Angeles County Department of Public Works "Traffic Impact Analysis Report Guidelines, " January 1997, a transportation impact on an intersection shall be deemed significant in accordance with the following table:

Pre-Project V/C	LOS	Project Related Increase in V/C
> 0.71 - 0.80	C	equal to or greater than 0.04
> 0.81 - 0.90	D	equal to or greater than 0.02
> 0.91	E,F	equal to or greater than 0.01

[B] Cumulative mitigation will result in the intersection of Commerce Center Drive and Henry Mayo Drive (SR-126) to be a grade-separated intersection under future conditions. See Intersection Nos. 4A and 4B.

[C] Roundabout Intersection. Delay shown in seconds per vehicle.

Table 4-1
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

5-Nov-15

NO.	INTERSECTION	PEAK HOUR	[1] EXISTING V/C or Delay	[1] EXISTING LOS	[2] EXISTING W/ PROPOSED PROJECT V/C or Delay	[2] EXISTING W/ PROPOSED PROJECT LOS	[2] CHANGE V/C [(2)-(1)]	[2] SIGNIF. IMPACT	[3] YEAR 2023 W/ RELATED PROJECTS V/C or Delay	[3] YEAR 2023 W/ RELATED PROJECTS LOS	[3] CHANGE V/C [(3)-(1)]	[3] SIGNIF. IMPACT	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE V/C or Delay	[4] YEAR 2023 W/ GRADE SEPARATED INTERCHANGE LOS	[4] CHANGE V/C [(4)-(1)]	[4] MITI-GATED
1	Del Valle Road/	AM	0.383	A	0.398	A	0.015	NO	0.503	A	0.120	NO	---	---	---	---
	Hasley Canyon Road	PM	0.369	A	0.391	A	0.022	NO	0.494	A	0.125	NO	---	---	---	---
2	Commerce Center Drive/	AM	0.379	A	0.452	A	0.073	NO	0.514	A	0.135	NO	---	---	---	---
	Hasley Canyon Road	PM	0.340	A	0.436	A	0.096	NO	0.534	A	0.194	NO	---	---	---	---
3	Commerce Center Drive/	AM	0.374	A	0.391	A	0.017	NO	0.669	B	0.295	NO	---	---	---	---
	Franklin Parkway	PM	0.552	A	0.564	A	0.012	NO	0.839	D	0.287	NO	---	---	---	---
4	Commerce Center Drive/	AM	0.482	A	0.505	A	0.023	NO	1.288	F	0.806	NO	[B]	---	---	---
	Henry Mayo Drive (SR-126)	PM	0.744	C	0.758	C	0.014	NO	1.848	F	1.104	YES	[B]	---	---	YES
4A	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.635	B	---	---
	SR-126 Westbound Ramps	PM	---	---	---	---	---	---	---	---	---	---	0.502	A	---	---
4B	Commerce Center Drive/	AM	---	---	---	---	---	---	---	---	---	---	0.421	A	---	---
	Henry Mayo Drive	PM	---	---	---	---	---	---	---	---	---	---	0.389	A	---	---
5	The Old Road/	AM	0.745	C	0.749	C	0.004	NO	0.776	C	0.031	NO	---	---	---	---
	Hillcrest Parkway	PM	0.538	A	0.548	A	0.010	NO	0.570	A	0.032	NO	---	---	---	---
6	The Old Road/	AM	0.733	C	0.749	C	0.016	NO	0.766	C	0.033	NO	---	---	---	---
	I-5 Freeway SB Ramps - Sedona Way	PM	0.539	A	0.558	A	0.019	NO	0.580	A	0.041	NO	---	---	---	---
7	The Old Road - I-5 Freeway SB On-Ramp/	AM	9.88	A	11.71	B	1.83	NO	16.04	C	6.16	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	11.32	A	13.44	B	2.12	NO	15.35	C	4.03	NO	---	---	---	---
8	I-5 Freeway NB Ramps/	AM	7.92	A	8.27	A	0.35	NO	9.87	A	1.95	NO	---	---	---	---
	Hasley Canyon Road [C]	PM	9.92	A	11.47	B	1.55	NO	13.17	B	3.25	NO	---	---	---	---

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[B] Cumulative mitigation will result in the intersection of Commerce Center Drive and Henry Mayo Drive (SR-126) to be a grade-separated intersection under future conditions. See Intersection Nos. 4A and 4B.

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