APPENDIX T

Updated Sewer Demands

TECHNICAL MEMORANDUM

Date:	July 21, 2010
To:	Bob Shattuck, Lennar Communities
From:	Scott Hartstein, MacKay & Somps
TM No.:	Technical Memorandum No. 6
Subject:	Updated Sewer Demands SunCreek Specific Plan Rancho Cordova, CA
Job No.:	7991-10
Task No.:	Task D.3

A. Introduction

In the year since Sacramento Area Sewer District last reviewed the Sanitary Sewer Study (SSS) for the SunCreek Specific Plan (MacKay & Somps, March 2009), the land use plan has undergone several minor land use changes in response to requirements imposed by the City of Rancho Cordova and other related local agencies. These changes in land use, principally relating to the addition of more employment related land uses to the Specific Plan in favor of low density, medium density, and compact medium density residential land uses, have a minor impact on the sanitary sewer demands generated by development of the project.

The purpose of this technical memorandum is to quantify the magnitude of these land use changes and the resulting changes in sanitary sewer demands. It is believed that the magnitude of change in sanitary sewer demands is nominal when compared to those projected in the SSS. The goal of this technical memorandum is to demonstrate that the magnitude of these changes is insignificant, and that the SSS still adequately projects the overall impacts of the project in terms of sanitary sewer supply and related infrastructure for purposes of environmental review.

B. Land Use Plan Changes

The prior and updated land use plans are shown in Appendix A (Figures 1 and 2, respectively). A comparison of the land uses between the version of the land use plan used during the preparation of the SSS and the updated land use plan for the project is summarized in Table 1.

Table 1
Land Use Comparison

Land Use Description	Prior Land Use Plan (Acres)	Updated Land Use Plan (Acres)	Change (Acres)	Change %
Low Density Residential (LDR)	194.8	169.4	-25.4	-13.0%
Medium Density Residential (MDR)	379.0	322.7	-56.3	-14.9%
Compact Density Residential (CMDR)	27.0	20.1	-6.9	-25.6%
High Density Residential (HDR)	29.0	34.6	5.6	19.3%
Commercial Mixed Use (CMU)	29.0	31.9	2.9	10.0%
Village Center	3.0	0	-3.0	-100.0%
Local Town Center (Commercial & Employment)	0.0	59.4	59.4	100.0%
Public/Quasi Public (PQP)	7.3	13.0	5.7	78.1%
Neighborhood Park (PP)	60.5	44.0	-16.5	-27.3%
Community Park	35.1	43.1	8.0	22.8%
Neighborhood Green	0.0	4.3	4.3	100.0%
Parkway, Paseos and Trails (PC)	28.3	9.1	-19.2	-67.8%
Wetland Buffer/Bike Path Corridor	29.8	45.2	15.4	51.7%
Detention Basin (DB)	31.0	46.9	15.9	51.3%
Storm Drain Channel	9.1	5.0	-4.1	-45.1%
Wetland Preserve	218.3	203.7	-14.6	-6.7%
High School	48.0	45.6	-2.4	-5.0%
Middle School	35.9	34.4	-1.5	-4.2%
Elementary School	31.0	30.9	-0.1	-0.3%
Minor Roads	0.0	23.1	23.1	100.0%
Major Roads	90.7	79.0	-11.7	-12.9%
Total	1286.8	1265.4	-21.4	-1.7%

Footnote:

Refinement in project boundary resulted in a reduction in total land use areas of approximately 20 acres from the prior to the current land use plan.

Clearly, the amounts of the various land uses for the project have changed during the last year. Additionally, by inspection it is evident that the spatial distribution of the various land uses of the prior and updated land use plans is relatively the same. Therefore, as long as the resulting total sanitary sewer demands of the two land use plans are identical, or nearly so, and as long as the distribution of said demand across the project area is relatively the same between the prior and the updated land use plans, it is reasonable to conclude that the size and location of the various sanitary sewer infrastructure improvements contemplated in the SSS to serve the prior land use plan are still adequate and appropriate to serve the updated land use plan.

C. Updated Sanitary Sewer Demands

The sanitary sewer demands resulting from the prior and updated land use plan are summarized in Tables 2 and 3. The unit demand figures used for these demand calculations and the methodology of calculating these demands are

identical. The only difference between these two sets of calculations is the change in land use areas.

Table 2
SunCreek Sanitary Sewer Demand - Prior Land Use Plan

Land Use Description	Land Use Classification	Total Acres	ESDs / acre	ESD's
Low Density Residential (LDR)	Single Family	194.8	6.0	1,168.8
Medium Density Residential (MDR)	Multi-Family Low Density	379.0	7.97	3,020.0
Compact Density Residential (CMDR)	Multi-Family Low Density	27.0	17.37	469.0
High Density Residential (HDR)	Multi-Family High Density	29.0	15.00	435.0
Commercial Mixed Use (CMU)	Mixed Use	29.0	6.0	174.0
Village Center	Commercial	3.0	6.0	18.0
Local Town Center (Commercial & Employment)	Local Town Center	0.0	6.0	0.0
Public/Quasi Public (PQP)	Public	7.3	6.0	43.8
Neighborhood Park (PP)	Public Recreation	60.5	6.0	363.0
Community Park	Public Recreation	35.1	6.0	210.6
Neighborhood Green	Public Recreation	0.0	6.0	0.0
Parkway, Paseos and Trails (PC)	Right-of-Way	28.3	6.0	169.8
Wetland Buffer/Bike Path Corridor	Vacant	29.8	6.0	178.8
Detention Basin (DB)	Vacant	31.0	6.0	186.0
Storm Drain Channel	Vacant	9.1	6.0	54.6
Wetland Preserve	Vacant	218.3	6.0	1,309.8
High School	Public Recreation	48.0	6.0	288.0
Middle School	Public Recreation	35.9	N/A	194.0
Elementary School	Public Recreation	31.0	N/A	243.0
Minor Roads	Vacant	0.0	6.0	0.0
Major Roads	Vacant	90.7	6.0	544.2
	Subtotal	1,286.8		9,070.4
	Average Dry Weather Flow (mgd)			2.81
	Peaking Factor			1.60
	Peak Dry Weather Flow (mgd)			4.51
	Peak Wet Weather Flow (mgd)			**6.31**

Table 3
SunCreek Sanitary Sewer Demand - Updated Land Use Plan

Land Use Description	Land Use Classification	Total Acres	ESDs / acre	ESD's
Low Density Residential (LDR)	Single Family	169.4	6.0	1,016.4
Medium Density Residential (MDR)	Multi-Family Low Density	322.7	9.36	3,020.0
Compact Density Residential (CMDR)	Multi-Family Low Density	20.1	23.33	469.0
High Density Residential (HDR)	Multi-Family High Density	34.6	12.57	435.0
Commercial Mixed Use (CMU)	Mixed Use	31.9	6.0	191.4
Village Center	Commercial	0	6.0	0.0
Local Town Center (Commercial & Employment)	Local Town Center	59.4	6.0	356.4
Public/Quasi Public (PQP)	Public	13.0	6.0	78.0
Neighborhood Park (PP)	Public Recreation	44.0	6.0	264.0
Community Park	Public Recreation	43.1	6.0	258.6
Neighborhood Green	Public Recreation	4.3	6.0	25.8
Parkway, Paseos and Trails (PC)	Right-of-Way	9.1	6.0	54.6
Wetland Buffer/Bike Path Corridor	Vacant	45.2	6.0	271.2
Detention Basin (DB)	Vacant	46.9	6.0	281.4
Storm Drain Channel	Vacant	5.0	6.0	30.0
Wetland Preserve	Vacant	203.7	6.0	1,222.2
High School	Public Recreation	45.6	6.0	273.6
Middle School	Public Recreation	34.4	N/A	194.0
Elementary School	Public Recreation	30.9	N/A	243.0
Minor Roads	Vacant	23.1	6.0	138.6
Major Roads	Vacant	79.0	6.0	474.0
	Subtotal	1,265.4		9,297.2
	Average Dry Weather Flow (mgd)			2.88
	Peaking Factor			1.60
	Peak Dry Weather Flow (mgd)			4.62
	Peak Wet Weather Flow (mgd)			**6.39**

Source: MacKay & Somps Civil Engineers, July 21, 2010

D. Comparison with Sanitary Sewer Study

A comparison of the sanitary sewer demands resulting from the prior and updated land use plans is shown in Table 4. Like the earlier comparison of land use areas between the prior and the updated land use plans, the differences in the resulting demands for sanitary sewer are nominal. In fact, the projected demands resulting from the updated land use plan are slightly more than those contained in the SSS, 1.3% more in terms of peak wet weather flow. Accordingly, the ESD, average day weather flow and peak dry weather flow resulting from the updated land use plan are also slightly more than those contained in the SSS. While the developed acreage for the project has actually decreased, the increases are primarily attributed to an increase in the Commercial & Employment land use designation. This incremental increase results in insignificant adjustments to the sanitary sewer demands, and any modifications can be done as part of the Level Three Sanitary Sewer Study, without additional environmental impacts.

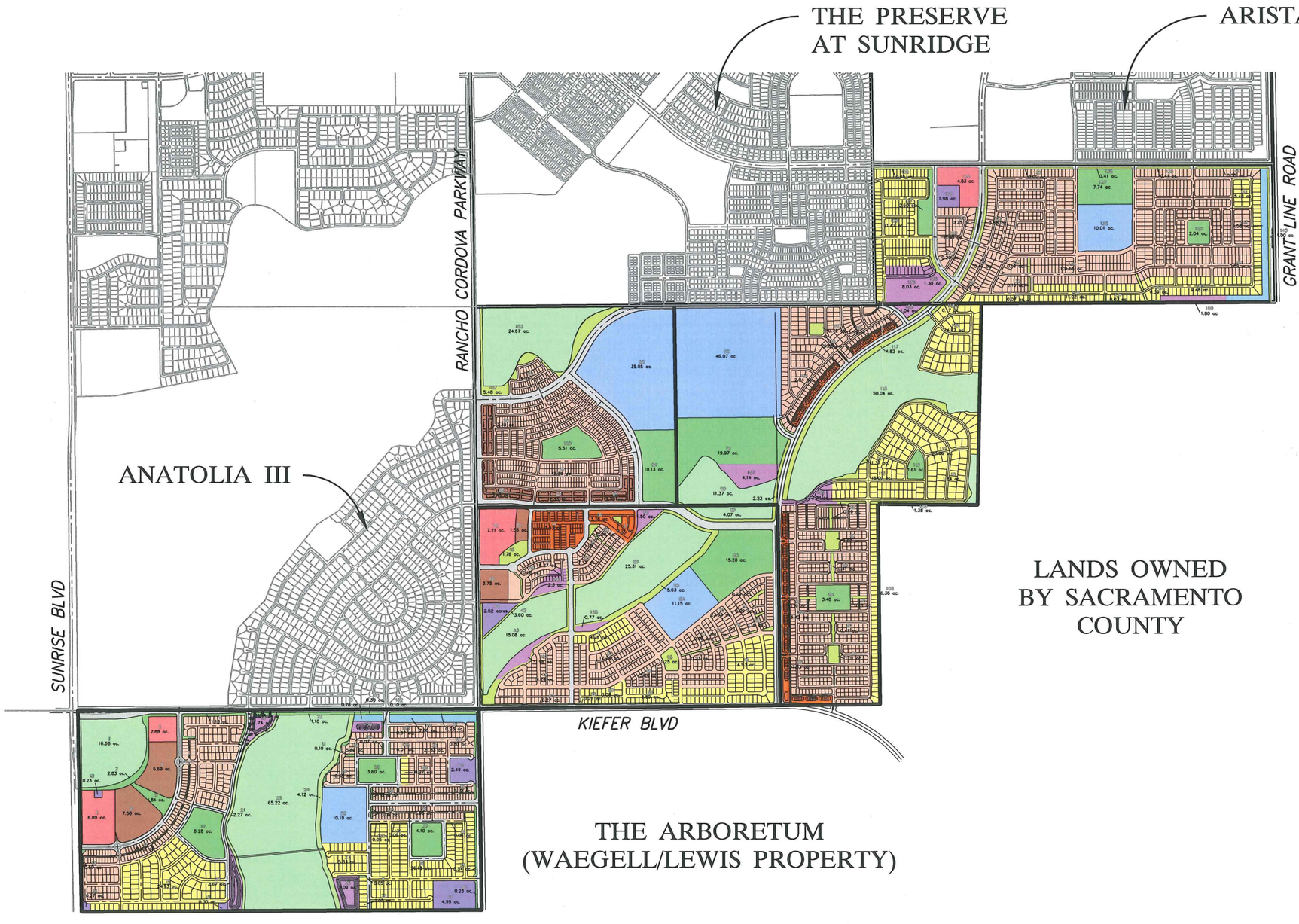
Table 4
Comparison of Sanitary Sewer Demands

Demand	Prior Land Use Plan	Updated Lane Use Plan	Change	Percent Change
ESDs	9,070.4	9,297.2	226.8	2.5%
Average Dry Weather Flow (mgd)	2.81	2.88	0.07	2.5%
Peak Dry Weather Flow (mgd)	4.51	4.62	0.11	2.4%
Peak Wet Weather Flow (mgd)	6.31	6.39	0.08	1.3%

E. Summary

The magnitude of the land use changes and the resulting changes in sanitary sewer demands between the prior and updated land use plans are nominal. Furthermore, the spatial distribution of proposed land uses is relatively the same between the prior and updated land use plan. Accordingly, it is reasonable to conclude that the SSS still adequately addresses the infrastructure requirements for the current land use plan, and that the differences in overall impacts on sanitary sewer demand and infrastructure between the prior and updated land use plans are insignificant.

Appendix A



NTS

Legend

- HIGH DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL
- COMPACT DENSITY RESIDENTIAL
- COMMERCIAL MIXED USE
- STORMWATER CANAL
- DETENTION BASIN
- PUBLIC/QUASI PUBLIC
- PARK
- SCHOOL
- VILLAGE CENTER
- WETLAND
- WETLAND BUFFER/BIKE PATH CORRIDOR
- OPEN SPACE

Figure 1

LAND USE PLAN

SUNCREEK SPECIFIC PLAN

MACKAY & SOMPS
CIVIL ENGINEERS, INC.
SACRAMENTO, CALIFORNIA (916) 929-6092

NOVEMBER 27, 2007

7991-00

Prior Suncreek Land Use Area Summary (2009)

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Land Use Summary			
Land Use Type	**Area (acres)**	**Dwelling Units**	**Average Density Per Acre**
LDR - LOW DENSITY (2.1 to 6 du/ac)	169.4	900	5.311461427
MDR - MEDIUM DENSITY RESIDENTIAL (6.1 to 12 du/ac)	322.7	2517	7.800926019
CMDR - COMPACT DENSITY RESIDENTIAL (12.1 to 18 du/ac)	20.1	286	14.26214398
HDR - HIGH DENSITY RESIDENTIAL (18.1 to 40 du/ac)	34.6	735	21.24598938
CMU	31.9	259	
LTC - LOCAL TOWN CENTER COMMERCIAL AND EMPLOYMENT CENTER	59.4		
POP - PUBLIC/QUASI_PUBLIC	13.0		
PP - NEIGHBORHOOD GREEN	4.3		
PARK	87.1		
PC - PARKWAY, PASEOS AND TRAILS	9.1		
WB - PRESERVE BUFFER	45.2		
DB - DETENTION BASIN	46.9		
STORM WATER CANAL	5.0		
WETLAND PRESERVE	203.7		
SCHOOL	110.9		
MINOR ROADS	23.2		
MAJOR ROADS	79.0		
Grand Total	**1265.5**	**4697**	

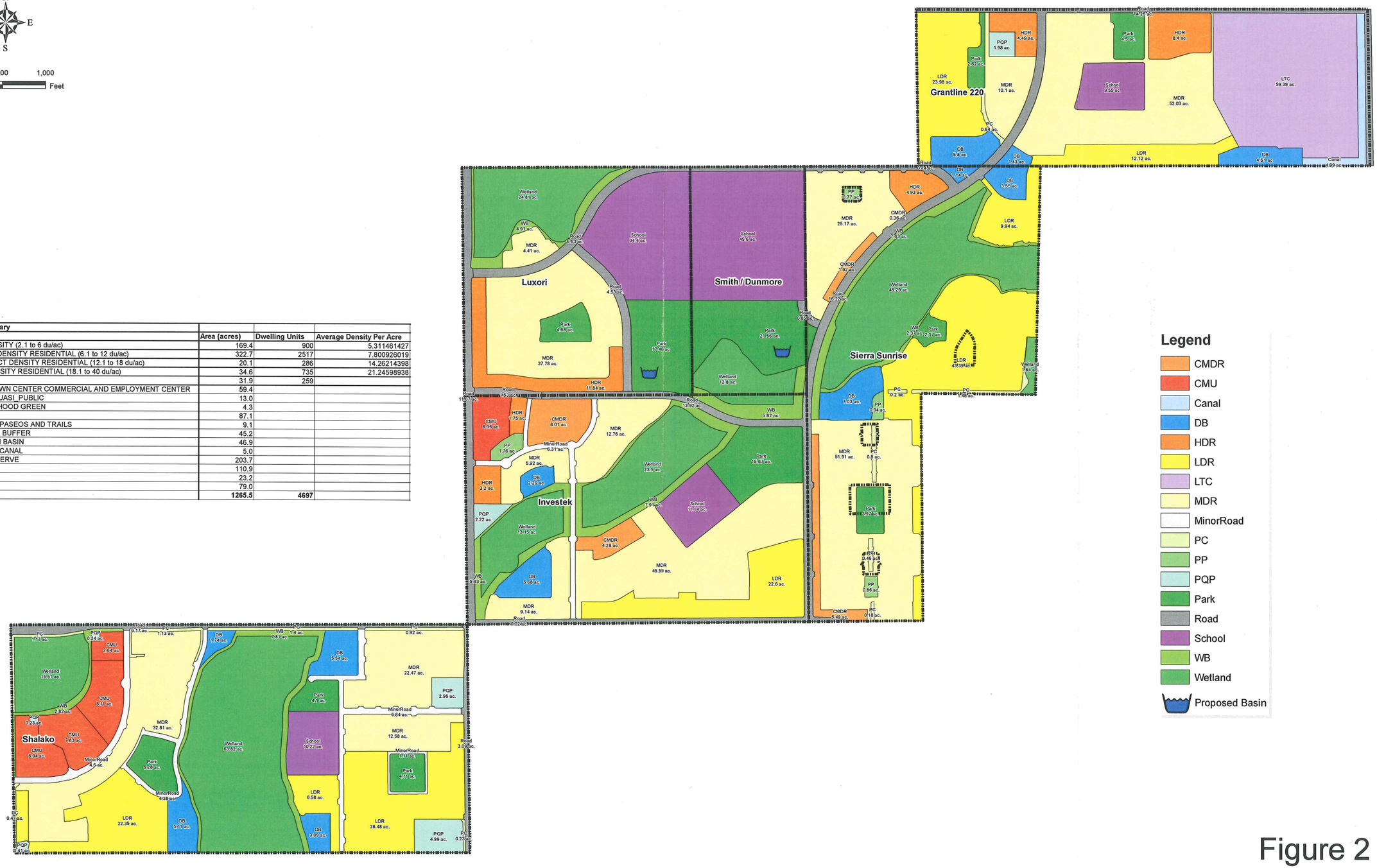

Figure 2

Updated Suncreek Landuse Area Summary (2010)

MacKay & Somps
ENGINEERS PLANNERS SURVEYORS

Job Number: 7991.00 Date : 05/28/2010

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