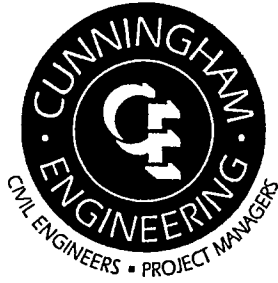

APPENDIX I



MEMORANDUM

To: Pat Fitzsimmons, City of Davis

From: Chuck Cunningham, Cunningham Engineering

Date: September 15, 2004

Project No: 675.01

Subject: Covell Village – Water and Sewer Demands and Proposed Water and Sewer Facilities

Per your request, we have reviewed the following Davis Public Works (DPW) calculations (Dated 9/7/2004) for the Covell Village EIR:

- Water Demand Calculation for Existing City Distribution System
- Covell Village Demand and Necessary Supply
- Unit Sewer Discharges and Future Flows to WWTP
- Remaining WWTP Capacity

Also included in this memo are some comments on how water and sewer facilities will be provided for the Covell Village project. This is information, in addition, to demand, that has been requested by Tim Raney, the EIR consultant. We have therefore copied Mr. Raney and the Planning Department directly, to expedite the flow of information. Please review the following information and confirm with Planning that you concur with the findings as stated.

As a supplement to these calculations, we have provided the attached Preliminary Sewer Demand and Preliminary Water Demand worksheets for the Covell Village Project. These demands were developed based on published City of Davis standards and reflect land uses summarized in the Fehr and Peers "Covell Village EIR Transportation Impact Analysis Assumptions", dated August 20, 2004 and updated by the applicant and planning department on September 7, 2004. Calculations are provided for both the currently proposed project, as well as a high-density alternative.

Water Demand

We have reviewed the existing and proposed (existing plus fully developed Covell Village) DPW water demand calculations and concur with the methodology presented. A direct comparison of the DPW calculations and the Cunningham Engineering (CEC) calculations cannot be made, as the methodologies used differ, however the Average Daily Demand

(ADD) (Gal/Day) resulting from each method were found to be substantially the same. The ADD for the high-density alternative would be approximately 20% greater than the currently proposed alternative. These demands are summarized below:

Covell Village ADD:

- DPW - 0.78 MGD
- CEC Proposed Project – 0.80 MGD
- CEC High Density Alternative – 0.97 MGD

These numbers do not include non-residential flow contribution, including retail/office employees and high school students. As you stated in your calculation assumptions, more Davis residents would commute out of town than employees would commute into town. The students are counted as residents in the general population. These numbers do not include fire flow or peak day/hour factors.

As stated in the DPW calculations, the existing 2004 Peak Hour demand is 40.2 MGD and the proposed 2004 Peak Hour demand (existing plus Covell Village) is 42.5 MGD. This results in a peak hour deficiency of 2.3 MGD or 1600 gpm as a result of the Covell Village Project. Cunningham Engineering concurs with this finding, however, would like to note that the peak hour is less conservative than the published City of Davis standard. The DPW calculations used a Peak Hour factor of 3.0, while the City standards use a factor of 1.8 times the Peak Day, for an effective Peak Hour factor of 3.6

Water Facilities

You have stated this demand could likely be addressed by construction of a new, deep aquifer well within Covell Village. Jacques DeBra of your Department has suggested a location in the northeast quadrant of the project. The developer will work with the City to site the new well and appurtenant surface facilities in a mutually acceptable location, perhaps along the east-west habitat and open space corridor.

The on-site watermain distribution network will consist of 10 and possibly 12" diameter lines running through the project and connecting to existing 10" lines in Pole Line Road, Covell Blvd, and F Street. Lines in local streets will typically be 8" diameter, except where required larger to meet fire flow requirements

Wastewater Demand and Treatment Plant Capacity

The unit sewer discharges and future flows to the waste water treatment plant (WWTP) that you provided indicate a design or projection value of 95.0 gallons per capita per day (gpcd). This number was derived from measured dry weather flows at the WWTP and recorded Davis population figures. The estimated Davis population for 2004, plus the sewered population of El Macero and North Davis Meadow, is 65,788 residents, which results in a total demand of 6.25 MGD.

The Covell Village project proposes housing for approximately 4060 residents and would generate approximately 0.39 MGD of additional dry weather wastewater. The High Density Alternative proposed housing for approximately 4925 residents and would generate approximately 0.47 MGD. Therefore, the total demand on the WWTP required under the two development scenarios would be 6.64 MGD and 6.72 MGD respectively. Updated versions of your capacity calculations are attached and reflect the latest proposed Covell Village population figures. Please review and confirm that you are in agreement with the modification of your calculations.

As stated in your calculations, the existing WWTP capacity is 7.50 MGD. Therefore, the existing WWTP has enough existing capacity to accommodate either the Covell Village proposed project or the potential High Density Alternative. Based on these figures, in addition to the Covell Village project, the WWTP would also be able to accommodate approximately 8000 new residents outside of the Covell Village project area before reaching the design capacity.

Wastewater Facilities

Existing sewer lines through the site consist of parallel 42" and 21" diameter lines running north-south and a 12" line running from Pole Line Road to the 42" line through the central portion of the site. The 21" line is abandoned. The 42" line runs north and then east to the City's wastewater treatment plant. A private 24" sewer line that previously carried processing waste from the Hunts and Con Agra operations will be removed or abandoned in place. The City may determine it necessary to extend sewer service to the east boundary of the Covell Village to pick up the northerly portion of the Con Agra property. That project would be responsible for determining and paying for any oversized service lines.

The depths of the existing lines will allow Covell Village to be sewerred entirely by a network of gravity lines – typically 6 and 8" in diameter. New connections to serve the project will be to the 12" and 42" lines. Since there are no industrial waste generators anticipated for the project, no special wastewater pretreatment facilities will be necessary.

You have stated that adequate capacity exists in the 42" line to serve the project and that trunk sewer capacity improvements are required. This is consistent with findings for the prior Crossroads and Covell Center projects.

cc: Katherine Hess, City of Davis
Bill Emlen, City of Davis
Blaine Juchau, Covell Village
Tim Raney, Raney Planning and Management

Enclosures:

DPW Water and Sewer Demand Calculations – as stated above
CEC Water Demand Calculations
CEC Updated DPW Wastewater Calculations

Water Demand Calculation for Existing City Distribution System		
Pumping Rates for Jul-Aug per Tech Memo by Bob Schoech, Aug 17,2004		
Well No.	gpm	MGD
1	860	1.2
7	989	1.4
11	1,319	1.9
12	816	1.2
14	1,004	1.4
15	1,119	1.6
19	1,343	1.9
20	1,127	1.6
21	1,165	1.7
22	1,017	1.5
23	1,763	2.5
24	1,808	2.6
25	1,145	1.6
26	1,432	2.1
27	990	1.4
28	760	1.1
29	1,231	1.8
30	2,537	3.7
(available Feb 2004) 31	2,540	3.7
EM2	1,007	1.5
EM3	973	1.4
4 MG Tank not included in Totals	3,750 gpm not in Totals	5.4 MGD not in Totals
Totals, 4 MG Tank not included	26,945	38.8
Firm Capacity(one average well out of service)	25,662	37.0
Maximum Day Factor applied to average day		
		2.00
4,500 gpm Fire Flow Demand (4 hour period, but expressed as total flow rate), MGD		
		6.48
Peak Hour Factor applied to average day		
		3.00
Existing City Per Capita and Peak Calculations Using 2003 Data		
2003 city population per DOF E-5 Report		63,506
2003 El Macero population		1,050
2003 Willowbank population		305
2003 North Davis Meadows not connected to city distribution grid		0
2003 Service Population for Water Supply		63,776
2003 Well Production, million gallons		4,740
2003 Average Annual per Person per Day, aagpcd		204
2003 Average Daily Demand		12.99
2003 Peak Day (factor 2.0 plus fire flow), MGD		32.5
2003 Peak Hour (factor 3.0), MGD		39.0
2003 Ratio Existing Firm Capacity to Peak Day		1.14
2003 Ratio Existing Firm Capacity to Peak Hour		0.95

CV Water Demand and Necessary Supply, <i>Proposed Project</i>			
(calculations based upon gross population of living units)			
Type Occupancy	Amount	Occupancy	Million Gallons per Day, MGD
Covell Village SF + MF	1435	2.50	0.73
Within Village Center	80	2.50	0.04
High School students		250	
Firs Station employees		20	0.00
Open Space, acres (4 feet annually)		18.00	
Commercial employees		500	
Subtotal DU and population	1515	3808	
CV fully develeoped, Average Day			0.78
CV fully develeoped, Proportion of Fire Flow based on population			0.38
CV fully develeoped, Peak Day + fire flow			1.93
CV fully develeoped, Peak Hour			2.33
2004 Population without CV (with El Macero & W		65,827	
2004 Average Day without CV			13.40
2004 Peak Day + fire without CV			33.29
2004 Peak Hour without CV			40.21
2004 Average Day, CV fully developed + city			14.18
2004 Peak Day + fire, CV fully developed + city			34.84
2004 Peak Hour, CV fully developed + city			42.54
CV + city, Ratio Firm to Average Day			2.61
CV + city, Ratio Firm to Peak Day + fire			1.06
CV + city, Ratio Firm to Peak Hour			0.87
CV Peak Hour deficiency, MGD			2.33
CV Peak Hour deficiency, gpm			1600

Unit Sewer Discharges and Future Flows to WWTP					
Date	Source	Population	Sewered Population @ WWTP	Dry Weather Flow in MGD or Unit Values	
Jan 1 2002	Davis, DOF E-5 Report	63,235	64,523		
Jan 1 2003	Davis, DOF E-5 Report	63,776	65,064		
July 2002 Dry Weather Flow					5.30
Aug 2002 Dry Weather Flow					5.31
Sept 2002 Dry Weather Flow					5.69
Oct 2002 Dry Weather Flow					5.68
Average Sept & Oct Dry Weather Flow					5.69
Average Population 2002 & 2003 for 2002 flows		63,506	64,793		
2002 Per Capital Discharge, gpcd					87.7
1995 Facilities Plan by West Yost Assoc					100.0
Design or Projection Value, gpcd					95.0
Compute Remaining WWTP Capacity					
				MGD	Remaining Capacity, MGD
Current Dry Weather WWTP Capacity				7.50	
Use Design or Projection Value, gpcd		95.0			
2004 Estimated Davis Population (DOF E-5 Report)		64,500	65,788	6.25	1.25
Covell Village Master Plan As Proposed (residential+Fire employees but ignore retail/commercialemployees and students per note 2)		3,808		0.36	0.89
<p>1) Sewered Population includes County residents: El Macero 1,050 North Davis Meadows 238</p> <p>2) The nonresidential flow contribution is office/retail employees and students but the contribution from CV nonresidential including HSstudents is ignored. This is because more Davis residents commute out of town than employees commuting into town, and the students are counted in the general population. Therefore, it is conservative to ignore CV nonresidential and high school student body.</p>					

Land Use Water Demands - Covell Village

Location	Units	Unit Water Demand	Average Daily Demand (Gal/Day)	Maximum Daily Demand (Gal/Day)	Maximum Hourly Demand (Gal/Day)
Outside Village Center					
Single Family Dwelling Units	893	Gal/DU/day	546516	1093032	1967458
Multi-Family Dwelling Units (Apartments, Limited Equity Co-Op)	289	Gal/DU/day	75140	150280	270504
Senior Core Care Facilities (130 beds on 5.5 acre)	5	Gal/Acre/day	9900	19800	35640
Senior Dwelling Units	185	Gal/DU/day	113220	226440	407592
Co-Housing/TownHomes	30	Gal/DU/day	7800	15600	28080
6-Plex Cluster Homes	24	Gal/DU/day	6240	12480	22464
Live/Work	14	Gal/DU/day	8568	17136	30845
Within Village Center					
Apartments and Live/Work	60	Gal/DU/day	15600	31200	56160
Retail (58200 SF)	58200	Gal/SF/day	0	0	0
Office (43300 SF)	43300	Gal/SF/day	0	0	0
Church (9700 SF)	9700	Gal/SF/day	0	0	0
Athletic Club (30000 SF)	30000	Gal/SF/day	0	0	0
Meeting Space (11300 SF)	11300	Gal/SF/day	0	0	0
Day Care Center (2800 SF)	2800	Gal/SF/day	0	0	0
Hotel (58 Rooms)	58	Gal/DU/day	15080	30160	54288
Restaurant (6000 SF)	6000	Gal/SF/day	0	0	0
Gas Station (3600 SF Market)	3600	Gal/SF/day	0	0	0
Site Totals in GPD			798064	1596128	2873030
Site Totals in CFS			1.23	2.47	4.45

Assumptions

- 1) Average Day Unit Water Demands per Davis Public Works Design Standards
- 2) Maximum Daily Demand = 2 * Average Daily Demand
- 3) Maximum Hourly Demand = 1.8 * Maximum Daily Demand
- 3) Fire Demand NOT included

Land Use Water Demands - Covell Village Higher Density Alternative

Location	Units	Unit Water Demand	Average Daily Demand (Gal/Day)	Maximum Daily Demand (Gal/Day)	Maximum Hourly Demand (Gal/Day)
Outside Village Center					
Single Family Dwelling Units	1236	612 Gal/DU/day	756432	1512864	2723155
Multi-Family Dwelling Units (Apartments, Limited Equity Co-Op)	303	260 Gal/DU/day	78780	157560	283608
Co-Housing/TownHomes	347	260 Gal/DU/day	90220	180440	324792
6-Plex Cluster Homes	24	260 Gal/DU/day	6240	12480	22464
Hospice	16	260 Gal/DU/day	4160	8320	14976
Within Village Center					
Apartments and Live/Work	60	260 Gal/DU/day	15600	31200	56160
Retail (58200 SF)	58200	0 Gal/SF/day	0	0	0
Office (43300 SF)	43300	0 Gal/SF/day	0	0	0
Church (9700 SF)	9700	0 Gal/SF/day	0	0	0
Athletic Club (30000 SF)	30000	0 Gal/SF/day	0	0	0
Meeting Space (11300 SF)	11300	0 Gal/SF/day	0	0	0
Day Care Center (2800 SF)	2800	0 Gal/SF/day	0	0	0
Hotel (58 Rooms)	58	260 Gal/DU/day	15080	30160	54288
Restaurant (6000 SF)	6000	0 Gal/SF/day	0	0	0
Gas Station (3600 SF Market)	3600	0 Gal/SF/day	0	0	0
Site Totals in GPD			966512	1933024	3479443
Site Totals in CFS			1.50	2.99	5.38

Assumptions

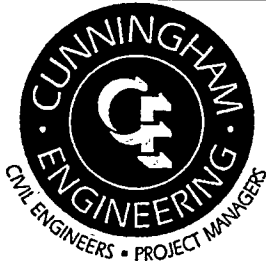
- 1) Average Day Unit Water Demands per Davis Public Works Design Standards
- 2) Maximum Daily Demand = 2 * Average Daily Demand
- 3) Maximum Hourly Demand = 1.8 * Maximum Daily Demand
- 3) Fire Demand NOT included

UPDATED BY CEC - 09/15/04 - COVELL VILLAGE PROPOSED PROJECT					
Unit Sewer Discharges and Future Flows to WWTP					
Date	Source	Population	Sewered Population @ WWTP	Dry Weather Flow in MGD or Unit Values	
Jan 1 2002	Davis, DOF E-5 Report	63,235	64,523		
Jan 1 2003	Davis, DOF E-5 Report	63,776	65,064		
July 2002 Dry Weather Flow					5.30
Aug 2002 Dry Weather Flow					5.31
Sept 2002 Dry Weather Flow					5.69
Oct 2002 Dry Weather Flow					5.68
Average Sept & Oct Dry Weather Flow					5.69
Average Population 2002 & 2003 for 2002 flows		63,506	64,793		
2002 Per Capital Discharge, gpcd					87.7
1995 Facilities Plan by West Yost Assoc Design or Projection Value, gpcd					100.0
					95.0
Compute Remaining WWTP Capacity					
				MGD	Remaining Capacity, MGD
Current Dry Weather WWTP Capacity				7.50	
Use Design or Projection Value, gpcd		95.0			
2004 Estimated Davis Population (DOF E-5 Report)		64,500	65,788	6.25	1.25
Covell Village Master Plan As Proposed (residential+Fire employees but ignore retail/commercialemployees and students per note 2)		4,063 *		0.39	0.86
* 1970 Units x 2.5 residence/unit					

1) Sewered Population includes County residents:
 El Macero 1,050
 North Davis Meadows 238

2) The nonresidential flow contribution is office/retail employees and students but the contribution from CV nonresidential including HSstudents is ignored. This is because more Davis residents commute out of town than employees commuting into town, and the students are counted in the general population. Therefore, it is conservative to ignore CV nonresidential and high school student body.

UPDATED BY CEC - 09/15/04 - COVELL VILLAGE HIGH DENSITY ALTERNATIVE					
Unit Sewer Discharges and Future Flows to WWTP					
Date	Source	Population	Sewered Population @ WWTP	Dry Weather Flow in MGD or Unit Values	
Jan 1 2002	Davis, DOF E-5 Report	63,235	64,523		
Jan 1 2003	Davis, DOF E-5 Report	63,776	65,064		
July 2002 Dry Weather Flow					5.30
Aug 2002 Dry Weather Flow					5.31
Sept 2002 Dry Weather Flow					5.69
Oct 2002 Dry Weather Flow					5.68
Average Sept & Oct Dry Weather Flow					5.69
Average Population 2002 & 2003 for 2002 flows		63,506	64,793		
2002 Per Capital Discharge, gpcd					87.7
1995 Facilities Plan by West Yost Assoc					100.0
Design or Projection Value, gpcd					95.0
Compute Remaining WWTP Capacity					
				MGD	Remaining Capacity, MGD
Current Dry Weather WWTP Capacity				7.50	
Use Design or Projection Value, gpcd		95.0			
2004 Estimated Davis Population (DOF E-5 Report)		64,500	65,788	6.25	1.25
Covell Village Master Plan As Proposed (residential+Fire employees but ignore retail/commercial employees and students per note 2)		4,925 *		0.47	0.78
* 1970 Units x 2.5 residence/unit					
<p>1) Sewered Population includes County residents: El Macero 1,050 North Davis Meadows 238</p> <p>2) The nonresidential flow contribution is office/retail employees and students but the contribution from CV nonresidential including HS students is ignored. This is because more Davis residents commute out of town than employees commuting into town, and the students are counted in the general population. Therefore, it is conservative to ignore CV nonresidential and high school student body.</p>					



MEMORANDUM

To: Pat Fitzsimmons, City of Davis

From: Megan Plamondon, Cunningham Engineering

Date: October 22, 2004, 2004

Project No: 675.01

Subject: Covell Village – **UPDATE** to Water and Sewer Demands and Proposed Water and Sewer Facilities Memo Dated September 15, 2004

As a follow up to our memorandum dated September 15, 2004, we have updated the water and sewer demand calculations based on recent population figures provided to us by Raney Planning and Management. The population figures used for these calculations are listed below:

Type of Use	Persons/Unit	Proposed Project		Higher Density Project	
	Ratios*	Units	Population	Units	Population
Single Family Dwelling Units	2.64	893	2358	1236	3263
Multi-Family Dwelling Units (Apart., Lim. Eq. Co-Op)	4.00	289	1156	289	1156
Senior Dwelling Units	1.75	185	324	0	0
Co-Housing/TownHomes	1.80	30	54	347	625
6-Plex Cluster Homes	1.80	24	43	24	43
Live/Work	4.00	14	56	14	56
Senior Core Care (130 Beds)	1.00	130	130	130	130
Hospice (16 Beds)	1.00	16	16	16	16
Hotel (58 Rooms)	1.00	58	58	58	58
Apartments and Live/Work (Village Center)	4.00	80	320	80	320
Fire Station Employees	20.00	1	20	1	20
		1720	4534	2195	5687

*Provided by Raney Planning and Management and Bay Area Economics

These figures are consistent with those used in the preparation of other Covell Village planning documents. To ensure that the demand calculations are based on the most current City data and planning processes, we have updated the spreadsheets originally developed by

the City Public Works departments with the current population figures. The results are summarized below:

Water Demand:

The Covell Village Proposed Project peak hour demand is estimated at 2.77 MGD, or 1900 gpm. The Covell Village Higher Density alternative peak hour demand would be approximately 3.47 MGD, or 2400 gpm. These figures are slightly higher than those previously estimated.

Waste Water Demand:

The sewer demand for the Proposed Project has been estimated at 0.43 MGD, leaving 0.84 MGD of remaining capacity at the existing waste water treatment plant. The Higher Density alternative sewer demand is estimated at 0.54 MGD, which allows for 0.71 MGD of existing capacity at the treatment facility.

Waste Water Facilities:

To clarify, the statement regarding waste water facilities in our previous memo (September 15, 2004), should have read:

You have stated that adequate capacity exists in the 42" line to serve the project and that **NO** trunk sewer capacity improvements are required. This is consistent with findings for the prior Crossroads and Covell Center projects.

Please let me know if you have any questions.

cc: Katherine Hess, City of Davis
Bill Emlen, City of Davis
Blaine Juchau, Covell Village
Tim Raney, Raney Planning and Management

Enclosures:

CEC Updated DPW Water Demand Calculations 10/20/04
CEC Updated DPW Wastewater Calculations 10/20/04

UPDATED BY CEC - 10/20/04 - COVELL VILLAGE HIGH DENSITY ALTERNATIVE					
Unit Sewer Discharges and Future Flows to WWTP					
Date	Source	Population	Sewered Population @ WWTP	Dry Weather Flow in MGD or Unit Values	
Jan 1 2002	Davis, DOF E-5 Report	63,235	64,523		
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Average Population 2002 & 2003 for 2002 flows		63,506	64,793		
2002 Per Capital Discharge, gpcd				87.7	
1995 Facilities Plan by West Yost Assoc				100.0	
Design or Projection Value, gpcd				95.0	
Compute Remaining WWTP Capacity					
				MGD	Remaining Capacity, MGD
Current Dry Weather WWTP Capacity				7.50	
Use Design or Projection Value, gpcd		95.0			
2004 Estimated Davis Population (DOF E-5 Report)		64,500	65,788	6.25	1.25
Covell Village High Density Projected Population (See Notes Below)		5,671		0.54	0.71
<p>1) Sewered Population includes County residents: El Macero 1,050 North Davis Meadows 238</p> <p>2) The nonresidential flow contribution is office/retail employees and students but the contribution from CV nonresidential including HS students is ignored. This is because more Davis residents commute out of town than employees commuting into town, and the students are counted in the general population. Therefore, it is conservative to ignore CV nonresidential and high school student body.</p> <p>3) Population based on Table 4.13-11 Projected Population Growth Generated by the Covell Village Project (Dated 10/11/04, Prepared by Raney Planning and Management and Bay Area Economics). Also includes 14 person Hospice and 58 person Hotel facilities.</p>					

Water Demand Calculation for Existing City Distribution System		
	Pumping Rates for Jul-Aug per Tech Memo by Bob Schoech, Aug 17,2004	
Well No.	gpm	MGD
1	860	1.2
7	989	1.4
11	1,319	1.9
12	816	1.2
14	1,004	1.4
15	1,119	1.6
19	1,343	1.9
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EM2	1,007	1.5
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4 MG Tank not included in Totals	3,750 gpm not in Totals	5.4 MGD not in Totals
Totals, 4 MG Tank not included	26,945	38.8
Firm Capacity(one average well out of service)	25,662	37.0
Maximum Day Factor applied to average day		2.00
4,500 gpm Fire Flow Demand (4 hour period, but expressed as total flow rate), MGD		6.48
Peak Hour Factor applied to average day		3.00
Existing City Per Capita and Peak Calculations Using 2003 Data		
2003 city population per DOF E-5 Report		63,506
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2003 Willowbank population		305
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2003 Well Production, million gallons		4,740
2003 Average Annual per Person per Day, aagpcd		204
2003 Average Daily Demand		12.99
2003 Peak Day (factor 2.0 plus fire flow), MGD		32.5
2003 Peak Hour (factor 3.0), MGD		39.0
2003 Ratio Existing Firm Capacity to Peak Day		1.14
2003 Ratio Existing Firm Capacity to Peak Hour		0.95

CV Water Demand and Necessary Supply, Proposed Project			
(calculations based upon gross population of living units)			
Type Occupancy	Amount	Occupancy	Million Gallons per Day, MGD
Covell Village SF	893	2.64	0.480
Covell Village MF Apartments	289	4.00	0.235
Covell Village MF Co-Hosing/6-Plex	54	1.80	0.020
Senior Housing	185	1.75	0.066
Live/Work	14	4.00	0.011
Within Village Center	80	4.00	0.065
Senior Core Care - 130 beds	130	130	0.026
High School students		250	
Fire Station employees	1	20	0.004
59 Room Hotel	58	58	0.012
Hospice - 16 Beds	16	16	0.003
Open Space, acres (4 feet annually)		18.00	
Commercial employees		500	
Subtotal DU and population	1720	4534	
CV fully develeoped, Average Day			0.92
CV fully develeoped, Proportion of Fire Flow based on population			0.45
CV fully develeoped, Peak Day + fire flow			2.29
CV fully develeoped, Peak Hour			2.77
2004 Population without CV (with El Macero & W		65,827	
2004 Average Day without CV			13.40
2004 Peak Day + fire without CV			33.29
2004 Peak Hour without CV			40.21
2004 Average Day, CV fully developed + city			14.33
2004 Peak Day + fire, CV fully developed + city			35.14
2004 Peak Hour, CV fully developed + city			42.98
CV + city, Ratio Firm to Average Day			2.58
CV + city, Ratio Firm to Peak Day + fire			1.05
CV + city, Ratio Firm to Peak Hour			0.86
CV Peak Hour deficiency, MGD			2.77
CV Peak Hour deficiency, gpm			1900

Water Demand Calculation for Existing City Distribution System		
Pumping Rates for Jul-Aug per Tech Memo by Bob Schoech, Aug 17,2004		
Well No.	gpm	MGD
1	860	1.2
7	989	1.4
11	1,319	1.9
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14	1,004	1.4
15	1,119	1.6
19	1,343	1.9
20	1,127	1.6
21	1,165	1.7
22	1,017	1.5
23	1,763	2.5
24	1,808	2.6
25	1,145	1.6
26	1,432	2.1
27	990	1.4
28	760	1.1
29	1,231	1.8
30	2,537	3.7
(available Feb 2004) 31	2,540	3.7
EM2	1,007	1.5
EM3	973	1.4
4 MG Tank not included in Totals	3,750 gpm not in Totals	5.4 MGD not in Totals
Totals, 4 MG Tank not included	26,945	38.8
Firm Capacity(one average well out of service)	25,662	37.0
Maximum Day Factor applied to average day		
		2.00
4,500 gpm Fire Flow Demand (4 hour period, but expressed as total flow rate), MGD		
		6.48
Peak Hour Factor applied to average day		
		3.00
Existing City Per Capita and Peak Calculations Using 2003 Data		
2003 city population per DOF E-5 Report		63,506
2003 EI Macero population		1,050
2003 Willowbank population		305
2003 North Davis Meadows not connected to city distribution grid		0
2003 Service Population for Water Supply		63,776
2003 Well Production, million gallons		4,740
2003 Average Annual per Person per Day, aagpcd		204
2003 Average Daily Demand		12.99
2003 Peak Day (factor 2.0 plus fire flow), MGD		32.5
2003 Peak Hour (factor 3.0), MGD		39.0
2003 Ratio Existing Firm Capacity to Peak Day		1.14
2003 Ratio Existing Firm Capacity to Peak Hour		0.95

CV Water Demand and Necessary Supply, High Density Alternative			
(calculations based upon gross population of living units)			
Type Occupancy	Amount	Occupancy	Million Gallons per Day, MGD
Covell Village SF	1236	2.64	0.66
Covell Village MF Apartments	289	4.00	0.24
Covell Village MF Co-Hosing/6-Plex	371	1.80	0.14
Senior Housing	0	1.75	0.00
Live/Work	14	4.00	0.01
Within Village Center	80	4.00	0.07
Senior Core Care - 130 beds	130	130	0.03
High School students		250	
Fire Station employees	1	20	0.00
59 Room Hotel	58	58	0.01
Hospice - 16 Beds	0	0	0.00
Open Space, acres (4 feet annually)		18.00	
Commercial employees		500	
Subtotal DU and population	2179	5671	
CV fully develeoped, Average Day			1.15
CV fully develeoped, Proportion of Fire Flow based on population			0.56
CV fully develeoped, Peak Day + fire flow			2.87
CV fully develeoped, Peak Hour			3.46
2004 Population without CV (with El Macero & W		65,827	
2004 Average Day without CV			13.40
2004 Peak Day + fire without CV			33.29
2004 Peak Hour without CV			40.21
2004 Average Day, CV fully developed + city			14.56
2004 Peak Day + fire, CV fully developed + city			35.60
2004 Peak Hour, CV fully developed + city			43.68
CV + city, Ratio Firm to Average Day			2.54
CV + city, Ratio Firm to Peak Day + fire			1.04
CV + city, Ratio Firm to Peak Hour			0.85
CV Peak Hour deficiency, MGD			3.46
CV Peak Hour deficiency, gpm			2400

UPDATED BY CEC -10/20/04 - COVELL VILLAGE PROPOSED PROJECT					
Unit Sewer Discharges and Future Flows to WWTP					
Date	Source	Population	Sewered Population @ WWTP	Dry Weather Flow in MGD or Unit Values	
Jan 1 2002	Davis, DOF E-5 Report	63,235	64,285		
Jan 1 2003	Davis, DOF E-5 Report	63,776	64,826		
July 2002 Dry Weather Flow					5.30
Aug 2002 Dry Weather Flow					5.31
Sept 2002 Dry Weather Flow					5.69
Oct 2002 Dry Weather Flow					5.68
Average Sept & Oct Dry Weather Flow					5.69
Average Population 2002 & 2003 for 2002 flows		63,506	64,556		
2002 Per Capital Discharge, gpcd					88.1
1995 Facilities Plan by West Yost Assoc Design or Projection Value, gpcd					100.0
					95.0
Compute Remaining WWTP Capacity					
				MGD	Remaining Capacity, MGD
Current Dry Weather WWTP Capacity				7.50	
Use Design or Projection Value, gpcd		95.0			
2004 Estimated Davis Population (DOF E-5 Report)		64,500	65,550	6.23	1.27
Covell Village Projected Population (See Notes Below)		4,534		0.43	0.84
<p>1) Sewered Population includes County residents: El Macero 1,050 North Davis Meadows 238</p> <p>2) The nonresidential flow contribution is office/retail employees and students but the contribution from CV nonresidential including HS students is ignored. This is because more Davis residents commute out of town than employees commuting into town, and the students are counted in the general population. Therefore, it is conservative to ignore CV nonresidential and high school student body.</p> <p>3) Population based on Table 4.13-11 Projected Population Growth Generated by the Covell Village Project (Dated 10/11/04, Prepared by Raney Planning and Management and Bay Area Economics). Also includes 14 person Hospice and 58 person Hotel facilities.</p>					