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LOS ANGELES COUNTY WATERWORKS
DISTRICT NO. 40

**EXEMPT FROM FILING FEES
UNDER GOVERNMENT CODE
SECTION 6103**

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COUNTY WATERWORKS DISTRICT NO. 40

SUPERIOR COURT OF THE STATE OF CALIFORNIA
COUNTY OF LOS ANGELES

**ANTELOPE VALLEY
GROUNDWATER CASES**

Included Actions:
Los Angeles County Waterworks District
No. 40 v. Diamond Farming Co., Superior
Court of California, County of Los
Angeles, Case No. BC 325201;

Los Angeles County Waterworks District
No. 40 v. Diamond Farming Co., Superior
Court of California, County of Kern, Case
No. S-1500-CV-254-348;

Wm. Bolthouse Farms, Inc. v. City of
Lancaster, Diamond Farming Co. v. City of
Lancaster, Diamond Farming Co. v.
Palmdale Water Dist., Superior Court of
California, County of Riverside, Case Nos.
RIC 353 840, RIC 344 436, RIC 344 668

Judicial Council Coordination No. 4408

CLASS ACTION

Santa Clara Case No. 1-05-CV-049053
Assigned to The Honorable Jack Komar

**DECLARATION OF Lawrence J. Schilling
IN LIEU OF DEPOSITION TESTIMONY
FOR PHASE 4 TRIAL**

DECLARATION

I, Lawrence J. Schilling, declare:

1. I am Trustee for The L & M Schilling 1992 Family Trust, a party to this action.

In lieu of deposition testimony for the Phase 4 trial, I am providing this declaration. This declaration applies only to the categories I have filled in. The items left blank or crossed out do not apply to me. I have personal knowledge of each fact herein and would testify competently thereto under oath.

Property Ownership and Parcel Size

2. The L & M Schilling 1992 Family Trust owns property that overlies the Antelope Valley Area of Adjudication as decided by this Court. The land is in Los Angeles County and is identified by the following APN/APNs:

3310-004-012; 3310-004-011; 3060-019-029

[If additional room is needed, please identify the APN/APNs in Exhibit A.] A true and correct copy of Exhibit A is attached hereto and incorporated herein.

3. The L & M Schilling 1992 Family Trust claims groundwater rights only as to the properties listed in Paragraph 2 and Exhibit A.

4. For each APN/APNs identified above, the total acreage by parcel is as follows:

3310-004-012 (5.15 Acres); 3310-004-011 (5.15 Acres); 3060-019-029 (40 Acres)

[If additional room is needed, please identify the APN/APNs and parcel size in Exhibit B.] A true and correct copy of Exhibit B is attached hereto and incorporated herein.

5. For each APN/APNs identified above The L & M Schilling 1992 Family Trust owned the property during the following time period:

3310-004-012: Lawrence J. Schilling and Mary P. Schilling, June 1983 - Nov 1992 (prior to trust); The L & M Schilling 1992 Family Trust, Nov 1992 to present.

3310-004-011: Jan 2006 to present.

3060-019-029: May 2006 to present.

6. The following are all individuals/entities appearing on the title for the above identified

1 APN/APNS from Jan 1, 2000 to the present:

2 **The L & M Schilling 1992 Family Trust.**

3 **Duane C. Silver Revocable Family Trust.**

4 7. For each individual/entity identified in paragraph 6 that individual/entity appeared on the
5 title during the following time:

6 **3310-004-012: Lawrence J. Schilling and Mary P. Schilling, June 1983 - Nov 1992 (prior to**
7 **trust); The L & M Schilling 1992 Family Trust, Nov 1992 to present.**

8 **3310-004-011: Duane C. Silver Revocable Family Trust, unknown till Jan 2006; The L & M**
9 **Schilling 1992 Family Trust, Jan 2006 to present.**

10 **3060-019-029: Duane C. Silver Revocable Family Trust, unknown till May 2006; The L &**
11 **M Schilling 1992 Family Trust, May 2006 to present.**

12
13 **Leases**

14 8. _____ (declarant or party affiliated with declarant) leases property that
15 _____ own and that overlies the Antelope Valley Area of Adjudication as
16 decided by this court and identified by the following APNS:

17 _____.

18 9. The total acreage by parcel is:

19 _____.

20 10. The property is currently leased to:

21 _____.

22 11. The property was leased on the following dates:

23 _____.

24 12. The lease provides that _____ may claim groundwater rights from the use of
25 water on the leased property. Attached to this declaration is a true and correct copy of the lease.

26
27 [If additional room is needed, please list APN/APNs, acreage by APN, Lessee by APN and dates
28 for each Lessee by APN for each parcel in Exhibit C.] A true and correct copy of Exhibit C is

1 attached hereto and incorporated herein.

2
3 13. _____ leases property from _____ which overlies the
4 Antelope Valley Area of Adjudication as decided by this court and is identified by the following
5 APNS:

6 _____
7 14. The total acreage by parcel is:
8 _____

9 15. The Lease provides that _____ may claim groundwater rights from use of
10 water on leased property. Attached to this declaration is a true and correct copy of the lease.

11
12 [If additional room is needed, please attach APN/APNs, Name of the Lessor and acreage by APN
13 for each parcel list in Exhibit D to this declaration.] A true and correct copy of Exhibit D is
14 attached hereto and incorporated herein.

15 16. _____ claims groundwater rights only as to the leasehold interests listed
16 in Paragraph 15 and Exhibit D.

17 17. _____ claims groundwater rights only as to the properties listed in
18 Paragraph 2 and Exhibit A and as to the leasehold interests listed in Paragraph 8 and Exhibit C.

19 18. To the best of my knowledge, only _____ claims groundwater rights as to the
20 leased parcel(s) identified in paragraph 15 and Exhibit D.

21 **Water Meter Records**

22 19. _____ measures the groundwater production on the above referenced
23 properties by water meters. Exhibit E contains the records for these water meters for the
24 following years:

25 _____
26 A true and correct copy of Exhibit E is attached hereto and incorporated herein.

27 20. Exhibit F sets forth the total yearly production amounts by metered water well on the
28 above referenced properties for the years 2000-2004, 2011, and 2012. A true and correct copy of

Exhibit F is attached hereto and incorporated herein.

State Water Project Purchases

21. _____ purchases State Water Project water from a State Water Contractor for use by _____ on the properties referenced above. Exhibit G contains true and correct copies of the invoices for delivery of State Water Project Water to the properties referenced above.

22. Exhibit H sets forth the total yearly State Water Project water deliveries to the properties referenced above for the years 2000-2004, 2011, and 2012. A true and correct copy of Exhibit H is attached hereto and incorporated herein.

Pump Tests/ Electric Records

23. In order to calculate groundwater pumped and used on the properties referenced above, ~~The L & M Schilling 1992 Family Trust~~ relied on ~~pump tests and electric records~~ an hour meter (timer) and manufacturer's pump performance data. Exhibit I contains true and correct copies of the ~~pump test records and electrical records~~ hour meter readings and manufacturer's pump performance data for wells on the properties referenced above. ~~The electric records attached to this declaration as Exhibit I do not include electric use on the properties referenced above for anything other than pumping groundwater.~~

24. Exhibit J sets forth the amount of total yearly groundwater that The L & M Schilling 1992 Family Trust estimates was pumped and used on the properties referenced above for the years 2000-2004, 2011, and 2012 based on the attached ~~pump test records and electrical records~~ hour meter and manufacturer's pump performance data for the wells on the properties referenced above. A true and correct copy of Exhibit J is attached hereto and incorporated herein.

25. Pump tests were performed on the following dates:

None

26. The L & M Schilling 1992 Family Trust is not producing pump test records ~~for the following dates~~ because:

Formal pump tests were not conducted for this standard domestic well pump/motor combination.

27. I am not aware of any other pump tests having been performed on the properties referenced above.

Pump Tests/Diesel Records

28. In order to calculate groundwater pumped and used on the properties referenced above, _____ relied on pump tests and diesel fuel records. Exhibit K contains true and correct copies of the records pertaining to pump tests and diesel fuel purchases for the properties referenced above. The diesel fuel records attached to this declaration as Exhibit K do not include diesel fuel used on the properties referenced above for anything other than pumping groundwater.

29. Exhibit L sets forth the amounts of total yearly groundwater pumped and used on the properties referenced above for the years 2000-2004, 2011, and 2012. A true and correct copy of Exhibit L is attached hereto and incorporated herein.

30. Pump tests were performed on the following dates:

_____.

31. _____ is not producing pump test records for the following dates _____ because:

_____.

32. I am not aware of any other pump tests having been performed on the properties referenced above.

Crop Duties and Irrigated Acres

33. In order to calculate water use on the properties referenced above, _____ relies on the amount of acres in irrigation on the properties referenced above multiplied by the crop duty identified in the Summary Expert Report, Appendix D-3: Table 4, a true and correct copy of which is attached to this declaration as Exhibit M.

34. The total amount of irrigated acres and type of crops on the properties referenced above by APN for the years 2000-2004, 2011 and 2012 are described in Exhibit N. A true and correct copy of Exhibit N is attached hereto and incorporated herein.

Other Sources of Water

35. On the properties referenced above, _____ received water from sources other than groundwater pumped within the Basin or State Water Project Water. Exhibit O sets forth the source of the water and the amounts received for the years 2000-2004, 2011, and 2012.

Use of Water *(Complete for each APN. If water for used for multiple purposes, identify the amount of water for each use.)*

36. The L & M Schilling 1992 Family Trust used 3.7 acre feet of water on APN#3310-004-012 in 2000. The water was used for the following:

Domestic household use plus irrigation of trees, shrubbery, lawn and other vegetation. No crops were raised.

The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3310-004-011 in 2000.

The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3060-019-029 in 2000.

[State the crop type and number of acres of that crop. If not used for irrigation, describe the use. In lieu of answering this question, a crop map may be attached that shows the date, crop type, irrigated acreage and parcels.]

37. The L & M Schilling 1992 Family Trust used 4.0 acre feet of water on APN#3310-004-012 in 2001. The water was used for the following:

Domestic household use plus irrigation of trees, shrubbery, lawn and other vegetation. No crops were raised.

The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3310-004-011 in 2001.

The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3060-019-029 in 2001.

[State the crop type and number of acres of that crop. If not used for irrigation, describe the use. In lieu of answering this question, a crop map may be attached that shows the date, crop type, irrigated acreage and parcels.]

1 38. The L & M Schilling 1992 Family Trust used 4.4 acre feet of water on APN#3310-
2 004-012 in 2002. The water was used for the following:

3 Domestic household use plus irrigation of trees, shrubbery, lawn and other vegetation. No crops
4 were raised.

5 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3310-004-011
6 in 2002.

7 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3060-019-029
8 in 2002.

9 [State the crop type and number of acres of that crop. If not used for irrigation, describe the use.

10 In lieu of answering this question, a crop map may be attached that shows the date, crop type,
11 irrigated acreage and parcels.]

12 39. The L & M Schilling 1992 Family Trust used 4.9 acre feet of water on APN#3310-
13 004-012 in 2003. The water was used for the following:

14 Domestic household use plus irrigation of trees, shrubbery, lawn and other vegetation. No crops
15 were raised.

16 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3310-004-011
17 in 2003.

18 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3060-019-029
19 in 2003.

20 [State the crop type and number of acres of that crop. If not used for irrigation, describe the use.

21 In lieu of answering this question, a crop map may be attached that shows the date, crop type,
22 irrigated acreage and parcels.]

23 40. The L & M Schilling 1992 Family Trust used 4.5 acre feet of water on APN#3310-
24 004-012 in 2004. The water was used for the following:

25 Domestic household use plus irrigation of trees, shrubbery, lawn and other vegetation. No crops
26 were raised.

27 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3310-004-011
28 in 2004.

1 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3060-019-029
2 in 2004.

3 [State the crop type and number of acres of that crop. If not used for irrigation, describe the use.
4 In lieu of answering this question, a crop map may be attached that shows the date, crop type,
5 irrigated acreage and parcels.]

6 41. The L & M Schilling 1992 Family Trust used 3.4 acre feet of water on APN#3310-
7 004-012 in 2011. The water was used for the following:

8 Domestic household use plus irrigation of trees, shrubbery, lawn and other vegetation. No crops
9 were raised.

10 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3310-004-011
11 in 2011.

12 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3060-019-029
13 in 2011.

14 [State the crop type and number of acres of that crop. If not used for irrigation, describe the use.
15 In lieu of answering this question, a crop map may be attached that shows the date, crop type,
16 irrigated acreage and parcels.]

17 42. The L & M Schilling 1992 Family Trust used 3.8 acre feet of water on APN#3310-
18 004-012 in 2012. The water was used for the following:

19 Domestic household use plus irrigation of trees, shrubbery, lawn and other vegetation. No crops
20 were raised.

21 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3310-004-011
22 in 2012.

23 The L & M Schilling 1992 Family Trust used 0.0 acre feet of water on APN#3060-019-029
24 in 2012.

25 [State the crop type and number of acres of that crop. If not used for irrigation, describe the use.
26 In lieu of answering this question, a crop map may be attached that shows the date, crop type,
27 irrigated acreage and parcels.]

28 43. Other than what is declared hereinabove, The L & M Schilling 1992 Family Trust did not

1 produce or use water within the Antelope Valley Area of Adjudication for 2000-2004, 2011, and
2 2012.

3
4 I declare under penalty of perjury under the laws of the State of California that the
5 foregoing is true and correct. Executed this 12 day of April 2013, at Lancaster, California.

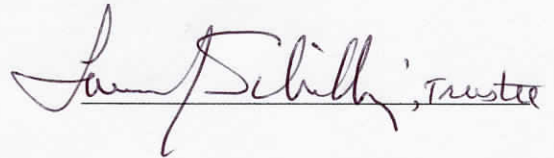
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7  Sam Schilly, Trustee
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EXHIBIT "I"

EXHIBIT "I", Table 1. Recorded Hour Meter Readings

<u>Date</u>	<u>Hour Meter</u>	<u>Comment</u>
12/31/99	9005.4	
4/02/00	9184.4	
6/02/00	9352.8	
7/01/00	9469.6	
8/06/00	9668.5	
8/31/00	9804.6	
9/30/00	9922.1	
11/03/00	10054.6	
12/03/00	10158.0	
1/01/01	10236.3	estimated
2/04/01	10328.2	
2/25/01	10380.8	
4/01/01	10473.3	
5/01/01	10549.3	
5/30/01	10646.8	
7/01/01	10778.3	
7/31/01	10934.2	
9/25/01	11236.2	
11/11/01	11423.9	
12/02/01	11484.6	corrected
12/31/01	11558.7	corrected
3/10/02	11735.0	corrected
4/11/02	11822.5	corrected
5/02/02	11885.3	corrected
6/02/02	11981.9	corrected
7/13/02	12138.2	corrected
8/02/02	12260.5	corrected
9/21/02	12571.0	corrected
10/26/02	12762.5	corrected, new hour meter installed
11/02/02	35.7	
12/01/02	158.1	
1/01/03	238.7	
3/23/03	467.4	
5/04/03	635.5	
5/31/03	762.1	
7/03/03	965.8	
8/10/03	1191.6	
9/01/03	1330.4	
10/15/03	1608.4	
10/26/03	1656.0	

1	12/21/03	1836.7	
2	12/26/03	1848.3	
3	1/01/04	1859.4	
4	3/28/04	2005.9	
5	4/25/04	2092.3	
6	5/02/04	2114.8	
7	6/13/04	2304.4	
8	8/11/04	2656.5	
9	10/12/04	3041.6	
10	10/31/04	3140.2	
11	11/21/04	3200.4	
12	12/30/04	3324.9	
13	1/01/05	3325.4	
14			
15			Readings for 2006-2010 omitted
16			
17	1/01/11	10612.1	
18	1/09/11	10613.4	
19	3/11/11	10700.4	
20	3/19/11	10715.4	
21	4/17/11	10770.7	
22	5/14/11	10844.1	
23	6/08/11	10926.1	
24	6/23/11	10982.9	
25	7/20/11	11113.4	
26	7/25/11	11149.6	
27	9/13/11	11419.0	
28	9/18/11	11438.3	
29	10/06/11	11515.0	
30	10/10/11	11532.2	
31	11/12/11	11641.5	
32	12/26/11	11704.7	
33	1/01/12	11715.8	estimated
34	3/18/12	11858.0	
35	3/28/12	11880.0	
36	4/05/12	11898.5	
37	4/15/12	11927.0	
38	5/05/12	11988.4	
39	5/11/12	12005.9	
40	5/30/12	12068.4	
41	6/02/12	12082.1	
42	6/17/12	12141.4	
43	6/22/12	12168.9	
44	7/12/12	12256.1	
45	7/22/12	12308.9	
46	9/25/12	12670.9	
47	10/06/12	12722.2	
48	10/08/12	12730.4	

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10/27/12	12798.7	
11/04/12	12818.9	
11/14/12	12849.1	
12/08/12	12908.3	
1/01/13	12960.1	

EXHIBIT "I", Table 2, Manufacturer's Performance Data Chart.

16S EASY SELECTION CHART

PUMP MODEL		HP	PSI	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	340	400	460	520	600	700	800	900	1000	1100			
16S05-5	1/2	20	20.3	18.2	14.1	10.0	5.0																								
		30	17.3	14.4	8.0	1.6																									
		40	12.7	8.0	4.0																										
		50	6.5																												
		60	2.9																												
SHUT-OFF PSI:			58	49	40	32	23	14																							
16S07-8	3/4	0					20.5	19.2	17.5	15.8	12.8	9.8	5.2																		
		20			20.1	18.8	16.9	15.2	11.8	8.5	4.3																				
		30	21.2	19.9	18.4	16.9	14.3	11.8	7.5	3.2	1.6																				
		40	19.7	18.3	16.3	14.3	10.8	7.2	3.6																						
		50	17.9	16.3	13.5	10.7	6.2	1.7																							
SHUT-OFF PSI:			97	88	80	71	62	54	45	36	28	19	10																		
16S10-10	1	0					20.8	19.8	18.8	17.3	15.9	13.7	11.4	8.0	4.7																
		20			20.5	19.4	18.3	16.8	15.3	12.9	10.5	7.0	3.5	1.8																	
		30			20.3	19.3	18.1	16.8	14.8	12.8	9.8	6.7	3.3																		
		40		20.2	19.1	18.0	16.4	14.8	12.2	9.6	5.9	2.3																			
		50	20.0	19.0	17.7	16.3	14.2	12.0	8.8	5.6	2.8																				
SHUT-OFF PSI:			123	115	106	97	89	80	71	63	54	45	37	28	19	11															
16S15-14	1 1/2	0						21.0	20.3	19.6	18.8	18.0	16.9	15.8	14.3	10.7	3.3														
		20						20.1	19.3	18.5	17.7	16.6	15.4	13.8	12.2	10.0	5.1														
		30						20.7	20.0	19.2	18.4	17.4	16.5	15.1	13.7	11.8	9.8	7.3	2.4												
		40				20.6	19.8	19.1	18.3	17.4	16.0	15.0	13.3	11.6	9.3	7.0	4.3														
		50			20.4	19.8	18.9	18.2	17.2	16.1	14.7	13.2	11.2	9.1	6.5	3.9	2.0														
SHUT-OFF PSI:				167	158	149	141	132	123	115	106	97	89	80	71	63	54	37	28												
16S20-18	2	0									21.2	20.6	20.0	19.5	18.9	18.2	16.7	13.5	8.8	2.7											
		20									20.4	19.8	19.3	18.7	18.0	17.3	16.4	14.3	10.0	4.2											
		30									20.3	19.8	19.2	18.6	17.9	17.2	16.3	15.3	12.8	7.9	1.9										
		40								20.3	19.7	19.1	18.5	17.8	17.1	16.1	15.2	13.9	11.1	5.7											
		50						20.2	19.6	19.0	18.3	17.7	16.8	16.0	14.9	13.8	12.3	9.2	3.2												
SHUT-OFF PSI:						194	186	177	168	160	151	142	134	125	116	108	90	65	39	13											
16S30-24	3	0															19.6	18.3	16.5	14.2	9.8	2.1									
		20															20.3	19.9	19.5	18.6	17.0	14.8	11.8	6.5							
		30																20.3	19.8	19.4	19.0	18.0	16.3	13.7	10.4	4.7					
		40																20.2	19.8	19.3	18.9	18.4	17.3	15.3	12.5	8.9	2.8				
		50																20.2	19.8	19.3	18.8	18.3	17.8	16.7	14.3	11.3	7.3				
SHUT-OFF PSI:											20.1	19.7	19.2	18.8	18.3	17.8	17.2	15.8	13.3	9.8	5.5										
16S50-38	5	0																					21.5	20.4	18.7	16.5	13.4	8.9	2.1		
		20																					20.9	19.6	17.7	15.2	11.5	6.1			
		30																						21.4	20.5	19.2	17.2	14.5	10.5	4.5	
		40																							21.1	20.2	18.8	16.7	13.7	9.3	2.7
		50																								21.6	20.7	19.8	18.4	16.1	12.8
SHUT-OFF PSI:																							314	288	262	227	184	141	98	54	11

See 16S performance curves for higher head models.
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

EXHIBIT "J"

Acre-Feet Pumped per Year Estimates APN # 3310-004-012

Parameters: 16.5 gallons per minute (990 gallons per hour)

325851 gallons per acre-foot

<u>Year</u>	<u>Hours</u>	<u>Gallons</u>	<u>Acre-Feet</u>
2000	1231	1218690	3.7
2001	1322	1308780	4.0
2002	1443	1428570	4.4
2003	1621	1604790	4.9
2004	1466	1451340	4.5
2011	1104	1092960	3.4
2012	1244	1231560	3.8

Average for years 2000-2004, 2011-2012: 4.1 Acre-Feet

Acre-Feet Pumped per Year Estimates APN # 3310-004-011

0.0 for all years

Acre-Feet Pumped per Year Estimates APN # 3060-019-029

0.0 for all years

Calculation of Estimated water pumped for parcel APN # 3310-004-012.

The well on this parcel provides water for household use and irrigation of trees, shrubbery, lawn, and other vegetation. No commercial crops are raised. The well is 250 feet deep with the pump set at a depth of 210 feet. Current water depth is 156 feet. New pump/motors were installed in September of 1990 and July of 2005. Both units consisted of a submersible Grundfos 16S15-14 driven by an attached Franklin 1-1/2 horse electric motor.

An electronic hour meter has been attached to this well since July of 1987. This hour meter only runs when the pressure switch at the pressure tank energizes the pump. The date and meter

1 reading has been recorded periodically since 1987 and the annual hours of pumping are known
2 for each year since 1988.

3
4 The depth to pumping water level (lift) for this well has been measured periodically and is known
5 for the period.

6
7 Water use is dominated by irrigation of trees, shrubbery, lawn, and other vegetation. The steady-
8 state pumping pressure while irrigating has been observed at the pressure tank and recorded. The
9 pressure at the well cap has been measured to be 5 psi higher than that recorded at the pressure
10 tank (which is approximately 65 feet from the well) while pumping.

11
12 Knowing the pressure at the well cap and the depth to pumping water level (lift), the pump flow
13 rate can be determined from performance data provided by the manufacturer (Grundfos). Using
14 this pump flow rate and the annual hours of pumping, the amount of water pumped can be
15 estimated.

16
17 **Annual Hours of Operation**

18 Exhibit I, Table 1 contains the hour meter reading and date for each observation made for the
19 years 2000-2004 and 2011-2012. This data was obtained visually and entered in an Excel
20 spreadsheet. In those cases when an entry was not made at year-end, an estimate was made based
21 on the hour meter reading preceding and following year-end (as noted in the table). In October of
22 2002, it was discovered that the hour meter was faulty, with intermittent operation. Corrections
23 were made retroactively to the hour meter readings (as noted in the table) following this
24 discovery. The corrections were estimated based on the programmable irrigation controller
25 scheduled hours of operation. The hour meter was replaced on October 26, 2002. As a result, the
26 estimate for 2002 is based largely on corrected data.

27
28 From the hour meter readings recorded, the annual number of hours of operation in the years of

1 interest can be determined, as follows:

2

3

<u>Year</u>	<u>Hours of Operation</u>
2000	1231
2001	1322
2002	1443
2003	1621
2004	1466
2011	1104
2012	1244

6

7

8

9 **Flow Rate Determination**

10 To obtain flow rate from the manufacturer's chart, the depth to the water pumping level and the
11 pressure at the well cap are needed.

12

13 The standing water depth has been measured periodically. The results are:

14

<u>Date</u>	<u>Dept to Water Level</u>
7/25/00	151.5
10/26/02	152.8
5/15/04	152.9
7/20/05	153.7
6/16/07	154.4
7/02/09	154.7
6/02/12	156.3

18

19

20

21 Following installation of a new pump/motor in 1990, it was found by measurement that the water
22 level drops 4.8 feet during prolonged pumping. Therefore, the depth of water to the pumping
23 level ranges from 156.3 feet to 161.1 feet. The average value over the period is 158.7 feet. A
24 conservative value of 160 feet is used for obtaining flow rate from the manufacturer's chart.

25

26 The irrigation system for the trees, shrubbery, lawn and other vegetation consists of sprinklers
27 and bubblers controlled by 17 valves operated by a Hunter programmable controller. The steady-
28 state pressure for each station (valve) of the irrigation system has been determined. Since

1 pumping is heavily dominated by irrigation, a time-weighted average pressure has been
2 determined and is utilized as the basis for estimated pumping pressure.

3
4 The time weighted average pressure is calculated by multiplying the steady-state pressure for
5 each of the 17 stations (valves) by the weekly minutes of run time of that station. These values
6 are then summed together. Finally, the result is divided by total weekly run time. Typical
7 summer and winter watering schedules are shown in Exhibit J, Table 1. These schedules include
8 run times and steady state pressure measured at the pressure tank for each valve. The overall
9 time-weighted average pressure for each schedule is also shown. Average pressure in summer is
10 35.6 psi. In winter, it is 33.5 psi. Since more water is pumped in hot months than cold, the
11 annual average is weighted toward the summer value. The annual average pumping pressure is
12 estimated to be 35 psi.

13
14 It has been found that the pressure drops approximately 5 psi from the well cap to the pressure
15 tank (approximately 65 feet away) while pumping. Therefore, 5 psi must be added to the pressure
16 tank value to get well cap pressure for use in the manufacturer's performance chart. The result is
17 an estimate of 40 psi.

18
19 Exhibit I, Table 2 contains the manufacturer's performance chart. Expected flow rate can be read
20 directly from the chart for a depth of 160 feet and a pressure of 40 psi. That flow rate is 17.4
21 gallons per minute.

22
23 To account for pump wear and other variables, the value for flow rate from the chart was further
24 reduced (made more conservative) by 5% to 16.5 gallons per minute. This flow rate was used to
25 estimate the historic pumping for parcel APN # 3310-004-012.

EXHIBIT "J", Table 1, Typical Summer and Winter Watering Schedules

7/22/2012												
Setting 150%												
Program A (Lawn)												