TO: BOARD OF DIRECTORS

FROM: BRUCE BUEL

DATE: JUNE 19, 2009

AGENDA ITEM
C-1
JUNE 24, 2009

WIP AND SOUTHLAND UPGRADE PROJECT UPDATE

ITEM

Mike Nunley of AECOM Engineering re Waterline Intertie Project Update and Southland WWTF Upgrade Project [NO ACTION REQUESTED].

BACKGROUND

Mike Nunley is scheduled to summarize the attached reports.

RECOMMENDATION

Staff recommends that your Honorable Board receive the presentations and ask questions as appropriate.

ATTACHMENTS

- May Monthly Reports

T:\BOARD MATTERS\BOARD MEETINGS\BOARD LETTER\BOARD LETTER 2009\090624AECOM.DOC

AECOM

AECOM
1194 Pacific Street, Suite 100
San Luis Obispo CA 93401
T 805.542.9840 F 805.542.9990 www.aecom.com

Memorandum

Date:	June 22, 2009	
To:	Bruce Buel, General Manager – Nipomo Community Services District	
From:	Michael K. Nunley, PE	
Subject:	Waterline Intertie Project – Design Phase Status Report	
Distribution:	Josh Reynolds, PE	Eileen Shields
	Cesar Romero, PE	Jim Froelicher
	Peter Sevcik, PE	Jon Hanlon, PE

The Project Team has completed the following work items this month:

1. AECOM attended a meeting with Padre and ACOE to discuss the River and levee crossing and investigate the need for a 404 permit. The ACOE requested a Jurisdiction Determination request letter with the plan and profile of the crossing and the biological survey map. The letter will state that we believe the project is outside of the ACOE jurisdiction with regard to the 404 permit and request a response in agreement. Padre will provide a draft to the District.
2. Technical Memorandum #6 was completed and submitted to the District for review and comments.
3. The Draft Narrative Report was submitted to the District for review and comment.
4. Bids for potholing services were collected by AECOM and provided to the District along with a recommendation for award of contract. The District Board awarded a contract to MGE. Potholing is expected to begin in July.
5. AECOM submitted the 60% design plans and specifications for Bid Package #1 – Santa Maria River Crossing. Copies were delivered to the District, the peer reviewers, and the construction management team.
6. AECOM met with NCSD staff and legal council to discuss the prequalification process for HDD, and contract documents for all bid packages. Over the next month, AECOM will compile draft contract documents and an HDD prequalification package and submit them for review by District staff and legal support.

Schedule

The Project Schedule is attached.

Budget Status

As shown on the attached Design Budget and Invoice Summary, our fee earned matches the amount expended. This indicates we are on budget as of this date.

Yours Sincerely

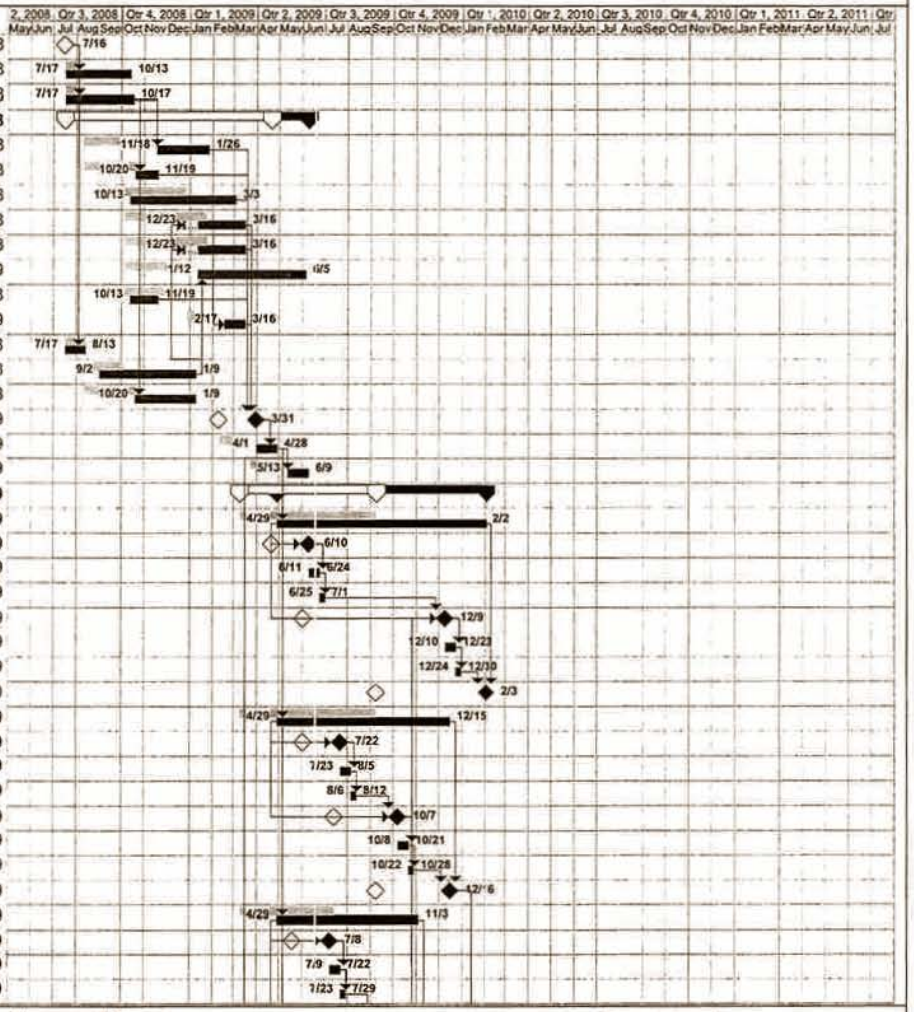
Michael K. Nunley, PE

Enclosures: Design Budget and Invoice Summary; Project Budget Summary; and Project Schedule

Print Date: Thu 6/18/09

NCSD WATERLINE INTERTIE PROJECT - Thu 6/18/09

ID	Task Name	Duration	Start
1	Kickoff meeting	1 day	Wed 7/16/08
2	Right of Entry Agreements and Coordination	63 days	Thu 7/17/08
3	Permitting and Approvals for Field Work at River	67 days	Thu 7/17/08
4	**Concept Design Report**	**234 days**	**Thu 7/17/08**
5	101 - Geotechnical Report for HDD Technical Memorandum	2.5 mons	Tue 11/18/08
6	102 - Project Bidding Strategy Technical Memorandum	1.15 mons	Mon 10/20/08
7	103 - Pipeline Alignment Technical Memorandum	102 days	Mon 10/13/08
8	104 - Pump Station Design Technical Memorandum	2.45 mons	Tue 12/23/08
9	105 - Reservoir Design Technical Memorandum	2.45 mons	Tue 12/23/08
10	106 - Permitting Strategy Technical Memorandum	5.25 mons	Mon 1/12/09
11	107 - Chloramination Systems Technical Memorandum	1.4 mons	Mon 10/13/08
12	108 - Back-up Power, Controls, and Instrumentation Technical Memorandum	1 mon	Tue 2/17/09
13	109 - Pressure Reduction Study	1 mon	Thu 7/17/08
14	110 - Survey and Base Map (by Wallace Group)	4.7 mons	Tue 9/2/08
15	111 - Geotechnical Report (by Fugro)	3 mons	Mon 10/20/08
16	112 - Draft Concept Report	1 day	Tue 3/31/09
17	113 Review and Finalize Concept Design Report	1 mon	Wed 4/1/09
18	114 - Narrative Report	1 mon	Wed 5/13/09
19	**Construction Plans and Specifications**	**201 days**	**Wed 4/29/09**
20	**Bid Package 1 - HDD**	10 mons	Wed 4/29/09
21	60% Submittal	1 day	Wed 6/10/09
22	Peer Review	2 wks	Thu 6/11/09
23	District Review	1 wk	Thu 6/25/09
24	90% Submittal	1 day	Wed 12/9/09
25	Peer Review	2 wks	Thu 12/10/09
26	District Review	1 wk	Thu 12/24/09
27	100% Submittal	1 day	Wed 2/3/10
28	**Bid Package 2 - NCSD System Pipeline Improvements**	8.25 mons	Wed 4/29/09
29	60% Submittal	1 day	Wed 7/22/09
30	Peer Review	2 wks	Thu 7/23/09
31	District Review	1 wk	Thu 8/6/09
32	90% Submittal	1 day	Wed 10/7/09
33	Peer Review	2 wks	Thu 10/8/09
34	District Review	1 wk	Thu 10/22/09
35	100% Submittal	1 day	Wed 12/16/09
36	**Bid Package 3 - Blosser Road Water Main and Flow Meter**	6.75 mons	Wed 4/29/09
37	60% Submittal	1 day	Wed 7/8/09
38	Peer Review	2 wks	Thu 7/9/09
39	District Review	1 wk	Thu 7/23/09



Project: WIP Design Schedule
Date: Thu 6/18/09

Task | Progress | Baseline | Milestone
Baseline Milestone | Summary | Rolled Up Task | Rolled Up Milestone
Baseline Summary | Rolled Up Baseline | Rolled Up Baseline Milestone | Rolled Up Progress
Split | Baseline Split | External Tasks | Project Summary
Group By Summary | Deadline

AECOM

Project Budget Summary

5/29/2009

Engineering Services for NCSD - SWP Desigr **Nipomo CSD**

	Total Budget	Amount Previously Invoiced	Current Invoice Amount	% of Budget Earned to date	% of Work Complete
Task Group 1 - Concept Design Report	$426,361.00	$426,361.00	$0.00	100%	100%
Task Group 2 - Permitting	$30,607.00	$25,658.22	$1,506.60	89%	89%
Task Group 3 - Construction Documents	$350,691.00	$95,863.57	$78,711.21	50%	50%
Task Group 4 - Project Management	$43,520.00	$36,522.08	-$4,842.45	73%	73%
Task Group 5 - Assistance During Bids	$48,942.00	$0.00	$0.00	0%	0%
Task Group 6 - Office Engineering During Construction (5 Bid Packages)	$175,837.00	$0.00	$0.00	0%	0%
Total	$1,075,958.00	$584,404.87	$75,375.36	61%	61%

	Amount Previously Invoiced	Current Invoice Amount	Total Permitting Fees to date
Permitting Fees	$1,572.91	$0.00	$1,572.91

Nipomo CSD

Date Printed: 6/18/2009

Waterline Intertie Project

Opinion of Probable Project Costs from Concept Design Report (April 2009)

Table 8.1 – Opinion of Probable Project Costs

Item	Description	Budgeted Amount May 2008 Preliminary Engineering Memo.	Updated Amount 22-Apr-09 Concept Design Report
1	Mobilization	$580,000	$607,000
2	Blosser Extension (18-in)	$1,247,000	$1,129,000 -
3	Pump Station No. 1 turnout & meter (Blosser Rd)	$61,000	$158,000
4	River Crossing (24-in HDD & levee jack & bore)	$6,135,000	$5,462,500
5	24-in Pipeline to Joshua	$656,000	$400,000
6	Reservoir (0.5-MG)	$1,361,000	$1,365,000
7	Pump Station No. 2	$603,000	$1,572,500
8	Pressure Regulators (200 homes)	$30,000	--
9	Pressure Reducing Valve Stations	$18,000	$243,000
10	Chloramination (Joshua & 5 wellheads)	$707,000	$739,500
11	Upgrade Southland to 12-in	$799,500 (1)	$849,000 (7)
12	Upgrade Frontage to 12-in	$1,101,300 (1)	$957,000 (7)
13	Upgrade Orchard to 12-in	$509,000	$1,103,500 (8)
14	Upgrade Division to 10-in between Allegre and Meridian (6)	$53,000	--
15	Oakglen Avenue 12-in main (5)	--	$457,000
16	Darby Lane 12-in main (5)	--	$153,000
17	HWY 101 Bore & Jack (5)	--	$241,000
18	Isolation Valves (5)	--	$12,000
19	Pump Station All Weather Access Road	--	$128,000
	Construction Subtotal	**$13,860,800**	**$15,577,000**
20	Contingency	$3,643,000	$3,115,400 (10)
	Construction Subtotal + Contingency	**$17,503,800**	**$18,692,400**
21	Property Allowance	*not included* (4)	$500,000 (4)
22	Design-Phase Engineering		
	Original Agreement (July 2008)		$744,993
	Budget Revision 1 - Pressure Reduction		$132,798
	Budget Revision 2 - Biological Survey for HDD		$4,050
	Budget Revision 3 - Modeling for GSW/Woodlands Turnouts		$8,380
	Budget Revision 4 - Additional Survey Services		$9,900
23	Office Engineering during construction		$175,837
24	Estimated Construction Management (3)	$2,428,000 (2)	$1,507,170 (9)
25	Permitting Fees To Date	--	$1,573
26	Non-Final Design Funds Spent To Date	*not included*	$1,402,879 (11)
27	Estimated Other Costs (Assessment, etc)	*not included*	$415,420 (11)
	PROJECT TOTAL (Rounded to 1000)	**$19,932,000**	**$23,596,000**

Table 8.1 (continued)

Table 8.1 Notes:

ENR CCI: March 2008 = 8109; March 2009 = 8534

(1) Costs are from the December 2007 Water and Sewer Master Plan (Cannon).

(2) Engineering and Construction Management were originally presented as a "lump sum" amount

(3) Includes material testing, construction staking, and environmental monitoring

(4) Estimate only. Item not included in previous construction cost opinions, but was added to the Concept Design Report to provide a complete assessment of anticipated project costs.

(5) These work items were added to relieve high pressures on Mesa as an alternative to service pressure regulating valves (See Tech Memo 9). One PRV station at Maria Vista was required initially. Four are recommended for revised project. This was design Budget Revision #1.

(6) Based on review of record drawings, this pipeline is already a 10-in main

(7) Initial estimate incorporated Master Plan project costs. Revised estimate includes higher unit costs to reflect paving 1 traffic lane, per County standards

(8) Updated unit costs include higher costs to reflect paving 1 traffic lane, per County standards

(9) To be provided by CM team - Has not been revised to reflect additional work for construction management of Oakglen, Darby, and Orchard extensions.

(10) Contingency was modified to 20% which is more appropriate for 30% design phase.

(11) Provided by District staff.

not included = Item was not included in previous construction cost opinions, but was added into the Concept Design Report to provide a complete assessment of anticipated project costs.

AECOM

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Memorandum

Date:	June 22, 2009
To:	Bruce Buel, General Manager – Nipomo Community Services District
From:	Michael K. Nunley, PE
Subject:	Southland WWTF Upgrade Project – Design Phase Status Report

Distribution:	Josh Reynolds, PE	Eileen Shields
	Peter Sevcik, PE	Jim Froelicher
	Jon Hanlon, PE	

The Project Team has completed the following work items this month:

1. AECOM attended a meeting with District staff and the District's EIR consultant to discuss the project upgrades and future equipment uses and the potential for California Red-Legged Frog (CRLF) habitat in the project area. The EIR Consultant will provide a proposed scope of work and fee for CLRF surveys.
2. AECOM returned comments on the internal draft of the Preliminary Geotechnical Report to Fugro.

Schedule

The Project Schedule is attached.

Budget Status

The Invoice Summary is attached. The Invoice Summary shows 2% complete, which is consistent with the work completed to date. The project cost opinion has not been updated since the January 2009 Master Plan. A project budget summary table was prepared and submitted recently to the District staff for feedback. The project budget summary will be included with the July Progress Report.

Yours Sincerely

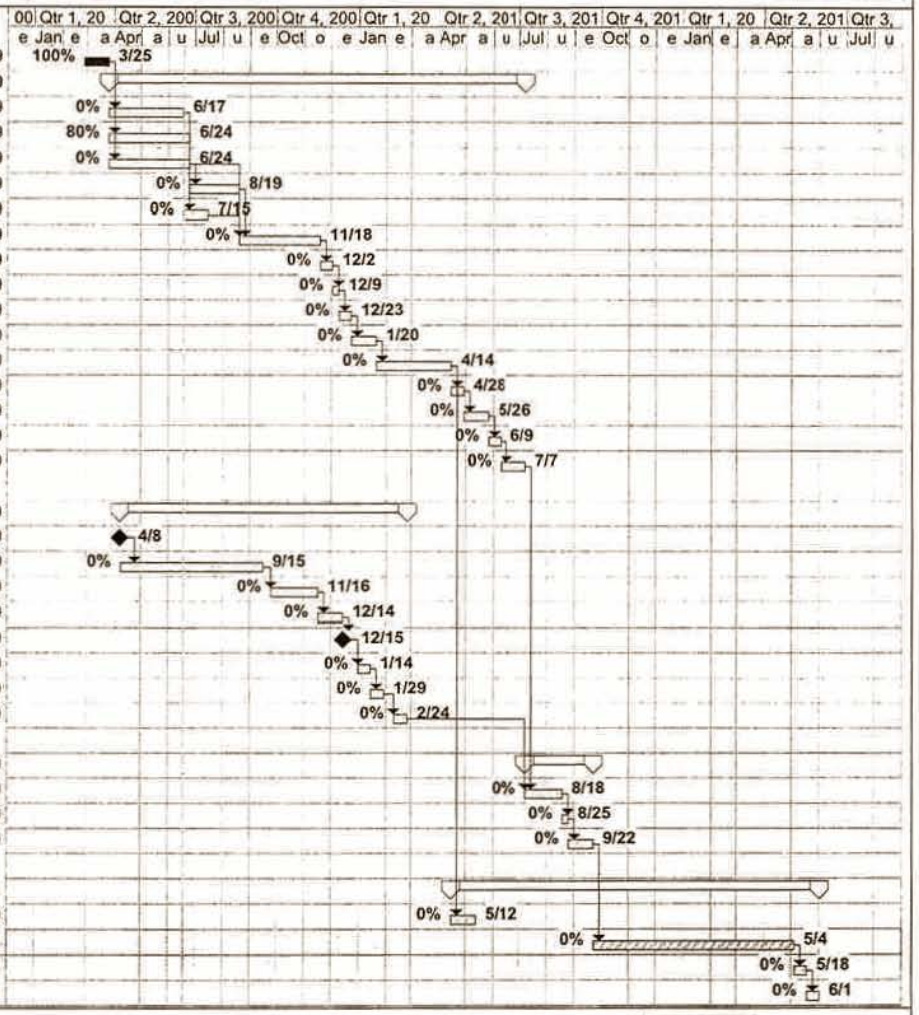
Michael K. Nunley, PE

Enclosures: Project Schedule
Invoice Summary
Project Budget Summary (pending)

Southland WWTF Design Schedule

Thu 6/18/09

ID	Task Name	Duration	Start	Finish
1	Negotiation and Notice to Proceed	20 days	Thu 2/26/09	Wed 3/25/09
2	**Design**	**335 days**	**Thu 3/26/09**	**Wed 7/7/10**
3	Survey	60 days	Thu 3/26/09	Wed 6/17/09
4	Preliminary Soils Report	65 days	Thu 3/26/09	Wed 6/24/09
5	Draft Site Plan	65 days	Thu 3/26/09	Wed 6/24/09
6	Draft Soils Report	40 days	Thu 6/25/09	Wed 8/19/09
7	Operations Plan - TM 1	20 days	Thu 6/18/09	Wed 7/15/09
8	Administrative Draft Concept Report	65 days	Thu 8/20/09	Wed 11/18/09
9	District Review	10 days	Thu 11/19/09	Wed 12/2/09
10	Draft Concept Report	5 days	Thu 12/3/09	Wed 12/9/09
11	District / Peer Review	10 days	Thu 12/10/09	Wed 12/23/09
12	Final Concept Report	20 days	Thu 12/24/09	Wed 1/20/10
13	60% Plans, Specifications, and Estimates	60 days	Thu 1/21/10	Wed 4/14/10
14	District / Peer Review	10 days	Thu 4/15/10	Wed 4/28/10
15	95% Plans, Specifications, and Estimates	20 days	Thu 4/29/10	Wed 5/26/10
16	District / Peer Review	10 days	Thu 5/27/10	Wed 6/9/10
17	Final Plans, Specifications, and Estimates	20 days	Thu 6/10/10	Wed 7/7/10
18				
19	**Environmental Impact Report**	**231 days**	**Wed 4/8/09**	**Wed 2/24/10**
20	Notice of Award	1 day	Wed 4/8/09	Wed 4/8/09
21	Preparation of Public Draft EIR	22.8 wks	Thu 4/9/09	Tue 9/15/09
22	EIR Public Review Period	7.4 wks	Fri 9/25/09	Mon 11/16/09
23	Preparation of Administrative Final EIR/Responses to Comments	1 mon	Tue 11/17/09	Mon 12/14/09
24	Completion and Receipt of Comments from District on Final EIR	6 days	Tue 12/15/09	Tue 12/22/09
25	Completion of Final EIR	2 wks	Fri 1/1/10	Thu 1/14/10
26	Completion of Findings of Fact	11 days	Fri 1/15/10	Fri 1/29/10
27	Public Hearings/EIR Certification	11 days	Wed 2/10/10	Wed 2/24/10
28				
29	**Bid Phase**	**55 days**	**Thu 7/8/10**	**Wed 9/22/10**
30	Advertisement	30 days	Thu 7/8/10	Wed 8/18/10
31	Bid Opening	5 days	Thu 8/19/10	Wed 8/25/10
32	Bid Review and Notice of Award	20 days	Thu 8/26/10	Wed 9/22/10
33				
34	**Construction**	**295 days**	**Thu 4/15/10**	**Wed 6/1/11**
35	Retain Design Firm to Perform Services During Construction	20 days	Thu 4/15/10	Wed 5/12/10
36	Construct	160 days	Thu 9/23/10	Wed 5/4/11
37	Startup	10 days	Thu 5/5/11	Wed 5/18/11
38	Testing	10 days	Thu 5/19/11	Wed 6/1/11



Project: Southland Design 5 20 09.mpp
Date: Thu 6/18/09

Task	Baseline Milestone	Rolled Up Milestone	Rolled Up Progress	Project Summary
Progress	Summary	Baseline Summary	Split	Group By Summary
Baseline	Rolled Up Task	Rolled Up Baseline	Baseline Split	Deadline
Milestone	Rolled Up Critical Task	Rolled Up Baseline Milestone	External Tasks	

Project Budget Summary

Engineering Services for NCSD - Southland WWTF Design — Nipomo CSD

	Total Budget	Amount Previously Invoiced	Current Invoice Amount	% of Budget Earned to date
Task Group 1 - Concept Design Report	$188,622.00	$13,504.05	$0.00	7%
Task Group 2 - Construction Documents	$478,948.00	$0.00	$0.00	0%
Task Group 3 - Project Management	$68,787.00	$3,946.05	$0.00	6%
Task Group 4 - Assistance During Bids	$39,539.00	$0.00	$0.00	0%
Task Group 5 - Office Engineering During Construction (5 Bid Packages)	$147,198.00	$0.00	$0.00	0%
Total	$923,094.00	$17,450.10	$0.00	2%

TO: BOARD OF DIRECTORS

FROM: BRUCE BUEL

DATE: JUNE 19, 2009

AGENDA ITEM
C-2
JUNE 24, 2009

REPORT ON KAMINAKA RESEARCH

ITEM

Paul Sorenson of Fugro re Kaminaka Research [NO ACTION REQUESTED].

BACKGROUND

Paul Sorenson is scheduled to summarize the attached report.

RECOMMENDATION

Staff recommends that your Honorable Board receive the presentations and ask questions as appropriate.

ATTACHMENTS

- Fugro Report

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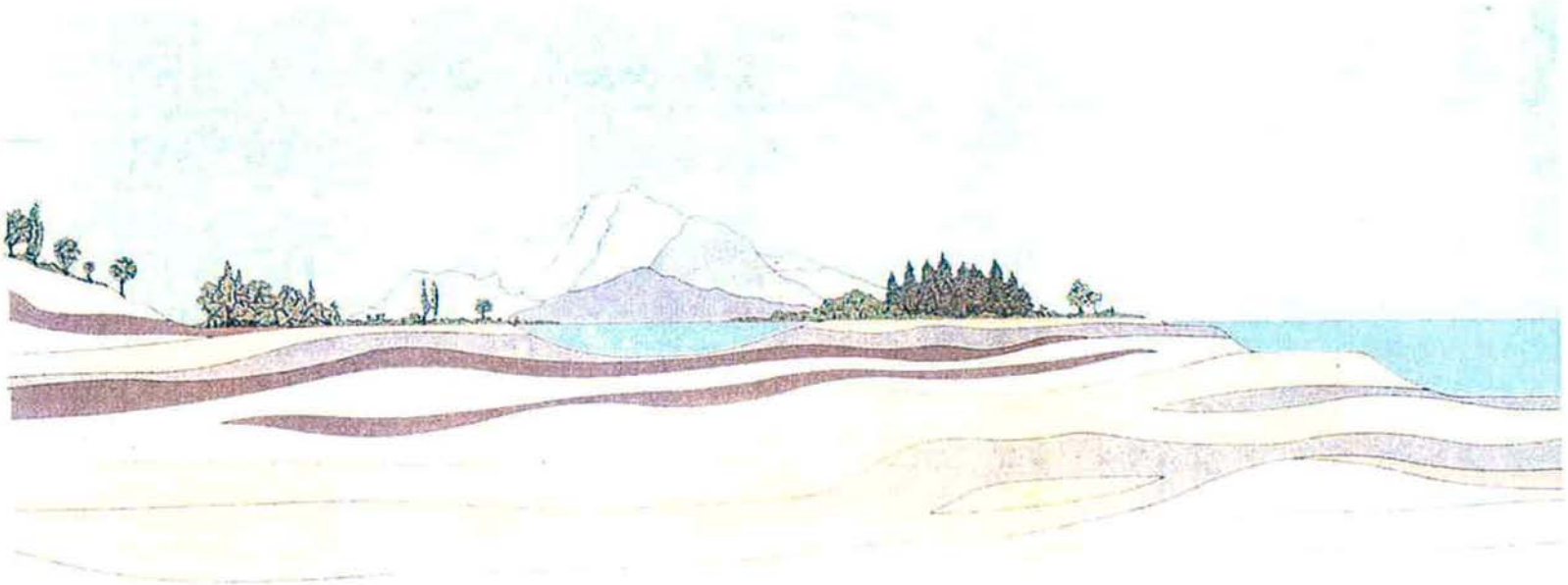
FUGRO WEST, INC.

HYDROGEOLOGIC ASSESSMENT, KAMINAKA PROPERTY, NIPOMO, CALIFORNIA

Prepared for:
NIPOMO COMMUNITY SERVICES DISTRICT

Prepared by:
FUGRO WEST, INC.

June 2009



FUGRO WEST, INC.

660 Clarion Court, Suite A
San Luis Obispo, California 93401
Tel: (805) 542-0797
Fax: (805) 542-9311

June 8, 2009
Project No. 3596.004

Nipomo Community Services District
Post Office Box 326
148 S. Wilson Street
Nipomo, California 93444

Attention: *Mr. Bruce Buel*
General Manager

Subject: Hydrogeologic Assessment, Kaminaka Property, Nipomo, California

Dear Mr. Buel:

Fugro West Inc. is pleased to submit this preliminary feasibility analysis and hydrogeologic assessment of the approximately 20-acre northern half of the 50-acre Kaminaka property (APN 091-232-036), located south of Pomeroy Road in Nipomo, California. The objective of the study was to assess the feasibility of the site as a supplemental treated wastewater effluent disposal site as part of the planned upgrade and expansion of the percolation ponds associated with Nipomo Community Services District's Southland Wastewater Treatment Facility (WWTF). This report presents our understanding of the hydrogeology of the site, documents the work conducted during the investigation, and summarizes our findings, conclusions, and recommendations.

If you have any questions, please do not hesitate to call.

Sincerely,

FUGRO WEST, INC.

Timothy A. Nicely, P.G., C.Hg.
Project Hydrogeologist

Paul A. Sorensen, P.G., C.Hg.
Principal Hydrogeologist
Project Manager

CONTENTS

TABLES

PLATES
(FOLLOWING TEXT)

APPENDICES

HYDROGEOLOGIC ASSESSMENT, KAMINAKA PROPERTY, NIPOMO, CALIFORNIA

SITE DESCRIPTION AND BACKGROUND

The Nipomo Community Services District (District) is planning for the expansion of the District's Southland Wastewater Treatment Facilities (WWTF). One site being investigated for expansion of the effluent disposal component of the WWTF is the approximately 20-acre northern portion of a 50-acre parcel southwest of Pomeroy Road (APN 091-232-036) in Nipomo, California, known as the Kaminaka property (Plate 1). The intent of this investigation was to provide a preliminary hydrogeologic assessment of the site for percolation of treated wastewater.

It is our understanding that the District has the need to ultimately dispose of approximately 1.8 million gallons per day (MGD) of treated wastewater by 2030. If it is assumed that an upgraded Southland WWTF will be capable of disposing 0.57 MGD, as described by Fugro (2008a), then the capability to dispose of an additional 1.23 MGD at a new, different site will be required. In order to dispose of up to a total of 1.8 MGD of treated effluent, the District is in the process of conducting feasibility investigations of various sites for disposal of the treated wastewater. The Kaminaka site is one such investigation, and is being evaluated as a potential location for the installation of a subsurface infiltration system to dispose of the treated effluent. This report documents a feasibility-level investigation of the hydrogeology and percolation capacity of the Kaminaka property.

The Kaminaka property is located approximately three miles northwest of the Southland WWTF. The property is agricultural land, which has been used in the recent past to grow strawberries. At the time of the field investigation, approximately five acres of the property were in production. As shown on Plate 2, the entire parcel extends 1,500 to 2,000 feet south of Pomeroy Road to Camino Caballo, which defines the southern edge of the parcel. The eastern edge of the parcel is defined by Calle Fresa and the western edge by houses along Waypoint Drive. The parcel is approximately bisected by an approximately 20 foot high bluff, which runs northeast-southwest through the site. The southern side of the site is elevated relative to the northern side. The northern approximately half of the property is the extent of this investigation and occupies approximately 20 acres. The central portion of the parcel is occupied by several small houses and agricultural support buildings. The existing site grade ranges from approximately elevation 280 feet above mean sea level (MSL) in the central, lowest-lying portion of the site, to approximately elevation 330 feet MSL in the southern half of the site near Camino Caballo. The location of the site is presented on Plate 1 – Vicinity Map. A map of the site is presented on Plate 2 – Site Map and Cross Section Locations.

INVESTIGATION

PURPOSE AND SCOPE

The purpose of this investigation was to determine whether the site is suitable for percolation of treated effluent. To be considered suitable, the geologic materials beneath the site must have sufficiently high and uniform vertical and horizontal permeability (hydraulic conductivity) to allow for percolation of the treated effluent to the regional water table. This preliminary investigation assessed the percolation capacity, the local hydrogeology, the depth to groundwater, and the chemical character of groundwater within the receiving aquifer. Site exploration was performed using Cone Penetrometer Test soundings (CPT), hollow stem auger (HSA) borings, and laboratory analysis of subsurface samples collected during the hollow stem auger drilling task. Based on the results of the exploration, subsurface cross sections were prepared to evaluate the gross suitability of the site for percolation.

FIELD EXPLORATION

The exploration program consisted of advancing a total of six CPT soundings (CPT 1–6) and two HSA borings (DH-1 and DH-2) to depths of between 90 and 134 feet below ground surface (bgs). A summary of the exploration is presented as Table 1 – Summary of CPT and Hollow Stem Auger Exploration. The locations of the CPT soundings and HSA are presented on Plate 2. Logs of the CPT and HSA exploration program are included in Appendix A.

Table 1. Summary of CPT and Hollow Stem Auger Exploration

Exploration	Total Depth (feet)	Surface Elevation (feet, MSL)	Easting CA SPZ5 NAD83 Ft	Northing CA SPZ5 NAD83 Ft
CPT-1	129	320	5,806,914	2,210,042
CPT-2	120	310	5,806,511	2,209,980
CPT-3	107	323	5,806,194	2,210,314
CPT-4	129	312	5,805,992	2,210,056
CPT-5	107	297	5,806,118	2,209,807
CPT-6	90	285	5,805,606	2,209,357
DH-1	129	318	5,805,676	2,209,483
DH-2	134	283	5,806,761	2,210,065

Cone Penetrometer Testing

Fugro Geosciences of Santa Fe Springs, California performed the CPT soundings on Monday, March 16 and Tuesday, March 17, 2009. The CPT soundings were performed using an electric cone penetrometer advanced into the ground using hydraulic rams mounted in a truck, which weighs approximately 20 tons. The cone penetrometer has a diameter of

approximately 1.4 inches. Cone tip resistance (q_c) and sleeve friction (f_s) were recorded on the penetrometer during all CPT soundings. Data was recorded at approximately 2 centimeter intervals using an on-board computer to provide a near-continuous profile of the soil conditions encountered during penetration. The friction ratio (FR) was computed for each recorded value of q_c and f_s.

A total of six CPT soundings were advanced at the site to depths ranging from 90 to 129 feet bgs. The data were retrieved electronically, from which soil behavior type classifications were assigned to preliminarily evaluate the subsurface conditions at the site. The locations of the CPT soundings on the Kaminaka property are shown on Plate 2. Logs of the CPT soundings are presented in Appendix A.

Hollow Stem Auger Drilling

Consolidated Testing Drilling Company of Porterville, California drilled two borings with a truck mounted Failing F-10 with the hollow stem auger method on Monday, March 30 and Tuesday, March 31, 2009. The borings were advanced to depths of 129 and 134 feet bgs, respectively for DH-1 and DH-2. The locations of the borings are shown on Plate 2. After drilling, the borings were backfilled with the soil cuttings to a depth of 25 feet. The boreholes were then filled with bentonite grout from 25 feet bgs up to 5 feet bgs, in accordance with local Environmental Health Department permit requirements. The topmost 5 feet of each borehole was filled with native cuttings and tamped. A description of the subsurface materials, the sample depths, N-values, and other field and laboratory data are presented on the logs of the borings in Appendix A.

The borings were sampled using a 2-inch outside diameter standard penetration test (SPT) split-spoon sampler and a 3-inch outside diameter modified California sampler. The modified California sampler was equipped with 1-inch high brass rings. The SPT sampler was used without liners. The samplers were driven into the materials at approximately 5-foot intervals. Groundwater was encountered while drilling at depths of 119 and 124 feet bgs, respectively, for DH-1 and DH-2.

LABORATORY TESTING

Laboratory testing was performed on 15 samples from DH-1 and 14 samples from DH-2 obtained from the field exploration. Samples from both borings were analyzed for moisture content, dry density, grain size, percentage passing U.S. Sieve No. 200 and permeability (ASTM D5084). The tests were performed in accordance with applicable ASTM standards. Generally, the samples analyzed consisted entirely of poorly graded sand (SP) to silty sand (SP-SM). The percentages of "fines" (material which passes the number 200 sieve) varied between 3 and 20 percent. In all samples, the sand was classified as fine to medium grained. Results of the laboratory testing are presented in Appendix B.

WATER QUALITY TESTING

Three water wells exist on the site, each of which is perforated within the deep, regional aquifer that underlies the site and vicinity. The locations of the three wells are shown on Plate 2. The northernmost well is referred to as the "Kaminaka Well" (11N/35W-13D01), which is perforated between the depths of 440 and 540 feet bgs. The two other wells, the "North Well" (11N/35W-13E2) and the "South Well" (11N/35W-13E3) are located near each other in the central portion of the site. The North Well is perforated in four intervals between 306 and 426 bgs. The South Well is perforated in three intervals between 255 and 315 feet bgs. The construction details of each well are provided in Appendix D.

To determine the water quality characteristics of the receiving water, a water sample was collected from the "Kaminaka Well," which is the well that the operator indicates is most frequently used for site irrigation. The water quality sample was analyzed for general mineral, general physical and inorganic constituents. The results of the water quality analyses are provided in Appendix C.

The District's Olympic Well, located approximately 0.4 miles east of the Kaminaka site, has a history of water quality data that was obtained and reviewed in context of comparing the data with the Kaminaka well as well as developing an historical perspective of the deep aquifer water quality. The Olympic well water quality data were reviewed and is presented along with the Kaminaka well water quality in Appendix C.

SITE CONDITIONS

GEOLOGIC SETTING

A detailed discussion of the regional geologic setting of the Nipomo Mesa is provided in previous (Fugro, 2008b; California Department of Water Resources (DWR), 2002, Papadopulos and Associates, 2004). Briefly, the site is located within the Nipomo Mesa which forms a transition area between the Coast Ranges Geomorphic Province to the northeast and the Transverse Ranges Geomorphic Province to the south. The basin originated during the Miocene and is filled with up to 15,000 feet of marine and non-marine sediments overlying Cretaceous-age ultramafic and sedimentary rocks.

The Kaminaka property is located on the Mesa, which consists of Pleistocene-age older dune sand to depths of approximately 200 feet in the vicinity of the site. These wind-blown sediments have been stabilized by vegetation, and are present over most of the Nipomo Mesa. The sediments are typically highly permeable, which precludes appreciable runoff.

Perched zones of saturation may locally exist above the main water table throughout the Nipomo Mesa, within what is generally considered the unsaturated zone, where lower permeability lenses can be of variable thickness (a few feet to over ten feet thick) and occur as interbeds within the dune sand deposits. These discontinuous interbeds of lower permeability materials, or aquitards, can create localized perched water layers. These localized zones of

perched water within the older dune sands are not present continuously on the mesa. The perched groundwater is generally considered to be an undependable, minor source of groundwater to wells (DWR, 2002).

Within the Nipomo Mesa, the older dune sand deposits are generally underlain by Paso Robles and Careaga formation sediments (DWR, 2002). The Paso Robles formation is typically composed of unconsolidated to poorly consolidated sediments. The Careaga Formation is composed of unconsolidated to well consolidated sediments.

HYDROGEOLOGIC SETTING

The hydrogeology of the Nipomo Mesa has been described in a previous report (Fugro, 2008b). Older dune sand deposits (Qds) of the Nipomo Mesa contain limited amounts of groundwater. The primary aquifer is the underlying Paso Robles Formation (Papadopulos, 2004), which is part of the Santa Maria groundwater basin.

The three on-site wells are included in the County of San Luis Obispo's county-wide semiannual groundwater monitoring program. Two of the wells, the "North Well" (11N/35W-13E2) and the "South Well" (11N/35W-13E3) have been included in the County monitoring program since 1973. The "Kaminaka Well" (11N/35W-13D01) has been included in the County monitoring program since 1997. Hydrographs of the water level data are presented in Appendix D.

Inspection of the hydrographs indicates that the water level at the site is currently 243 to 250 feet bgs, equivalent to water level elevations of 56 to 64 feet above MSL. Generally, Spring water levels are higher than Fall water levels by approximately 10 to 20 feet. During the most recent sampling event in April 2009, the water level in the "Kaminaka Well" was approximately 279 feet bgs (water level elevation of 27 feet MSL).

The three production wells are perforated entirely below 255 feet bgs and as deep as 540 feet bgs. Water level measurements from these wells are considered to reflect the regional deep aquifer water table. Water levels encountered during drilling of the HSA borings (129 to 134 feet bgs) are shallower than the regional water table and are considered to be perched groundwater within the older dune sand deposits. The differences between the water levels are evident on Plates 3, 5 and 6. It is not known whether the perched groundwater condition is laterally continuous across the site or is discontinuous and occurring coincidentally at similar depths in the two boreholes.

SUBSURFACE CONDITIONS

The subsurface materials encountered at the site consist of dune sand deposits consisting of poorly graded sand (SP), sand with silt (SP-SM), and silty sand (SM). Dune sand deposits were encountered to the maximum depths explored. The materials were medium dense to very dense. Driven ring samples of the dune sand deposits tested in the laboratory

had unit dry weights ranging from 97 to 115 pounds per cubic foot (pcf) and moisture contents ranging from 4 to 20 percent.

Six of the samples were analyzed in the laboratory for permeability determination (vertical direction) in accordance with ASTM method D-5084 (falling head method) or D-2434 (constant head method). The results of these tests are presented on Table 2 along with the soil classification per ASTM D2487 (based on the Unified Soil Classification System), and the fines percentage (percent passing the number 200 sieve).

Table 2. Laboratory Testing Summary

Boring No.	Depth (feet)	Classification	Laboratory Determined Permeability			Passing No. 200 Sieve
			cm/sec	gpd/ft^2	ft/day	
DH-1	7	Poorly-graded SAND (SP)	1.3×10^{-3}	28	3.7	3
DH-1	34	Poorly-graded SAND with silt (SP-SM)	6.3×10^{-6} to 1.3×10^{-5}	0.13 to 0.28	0.02 to 0.04	10
DH-1	84	Poorly-graded SAND with silt (SP-SM)	1.2×10^{-3}	25	3.3	8
DH-2	4	Silty SAND (SM)	2.7×10^{-4}	5.7	0.8	21
DH-2	24	Silty SAND (SM)	5.2×10^{-4}	11	1.5	13
DH-2	74	Poorly-graded SAND with silt (SP-SM)	7.2×10^{-4}	15	2.0	10

The laboratory-determined hydraulic conductivity values determined for the samples are consistent with published values of hydraulic conductivity for silty sands to fine sands. With the exception of the sample collected from DH-1 at 34 feet, the permeability values generally correlate inversely with the percentage of fines. As expected, samples of silty sand (SM) with a higher quantity of fines exhibited lower permeability values, relative to samples of poorly-graded sand with silt (SP-SM). The lower permeability values, as low as 5.7 gallons per day per square foot (gpd/ft^2), are characteristic of the older dune sand deposits on the Nipomo Mesa subject to some degree of weathering and soil development. The higher permeability values, on the order of 15 to 28 gpd/ft^2, generally agree with published values of hydraulic conductivity for the poorly-graded sandy materials that occur at those depths.

The laboratory-determined vertical hydraulic conductivity values for the coarser poorly-graded-sand with silt (SP-SM) and the poorly-graded sand (SP) at this site are approximately one order of magnitude lower than similarly described samples at the Pasquini site, which is located approximately three miles to the southeast of the Kaminaka property (Fugro, 2008b). At the Pasquini site, the poorly-graded sand with silt (SP-SM) had a hydraulic conductivity of 200 gpd/ft^2 (compared to 15 to 25 gpd/ft^2 at this site). Furthermore, the hydraulic conductivity values of the poorly-graded sand (SP) materials at the Pasquini site were between 212 and 254 gpd/ft^2 (compared to 28 gpd/ft^2 at the Kaminaka property). The silty sand (SM) samples from both sites

had similar hydraulic conductivity values ranging between 6 and 11 gpd/ft^2. The laboratory-determined hydraulic tests, performed in accordance with ASTM standard methods, are generally accepted to be accurate to within 1 order of magnitude.

Cross sectional representations of the subsurface conditions, based on the results of the CPT and HSA borings, are shown on Plates 3 through 6. Inspection of the cross-sectional representations, the CPT data, and the laboratory-derived hydraulic conductivity values shows that, in general, the subsurface materials at the site exhibit relatively high permeability values throughout the uppermost 100 to 140 feet. Typically, permeability values tend to be lower at depth due to either fines content or increased density of the dune sand deposits, but that generality does not appear to hold true at this site, as shown by the laboratory-determined values in DH-1 and DH-2, where the highest permeability values are seen in the deepest samples (see Plate 6).

As exhibited in CPT-4, and to a much lesser degree in CPT-5, it appears that the portion of the property with subsurface materials with the highest density occur along the central-western edge of the property. The apparent densities exhibited by CPT-4 and CPT-5 may represent a limiting capability of the property to effectively vertically percolate the treated effluent. Thus, although some of the higher laboratory-determined permeability values are as high as 25 to 28 gpd/ft^2, the overall effectiveness of the site may be limited by the lower permeability values in the range of 5 to 10 gpd/ft^2.

The abnormally-low laboratory-determined permeability value of 0.28 gpd/ft^2 in DH-1 at 34 feet bgs is worthy of additional discussion. The reason for the low value is not apparent. The lithologic description of the materials in DH-1 at that interval show a poorly-graded sand with silt, similar to much of the materials encountered in the boreholes and in the CPT soundings. However, the sample was denser than was seen throughout the remainder of the site, and likely represents a dense slightly-cemented horizon, or layer, in the dune sand that would inhibit vertical percolation of effluent. No evidence is seen to suggest that the layer is laterally continuous or that the thin horizon would act as a site-wide inhibiting or retarding layer. It likely represents the type of thin, discontinuous, dense layers that are occasionally seen in the older, dune deposits throughout the Nipomo Mesa, and likely does not affect the overall capability of the site to effectively dispose of treated effluent. The occurrence of this layer illustrates that these layers do occur throughout the subsurface of the Mesa, and further justifies the caution and the need to apply the lower range of observed permeability values to the long-term calculations of site capacity.

WATER QUALITY OF THE DEEP AQUIFER

Water quality samples of the deep aquifer were obtained to establish a baseline water quality data base for potential future comparative analysis. If a facility is developed on the site, information about the quality of the deep receiving aquifer will be important as the impacts of the facility are evaluated.

Review of the water sample from the Kaminaka Well, located in the northern portion of the site, and the District's Olympic well, located approximately 0.4 miles east of the site, indicate that the receiving aquifer is of calcium bicarbonate chemical character with a total dissolved solids concentration of between 450 and 510 milligrams per liter (mg/l) (Table 3).

Table 3. Water Quality Data, Receiving Aquifer
(units in milligrams per liter, unless otherwise noted)

Constituent	Kaminaka Well April 2009	Olympic Well July 2008
Total dissolved solids	510	450
pH (pH units)	7.1	7.6
Calcium	80	46
Magnesium	33	24
Sodium	60	68
Potassium	0.25	3
Alkalinity, Total (as $CaCO_3$)	200	160
Chloride	81	79
Sulfate	110	83
Fluoride	< 0.05	0.3
Nitrate as $N0_3$	4.9	5.2
Hardness (as $CaCO_3$)	270	214
Iron	< 0.1	<0.05
Manganese	< 0.011	< 0.01
Arsenic (µg/l)	3.1	5
Lead (µg/l)	< 0.5	< 0.2
Selenium (µg/l)	1.1	8

The water quality from the on-site well (April 15, 2009) and the nearby Olympic well (July 16, 2008) are similar, and are representative of the water quality of the deep aquifer. The water quality laboratory analytical results are presented in Appendix C.

CONCLUSIONS

The CPT and boring log data, inspection of the borehole cuttings, and the laboratory-determined permeability values of samples obtained from the borings show that the Kaminaka property is generally underlain by sand and silty sand, with permeability values ranging from approximately 5 gallons per day per square foot (gpd/ft^2) to as high as 28 gpd/ft^2. Although much of the materials appear to have permeability values in the upper range of those seen in this study, we recommend establishing a conservative, limiting effectiveness of the site based on the presence of sediments with permeability values in the range of 5 to 10 gpd/ft^2.

The CPT data show that the central-western portion of the property, particularly along the western edge of the site, may be underlain by some thin layers of relatively denser materials than is seen throughout the remainder of the site. These thin layers of denser materials, however, do not appear to be laterally continuous or extend under the remainder of the property.

It is our understanding that the Nipomo CSD has an ultimate need to dispose of up to 1.23 million gallons per day (daily average) of additional treated wastewater. This assumption is based on the ability of the existing Southland WWTF percolation ponds to dispose of about 0.57 MGD and various assumptions of future District build out wastewater flow volumes. The northern half of the Kaminaka parcel is about 20 acres in size. If it is assumed that 80 percent of this area could be developed to a subsurface infiltration system and that the soils (subject to confirmation percolation testing) can percolate approximately 5 to 10 gpd/ft^2, the property would accommodate approximately 3.5 to 7 MGD of clean water.

The percolation capacity of a site is typically de-rated for disposal of treated effluent versus the calculated capability assumed for clean water. It is our understanding that a typical de-rating factor may be as much as 50%. A 50% de-rating would result in site capacity of 1.75 to 3.5 MGD.

Given the limiting factors outlined in this report, it appears that the Kaminaka site is capable of disposing approximately 1.75 to 3.5 MGD of treated wastewater. Thus, the Kaminaka site would likely be capable of accommodating the District's future WWTF expansion requirements, given the conservative assumptions used in the calculations.

If interest in and consideration of the Kaminaka property is continued by the District, additional detailed field investigations are recommended to support these estimates.

RECOMMENDATIONS

Based on the findings and conclusions of this report, should the District desire to continue with additional investigation of the Kaminaka parcel for installation of a subsurface infiltration system, we recommend the following field work be performed within the northern half of the property:

- To assess the percolation capacity of surficial soils, a series of conventional percolation tests should be performed in accordance with Uniform Plumbing Code standards or County of San Luis Obispo Health Department accepted methods. Given the varied topography of the area, the percolation tests should be performed at the anticipated grade (elevation) of the base of the subsurface infiltration system. It will be necessary to develop a plan for subsurface infiltration system in the area which will provide a rough estimate of its anticipated elevation. Based on the approximate 20-acre gross area under consideration, we recommend a percolation test for every 2 acres of actual percolation basin area, or about 6 to 8 such tests.

- Construction of a prototype subsurface infiltration test should be considered to allow for larger scale testing of the percolation capacity of the soil. The prototype testing should reflect the testing of a subsurface infiltration system, which is the planned percolation method to be utilized at the site. In the vicinity of the test area, hydro-probe casings should be installed in drilled holes, backfilled with native soils, to allow for monitoring during the test. The hydro-probe is a nuclear device that can be used to estimate the degree of saturation in the soil versus depth. The hydro-probe is particularly useful to evaluate whether or not the siltier soils encountered at various depths will cause any horizontal deflection of the infiltrated water.
- Based on the data obtained from the field work described above, consideration should be given to the development of a numerical groundwater flow model for the area to better predict the fate and transport of wastewater discharged into the infiltration system. The model would be similar to the numerical model developed to assess the percolation capacity of the Southland WWTF basins (Fugro, 2008). The need for and attributes of the numerical model would depend on the data obtained from the previously described field investigation.

REFERENCES

California Department of Water Resources (DWR) (2002), *Water Resources of the Arroyo Grande - Nipomo Mesa Area, http://wwwdpla.water.ca.gov/sd/.*

Cleath and Associates (2000), *Test Hole Results and Recommended Monitoring Well Locations for the Nipomo CSD Wastewater Disposal Site,* prepared for NCSD, dated January 13. DWR (2002), *Water Resources of the Arroyo Grande - Nipomo Mesa Area,* dated January.

Cooper, William S. (1967), "Coastal Dunes of California", The Geological Society of America, Memoir 104.

Fugro (2008a), *Supplemental Groundwater Modeling Analysis*, prepared for Nipomo Community Services District, June 30, 2008.

Fugro (2008b), *Hydrogeologic and Geotechnical Assessment of APN 090-311-001, Nipomo, California*, prepared for Nipomo Community Services District, July 30, 2008.

Papadopulos and Associates (2004), *Nipomo Mesa Groundwater Resource Capacity Study, San Luis Obispo County, California*, prepared for San Luis Obispo County Public Works Department, dated March 2004.

United States Geological Survey (1965), *Oceano Quadrangle, San Luis Obispo County, California, 7.5 Minute Series (Topographic)*, Scale 1:24000, revised 1994.

PLATES

Nipomo Community Services District
Project No. 3596.004

BASE MAP SOURCE: THOMAS GUIDE 2007, SAN LUIS OBISPO COUNTY (P. 735, 736, 755, & 756)

LEGEND

Kaminaka Property

Area of Investigation

NORTH

0 2400

FEET

VICINITY MAP

Kaminaka Site Investigation
Nipomo, California

PLATE 1

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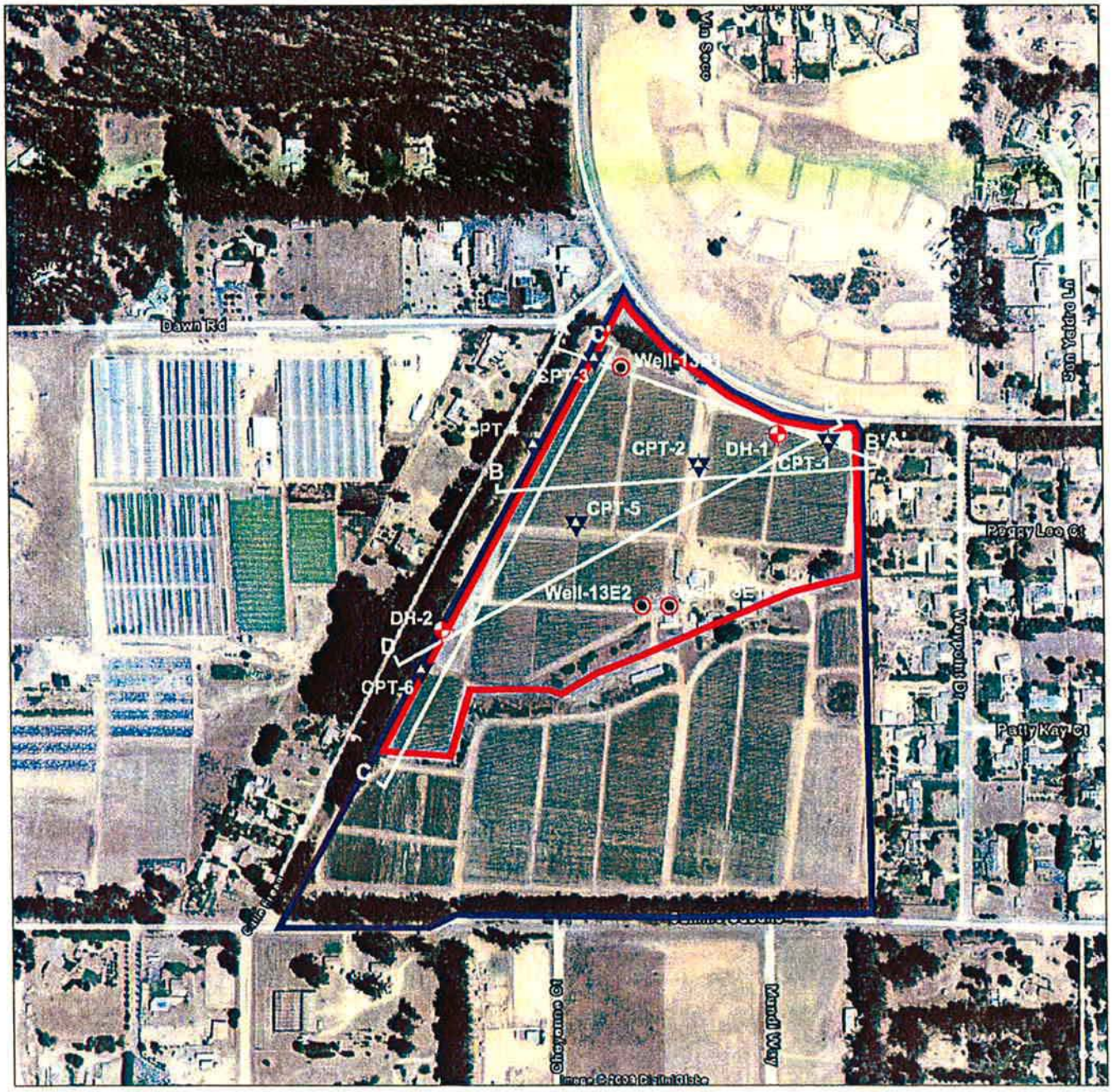

BASE MAP SOURCE: GOOGLE EARTH PRO

LEGEND

- DH-2 — Approximate Location of Borings
- Well-13E2 — Approximate Location of Production Wells
- CPT-6 — Approximate Location of CPT Soundings
- A — A' — Approximate Location of Cross Sections
- Kaminaka Property
- Area of Investigation

NORTH
0 500
FEET

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SITE MAP AND CROSS SECTION LOCATIONS

Kaminaka Site Investigation
Nipomo, California

PLATE 2

TO: BOARD OF DIRECTORS

FROM: BRUCE BUEL

DATE: JUNE 19, 2009

AGENDA ITEM
C-3
JUNE 24, 2009

SUPERINTENDENT UPDATES

ITEM

NCSD District Superintendent Tina Grietens re May 2009 Utility Division Activities [NO ACTION REQUESTED].

BACKGROUND

Tina Grietens is scheduled to summarize the attached outlines.

RECOMMENDATION

Staff recommends that your Honorable Board receive the presentations and ask questions as appropriate.

ATTACHMENTS

- May 2009 Outline

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TO: BRUCE BUEL, GENERAL MANAGER

FROM: TINA GRIETENS, UTILITY SUPERINTENDENT TG

DATE: JUNE 18, 2009

SUBJECT: UTILITY DIVISION UPDATE FOR MAY 2009

- **Personnel**
  Customer Service/Maintenance worker introduction
  Inspector /Maintenance Supervisor will begin employment with the District June 29, 2009
  Utility Office Assistant began employment with the District 5/18/09
- **Southland Wastewater Plant and Utility Yard**
  Algae blooms in ponds causing some problems
  Ripping and discing of Southland WWTP percolation ponds
  HVAC was installed in lab building
  Special analyses of Influent at Southland for expansion design began 5/7
- **Blacklake Wastewater Plant**
  Algae blooms causing increased chemical use
- **Collection system**
  Blacklake Golf Course jetting performed May
  Palms Lift station pumps installed week of 5/20
- **Wells**
  Knollwood well back online 5/9/09
  Ventilation systems installed at Eureka and Via Concha buildings
  Olympic SCADA installation complete 5/15/09
  More repairs approved for Sundale due to delay of electrification equipment (completed 6/9/09)
- **Distribution System**
  Valve and hydrant exercising began 5/26; east side of 101
  Repaired old 8" Hemrick Well water line; (thrust block failed)
- **Maintenance**
  Weed abatement continues
  Air-vac and water sample stations rebuilt/replaced, hydrants replaced, painted/numbered, reflectors replaced
  Preventative maintenance plan paper implementation continues
- **Safety**
  Conducted training 5/29 and 6/9 regarding Lead Acid Battery Maintenance;
- **Compliance**
- Organizing triennial lead and copper sampling scheduled for June/July
  Monitored laboratory results, prepared compliance reports for WWTPs

TO: BOARD OF DIRECTORS

FROM: BRUCE BUEL

DATE: JUNE 19, 2009

AGENDA ITEM
C-4
JUNE 24, 2009

MONTHLY WATER CONSERVATION COORDINATOR UPDATE

ITEM

NCSD District WCC Celeste Whitlow re May 2009 Outreach Activities and Semi-Annual Performance Review [NO ACTION REQUESTED].

BACKGROUND

Celeste Whitlow is scheduled to summarize the attached outline.

RECOMMENDATION

Staff recommends that your Honorable Board receive the presentations and ask questions as appropriate.

ATTACHMENTS

- District May 2009 Outreach Activities Outline & Semi Annual Performance Review

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NIPOMO COMMUNITY SERVICES DISTRICT

148 SOUTH WILSON STREET
POST OFFICE BOX 326
NIPOMO, CA 93444 - 0326
(805) 929-1133 FAX (805) 929-1932
Web site address www.ncsd.com

MEMORANDUM

TO: BRUCE BUEL, GENERAL MANAGER

FROM: CELESTE WHITLOW, CONSERVATION COORDINATOR AND PUBLIC OUTREACH

DATE: JUNE 24, 2008

RE: ITEM C-4 : WATER CONSERVATION PROGRAM SEMI-ANNUAL REPORT AND MAY 2009 REVIEW.

REVIEW OF PROGRAM ACTIVITIES FROM JANUARY TO JUNE 2009.

Review of water consumption. Note that the District uses a bi-monthly billing cycle, with one part of the District billed one month, and the other part of the District billed the next month. Each month's billing is for water delivered in the previous two months (water use billed in January will be for water delivered in November and December). In addition, the two different billing cycles have different rates of water use, with the water use in the Town side usually lower per meter than that on the Mesa side.

"Urban Water" consists of the Department of Water Resources categories of single-family residence, multi-family residence, commercial-institutional, landscape, and other.

Table 1: Bi-Monthly Urban Water Use, 2007-2009

	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
2009	278.59	251.75				
2008	351.14	265.99	477.54	399.46	583.27	469.35
2007	337.24	346.55	453.32	377.2	637.15	492.65

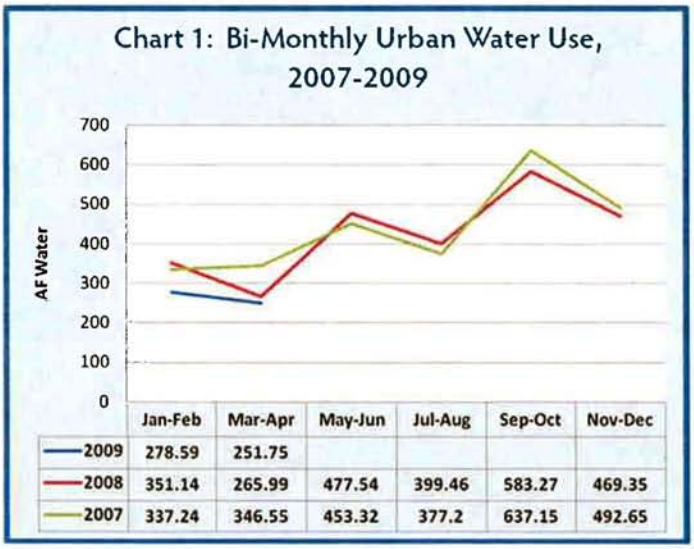
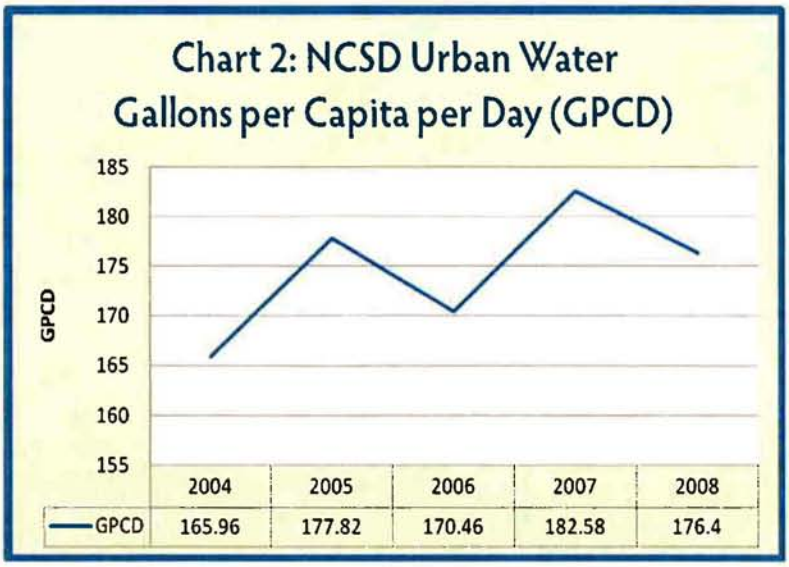


Table 2: NCSD GPCD (Urban)	
Year	**GPCD**
2004	165.96
2005	177.82
2006	170.46
2007	182.58
2008	176.40
AVERAGE:	**174.64**



Summary. The difference between the lowest annual GPCD in 2004 (165.96) and the highest in 2007 (182.58) is 16.62 GPCD. The difference between the GPCD in 2004 (165.96) and the GPCD in 2008 (176.40) is 10.44 GPCD. The trend in urban water consumption per capita per day is consistently upward.

Governor Schwarzenegger's 20x2020 plan (where Californians will have to decrease their gallons-per-capita-per-day water consumption by 20% by the year 2020) is shaping up and, while there is still differences over what will be the method of figuring the baseline, as the *20 x 2020 Water Conservation Plan (Draft)* reads now, for hydrologic region 3 (our region), our baseline would be 154 GPCD. We would have to decrease are GPCD down to 123 GPCD by the year 2020 to be in compliance with the Governor's mandate and the Assembly Bill 49 which enacted it.

Results of retrofit-at-time-of-sale plumbing retrofit program. Attached is the spreadsheet "Results of Retrofit-At-Time-Of-Sale Program Through June 12, 2009.

The program is part of the measures enacted by the County of San Luis Obispo in support of the declared Level of Severity 3 for water resources in the Nipomo Mesa area. The program requires retrofitting of toilets flushing more than 1.6 gallons per flush (GPF) with 1.28-GPF toilets upon sale of a residence in the Nipomo Mesa Conservation Area. This program is a County-administered program. All forms verifying retrofits have been accomplished are submitted to County Planning. As a courtesy to our customers, a step-by-step Homeowners' Guide was prepared, and it, along with the Verification Form, a map of the Nipomo Mesa Conservation Area, and links to the actual Title Amendment calling for the retrofits, was uploaded to the NCSD website. Notification of the website availability was mailed to real estate companies in the San Luis Obispo, Five-Cities, Nipomo and Santa Maria areas. The information is available to the public on our website, and has greatly decreased (or shortened the duration of) the number of questions and telephone calls we would have otherwise received.

Of the ten toilet retrofits, six were NCSD customers. Estimated water savings for NCSD customers are 64.74 gallons per day, 23,628.64 gallons per year, and 2.175 AcFt for the estimated life of the hardware.

Of the 4 showerheads replaced, two were NCSD customers. Estimated water savings for NCSD customers are 74.6 gallons per day, 27,229 gallons per year, and 0.840 AcFt for the life of the hardware.

For all NCSD retrofits under this program, the estimated water saving are 139.34 gallons per day, 5,8959.1 gallons per year, and 3.030 AcFt for the life of the hardware.

SUMMARY OF ACTIVITIES, JANUARY THROUGH JUNE 2009

Community Events and Educational Workshops

- Workshops: Importance of Soil and Composting, Soils and Composting; Native and Drought-Tolerant Plants; Landscape Design with Drought-Tolerant Plants; Sages, Lavenders and Ceanothus; Water-Efficient Landscape Irrigation.
- Site visits to Creekside Condos.
- Meetings with local activists and San Luis Obispo County personnel regarding Nipomo Creek.
- Chipping Event.
- 2009 Home Expo at Madonna Expo Center
- San Luis Obispo County WaterFest 2009.

NCSD Landscape

- Care and management of NCSD's "Compost Corral."
- Installed "temporary" landscape as demonstration.
- Monitor landscape.

Professional Development

- Attendance of bi-monthly San Luis Obispo County Partners for Water Conservation meetings.
- Water Conservation Specialist 1 Certification.
- Attended training on smart irrigation controllers.

Newsletters, Mailings, Advertising.

- District Newsletter and Water Conservation newsletters (preparation, mailing).
- Preparation of flyers, ads for workshops.
- Preparation, printing of water conservation brochures and handbooks.
- Preparation of water-conservation newspaper ads.
- Coordination of bill stuffers.
- Graphics: All graphics (no funds were spent for graphic-arts preparation of materials from outside consultants), including conservation newsletters, ads, flyers, brochures, handbooks, and workshop materials.

Water Conservation Program

- Water: Use It Wisely.
- Preparation for implementation of Water Conservation Program.
- Research and initiation of high-efficiency clothes-washer rebate program through CUWCC.
- Water audit program.
- Turf-replacement program.
- SLO County's plumbing retrofit program for the Nipomo Mesa; prepared Homeowners Guide and other materials.
- Researched, interviewed, prepared information for Board of Directors' evaluation, implemented purchase of ConserveTrak water-conservation software.

LMD #1 (Vista Verde)

- Landscaping Maintenance District #1 installation of WeatherTrak ET-based irrigation controller; supervised repair of system; compiled data on results.
- Letters updating homeowners on status of irrigation controller installation and reduction in monthly HOA dues.

California Urban Water Conservation Council.

- Working with CUWCC staff on high-efficiency clothes washer program.
- Provided input on gallons-per-capita-per-day specifications.
- CUWCC workshops, teleconferenced meetings.

Other

- Provided advice and support as needed for the Science Discovery Program for Nipomo's elementary schools.
- Reviewed Department of Water Resources Urban Drought Workbook, Environmental Protection Agency's Response to Urban Change Program.
- Reviewed and prepared reports for water-conservation related programs and legislature.
- Teleconferenced CUWCC meetings on revision of Best Management Practices.

ATTACHMENTS

"Results of Retrofit-at-the-Time-of-Sale Program through June 12, 2009" (spreadsheet).
"NCSD Water Delivered 2004 – 2009" (spreadsheet)

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Results of Retrofit-At-Time-Of-Sale Program Through June 12, 2009

Water Savings From Toilets Retrofitted in The Retrofi-At-Time-Of-Sale County Ordinance (Through June 12, 2009)

APN	District	Old	New	Savings/ Flush	Savings/Day (Gal/Toilet)	Savings/Yr (Gal/Toilet)	Savings/Yr (AFt/Toilet)	Savings/30-yr (AcFt/Toilet)
092-111-019	GSWC	3.5	1.28	2.2	15.10	5510.04	0.017	0.507
091-421-009	NCSD	3.5	1.28	2.2	15.10	5510.04	0.017	0.507
091-328-032	NCSD	1.6	1.28	0.3	2.18	794.24	0.002	0.073
092-122-045	GSWC	3.5	1.28	2.2	15.10	5510.04	0.017	0.507
092-173-011	GSWC	3.5	1.28	2.2	15.10	5510.04	0.017	0.507
091-233-017	NCSD	3.5	1.28	2.2	15.10	5510.04	0.017	0.507
090-083-048	NCSD	1.6	1.28	0.3	2.18	794.24	0.002	0.073
092-162-006	GSWC	3.5	1.28	2.2	15.10	5510.04	0.017	0.507
091-416-025	NCSD	3.5	1.28	2.2	15.10	5510.04	0.017	0.507
091-444-039	NCSD	3.5	1.28	2.2	15.10	5510.04	0.017	0.507
				TOTAL:	**125.12**	**45,668.80**	**0.140**	**4.205**
NCSD	**6**				**64.74**	**23,628.64**	**0.073**	**2.175**
% of Total	**60%**				**51.7%**	**51.7%**	**51.7%**	**51.7%**

TOILETS:
Census conversion is 3.4 per household .
Estimated flushes per day: men 1.0, female 3.0.*
Estimated mix of genders in household: 3.4 / 2 = 1.7 of each gender.
Equation for # of flushes per household:
(1.7 x 1.0)+(1.7 x 3.0) = 6.8
Equation for Savings per day: (Savings per flush) x (#flushes)

*Vickers, Amy. *Handbook of Water Use and Conservation*. (Page 27).

SHOWERHEADS:
MFC: Maximum Fixture Capacity, manufacturer's rating, usually full-throttle at 80 psi.
MFR: Maximum Fixture Capacity, measured fixture rate.

Water use is 3rd largest source of indoor residential water demand (11.6 GPCD), 16.8% of indoor use in a SFR.**
Rated (MFC) flow differs from actual flow (MFR), dependent on water pressure.**
Water savings per day via showerheads : 37.3**

**Vickers, Amy. *Handbook of Water Use and Conservation*. (Page 88).

Water Savings From Showerheads Retrofitted in The Retrofi-At-Time-Of-Sale County Ordinance (Through June 12, 2009)

APN	Purveyor	Old MFC (GPM)	Old MFR (GPM)	New MFC (GPM)	New MFR (GPM)	Savings/Min (New MFR)- (Old MFR)	Savings/Day Household (GPD)	Savings/Yr (G/Hshold)	Savings/Yr (AFt/Hshold)	Savings/10-yr (Aft/Hshold)
092-086-016	?	5.0	4.3	2.5	1.7	2.6	37.3	13,614.5	0.042	0.420
090-086-016	?	5.0	4.3	2.5	1.7	2.6	37.3	13,614.5	0.042	0.420
091-421-009	NCSD	5.0	4.3	2.5	1.7	2.6	37.3	13,614.5	0.042	0.420
092-173-011	GSWC	5.0	4.3	2.5	1.7	2.6	37.3	13,614.5	0.042	0.420
090-083-048	NCSD	5.0	4.3	2.5	1.7	2.6	37.3	13,614.5	0.042	0.420
						TOTAL:	**186.5**	**68,072.5**	**0.209**	**2.100**
NCSD	**2**	**10.0**					**74.6**	**27,229.0**	**0.084**	**0.840**
% of Total For All Purveyors	**40%**	**40%**						**40%**	**40%**	**40%**

Total NCSD Savings, All Retrofits

# Replaced		Gal/Day	Gal/Yr	AFt/Yr	Savings/Hard-ware Life
Toilets	6	64.7	23,630	0.073	2.190
Shower-heads	2	74.6	27,229	0.084	0.840
TOTAL:	**8**	**139.34**	**50859.1**	**0.157**	**3.030**

NCSD WATER DELIVERED 2004 - 2009

NCSD GPCD	
Year	GPCD
2008	176.04
2007	182.58
2006	170.46
2005	177.82
2004	165.96
AVG.	**174.57**

Year	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (AFY)	TOTAL (Gallons)	Meters	Avg.AFY/ Meter	Population	GPCD (Urban)
2009	SFR	145.43	78.1	122.94	70.27									416.74					
2009	MFR	11.6	5.63	11	5.08									33.31					
2009	CI	7.33	5.18	6.74	5.14									24.39					
2009	Landsc	13.69	10.13	19.9	9.33									53.05					
2009	Other	0.78	0.72	0.01	1.34									2.85					
	TOTAL URBAN:	178.83	99.76	160.59	91.16									530.34					
2009	AG	1.54	0.03	1.41	0.07									3.05					
	TOTAL DELIVERED:	180.37	99.79	162	91.23	0	0	0	0	0	0	0	0	533.39					

Year	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (AFY)	TOTAL (Gallons)	Meters	Avg.AFY/ Meter	Population	GPCD (Urban)
2008	SFR	202.28	73.94	121.66	82.59	239.63	130.45	320.90	140.94	315.64	145.52	277.04	102.13	2152.72	701,465,964.72	3481	0.62	**13,906**	**176.04**
2008	MFR	12.20	12.20	12.20	12.20	12.20	12.20	12.20	12.20	12.20	12.20	12.20	8.20	142.40	46,401,182.40	421	0.34		
2008	CI	9.07	5.90	6.54	5.99	9.44	7.73	10.93	7.52	9.84	7.07	9.79	6.74	96.56	31,464,172.56	100	0.97		
2008	Landsc	28.28	6.03	8.70	12.48	33.62	28.03	45.62	33.79	44.37	34.19	26.68	25.07	326.86	106,507,657.86	88	3.71		
2008	Other	0.94	0.30	1.93	1.70	1.46	2.78	5.42	5.28	1.35	0.89	0.89	0.61	23.55	7,673,791.05	0	xx		
	TOTAL URBAN:	**252.77**	**98.37**	**151.03**	**114.96**	**296.35**	**181.19**	**395.07**	**199.73**	**383.40**	**199.87**	**326.60**	**142.75**	**2742.09**	**893,512,768.59**	**4090**	**0.67**		
2008	AG	0.63	0.04	2.17	0.05	3.01	0.15	2.82	0.31	3.02	0.23	3.01	0.13	15.57	5,073,500.07	2	7.79		
	TOTAL DELIVERED:	**253.40**	**98.41**	**153.20**	**115.01**	**299.36**	**181.34**	**397.89**	**200.04**	**386.42**	**200.10**	**329.61**	**142.88**	**2757.66**	**898,586,268.66**	**4092**	**0.67**		

Year	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (AFY)	TOTAL (Gallons)	Meters	Avg.AFY/ Meter	Population	GPCD (Urban)
2007	SFR	178.70	89.85	203.41	77.98	211.63	131.85	304.20	141.62	309.19	164.45	297.14	95.87	2,205.89	718,791,462.39	3481	0.64	**13,855**	**182.58**
2007	MFR	10.06	5.12	12.43	4.82	11.57	6.88	12.40	7.11	10.35	8.61	11.72	5.58	106.65	34,752,009.15	412	0.27		
2007	CI	7.06	7.2	7.89	6.74	8.54	8.08	9.66	7.92	9.89	11.21	10.25	7.20	101.64	33,119,495.64	93	1.08		
2007	Landsc	21.44	14.47	14.44	11.54	22.09	29.32	44.26	28.69	42.96	33.99	38.73	19.70	321.63	104,803,457.13	89	3.83		
2007	Other	1.35	1.99	1.60	5.70	12.66	10.7	6.68	4.14	8.06	38.44	5.62	0.84	97.78	31,861,710.78	0			
	TOTAL URBAN:	**218.61**	**118.63**	**239.77**	**106.78**	**266.49**	**186.83**	**377.20**	**189.48**	**380.45**	**256.70**	**363.46**	**129.19**	**2,833.59**	**923,328,135.09**	**4075**	**0.70**		
2007	AG	1.85	0.07	1.77	0.14	3.06	0.29	2.98	0.27	2.47	0.28	2.46	0.17	15.81	5,151,704.31	2	7.91		
	TOTAL DELIVERED	**220.46**	**237.33**	**481.31**	**213.70**	**536.04**	187.12	380.18	189.75	382.92	256.98	365.92	258.55	2,849.40	928,479,839.40	8152	0.71		

Year	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (AFY)	TOTAL (Gallons)	Meters	Avg.AFY/ Meter	Population	GPCD (Urban)
2006	SFR	188.84	68.16	153.99	70.79	114.46	92.55	282.78	139.92	361.93	145.19	284.22	107.40	2,010.23	655,035,455.73	3423	0.59	**13,573**	**170.46**
2006	MFR	9.38	4.11	9.54	4.91	9.51	4.86	10.98	5.82	11.91	6.17	11.79	4.85	93.83	30,574,599.33	390	0.24		
2006	CI	7.71	6.94	8.79	6.74	7.80	7.1	12.88	8.75	11.41	8.10	10.84	7.13	104.19	33,950,415.69	96	1.09		
2006	Landsc	18.41	9.54	19.08	10.25	6.43	23.98	39.33	28.30	49.33	31.83	38.59	23.31	298.38	97,227,421.38	83	3.59		
2006	Other	9.83	0.96	3.18	32.31	0.81	1.89	13.75	4.33	5.56	5.30	5.03	1.97	84.92	27,671,266.92	0			
	TOTAL URBAN:	**234.17**	**89.71**	**194.58**	**125.00**	**139.01**	**130.38**	**359.72**	**187.12**	**440.14**	**196.59**	**350.47**	**144.66**	**2,591.55**	**844,459,159.05**	**3992**	**0.65**		
2006	AG	3.42	0.02	1.60	0.03	1.60	0.04	3.14	0.16	2.83	0.58	2.76	0.26	16.44	5,356,990.44	3	5.48		
	TOTAL DELIVERED	**471.76**	**179.44**	**390.76**	**250.03**	**279.62**	**260.80**	**722.58**	**374.40**	**883.11**	**393.76**	**703.70**	**289.58**	**2,607.99**	**849,816,149.49**	**3995**			

Year	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (AFY)	TOTAL (Gallons)	Meters	Avg.AFY/ Meter	Population	GPCD (Urban)
2005	SFR	170.34	81.08	119.33	70.62	181.89	119.49	288.09	126.06	364.29	151.33	309.02	107.40	2,088.94	680,683,187.94	3337	0.63	**13,178**	**177.82**
2005	MFR	8.92	11.66	9.02	10.99	8.80	13.5	9.44	11.04	13.98	8.81	10.65	5.03	121.84	39,701,685.84	366	0.33		
2005	CI	6.98	4.39	6.01	5.90	6.90	7.74	7.26	8.21	14.18	12.42	13.44	6.08	99.51	32,425,433.01	98	1.02		
2005	Landsc	19.52	7.78	7.67	5.25	37.07	19.39	26.32	18.32	32.84	26.14	36.70	23.73	260.73	84,959,131.23	75	3.48		
2005	Other	2.05	0.83	0.44	0.38	2.70	2.8	2.24	14.66	7.09	5.94	11.46	3.37	53.96	17,582,919.96	0			
	TOTAL URBAN:	**207.81**	**105.74**	**142.47**	**93.14**	**237.36**	**162.92**	**333.35**	**178.29**	**432.38**	**204.64**	**381.27**	**145.61**	**2,624.98**	**855,352,357.98**	**3876**	**0.68**		
2005	AG	1.70	0.05	1.50	0.00	2.32	0.12	2.86	0.13	3.77	0.42	0.53	0.13	13.53	4,408,764.03	3	4.51		
	TOTAL DELIVERED	**417.32**	**105.79**	**143.97**	**93.14**	**239.68**	**163.04**	**336.21**	**178.42**	**436.15**	**205.06**	**381.80**	**145.74**	**2,638.51**	**859,761,122.01**	**3879**	**0.68**		

Year	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (AFY)	TOTAL (Gallons)	Meters	Avg.AFY/ Meter	Population	GPCD (Urban)
2004	SFR	143.34	74.71	144.07	83.08	215.89	130.03	332.61	157.36	335.38	156.86	270.62	75.92	2,119.87	690,761,759.37	3354	0.63	**11,404**	**165.96**
2004	MFR	4.99	9.49	5.33	9.10	7.48	12.27	9.17	12.53	8.51	12.07	11.80	8.01	110.75	36,087,998.25	235	0.47		
2004	CI	7.14	4.67	7.24	6.03	9.18	7.15	11.21	8.34	10.68	8.47	9.06	5.11	94.28	30,721,232.28	83	1.14		
2004	Landsc	14.85	7.92	12.78	11.12	27.70	41.88	42.92	37.08	43.23	42.11	27.28	12.34	321.21	104,666,599.71	76	4.23		
2004	Other	9.52	1.87	5.63	3.21	3.89	21.03	18.68	29.04	25.23	15.26	8.12	4.81	146.29	47,668,742.79	0			
	TOTAL URBAN:	**179.84**	**98.66**	**175.05**	**112.54**	**264.14**	**212.36**	**414.59**	**244.35**	**423.03**	**234.77**	**326.88**	**106.19**	**2,792.40**	**909,906,332.40**	**3748**	**0.75**		
2004	AG	2.11	0	1.52	0.00	3.15	0	4.33	0.08	3.20	0.23	3.17	0.05	17.84	5,813,181.84	3	5.95		
	TOTAL DELIVERED	**181.95**	**98.66**	**176.57**	**112.54**	**267.29**	**212.36**	**418.92**	**244.43**	**426.23**	**235.00**	**330.05**	**106.24**	**2,810.24**	**915,719,514.24**	**3751**	**0.75**		

Year	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (AFY)	TOTAL (Gallons)	Meters	Avg.AFY/ Meter	Population	GPCD (Urban)
2003	SFR	152.89	68.38	129.42	76.85	205.25	116.77	280.13	138.74	280.27	133.54	278.30	103.93	1,964.47	640,124,513.97	3116	0.63	**11,924**	**190.95**
2003	MFR	4.92	7.35	4.20	8.57	5.56	11.37	6.80	11.15	7.89	13.83	6.97	7.37	95.98	31,275,178.98	237	0.40		
2003	CI	7.24	4.14	5.15	4.38	12.63	7	11.71	6.14	10.66	7.27	10.02	6.16	92.50	30,141,217.50	73	1.27		
2003	Landsc	15.86	15.92	16.28	14.48	34.03	35.06	35.03	31.80	36.17	36.20	32.41	21.47	324.71	105,807,078.21	81	4.01		
2003	Other	1.02	2.53	5.03	0.79	3.53	2.19	7.20	7.02	9.12	17.36	10.30	6.62	72.71	23,692,626.21	0			
	TOTAL URBAN:	**181.93**	**98.32**	**160.08**	**105.07**	**261.00**	**172.39**	**340.87**	**194.85**	**344.11**	**208.20**	**338.00**	**145.55**	**2,550.37**	**831,040,614.87**	**3507**	**0.73**		
2003	AG	2.08	0	1.69	0.00	2.92	0	2.93	0.00	3.61	0.00	3.48	0.00	16.71	5,444,970.21	2	8.36		
	TOTAL DELIVERED	**184.01**	**98.32**	**161.77**	**105.07**	**263.92**	**172.39**	**343.80**	**194.85**	**347.72**	**208.20**	**341.48**	**145.55**	**2,567.08**	**836,485,585.08**	**3509**	**0.73**		