

MONTEREY COUNTY PLANNING COMMISSION

Meeting: January 30, 2013 Time: 9:00 a.m.	Agenda Item No.:
Project Description: Consider Combined Development Permit consisting of: 1) a Coastal Administrative Permit to drill a test well for a future single family dwelling; and 2) a Coastal Development Permit for development within 750 feet of a known archaeological resource.	
Project Location: 2610 Ribera Road, Carmel	APN: 243-041-014-000
Planning File Number: PLN120489	Owner: Linda and Donald Dobbas Agent: Pam Silkwood c/o Horan Lloyd Law Offices
Planning Area: Carmel Area Land Use Plan	Flagged and staked: No
Zoning Designation: : “MDR/2-D (CZ)” [Medium Density Residential/2 units per acre, Design Control District in the Coastal Zone]	
CEQA Action: Categorically Exempt per Section 15303 (d)	
Department: RMA - Planning Department	

RECOMMENDATION:

Staff recommends that the Planning Commission adopt a resolution (**Exhibit C**) to:

- 1) Find the project Categorically Exempt per Section 15303 (d); and
- 2) Approve Combined Development Permit based on the findings and evidence and subject to the conditions of approval (**Exhibit C**).

PROJECT OVERVIEW: PROJECT OVERVIEW:

The application for a Combined Development Permit to allow a test well for a future single family dwelling was originally to be considered at an administrative level on October 31, 2012. However, the day before the administrative hearing staff received emails from neighbors requesting a public hearing. The proposed project was then scheduled for the Zoning Administrator hearing on December 13, 2012. After taking public testimony, the Zoning Administrator made the decision to refer the application to the Planning Commission pursuant to Chapter 20.04.F.4 of Title 20 of the Zoning Ordinance based on potential public policy issues.

In 2004, an approved Combined Development Permit (PLN040091) allowed the adjustment of four legal lots of record into three parcels. Parcels A (0.27), Parcel B (0.22) and Parcel C (0.41) also included Coastal Administrative Permits for three test wells on each of the three parcels. Associated with Parcel C is an existing house with California American Water as the water purveyor. At the time, all three lots were owned by one owner.

In 2011, a Combined Development Permit (PLN040671) allowed Parcel A to construct a new single dwelling and convert the test well into a permanent well. However, the test well located on Parcel A did not meet the minimum 3 gallons per minute required from Environmental Health, and a second well located on Parcel B (the subject parcel) was drilled. The two wells combined were necessary to meet the minimum 3 gallons per minute threshold required for development of a single family dwelling on Parcel A.

All parcels have since been sold. The neighbor (Parcel A) is now questioning potential impacts to his wells since the proposed test well is only 50 feet away from his existing well on Parcel B. The applicants have submitted a Technical Memorandum prepared by Bierman Hydrogeologic (**Exhibit E**), which states that the two wells serving the adjacent neighbor's property (Parcel A) are anticipated to have no hydrogeologic connectivity with the proposed project well, which will be confirmed by source capacity testing.

Given the size of the lot and the constraints for a new single family dwelling, if there are two permanent wells on the lot, staff is concerned with potential visual impacts from public viewing areas that may result with such a limited buildable area. Therefore, staff is recommending approval of a test well only, and will condition the project to require that any future single family dwelling meet all development standards and policies, including viewshed protection policies, required by the Planning Department and Environmental Health Bureau prior to the issuance of a building permit. See attached discussion as **Exhibit B**.

OTHER AGENCY INVOLVEMENT: The following agencies and departments reviewed this project:

- √ RMA - Public Works Department
- √ Environmental Health Bureau
- Water Resources Agency
- Carmel Highlands Fire Protection District
- California Coastal Commission

Agencies that submitted comments are noted with a check mark ("√"). Conditions recommended by RMA – Public Works, Environmental Health Bureau and RMA - Planning have been incorporated into the Condition Compliance/Mitigation Monitoring and Reporting Plan attached to the draft resolution (**Exhibit B**).

The project was not referred to the Carmel Highlands/Unincorporated Land Use Advisory Committee (LUAC) for review. Based on the LUAC Procedure guidelines adopted by the Monterey County Board of Supervisors per Resolution No. 08-338, at the time of submittal, this application did not warrant referral to the LUAC because the project is categorically exempt and did not qualify under the guidelines.

Note: The decision on this project is appealable to the Board of Supervisors and Coastal Commission.

/S/ ELIZABETH GONZALES

Elizabeth Gonzales, Associate Planner
(831) 755-5102 gonzales@co.monterey.ca.us
January 15, 2013

cc: Front Counter Copy; Planning Commission, Carmel Highlands Fire Department; Public Works; Parks Department; Coastal Commission; Environmental Health Bureau; Water Resources Agency; Elizabeth Gonzales, Planner; Bob Schubert, Senior Planner; Wanda Hickman, Planning Services Manager; Donald J. and Linda L. Dobbas, Property Owner; Pam Silkwood w/ Horan Lloyd Law Offices, Representative; Rui Defigueiredo, neighbor; John Fleischer, neighbor; The Open Monterey Project; LandWatch; Project File PLN120489

Attachments:	Exhibit A	Project Data Sheet
	Exhibit B	Discussion
	Exhibit C	Draft Resolution, including:
		• Conditions of Approval
		• Site Plan and Elevations
	Exhibit D	Vicinity Map

Exhibit E Applicant response to comments made at the December 13, 2012
Zoning Administrator hearing

This report was reviewed by ^{BS} Bob Schubert, Senior Planner and Wanda Hickman, Manager.

EXHIBIT B DISCUSSION

History:

On December 9, 2004, a Combined Development Permit (PLN040091) was approved (Resolution 04025) for a Coastal Development Permit to allow a Lot Line Adjustment among four (4) legal lots of record [Assessor's Parcel Numbers 1) 243-041-004-000 (0.21 acres), 2) 243-041-005-000 (0.21 acres), 3) 243-041-012-000 (0.24 acres) and 4) 243-034-006-000 (0.24 acres)] resulting in three (3) lots, Parcel A (0.27 acres), Parcel B (0.22 acres) and Parcel C (0.41 acres); and three (3) Coastal Administrative Permits for three (3) test wells. Assessor's Parcel Number 243-041-004-000 contains existing utilities that will be relocated within a proposed public utility easement. Associated with Parcel C is an existing house with California American Water as the water purveyor. At the time, all three lots were owned by one owner.

Then on March 31, 2011, a Combined Development Permit (PLN040671) was approved (Resolution 11-014) for Parcel A including: 1) a Coastal Administrative Permit and Design Approval to allow the construction of a new 6,087 square-foot, two-story single family dwelling with an attached 560 square foot 2-car garage, a 121 square foot reflecting pool, a 740 square foot deck, a 37 square foot covered entry, 315 linear feet of retaining walls (from 6 inches feet to 11.5 feet high), 67 linear feet of garden walls, planters, stone terrace patio, and grading consisting of approximately 2,500 cubic yards of cut and 200 cubic yards of fill; 2) a Coastal Development Permit for development within 750 feet of a known archaeological resource; 3) a Coastal Development Permit for development on slopes greater than 30% for the driveway access; and 4) a Coastal Administrative Permit to convert test wells (PLN040091) to permanent wells.

The reason Parcel A was approved for two wells, was because the test well located on Parcel A did not meet the minimum 3 gallons per minute threshold required by Environmental Health. Thus, a second permanent well located on Parcel B (the subject parcel) was drilled. The two wells combined were necessary to meet the minimum 3 gallons per minute threshold required for development of the single family dwelling. All parcels have since been sold.

Issues:

The adjacent property owner, known as Parcel A, currently has two wells (one of which is located on the Dobbas property) that together meet the minimum 3 gallons per minute threshold. At the Zoning Administrator hearing on December 13, 2012, this adjacent property owner raised concerns that the proposed project would potentially add significant risks to his wells since the proposed test well is only 55 feet away.

Response to Comments

The applicants' attorney has submitted a response to the comments made by the adjacent property owner (Parcel A) at the December 13, 2012 Zoning Administrator hearing. Along with the letter is a Technical Memorandum prepared by Bierman Hydrogeologic that provides information on the regulatory processes that are required prior to using the proposed project well to supply potable water. Bierman Hydrogeologic also provided hydrogeologic consulting services associated with the two existing wells on Parcels A and B, and therefore has direct knowledge of the underlying hydrogeologic characteristics of the project area. In the Technical Memorandum it states that the two wells serving the adjacent property are anticipated to have no hydrogeologic connectivity with the proposed test well, which will be confirmed by source capacity testing.

Options

Given the history noted above, the subject parcel anticipated drilling a well in the future. However, parcels in the Carmel Meadows area would generally connect to Cal Am Water. But because Cal Am is under a Cease and Desist Order, the subject parcel cannot get water from them and is proposing to drill a well. With stringent conditions of approval, should the applicants be allowed to proceed, similar to the neighbor, or should they wait on Cal Am for a water connection? They are aware that if the proposed test well does not produce the minimum 3 gallons per minute threshold, there is no other option but to wait for a Cal Am connection.

Recommendation

Given the size of the lot and the constraints for a new single family dwelling, if there are two permanent wells on the lot, staff is concerned with potential visual impacts from public viewing areas that may result with such a limited buildable area. Therefore, staff is recommending approval of a test well only, and will condition the project to require that any future single family dwelling meet all development standards and policies, including viewshed protection policies, required by the Planning Department and Environmental Health Bureau prior to the issuance of a building permit.

**EXHIBIT C
DRAFT RESOLUTION**

**Before the Planning Commission
in and for the County of Monterey, State of California**

In the matter of the application of:

Donald J. and Linda L. Dobbas (PLN120489)

RESOLUTION NO. ----

Resolution by the Monterey County Planning
Commission:

- 1) Finding the project exempt from CEQA per CEQA Guidelines Section 15303 (d); and
- 2) Approving Combined Development Permit consisting of: 1) a Coastal Administrative Permit to drill a test well for a future single family dwelling; and 2) a Coastal Development Permit for development within 750 feet of a known archaeological resource.

(PLN120489), Donald J. and Linda L. Dobbas, 2610 Ribera Road, Carmel , Carmel Area Land Use Plan (APN: 243-041-014-000)

The Donald J. and Linda L. Dobbas application (PLN120489) came on for a hearing before the Monterey County Planning Commission on January 30, 2013. Having considered all the written and documentary evidence, the administrative record, the staff report, oral testimony, and other evidence presented, the Planning Commission finds and decides as follows:

FINDINGS

1. **FINDING:** **CONSISTENCY** – The Project, as conditioned, is consistent with the applicable plans and policies which designate this area as appropriate for development.
EVIDENCE: a) During the course of review of this application, the project has been reviewed for consistency with the text, policies, and regulations in:
 - the 1982 Monterey County General Plan;
 - Carmel Area Land Use Plan;
 - Monterey County Coastal Implementation Plan Part 2-5;
 - Monterey County Zoning Ordinance (Title 20);No conflicts were found to exist. No communications were received during the course of review of the project indicating any inconsistencies with the text, policies, and regulations in these documents.
b) The property is located at 2610 Ribera Road, Carmel (Assessor's Parcel Number 243-041-014-000), Carmel Area Land Use Plan. The parcel is zoned "MDR/2-D (18) (CZ)" [Medium Density Residential/2 units per acre, Design Control District, 18 foot height limit in the Coastal Zone], which allows a well for domestic use. Therefore, the project is an allowed land use for this site.

- c) Applicant proposes to test for a domestic well for a single connection to a future single family dwelling. Pursuant to Section 20.12.040.G a Coastal Administrative Permit is required for a well serving up to 14 or fewer service connections.
- d) The application for a Combined Development Permit to allow a test well for a future single family dwelling was originally to be considered at an administrative level on October 31, 2012. However, the day before the administrative hearing staff received emails from neighbors requesting a public hearing. The proposed project was then scheduled for the Zoning Administrator hearing on December 13, 2012. After taking public testimony, the Zoning Administrator made the decision to refer the application to the Planning Commission pursuant to Chapter 20.04.F.4 of Title 20 of the Zoning Ordinance..
- e) Given the size of the lot and the constraints for a new single family dwelling, if there are two permanent wells on the lot, there are concerns with potential visual impacts from public viewing areas that may result with such a limited buildable area. Therefore, as a condition of approval, the project requires that any future single family dwelling meet all development standards and policies, including viewshed protection policies, required by the Planning Department and Environmental Health Bureau prior to the issuance of a building permit (Condition #4)
- f) Archaeological - The project is located in a high Archaeological Sensitivity zone and is located within 750 feet of a known resource. Pursuant to Section 20.147.080, (CIP) a Coastal Development Permit is required for development proposed within 750 feet of a known archaeological resource. A Preliminary Archaeological Reconnaissance prepared by Archaeological Consulting dated April 2004, concludes that the project parcel provides no surface evidence of potentially significant archaeological resources and the project should not be delayed for construction.
- g) The project planner conducted a site inspection on October 11, 2012 to verify that the project on the subject parcel conforms to the plans listed above.
- h) The project does not propose tree removal nor is there development on slopes exceeding 30%. A Biological report confirmed that no Environmentally Sensitive Habitat Area will be removed. There is no development proposed with the test well; however a condition of approval requires any future development meet all standards and policies, including viewshed protection policies, required by the Planning Department and Environmental Health Bureau.
- i) The project was not referred to the Carmel Highlands/Unincorporated Land Use Advisory Committee (LUAC) for review. Based on the LUAC Procedure guidelines adopted by the Monterey County Board of Supervisors per Resolution No. 08-338, this application did not warrant referral to the LUAC because the project is categorically exempt and does not qualify under the guidelines.
- j) The application, project plans, and related support materials submitted by the project applicant to the Monterey County RMA - Planning Department for the proposed development found in Project

2. **FINDING:** **SITE SUITABILITY** – The site is physically suitable for the use proposed.
- EVIDENCE:**
- a) The project has been reviewed for site suitability by the following departments and agencies: RMA - Planning Department, Carmel Highlands Fire Protection District, Public Works, Environmental Health Bureau, and Water Resources Agency. There has been no indication from these departments/agencies that the site is not suitable for the proposed development. Conditions recommended have been incorporated.
 - b) Staff identified potential impacts to Archaeological Resources. The following report has been prepared:
 - “Preliminary Archaeological Reconnaissance” (LIB040100) prepared by Archaeological Consulting, Salinas CA, April 15, 2004;
 - “Biological Report for a Potable Well” (LIB040101) prepared by Vern Yadon, Pacific Grove CA, April 4, 2004.The above-mentioned technical report by the outside archaeological consultant indicated that there are no physical or environmental constraints that would indicate that the site is not suitable for the use proposed. County staff has independently reviewed the report and concurs with its conclusion.
 - c) Staff conducted a site inspection on October 11, 2012 to verify that the site is suitable for this use.
 - d) The application, project plans, and related support materials submitted by the project applicant to the Monterey County RMA - Planning Department for the proposed development found in Project File PLN120489.
3. **FINDING:** **HEALTH AND SAFETY** - The establishment, maintenance, or operation of the project applied for will not under the circumstances of this particular case be detrimental to the health, safety, peace, morals, comfort, and general welfare of persons residing or working in the neighborhood of such proposed use, or be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the County.
- EVIDENCE:**
- a) The project was reviewed by the RMA - Planning Department, Carmel Highlands Fire Protection District, Public Works, Environmental Health Bureau, and Water Resources Agency. The respective agencies have recommended conditions, where appropriate, to ensure that the project will not have an adverse effect on the health, safety, and welfare of persons either residing or working in the neighborhood.
 - b) Eventually, necessary public facilities will be provided by Carmel Area Wastewater District for sewer and this application proposes a test well. Environmental Health Bureau concurs and has conditioned the project appropriately.
 - c) See Preceding Findings #1 and #2 and supporting evidence.
 - d) Staff conducted a site inspection on October 11, 2012 to verify that

the site is suitable for this use.

- e) The application, project plans, and related support materials submitted by the project applicant to the Monterey County RMA - Planning Department for the proposed development found in Project File PLN120489.

4. **FINDING:** **NO VIOLATIONS** - The subject property is in compliance with all rules and regulations pertaining to zoning uses, subdivision, and any other applicable provisions of the County's zoning ordinance. No violations exist on the property.

- EVIDENCE:**
- a) Staff reviewed Monterey County RMA - Planning Department and Building Services Department records and is not aware of any violations existing on subject property.
 - b) Staff conducted a site inspection on October 11, 2012 and researched County records to assess if any violation exists on the subject property.
 - c) There are no known violations on the subject parcel.
 - d) The application, plans and supporting materials submitted by the project applicant to the Monterey County Planning Department for the proposed development are found in Project File PLN120489.

5. **FINDING:** **CEQA (Exempt):** - The project is categorically exempt from environmental review and no unusual circumstances were identified to exist for the proposed project.

- EVIDENCE:**
- a) California Environmental Quality Act (CEQA) Guidelines Section 15303(d) categorically exempts the installation of small new equipment such as water main, sewage, electrical, gas and other utility extensions.
 - b) A single family dwelling is an exemption under this category along with appurtenant structures to the residence. The proposed test well is a utility that is required in order to provide water to a future residence. Therefore it meet this exemption as an appurtenant structure,
 - c) No adverse environmental effects were identified during staff review of the development application during a site visit on October 11, 2012.
 - d) None of the exceptions under CEQA Guidelines Section 15300.2 apply to this project.
 - e) See Preceding Findings #1, #2 and #3 and supporting evidence.
 - f) Staff conducted a site inspection on October 11, 2012 to verify that the site is suitable for this use.
 - g) The application, project plans, and related support materials submitted by the project applicant to the Monterey County RMA - Planning Department for the proposed development found in Project File PLN120489.

6. **FINDING:** **PUBLIC ACCESS** – The project is in conformance with the public access and recreation policies of the Coastal Act (specifically Chapter 3 of the Coastal Act of 1976, commencing with Section 30200 of the Public Resources Code) and Local Coastal Program, and does not

- interfere with any form of historic public use or trust rights.
- EVIDENCE:**
- a) No access is required as part of the project as no substantial adverse impact on access, either individually or cumulatively, as described in Section 20.146.030 of the Monterey County Coastal Implementation Plan can be demonstrated.
 - b) The subject property is not described as an area where the Local Coastal Program requires public access (Figure 3 in the Carmel Area Land Use Plan).
 - c) No evidence or documentation has been submitted or found showing the existence of historic public use or trust rights over this property.
 - d) The application, plans and supporting materials submitted by the project applicant to the Monterey County Planning Department for the proposed development are found in Project File PLN120489
 - e) The project planner conducted a site inspection on October 11, 2012.

7. **FINDING:** **APPEALABILITY** - The decision on this project may be appealed to the Board of Supervisors and the California Coastal Commission.

- EVIDENCE:**
- a) Section 20.86.030 Monterey County Zoning Ordinance Monterey County Zoning Ordinance states that the proposed project is appealable to the Board of Supervisors.
 - b) Section 20.86.080 Monterey County Zoning Ordinance states that the proposed project is subject to appeal by/to the Coastal Commission because the project includes a conditional use (750 feet from a known archaeological resource).

DECISION

NOW, THEREFORE, based on the above findings and evidence, the Planning Commission does hereby:

- A. Find the project exempt from CEQA per CEQA Guidelines Section 15303 (d); and
- B. Approve Combined Development Permit consisting of: 1) a Coastal Administrative Permit to drill a test well for a future single family dwelling; and 2) a Coastal Development Permit for development within 750 feet of a known archaeological resource, in general conformance with the attached sketch and subject to the conditions, both being attached hereto and incorporated herein by reference.

PASSED AND ADOPTED this 30th day of January, 2013 upon motion of _____, seconded by _____, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

Mike Novo, Secretary

COPY OF THIS DECISION MAILED TO APPLICANT ON _____.

THIS APPLICATION IS APPEALABLE TO THE BOARD OF SUPERVISORS.

IF ANYONE WISHES TO APPEAL THIS DECISION, AN APPEAL FORM MUST BE COMPLETED AND SUBMITTED TO THE CLERK TO THE BOARD ALONG WITH THE APPROPRIATE FILING FEE ON OR BEFORE _____.

THIS PROJECT IS LOCATED IN THE COASTAL ZONE AND IS APPEALABLE TO THE COASTAL COMMISSION. UPON RECEIPT OF NOTIFICATION OF THE FINAL LOCAL ACTION NOTICE (FLAN) STATING THE DECISION BY THE FINAL DECISION MAKING BODY, THE COMMISSION ESTABLISHES A 10 WORKING DAY APPEAL PERIOD. AN APPEAL FORM MUST BE FILED WITH THE COASTAL COMMISSION. FOR FURTHER INFORMATION, CONTACT THE COASTAL COMMISSION AT (831) 427-4863 OR AT 725 FRONT STREET, SUITE 300, SANTA CRUZ, CA

This decision, if this is the final administrative decision, is subject to judicial review pursuant to California Code of Civil Procedure Sections 1094.5 and 1094.6. Any Petition for Writ of Mandate must be filed with the Court no later than the 90th day following the date on which this decision becomes final.

NOTES

1. You will need a building permit and must comply with the Monterey County Building Ordinance in every respect.

Additionally, the Zoning Ordinance provides that no building permit shall be issued, nor any use conducted, otherwise than in accordance with the conditions and terms of the permit granted or until ten days after the mailing of notice of the granting of the permit by the appropriate authority, or after granting of the permit by the Board of Supervisors in the event of appeal.

Do not start any construction or occupy any building until you have obtained the necessary permits and use clearances from the Monterey County Planning Department and Building Services Department office in Salinas.

2. This permit expires 3 years after the above date of granting thereof unless construction or use is started within this period.

Monterey County Planning Department

DRAFT Conditions of Approval/Mitigation Monitoring Reporting Plan

PLN120489

1. PD001 - SPECIFIC USES ONLY

Responsible Department: Planning Department

Condition/Mitigation Monitoring Measure: This Combined Development Permit consisting of: 1) a Coastal Administrative Permit to drill a well for a future single family dwelling; and 2) a Coastal Development Permit for development within 750 feet of a known archaeological resource was approved in accordance with County ordinances and land use regulations subject to the terms and conditions described in the project file. Neither the uses nor the construction allowed by this permit shall commence unless and until all of the conditions of this permit are met to the satisfaction of the Director of the RMA - Planning Department. Any use or construction not in substantial conformance with the terms and conditions of this permit is a violation of County regulations and may result in modification or revocation of this permit and subsequent legal action. No use or construction other than that specified by this permit is allowed unless additional permits are approved by the appropriate authorities. To the extent that the County has delegated any condition compliance or mitigation monitoring to the Monterey County Water Resources Agency, the Water Resources Agency shall provide all information requested by the County and the County shall bear ultimate responsibility to ensure that conditions and mitigation measures are properly fulfilled. (RMA - Planning Department)

Compliance or Monitoring Action to be Performed: The Owner/Applicant shall adhere to conditions and uses specified in the permit on an ongoing basis unless otherwise stated.

2. PD002 - NOTICE PERMIT APPROVAL

Responsible Department: Planning Department

Condition/Mitigation Monitoring Measure: The applicant shall record a Permit Approval Notice. This notice shall state: "A Combined Development Permit (Resolution Number _____) was approved by the Director of RMA Planning for Assessor's Parcel Number 246-041-014-000 on January 30, 2013. The permit was granted subject to 12 conditions of approval which run with the land. A copy of the permit is on file with the Monterey County RMA - Planning Department." Proof of recordation of this notice shall be furnished to the Director of the RMA - Planning Department prior to issuance of building permits or commencement of the use. (RMA - Planning Department)

Compliance or Monitoring Action to be Performed: Prior to the issuance of grading and building permits or commencement of use, the Owner/Applicant shall provide proof of recordation of this notice to the RMA - Planning Department.

3. PD003(A) - CULTURAL RESOURCES NEGATIVE ARCHAEOLOGICAL REPORT

Responsible Department: Planning Department

Condition/Mitigation Monitoring Measure: If, during the course of construction, cultural, archaeological, historical or paleontological resources are uncovered at the site (surface or subsurface resources) work shall be halted immediately within 50 meters (165 feet) of the find until a qualified professional archaeologist can evaluate it. The Monterey County RMA - Planning Department and a qualified archaeologist (i.e., an archaeologist registered with the Register of Professional Archaeologists) shall be immediately contacted by the responsible individual present on-site. When contacted, the project planner and the archaeologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for recovery. (RMA - Planning Department)

Compliance or Monitoring Action to be Performed: The Owner/Applicant shall adhere to this condition on an on-going basis.

Prior to the issuance of grading or building permits and/or prior to the recordation of the final/parcel map, whichever occurs first, the Owner/Applicant shall include requirements of this condition as a note on all grading and building plans. The note shall state "Stop work within 50 meters (165 feet) of uncovered resource and contact the Monterey County RMA - Planning Department and a qualified archaeologist immediately if cultural, archaeological, historical or paleontological resources are uncovered." When contacted, the project planner and the archaeologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for the discovery.

4. SPPD001 - FUTURE DEVELOPMENT REQUIRED TO MEET ALL DEVELOPMENT STANDARDS AND POLICIES

Responsible Department: Planning Department

Condition/Mitigation Monitoring Measure: Given the size of the lot and the constraints for a new single family dwelling, if there are two permanent wells on the lot, there are concerns with potential visual impacts from public viewing areas that may result with such a limited buildable area. Therefore, as a condition of approval, the project requires that any future single family dwelling meet all development standards and policies, including viewshed protection policies, required by the Planning Department and Environmental Health Bureau prior to the issuance of a building permit.

Compliance or Monitoring Action to be Performed: The applicant shall apply for a Coastal Administrative Permit for any development on the parcel known as Parcel B, and show proof that all development standards and policies, including viewshed protection policies, are met.

Prior to the issuance of a building permit

5. PD004 - INDEMNIFICATION AGREEMENT

Responsible Department: Planning Department

Condition/Mitigation Monitoring Measure: The property owner agrees as a condition and in consideration of approval of this discretionary development permit that it will, pursuant to agreement and/or statutory provisions as applicable, including but not limited to Government Code Section 66474.9, defend, indemnify and hold harmless the County of Monterey or its agents, officers and employees from any claim, action or proceeding against the County or its agents, officers or employees to attack, set aside, void or annul this approval, which action is brought within the time period provided for under law, including but not limited to, Government Code Section 66499.37, as applicable. The property owner will reimburse the County for any court costs and attorney's fees which the County may be required by a court to pay as a result of such action. The County may, at its sole discretion, participate in the defense of such action; but such participation shall not relieve applicant of his/her/its obligations under this condition. An agreement to this effect shall be recorded upon demand of County Counsel or concurrent with the issuance of building permits, use of property, filing of the final map, recordation of the certificates of compliance whichever occurs first and as applicable. The County shall promptly notify the property owner of any such claim, action or proceeding and the County shall cooperate fully in the defense thereof. If the County fails to promptly notify the property owner of any such claim, action or proceeding or fails to cooperate fully in the defense thereof, the property owner shall not thereafter be responsible to defend, indemnify or hold the County harmless.
(RMA - Planning Department)

Compliance or Monitoring Action to be Performed: Upon demand of County Counsel or concurrent with the issuance of building permits, use of the property, recording of the final/parcel map, whichever occurs first and as applicable, the Owner/Applicant shall submit a signed and notarized Indemnification Agreement to the Director of RMA-Planning Department for review and signature by the County.

Proof of recordation of the Indemnification Agreement, as outlined, shall be submitted to the RMA-Planning Department.

6. PW0005 - ENCROACHMENT (STD DRIVEWAY)

Responsible Department: Public Works Department

Condition/Mitigation Monitoring Measure: Obtain an encroachment permit from the Department of Public Works and construct a standard driveway connection to Ribera Road.

Compliance or Monitoring Action to be Performed: Prior to Building/Grading Permits Issuance, Owner/Applicant shall obtain an encroachment permit from DPW prior to issuance of building permits and complete improvement prior to occupancy or commencement of use. Applicant is responsible in obtaining all permits and environmental clearances.

7. EHSP001 - WATER WELL CONSTRUCTION PERMIT

Responsible Department: Health Department

Condition/Mitigation Monitoring Measure: Obtain a water well construction permit from the Environmental Health Bureau pursuant to Monterey County Code Chapter 15.08, Water Wells.

Compliance or Monitoring Action to be Performed: Prior to drilling the well, a CA-licensed well drilling contractor shall obtain a water well construction permit from the Environmental Health Bureau on behalf of the owner.

8. EHSP002 - NEW WELL SOURCE CAPACITY TEST IN BEDROCK FORMATION

Responsible Department: Health Department

Condition/Mitigation Monitoring Measure: A residential building shall be provided with an adequate supply of potable water pursuant to Section 601.1 of the Uniform Plumbing Code. In order to determine the yield of the well and demonstrate an adequate supply, a new domestic well completed in bedrock formations and proposed to be used for the potable water distribution system shall first undergo a minimum of a 72-hour continuous source capacity test, witnessed by the Environmental Health Bureau (EHB). The test shall conform to Source Capacity Test procedure, available from the EHB. The source capacity test must yield a sufficient quantity as determined by EHB to support the proposed project. The source capacity test(s) shall be made no earlier than August 1 of each year and no later than Oct 31st. The source capacity test report shall include all information as specified by procedure guidelines. The applicant shall pay all associated fees to the EHB.

Compliance or Monitoring Action to be Performed: Prior to the issuance of a building permit, the applicant shall contact Drinking Water Protection Services of EHB to schedule a Source Capacity Test and obtain procedure guidelines. A qualified professional shall perform the test, prepare a comprehensive Source Capacity Test Report as detailed in the procedure guidelines and submit the report to EHB for review and approval.

9. EHSP003 - LONG-TERM WATER SUPPLY DEED RESTRICTION

Responsible Department: Health Department

Condition/Mitigation Monitoring Measure: The applicant shall record a deed restriction stating: "Well yields in fractured rock aquifer systems have been shown to decline significantly over time due to meager ability of fractured rock to store and transmit water. Therefore, with the intrinsic uncertainties regarding the long-term sustainability of an on-site well proposed to provide a source of domestic potable water on this parcel, the present and any future owners of this property are hereby given notice that additional water sources may be required in the future."

Compliance or Monitoring Action to be Performed: Prior to issuance of building permits, the applicant shall submit a draft deed restriction for review and approval by the Environmental Health Bureau and County Counsel.

Once approved, the applicant shall provide proof of recordation of the deed restriction to the Environmental Health Bureau and Planning Department.

If the applicant chooses not to pursue utilizing the well as a source for domestic use, this condition shall not be applicable.

10. EHSP004 - WELL ACCESSIBILITY

Responsible Department: Health Department

Condition/Mitigation Monitoring Measure: All wells shall be located an adequate distance from buildings and other structures to allow access for well modification, maintenance, repair, and destruction pursuant to Chapter II, Section 8 (D) of the California Well Standards and Monterey County Code, Section 15.08.110. Prior to issuance of building permits, the applicant shall record a deed restriction indicating that access to the on site well and replacement well sites (well permit #12-12086) shall be permanently available. Accessibility must be verified by a C-57 licensed contractor.

Compliance or Monitoring Action to be Performed: Prior to issuance of building permits, the applicant shall submit a draft deed restriction for review and approval by the Environmental Health Bureau and County Counsel.

Once approved, the applicant shall provide proof of recordation of the deed restriction to the Environmental Health Bureau and Planning Department.

11. EHSP005 - NEW WELL WATER QUALITY ANALYSIS

Responsible Department: Health Department

**Condition/Mitigation
Monitoring Measure:**

A residential building shall be provided with an adequate supply of potable water pursuant to Section 601.1 of the Uniform Plumbing Code. In order to demonstrate a potable supply, a new domestic well shall first undergo water quality testing. Sample collection shall be done after development of the well and shall include analysis of coliform bacteria, and primary inorganics and secondary compounds as listed in Tables 64431-A and 64449-A&B in Title 22 of the California Code of Regulations. Waivers for asbestos, MTBE, and thiobencarb may be available upon request. Sample collection shall be done by a person approved by EHB and shall be analyzed by a laboratory certified by the Environmental Laboratory Accreditation Program (ELAP). If water quality results indicate that the well exceeds a primary drinking water standard(s), a Point-of-Entry treatment system shall installed before a building is occupied and the applicant shall record a deed restriction indicating that treatment is necessary for the well water to meet Title 22, CCR primary drinking water standards.

**Compliance or
Monitoring
Action to be Performed:**

Prior to the issuance of a building permit, the applicant shall submit water quality analysis results to the Environmental Health Bureau (EHB) for review. If EHB determines that the water quality is adequate, no further action is required.

If EHB determines that treatment is necessary:

- Prior to issuance of building permits, the applicant shall provide plans prepared by a qualified individual for point-of-entry treatment to EHB for review and approval.
- Prior to occupancy of a building, the applicant shall provide to EHB for review and approval as-built plans prepared by a qualified individual for point-of-entry treatment and water quality analysis for a treatment effluent sample that demonstrates the treatment system is able to reduce the contaminant(s) to Title 22,CCR primary standards.

The applicant shall submit a draft deed restriction for review and approval by EHB and County Counsel.

The applicant shall provide proof of recordation of the approved deed restriction to EHB and Planning Department.

If the applicant chooses not to pursue utilizing the well as a source for domestic use, this condition shall not be applicable.

12. EHSP006 - OBTAIN WATER DISTRIBUTION SYSTEM PERMIT

Responsible Department: Health Department

**Condition/Mitigation
Monitoring Measure:**

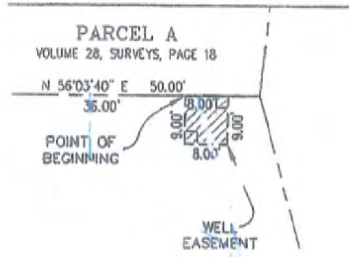
The Monterey Peninsula Water Management District (MPWMD) manages all water resources on the Monterey Peninsula. Obtain a water distribution system permit, or a written exemption, from MPWMD prior to any use of water from the well other than required testing.

**Compliance or
Monitoring
Action to be Performed:**

Prior to any use of water from the well other than required testing, the applicant shall provide documentation to the Environmental Health Bureau indicating that a water distribution system permit, or a written exemption, has been obtained from the MPWMD.

EXHIBIT "C"

BUILDING ENVELOPE

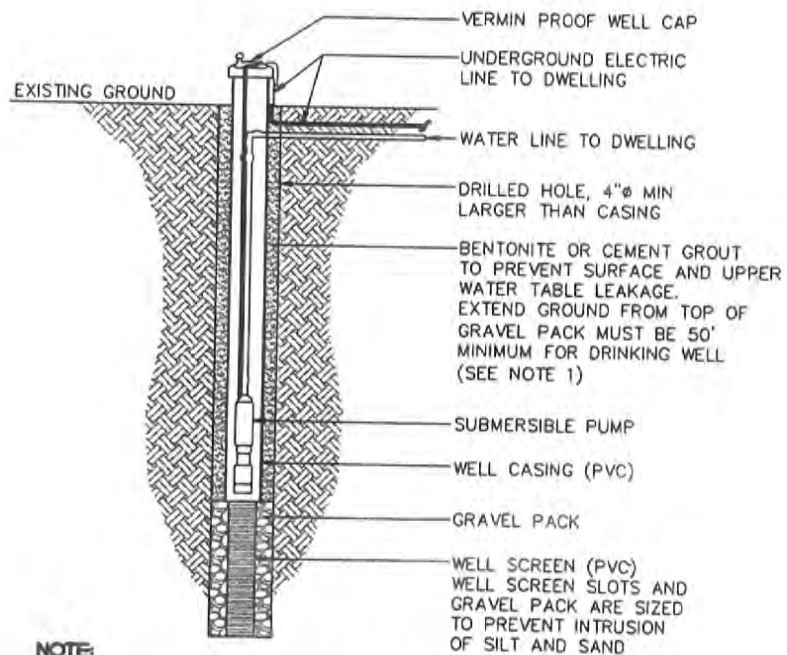


WELL APPLICATION SITE PLAN
2610 RIBERA ROAD
MONTEREY COUNTY, CALIFORNIA

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WH
JULY 20, 2012
Job No. 2703.00
Sheet 1 of 1

1" = 40'



NOTE:

1. WELL DRILLER SHALL CONFIRM DEPTH OF WELL PRIOR TO INSTALLATION.

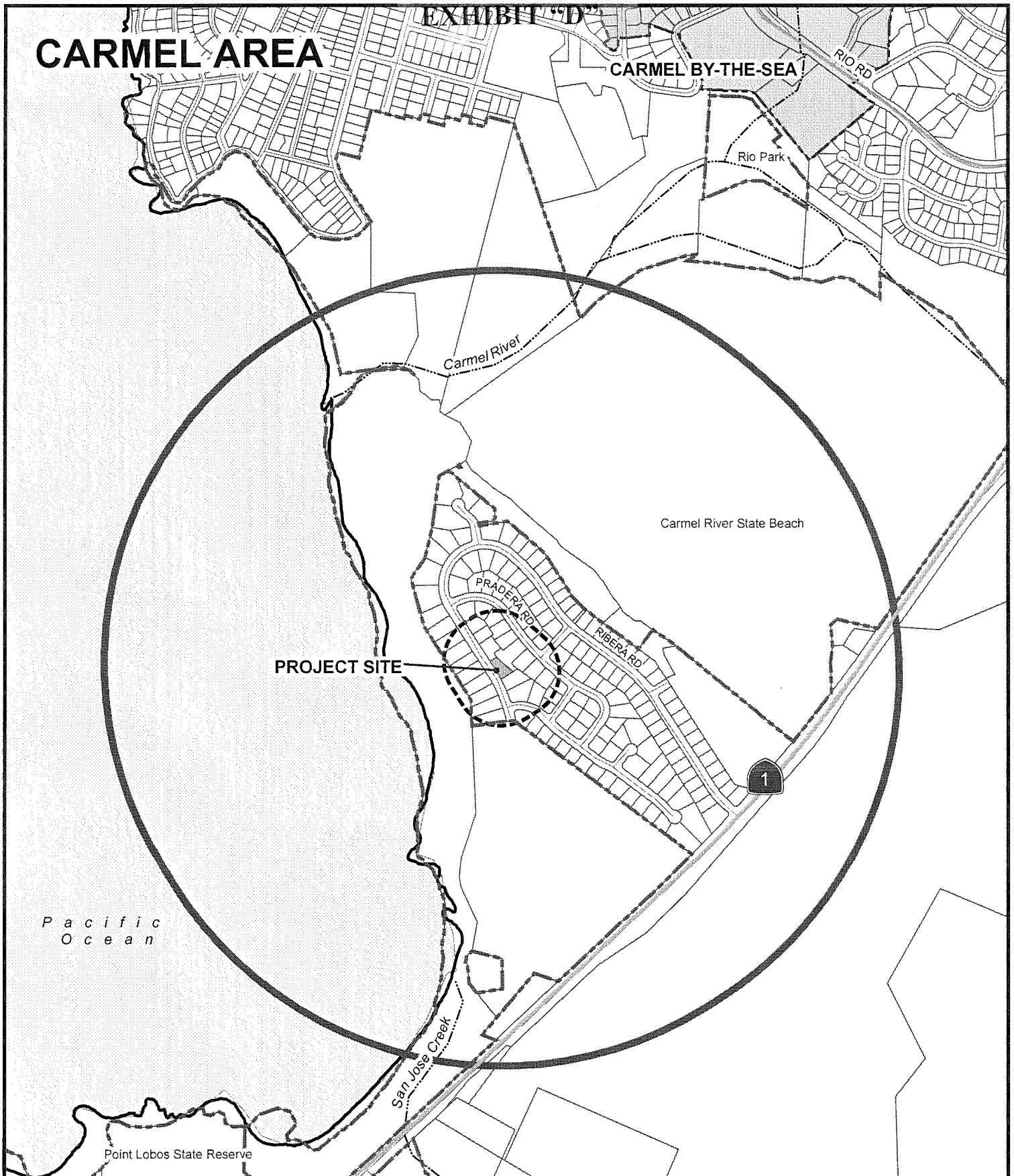
TYPICAL WELL DETAIL

NTS



EXHIBIT "D"

CARMEL AREA

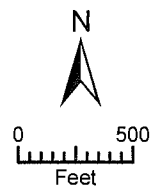


APPLICANT: DOBBAS

APN: 243-041-014-000

FILE # PLN120489

Water 2500' Limit 300' Limit City Limits



PLANNER: GONZALES

EXHIBIT "E"

HORAN | LLOYD

ANTHONY T. KARACHALE
STEPHEN W. DYER
MARK A. BLUM
JAMES J. COOK
ELIZABETH C. GIANOLA
JEROME F. POITZER
PAMELA H. SILKWOOD

Of Counsel
FRANCIS P. LLOYD
DENNIS M. LAW
SEAN FLAVIN
JACQUELINE M. PIERCE

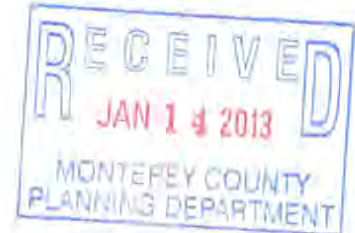
LAURENCE P. HORAN
(1929-2012)

HORAN LLOYD
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
26385 Carmel Rancho Blvd, Suite 200
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Tel: 831.373.4131
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horanlegal.com

Pamela H. Silkwood
psilkwood@horanlegal.com
Our File No. 6778.01

January 10, 2013



Via Electronic and Regular Mail

Elizabeth Gonzalez
Project Planner
Monterey County – Resource Management Agency
168 West Alisal Street, 2nd Floor
Salinas, California 93901

RE: Dobbas – 2610 Ribera Road, Carmel, CA – PLN120489

Dear Ms. Gonzalez,

This letter is in response to the comments made by the property owner of the parcel (APN 243-041-012) located adjacent to the project property ("Adjacent Property") during the December 13, 2012 Zoning Administrator's public hearing on Project PLN120489. More specifically, this letter addresses the comments raised by the Adjacent Property owner associated with the project's potential to impact his two wells and water rights.

To address these comments, Bierman Hydrogeologic, which also provided hydrogeologic consulting services associated with the two wells on the Adjacent Property and therefore has direct knowledge of the underlying hydrogeological characteristics of the project area, prepared the enclosed Technical Memorandum. The Technical Memorandum sets forth information associated with regulatory protection and hydrogeological characteristics of the project area to apprise the Adjacent Property owner that he will be sufficiently informed to safeguard against any potential future impact of the proposed project well.

The Technical Memorandum provides information on the considerable and exhaustive regulatory processes that are required prior to using the project well to supply potable water. These regulatory processes will sufficiently inform the Adjacent Property owner of any potential influence of the proposed project well on his two wells. It is important to note the Technical Memorandum states that the two wells serving the Adjacent Property are anticipated to have limited to no hydrogeologic connectivity with the proposed project well, which will be confirmed by source capacity testing.

Elizabeth Gonzalez, Project Planner
January 10, 2013
Page 2

Specific to the issue of water rights, in general, it is the right of an owner of land overlying groundwater to extract and use the water for any reasonable, beneficial purpose on his overlying land. Overlying rights, like riparian rights, are based upon ownership of land and are not created by use or lost by non-use. Instead, they are correlative, so that if there is insufficient water to meet the needs of all overlying users, they must share the available supply in an equitable manner.

Because much of the discussion during the Zoning Administrator hearing was technical, we request that Roger Van Horn be available at the Planning Commission hearing on this project to address any questions the Commissioners may have regarding the proposed project well. We appreciate your continued diligence on this project. Please do not hesitate to contact me if you have any questions or require additional information.

Respectfully submitted,



Pamela H. Silkwood

Cc: Roger Van Horn
PHS:mh

Enclosure

Cc w/o encl. Client

4833-1256-8594, v. 2

BIERMAN



Hydrogeologic Consulting & Water Resource Management
Office: (831-888 8888) Cell: (831-334 2237) E-Mail: ablerman@comcast.net
3153 Redwood Drive, Aptos, CA. 95003



January 9, 2013

Don & Linda Dobbas
P.O. Box 177
New Castle, Ca 95658
Cell: 916-204-7777

TECHNICAL MEMORANDUM: (PLN120489)

This Technical Memorandum was prepared for Don & Linda Dobbas at 2610 Ribera Road, Carmel Meadows, APN: 243-041-014-000 to alleviate neighboring concerns of impacts to neighboring wells, specifically, the two wells located on adjacent parcel APN: 243-041-012-000.

PROJECT SCOPE:

The applicants on APN: 243-041-014-000 are proposing to drill, construct and develop a test well, and perform subsequent source capacity testing on the well for meeting regulatory requirements for obtaining necessary permits. Specifically, a Single-Connection Water Distribution System (WDS) permit from Monterey Peninsula Water Management District (MPWMD) and, a Single-Connection Water Well permit from Monterey County Environmental Health Bureau (MCEHB) to serve one Single Family Dwelling (SFD).

It should be noted that each regulatory agency has different rules and regulations^{1,2} as well as different regulatory guidelines^{3,4} (adopted from State Waterworks Standards⁵) for source capacity testing which require well applicants to adhere too.

Specifics of each agencies regulatory guidelines⁶ are summarized below and show that the guidelines have built-in conservative factors that make the requirements fairly strict for obtaining the necessary permits. The guidelines are constructed to protect the well owners and long term sustainability of the aquifer as well as provide existing well purveyors with greater established entitlements than that of wells which are drilled at a later date.

MCEHB REQUIREMENTS

Well Siting: The well location must meet all required setbacks from property lines, sewer lines and be a minimum of 40-ft from existing wells perforated in the same formation. As shown on the attached map, this limits the new well to a very limited area to be drilled, specifically a 40' x 40' square which also includes a location for a future back-up well, if needed.

¹ Monterey Peninsula Water Management District Rules & Regulations (1/13) and

² Monterey County Health Department; Monterey County Code, Title 15.08 Water Wells.

³ Monterey County Health Department; "Source Capacity Test Procedures" dated May, 2008, and were generated from earlier guidelines entitled "Well Capacity Procedures in Fractured Bedrock Formations" dated March 1996, revised, January 2002, and March 2008.

⁴ Monterey Peninsula Water Management District; *Procedures for Preparation of Well Source and Pumping Impact Assessments*, dated September, 14 2005, Revised May 2006

⁵ State of California Waterworks Standards, Source Capacity Standards, March 2008.

⁶ G:\AJOB\AB_Job\Dobbas\Technical Memorandum_Well Monitoring and Offsite Impact Analysis.doc- 1 -

Source Capacity Testing: As per requirement of MCEHB (specifically, EHSP002) a residential building shall be provided with an adequate supply of potable water pursuant to section 601.1 of the Uniform Plumbing Code. In order to determine the yield of the well and demonstrate an adequate supply, a new well completed in bedrock formations are proposed to be used for a potable water distribution system, shall first undergo a minimum of a 72-hour continuous source capacity test, witnessed by MCEHB. The test shall conform to Source Capacity Testing Procedures, dated August, 2011, and Application for Source Capacity Tests, dated June, 2011. **More specifically, the well must have a post-recovery pumping rate greater than 3 gpm to support on SFD.**

Water Quality: As per requirements of MCEHB (specifically, EHSP005) a residential building shall be provided with an adequate supply of potable water pursuant to section 601.1 of the Uniform Plumbing Code. In order to demonstrate a potable supply, a new domestic well shall undergo water quality testing for bacteria (e-coli and total coliform, primary and secondary inorganic compounds as listed in Tables 64431-A and 64449-A&B in Title 22 of the California of Regulations. If water quality results indicate that the water in the well exceeds a primary drinking water standard, a Point-of-Entry (POE) treatment system shall be installed before the building is occupied and the applicant shall record a deed restriction indicating that treatment is necessary for the water in the well to meet Title 22 CCR primary drinking water standards. **More than likely, a treatment system will need to be installed to reduce iron, manganese, and the brackish water that may be encountered.**

MPWMD REQUIREMENTS

Well Siting: MPWMD defaults to MCEHB requirements as noted above.

Source Capacity Testing: MPWMD has more stringent source capacity testing protocols than that of MPWMD. Specifically, MPWMD requires;

- 1) A minimum of 3 gpm pumping rate with less than 5% fluctuation of the flow rate in 72hrs.
- 2) The wells long term calculated yield be greater than the projects calculated Maximum Day Demand (MDD) in equivalent 12-hour pumping cycles,
- 3) The wells Available Drawdown⁶ is not exceeded based on intermittent pumping at the MDD,
- 4) There is less than 5% impact to any neighboring wells Saturated Thickness⁷ as a result of pumping continuously at the projects calculated Dry Season Demand.

If any of the above conditions are not met, the proposed project will need to reduce their project scope (i.e decrease number of fixture units within the residence, or reduce exterior water demand) to meet potential onsite and offsite impacts.

Water Quality: MPWMD defaults to MCEHB requirements as noted above.

⁶ Available Drawdown is 1/3 of the wells Saturated Thickness.

⁷ Saturated Thickness is the difference between the well in question, static water level (as measured in feet below ground surface) and that of the wells lowest perforated interval (as measured in feet below ground surface).

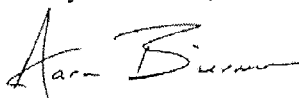
SUMMARY:

Based on knowing that the two adjacent wells are deep, marginal producing wells with limited hydrogeologic connectivity with each-other, especially for being so close to each other⁸ (15-ft) it is anticipated that a well drilled 55-ft away (as proposed, and shown on attached Well Siting Map) will have very limited to no hydrogeologic connectivity with the other neighboring wells. Albeit, the only way to confirm this hypothesis is to install a test well and complete source capacity testing.

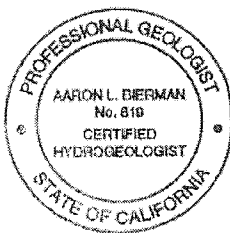
However, as discussed above, even if the wells are hydrogeologically connected, MPWMD has stringent standards which limit the second well purveyor from impacting other neighboring wells.

It is our professional opinion, that, if the new well does encounter sufficient water for the project, there will likely be a lack of hydrogeologic connectivity between the new well and the existing two wells so that the overall fractured groundwater aquifer will be sufficient for both projects.

Respectfully submitted,



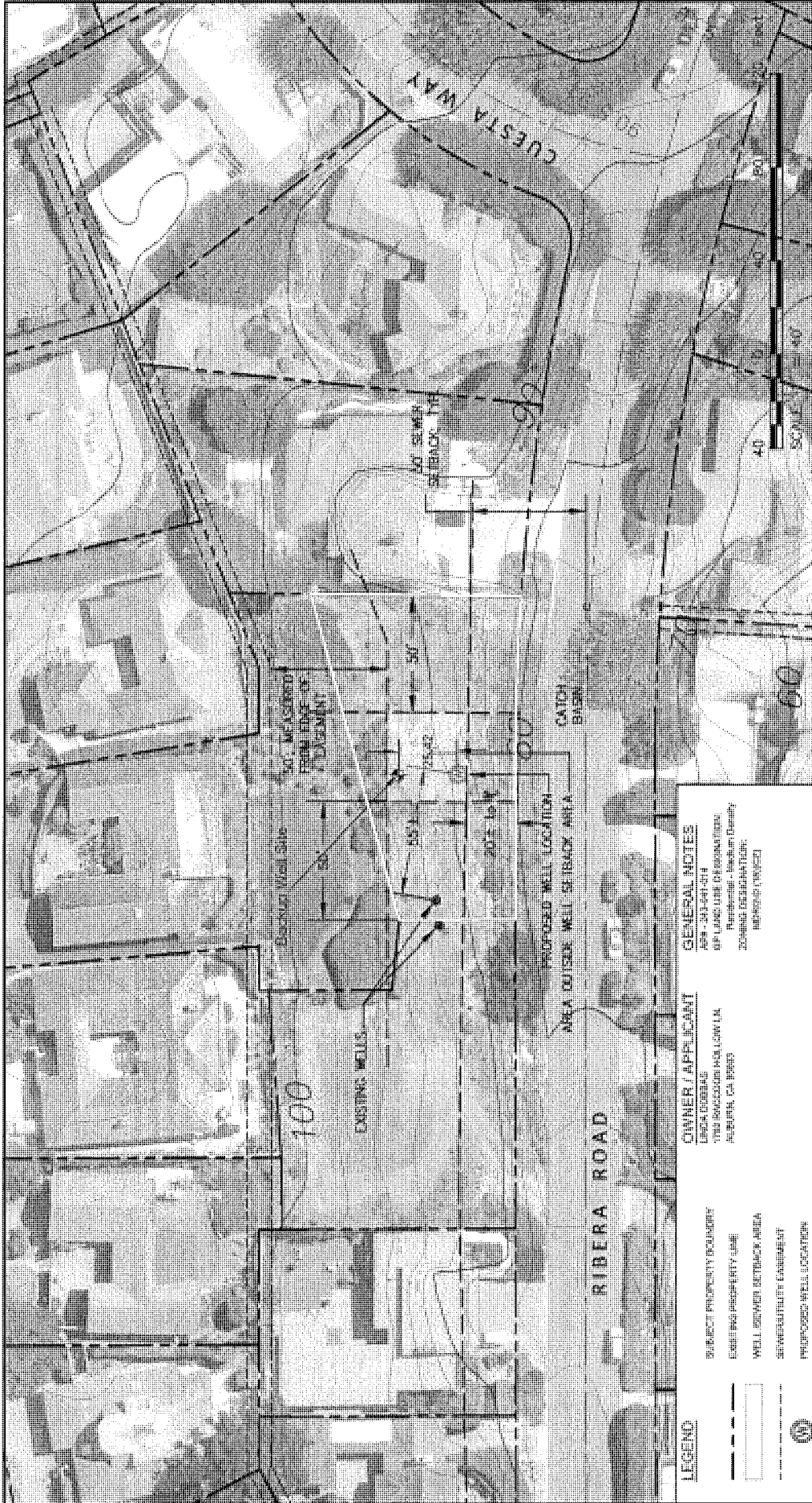
Aaron Bierman
Consulting Hydrogeologist
PG#7490, CHg#819



ATTACHMENTS:

- 1) Well Siting Map for APN: 243-041-014-000
- 2) MCEHB Source Capacity Testing Procedures, 8/11
- 3) MCEHB Application for Source Capacity Tests, 6/11
- 4) MPWMD Procedures for Preparation of Well Source and Pumping Impact Assessment, 9/05, revised 5/06

⁸ Weber, Hayes and Associates, 2006; 72-Hr Well Pumping & Aquifer Recovery Test and Pumping Impact Assessment for Head Wells #1, #2, APN: 243-041-012-000.



WE
 JULY 20, 2012
 Job No. 2930.00
 Sheet 1 of 1

WELL APPLICATION SITE PLAN
2610 RIBERA ROAD
 MONTEREY COUNTY, CALIFORNIA

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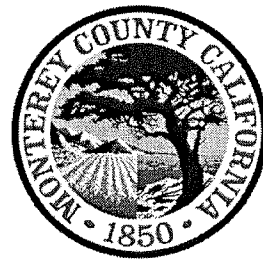
MONTEREY COUNTY

DEPARTMENT OF HEALTH Ray Bullick, Director

ANIMAL SERVICES
BEHAVIORAL HEALTH
CLINIC SERVICES

EMERGENCY MEDICAL SERVICES
ENVIRONMENTAL HEALTH

PUBLIC HEALTH
PUBLIC ADMINISTRATOR/PUBLIC GUARDIAN



Source Capacity Testing Procedures

Purpose

All wells that are proposed to supply water for domestic use or to be connected to a water distribution system shall first undergo a continuous source-capacity (pumping) test to determine the yield of the well. These testing procedures outline the requirements for conducting a source capacity test and are based on the recently revised Water Works Standards in Chapter 15 of Title 22 of the California Code of Regulations, which may be downloaded at:

<http://www.cdph.ca.gov/services/DPOPP/regs/Pages/R-14-03-RevisionofWaterworksStandards.aspx>

Definitions

- Alluvial: Pertaining to or composed of alluvium or deposited by a stream or running water.
- Alluvium: A general term for clay, silt, sand, gravel, or similar unconsolidated material deposited during comparatively recent geologic time by a stream or other body of running water as a sorted or semisorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope.
- Non-alluvial: A general term for consolidated or bedrock material.
- Source Capacity Test: A test that is conducted to determine aquifer or well characteristics.
- Static water level: The level of water in a well that is not being affected by withdrawal of groundwater.
- Steady State: Steady-state is indicated if the last four hours of drawdown measurements and the elapsed time yield a straight line in a plot of drawdown data (vertical axis) versus the time data (horizontal axis) on semi-logarithmic graph paper.
- Well yield: The volume of water discharged from a well in gallons per minute or cubic meters per day.

Conditions

Tests for non-alluvial wells and alluvial wells in areas of known water shortage problems shall be conducted during the months of August, September, or October and shall start on a Monday or Tuesday between 9 a.m. and 2 p.m. If it is proposed to pump multiple wells at the same time, an application must be completed for each well.

Source capacity testing for wells located within the Monterey Peninsula Water Management District (MPWMD) shall also follow MPWMD's testing protocol, which may have more rigorous testing and review procedures. Some of the additional requirements include taking additional water level/flow rate reading during the test. For larger projects, such as subdivisions, a premeeting with MPWMD staff is advisable. Please refer to the MPWMD website "Wells Page" for information on well registration, metering and obtaining a Water Distribution System permit, including well testing procedures, at:
<http://www.mpwmd.dst.ca.us/pac/wds/wds.htm>

Source capacity testing for wells that will serve a noncommunity or community public water system must adhere to additional requirements detailed in the Application for Source Capacity Test

All tests shall be witnessed by a representative of the Monterey County Health Department, Environmental Health Bureau (EHB) and shall follow the procedures set forth herein. A qualified individual approved by the Director of Environmental Health (hydrogeologist, engineer with experience in hydrology, experienced licensed well or pump contractor (C-57 or C-61), etc.) shall complete the test(s) and documentation. The test results shall be submitted in a form for direct comparison to the criteria set forth in this procedure. Once the information is submitted, a determination shall be made as to the yield of the well in gallons-per-minute that can be credited towards the required minimum flows for the potable use requested.

Requests for variances from the following procedures shall be submitted to EHB for review in advance of the test start date. All tests shall adhere to these procedures unless the variance is approved.

Procedure

1. Test set-up

- A. Complete the application form for scheduling a source capacity test and return to EHD. The test will not be scheduled without a completed application form, supporting documents and payment of 4 hours of time at EHB's current hourly rate for test witnessing fees. Time spent in addition to 4 hours will be billed at the completion of the test.
- B. Well shall be equipped with a meter that measures instantaneous and total flow. Tests conducted on wells that produce less than 10 gpm shall be equipped with a meter with 1 gpm increments.
- C. Discharge water shall be managed to prevent recharge of the well during the testing/recovery period and shall not be allowed to pond/percolate within 200 feet of the well.
- D. If multiple proposed production wells for the same water system are located within:
 - i. 500 feet of each other in a non-alluvial formation, the wells shall be pumped simultaneously in order to receive source capacity credit for all wells.
 - ii. 300 feet of each other in an alluvial formation, the wells shall be pumped simultaneously in order to receive source capacity credit for all wells.
- E. If there is a nearby well within 1000 feet in on the same or neighboring parcel, the well should be monitored for drawdown as the source well is tested.
- F. Well shall be equipped with a sounding tube.
- G. The sounding line shall be clearly marked with a minimum of 10-foot intervals. The sounding line will be checked before it's lowered into the well to verify starting measurement.
- H. For the purpose of obtaining an accurate static water level value, at least twelve hours before beginning the test, pump the well at the proposed pump discharge rate for no more than two hours, then discontinue pumping:

2. Length of test

- A. Non-alluvial formations - pumping shall be a minimum of 72 hours with a recovery period equal to the length of time of pumping.
- B. Alluvial Formation – pumping shall be a minimum of 8 hours with a recovery period equal to the pumping length. Consult with EHB staff prior to initiating the test to determine if the length of time for the test needs to be increased due to site specific factors including: distance to bedrock, known problems in the area, large fluctuating groundwater levels, drought conditions, etc.

3. Measurements Required (record each reading). Minor adjustments to flow rate may only be made during the first 24 hours of the pump test. After 24 hours, the flow rate shall remain constant.
- A. The meter's accuracy shall be verified by the bucket test within the first hour of the test. To conduct the bucket test, determine the time it takes to fill a 5 gallon bucket and convert to gallons per minute by dividing 300 by the number of seconds it takes to fill the bucket. The results shall be compared to the meter readings to determine if a correction factor is needed.
 - B. If a continuous data logger that records water level is used, water depth measurements must be able to be read in the field. This can be accomplished by:
 - i. Providing a computer that displays the readings from the data logger
 - ii. Using a separate sounder
 - C. Before pumping begins
 - i. Record Static Water Level
 - ii. Record totalizer on meter
 - iii. Record pump size
 - D. During pumping, record time, water level, gpm, and total gallons with every measurement at the intervals listed below. Plot the drawdown data versus the time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithm axis and the drawdown data on the vertical axis
 - i. Alluvial test (minimum of 8 hours)
 - a. 0-120 minutes – measure every 15 minutes
 - b. 120 minutes until end of test– measure every hour-(well must have achieved steady-state in order to end test and receive credit. Steady state is indicated if the last four hours of drawdown measurements and the elapsed time yield a straight line in the plot. If steady state is not achieved, the test shall be continued for a longer period of time or adjusted until steady-state is achieved. If the pumping rate is adjusted, the test must be run for at least 8 hours at the new pumping rate)
 - ii. Non-Alluvial - 72 hour test
 - a. 0-240 minutes – measure every 30 minutes
 - b. 240-480 minutes – measure every 60 minutes
 - c. 480 minutes until end of test– measure every 4 hours thereafter until water drawdown level is constant for at least the last four remaining measurements
 - iii. Non-Alluvial - 10 day test
 - a. 0-240 minutes – measure every 30 minutes
 - b. 240-480 minutes – measure every 60 minutes
 - c. Every 8 hours for the remainder of the first four days
 - d. Every 24 hours for the next five days
 - e. Every 4 hours thereafter until the water drawdown level is constant for at least the last four remaining measurements
 - E. Recovery - The well must demonstrate that, within a length of time not exceeding the duration of the pumping time of the pump test, the water level has recovered to within two feet of the static water level measured at the beginning of the well capacity test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent. (Record time and water level with every measurement).
 - i. Alluvial test

- a. 0-120 minutes – measure every 15 minutes
 - b. After 120 minutes, measure every hour until either the water level in the well recovers to within two feet of the static water level measured at the beginning of the well capacity test or to at least ninety-five percent of the total drawdown measured during the test, which ever occurs first.
 - ii. 72 hour or 10 day test
 - a. 0-240 minutes – measure every 30 minutes
 - b. 240 -480 minutes – measure every 60 minutes
 - c. After 480 minutes, measure every 12 hours until either the water level in the well recovers to within two feet of the static water level measured at the beginning of the well capacity test or to at least ninety-five percent of the total drawdown measured during the test, which ever occurs first.
4. Reporting requirements – After the test is complete, submit a report to EHB for review and approval. At a minimum, the report shall:
- A. Include all data and observations associated with a well capacity test conducted as well as the estimated capacity determination methods and calculations. The data shall be submitted in an electronic spreadsheet format. A copy of the data logger results shall be included, if applicable.
 - B. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis. (Graphing program should be used to plot data.)
5. After evaluation of the results, EHD may require further interpretation from a third party hydrogeologist.

Source Capacity Credit

1. The credited source capacity (approved well yield) will be based on the lowest flow measurement of the following: starting, ending, lowest recorded flow after 24 hours of pumping, and average. The credited source capacity will be based on actual flow measurements and not calculated yield.
2. 25/50% Policy - Wells produced from non-alluvial formations may be credited as follows for public water systems (a public water system has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year):
 - A. 72-hours of pumping receives 25% credit of the approved well yield.
 - B. 10-days of pumping receives 50% credit of the approved well yield
3. The well must demonstrate that, within a length of time not exceeding the duration of the pumping time of the pump test, the water level has recovered to within two feet of the static water level measured at the beginning of the well capacity test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent. If the well recovery does not meet these criteria, the well capacity cannot be determined using the proposed pump rate.

The Health Officer may make changes to the above procedures in order to protect the public health due to site specific conditions.

Revised 3/96, 1/02, 5/06, 6/08, 6/09, 9/09, 8/11

Required Source Capacity for New Development

Non-Residential¹

Provide engineered calculations using similar size/type system or water demand charts.

Residential²

<u>Type of System</u>	<u>Capacity Needed</u> ¹	
Private Well (unshared)	3 gpm	
2 connections	6 gpm	
3 connections	9 gpm	
4 connections	12 gpm	
	<u>Alluvial</u>	<u>Non-Alluvial</u>
5 connections	13 gpm	15 gpm
6 connections	13 gpm	18 gpm
7 connections	13 gpm	21 gpm
8 connections	13 gpm	24 gpm
9 connections	13 gpm	27 gpm
10 connections	14 gpm	30 gpm
11 connections	14 gpm	33 gpm
12 connections	14 gpm	36 gpm
13 connections	14 gpm	39 gpm
14 connections	14 gpm	42 gpm
≥15 connections (metered)	1 gpm/conn ²	1 gpm/conn ^{2,3}

¹The minimum required source capacity calculations must include the 25/50% policy for all Public Water System utilizing a well in a non-alluvial formation. For example, a business with a non-alluvial well that needs 10 gpm must have a well that is credited to produce 40 gpm.

²The minimum required source capacity for ≥15 connections is 1 gpm/connection unless existing usage data is available and calculations are done according to Section 64554 of Title 22 of the California Code of Regulations (see requirements on next page).

³The 25/50% credit policy does **not** apply to wells in non-alluvial formation that will serve 1-14 residential connections since the minimum capacity already addresses the concern that many non-alluvial wells lose production over time. The 25/50% credit policy **does** apply to wells in non-alluvial formation that will serve 15 or more residential connections. The 1 gpm/residential connection is the amount required all the approved well yield has been appropriately reduced for non-alluvial wells.

Additional Requirements (based on Chapters 15 and 19 of the Monterey County Code and Title 22 of the California Code of Regulations)

- New community water systems (serves 15 or more residences) are required to have two sources of supply.
- New community water systems are required to meet maximum day demand with the highest producing source offline
- All water systems with treatment are required to size the treatment facility to produce at least maximum day demand
- All water systems with treatment are required to increase the source capacity to meet maximum day demand after subtracting losses from the treatment facility (i.e., backwash, brine, filter-to-waste)

Section 64554 of Title 22 of the California Code of Regulations for public water systems (15 or more connections).

(a) At all times, a public water system's water source(s) shall have the capacity to meet the system's maximum day demand (MDD). MDD shall be determined pursuant to subsection (b).

(3) Both the MDD (max day demand) and PHD (peak hourly demand) requirements shall be met in the system as a whole and in each individual pressure zone.

(b) A system shall estimate MDD and PHD for the water system as a whole (total source capacity and number of service connections) and for each pressure zone within the system (total water supply available from the water sources and interzonal transfers directly supplying the zone and number of service connections within the zone), as follows:

(1) If daily water usage data are available, identify the day with the highest usage during the past ten years to obtain MDD; determine the average hourly flow during MDD and multiply by a peaking factor of at least 1.5 to obtain the PHD.

(2) If no daily water usage data are available and monthly water usage data are available:

(A) Identify the month with the highest water usage (maximum month) during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its period of operation;

(B) To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor that is a minimum of 1.5; and

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(3) If only annual water usage data are available:

(A) Identify the year with the highest water usage during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its years of operation;

(B) To calculate the average daily use, divide the total annual water usage for the year with the highest use by 365 days; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor of 2.25.

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(4) If no water usage data are available, utilize records from a system that is similar in size, elevation, climate, demography, residential property size, and metering to determine the average water usage per service connection. From the average water usage per service connection, calculate the average daily demand and follow the steps in paragraph (3) to calculate the MDD and PHD.

Revised 3/96, 1/02, 5/06, 6/08

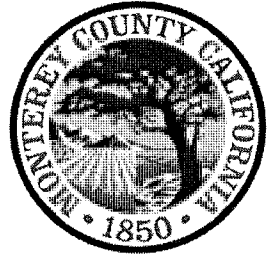
MONTEREY COUNTY

DEPARTMENT OF HEALTH Ray Bullick, Director

ANIMAL SERVICES
BEHAVIORAL HEALTH
CLINIC SERVICES

EMERGENCY MEDICAL SERVICES
ENVIRONMENTAL HEALTH

PUBLIC HEALTH
PUBLIC ADMINISTRATOR/PUBLIC GUARDIAN



Application for Source Capacity Test

Test site address: _____

APN: _____ Related Planning Permit #: _____ Well Permit # _____

Billing Address: _____

Property Owner: _____ Phone/Address: _____

Responsible Party: _____ Phone/Address: _____

Contractor: _____ Phone/Address: _____

Contractor's qualifications: _____

Purpose of test: () Water System () Single Family Dwelling () Commercial () Subdivision () Irrigation
() MPWMD distribution permit () Other, explain _____

Is there another well within 1000' of well? ☐ yes ☐ no Show wells on map with distance to well

If the well is proposed to serve a water system, what is the proposed number of connections? _____
(Connections include all habitable structures, including caretaker and senior units - See page three for capacity requirements)

Proposed discharge rate (gpm): _____ Pump Specifications: _____ Pump depth: _____

Requested test start date and time: _____ (Subject to availability. Wells in non-alluvial materials shall only be tested during August, September, and October and shall start on a Monday or Tuesday between 9 a.m. and 2 p.m. Wells that will only serve a single residence can be tested from June until the first significant rain, but the test results for tests done outside of the August - October window cannot be used for current or future water system or subdivision projects. If it is proposed to pump multiple wells at the same time, complete an application for each well)

Alternative requested test start dates: _____

Proposed test duration ☐ 8 hrs (alluvial only) ☐ 72 hrs (non-alluvial formations)
☐ 24 hrs (alluvial only) ☐ 10 days (non-alluvial formations)

Include the following documents with the application (see page 2 for test set-up requirements):

1. Map and directions to test site (include location of test well and all wells within 500')
2. Well completion report/drillers log (Please note that if well does not meet current construction standards, it may not be able to be used for a water system or subdivision with individual wells. Minimum construction standards include a minimum of a 50' seal. Wells near the end of their useful life may also not be used for subdivisions or new water systems).
3. Prepayment of 4 hours of time at the Department's current hourly rate of \$130/hr for test witnessing fees. Time spent in addition to 4 hours will be billed at the completion of the test.
4. Wells that will serve a noncommunity or community public water system have additional requirements shown on page 2. These systems serve at least 25 people at least 60 days per year.

I declare that all information in this application is correct and I hereby agree to comply with all applicable requirements in the Monterey County Health Department, Division of Environmental Health's Source Capacity Testing Procedures.

SIGNATURE OF PROPERTY OWNER
X _____ Date _____
Print _____

SIGNATURE OF CONTRACTOR
X _____ Date _____
Print _____

Application for source capacity test, page 2

Test Set-up Requirements for ALL Wells:

1. Well shall be equipped with a meter that measures instantaneous and total flow. Tests conducted on wells that produce less than 10 gpm shall be equipped with a meter with 1 gpm increments.
2. Discharge water shall be managed to prevent recharge of the well during the testing/recovery period and shall not be allowed to pond/percolate within 200 feet of the well.
3. If multiple proposed production wells for the same water system are located within:
 - a. 500 feet of each other in a non-alluvial formation, the wells shall be pumped simultaneously in order to receive source capacity credit for both wells.
 - b. 300 feet of each other in an alluvial formation, the wells shall be pumped simultaneously in order to receive source capacity credit for both wells.
4. If there is a nearby well within 300 feet in an alluvial formation or 500 feet in a non-alluvial formation on the same or neighboring parcel, the well should be monitored for drawdown as the source well is tested.
5. Well shall be equipped with a sounding tube.
6. The sounding line shall be clearly marked with a minimum of 10-foot intervals. The sounding line will be checked before it's lowered into the well to verify starting measurement.
7. For the purpose of obtaining an accurate static water level value, at least twelve hours before beginning the test, pump the well at the proposed pump discharge rate for no more than two hours, then discontinue pumping.

Public Water System Additional Requirements:

Include the additional following documents for wells that will serve a noncommunity or community public water system:

1. A copy of a United States Geological Survey 7 ½-minute topographic map of the site at a scale of 1:24,000 or larger (1 inch equals 2,000 feet or 1 inch equals less than 2,000 feet) or, if necessary, a site sketch at a scale providing more detail, that clearly indicates:
 - a. The well discharge location(s) during the test;
 - b. The location of surface waters, water staff gauges, and other production wells within a radius of 1000 feet;
2. For wells located in or having an influence on the aquifer from which the new well will draw water, a description of the wells' operating schedules and the estimated amount of groundwater to be extracted, while the new well is tested and during normal operations prior to and after the new well is in operation;
3. A description of the surface waters, water staff gauges, and production wells-shown in 1b.
4. A description of how the well discharge will be managed to ensure the discharge doesn't interfere with the test;
5. A written description of the aquifer's annual recharge.

Required Source Capacity for New Development

Non-Residential¹

- Provide engineered calculations using similar size/type system or water demand charts.

Application for source capacity test, page 3

Required Source Capacity for New Development, cont.

Residential²

<u>Type of System</u>	<u>Capacity Needed¹</u>	
Private Well (unshared)	3 gpm	
2 connections	6 gpm	
3 connections	9 gpm	
4 connections	12 gpm	
	<u>Alluvial</u>	<u>Non-Alluvial</u>
5 connections	13 gpm	15 gpm
6 connections	13 gpm	18 gpm
7 connections	13 gpm	21 gpm
8 connections	13 gpm	24 gpm
9 connections	13 gpm	27 gpm
10 connections	14 gpm	30 gpm
11 connections	14 gpm	33 gpm
12 connections	14 gpm	36 gpm
13 connections	14 gpm	39 gpm
14 connections	14 gpm	42 gpm
≥15 connections (metered)	1 gpm/conn ²	1 gpm/conn ^{2,3}

¹The minimum required source capacity calculations must include the 25/50% policy for all Public Water System utilizing a well in a non-alluvial formation. For example, a business with a non-alluvial well that needs 10 gpm must have a well that is credited to produce 40 gpm.

²The minimum required source capacity for ≥15 connections is 1 gpm/connection unless existing usage data is available and calculations are done according to Section 64554 of Title 22 of the California Code of Regulations (see requirements on next page).

³The 25/50% credit policy does **not** apply to wells in non-alluvial formation that will serve 1-14 residential connections since the minimum capacity already addresses the concern that many non-alluvial wells lose production over time. The 25/50% credit policy **does** apply to wells in non-alluvial formation that will serve 15 or more residential connections. The 1 gpm/residential connection is the amount required all the approved well yield has been appropriately reduced for non-alluvial wells.

Additional Requirements (based on Chapters 15 and 19 of the Monterey County Code and Title 22 of the California Code of Regulations)

- New community water systems (serves 15 or more residences) are required to have two sources of supply.
- New community water systems are required to meet maximum day demand with the highest producing source offline
- All water systems with treatment are required to size the treatment facility to produce at least maximum day demand
- All water systems with treatment are required to increase the source capacity to meet maximum day demand after subtracting losses from the treatment facility (i.e., backwash, brine, filter-to-waste)

Section 64554 of Title 22 of the California Code of Regulations for public water systems (15 or more connections).

(a) At all times, a public water system's water source(s) shall have the capacity to meet the system's maximum day demand (MDD). MDD shall be determined pursuant to subsection (b).

(3) Both the MDD (max day demand) and PHD (peak hourly demand) requirements shall be met in the system as a whole and in each individual pressure zone.

Application for source capacity test, page 4

Section 64554 of Title 22 of the California Code of Regulations, cont.

(b) A system shall estimate MDD and PHD for the water system as a whole (total source capacity and number of service connections) and for each pressure zone within the system (total water supply available from the water sources and interzonal transfers directly supplying the zone and number of service connections within the zone), as follows:

- (1) If daily water usage data are available, identify the day with the highest usage during the past ten years to obtain MDD; determine the average hourly flow during MDD and multiply by a peaking factor of at least 1.5 to obtain the PHD.
- (2) If no daily water usage data are available and monthly water usage data are available:
 - (A) Identify the month with the highest water usage (maximum month) during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its period of operation;
 - (B) To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; and
 - (C) To calculate the MDD, multiply the average daily usage by a peaking factor that is a minimum of 1.5; and
 - (D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.
- (3) If only annual water usage data are available:
 - (A) Identify the year with the highest water usage during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its years of operation;
 - (B) To calculate the average daily use, divide the total annual water usage for the year with the highest use by 365 days; and
 - (C) To calculate the MDD, multiply the average daily usage by a peaking factor of 2.25.
 - (D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.
- (4) If no water usage data are available, utilize records from a system that is similar in size, elevation, climate, demography, residential property size, and metering to determine the average water usage per service connection. From the average water usage per service connection, calculate the average daily demand and follow the steps in paragraph (3) to calculate the MDD and PHD.

(6/08. 6/09 6/11)

PROCEDURES FOR PREPARATION OF WELL SOURCE AND PUMPING IMPACT ASSESSMENTS

September 2005

Revised May 2006

Purpose and Applicability

Monterey Peninsula Water Management District (MPWMD or District) Rules 20 and 21 require that an application to create or amend a water distribution system (WDS) be submitted to the District. Ordinance No. 122, adopted on August 15, 2005 and effective September 14, 2005, establishes new “impact-based” criteria and four levels of evaluation for WDS applications. Detailed well testing and analysis are required as part of the WDS permit application process for Review Levels 1, 2, 3, and 4, as described in the MPWMD rules and regulations.

The information is to be provided in the form of a “**Well Source and Pumping Impact Assessment**” report (*Assessment*) which is required for three specific purposes: (1) to evaluate the well’s capability to meet the proposed demand, (2) to analyze the well’s potential impact on water resources in the vicinity, and (3) to analyze the well’s potential impact on existing wells in the vicinity. This document describes the minimum required procedures for completing an *Assessment* by a qualified professional.¹ The procedures described herein focus on standard cases that are commonly anticipated within the District (i.e., a WDS intended to serve a single-family dwelling and associated landscaping requirements); accordingly, some modifications and/or additions to these procedures may be required for other cases. This document is prepared using the single-well WDS format; however, the same procedures would apply to WDSs intended for service from multiple well sources. Costs associated with preparation of the *Assessment* shall be borne by the applicant. It should be noted that in cases where a Hydrogeologic Report is also required by Monterey County, it is acceptable to include the required information described herein as part of the Hydrogeologic Report, so that applicants do not need to prepare a separate document to satisfy the District’s requirements.

The following sections outline the minimum requirements for production testing, analysis and reporting of groundwater information to comply with the MPWMD rules and regulations. The procedures described herein may be periodically revised as warranted.

¹ Qualified professionals include a certified hydrogeologist, a professional geologist with a specialty in hydrogeology, a certified engineering geologist with a specialty in hydrogeology, or a registered civil engineer with a specialty in hydrogeology. These professionals shall be licensed in the State of California. A list of qualified consultants is available from the District. Advice in preparing the *Assessment* can be provided by District staff, but will be billed at the hourly rates as explained in the application.

General Pumping Test Methodology

The following eight (8) **general testing methods** apply for all well pumping tests, regardless of the hydrogeologic setting. The District must approve any variation from these general methods in advance on a case-by-case basis.

1. ***Witnessing of Pumping Tests.*** The Monterey County Health Department (MCHD) shall be notified in advance of the pumping test. Contact the MCHD at 755-4507 in advance to schedule the planned test start date.
2. ***Well Testing Method.*** A qualified individual or firm should conduct the pumping test; a state-licensed C-57 well contractor is recommended. The pumping test shall be conducted with the use of a mechanical well pump (vertical turbine or submersible), unless a specific alternate testing method is approved in advance. Pumping tests conducted with airlift pumping techniques are not acceptable. It is strongly recommended that the qualified professional preparing the *Assessment* be onsite at critical points during the test (e.g., test start, test stop), or otherwise oversee the testing program, in order to minimize the potential requirement to repeat the pumping test due to poor testing or data collection methods.
3. ***Timing of Tests.*** Pumping tests shall be conducted during the dry period of the year to better assess well performance under reduced groundwater availability conditions. Accordingly, the period for conducting pumping tests is the six-month period from June 1 through November 30.² This period shall apply to all pumping tests required for an *Assessment* unless the District determines a specific alternate testing period, which may be based upon the occurrence of unusually wet hydrologic conditions within the dry season. Given that hydrologic conditions vary from year to year, scheduling of pumping tests outside the dry season shall be guided by Carmel River flows, as a relative measure of dry season conditions.³ Accordingly, pumping tests outside the dry season shall only be conducted during “Low Flow Periods”, defined as “times when stream flow in the Carmel River at the Don Juan Bridge (river mile 10.8) gaging station is less than 20 cubic feet per second (cfs) for five consecutive days”. Applicants or consultants wishing to conduct pumping tests outside the six-month dry season must obtain authorization in advance from the MPWMD.
4. ***Discharge Rate.*** The testing must be conducted at a pre-determined flow rate that is held constant over the duration of the test (i.e., Constant Rate Test). The discharge rate shall be maintained within no more than a 10% range, and shall be

² Carmel River flows are used as a guide for local hydrologic conditions for the timing of pumping tests; the June 1 through November 30 period corresponds to the six lowest months of Carmel River flows, on average.

³ The criterion for determining “Low Flow Periods” is from an agreement (referred to as the “Conservation Agreement”) entered into between the National Marine Fisheries Service and California-American Water in 2001. Elements of this Agreement were later adopted as part of State Water Resources Control Board Order 2002-0002. In the Agreement and Order, specific operational restrictions are linked to Low Flow Periods, defined as “times when stream flow in the Carmel River at the Don Juan Bridge (RM 10.8) gage is less than 20 cfs for five consecutive days”.

closely monitored and documented.⁴ For both potable and non-potable intended uses, the minimum test-pumping rate shall be three (3) gallons per minute (GPM)⁵, unless another minimum rate is authorized in advance by the MPWMD.

5. ***Control of Well Discharge.*** The discharge water from pumping tests shall be managed to prevent recharge of the well during the testing and recovery periods and shall not be allowed to pond/percolate within 200 feet of the well. Where possible, the discharge water should be directed to storage tanks or applied for irrigation as a means to put the discharge water to beneficial use.
6. ***Wells Monitored.*** In all cases, the production well that is being tested shall be monitored as described in this section. In addition, nearby wells in the expected area of influence of the pumping well shall be monitored where feasible. The District recognizes that it may not be feasible to monitor all nearby wells due to logistical constraints (e.g., availability, monitoring equipment access, pumping requirements, etc.). Accordingly, in cases where nearby wells are not available for use as monitor wells during pumping tests, and the reasons for this are clearly documented in the *Assessment*, data developed from the production well shall be used to the extent possible to support the required analysis and evaluation.
7. ***Data Collection.*** Data collected during the pumping test must be well documented. The following parameters should be collected and recorded during the drawdown (i.e., pumping) phase of the test:
 - (1) Initial flow meter totalizer reading,
 - (2) Static water level prior to test start,
 - (3) Clock time at pump start,
 - (4) Water levels in the pumping and monitor wells at the reported times since pump start,
 - (5) Pumping rate at the time of each reported water level measurement,
 - (6) Flow meter totalizer reading at the time of each reported water level measurement, and,
 - (7) Final flow meter totalizer reading.

The following parameters should be collected and documented during the recovery (i.e., non-pumping) phase of the test:

- (8) Clock time at pump stop, and
- (9) Water levels in the pumping and monitor wells at the reported times since pump stop.

⁴ Automatic recording pumping rate devices are recommended as these devices improve data collection and can reduce operator time and expense.

⁵ The minimum 3 GPM test-pumping rate (i.e., total test average) is set as lower pumping rates may not adequately demonstrate the well's production capability. In addition, lower rates become more difficult to accurately measure and control, and may not adequately stress the aquifer system during testing. The test pumping rate should not be confused with the "calculated well yield" as described in this document.

8. **Water Level Monitoring.** Water level measurements should be recorded to 0.1-foot precision. Acceptable time intervals for reporting water level measurements at the pumped well during pumping tests are as follows:

<u>Time since pump start (or stop)</u> <u>(in minutes)</u>	<u>Time intervals between measurements</u> <u>(in minutes)</u>
0 to 10	0.5 to 1
10 to 15	1
15 to 60	5
60 to 300	30
300 to 1440	60
1440 to end	480 (8 hr)

The type of water level monitoring device to be used must be specified. Due to the potential for inaccurate water level measurements during pumping (e.g., false readings of pumping water levels due to cascading water in the well, pump turbulence, etc.), the use of electrical water level measuring devices (i.e., water level probes) are discouraged during the conduct of the well pumping test.⁶ Instead, it is strongly recommended that pressure transducer/datalogger technology be used for the test. With the pressure transducer properly located below the lowest anticipated water level during the test, the potential for false readings due to cascading water above the pumping water level or pump turbulence is minimized. If water level probes are used in place of pressure transducer/dataloggers and there is uncertainty about the quality of the recorded data, the results of the test will be subject to more conservative interpretation by the District. Water levels shall be monitored and recorded during the recovery phase as required in Step 2 of the procedures for each specific setting, as described on the following pages.

Water Quality Testing

If the water well is to supply potable water for a proposed single-connection WDS, the *Assessment* shall include a water quality (chemical) analysis that as a minimum includes primary inorganics, secondary compounds and coliform bacteria (commonly referred to as general mineral, general physical, inorganics), as described in Title 22, Chapter 15 of the California Code of Regulations. Applicants should check with the MCHD for specific requirements if the proposed WDS is intended to serve 2 or more connections. Water quality testing is not required (but is recommended) for wells intended to supply non-potable irrigation uses.

⁶ Water level probes are discouraged as the primary measurement device unless used with a sounding tube properly installed below the lowest expected pumping water level. Water level probes are acceptable for the purpose of calibrating/confirming pressure transducer measurements. Water level probes should have clearly marked depth graduations.

Methodology, Contents and Format of Tests and Assessments

The methodology for well pumping tests and calculations of well and aquifer parameters shall be consistent with standard hydrogeologic practices. References and descriptions of these practices are available from the District.

Prior to the preparation of an *Assessment*, the applicant or their consultant will need to request and obtain from the District a map of all known registered wells and potential “sensitive environmental receptors” (SERs) in the vicinity of the well.⁷ This map, or a modified version of it, shall be included in the *Assessment*. The *Assessment* will also need to include the items required per Item 17 of the District’s WDS application form. Three key items include:

- (1) A copy of the MCHD well construction permit,
- (2) A copy of the State Department of Water Resources Well Completion Report (well log), and
- (3) Water quality testing results if the well is to supply water for potable use.

The *Assessment* shall include sufficient background to briefly describe the:

- (1) Site location (nearby streets, lot size, topography),
- (2) Well location on the site,
- (3) Well construction (size, depth, materials) and completion (screened intervals), and
- (4) Hydrogeologic setting (site geology and aquifer system identification).

In addition, a pumping test set-up description shall also be provided, including the:

- (1) Pump size (horsepower),
- (2) Pump intake setting (feet below ground surface),
- (3) Method for maintaining pumping rate (e.g., dose valve, gate valve, etc.), and
- (4) Control of discharge water.

The *Assessment* shall be submitted in a format for direct comparison to the step-by-step procedures outlined herein. All references, attachments and supporting data/documents shall be listed in the *Assessment*, and be clearly labeled. The *Assessment* shall be provided in both printed (three copies) and digital (one compact disk) formats. ***Other analytical methods not conforming to the procedures described herein may be acceptable, but shall be approved in advance on a case-by-case basis by the District.***

⁷ A “Sensitive Environmental Receptor (SER)” is any one of the following areas or locations: (1) the Carmel Valley Alluvial Aquifer (alluvium) as delineated by the State Water Resources Control Board (SWRCB) in Order WR 95-10 as modified by Order 98-04, and as shown on maps at the District office; (2) the five tributaries listed in MPWMD Rule 20, including Tularcitos, Hitchcock Canyon, Garzas, Robinson Canyon and Potrero Creeks; (3) the Seaside Groundwater Basin as delineated by MPWMD, and as shown on maps at the District office; (4) the Pacific Ocean as delineated by the mean high tide line; or (5) other sensitive locations as designated by Resolution of the MPWMD Board of Directors.

Step-by-Step Well Assessment Procedures for Four Settings within the District

The District has developed four (4) sets of specific testing procedures. Each set of procedures is specific to the four hydrogeologic “settings” (or locations) within the District that the well is located. If there is a question as to which setting is appropriate for a specific application, it is strongly recommended that the applicant, or the applicant’s consultant, contact District staff before completing the *Assessment* to confirm the appropriate set of procedures that apply and to determine what special, site-specific circumstances may require modification to these procedures. Maps showing the location of the four settings described below are available for review at the District office. The four settings are the:

- (1) Carmel Valley Alluvial Aquifer,**
- (2) Carmel Valley Uplands⁸ or other fractured/consolidated bedrock formations,**
- (3) Carmel Valley Uplands and within 1,000 feet of the Carmel Valley Alluvial Aquifer or certain tributary creeks, and**
- (4) Seaside Groundwater Basin.**

⁸ “Carmel Valley Uplands” collectively refers to the assemblage of consolidated sedimentary, igneous and metamorphic rocks with common moderate-to-extensive fracturing, within the Carmel River Basin Watershed.

SETTING #1: PROCEDURES FOR WELLS WITHIN THE CARMEL VALLEY ALLUVIAL AQUIFER

Step 1, Test Length. Pumping tests for wells completed in the Carmel Valley alluvial aquifer shall be for a minimum of 8 hours unless an alternate test length is authorized in advance by the District. Consult with District staff prior to initiating the test to determine if the test length needs to be increased due to site specific factors including: distance to bedrock, known groundwater supply problems in the area, large pumping drawdowns, drawdown curve slope not stabilized, drought conditions, etc. If pre-testing is conducted to determine the proper pumping rate, the formal constant-rate pumping test shall be delayed until at least twice the pre-testing time has elapsed to allow water level recovery from the pre-testing.

Step 2, Documentation of Drawdown and Recovery. Drawdown and recovery data in the pumping and monitor wells shall be documented in a summary table(s) and shall include: static water level, flow meter totalizer readings, clock time, elapsed time since pump start (minutes), pumping water levels (feet below ground surface or specified reference point), drawdown (pumping water level minus static water level), elapsed time since pump stop (minutes), residual drawdown (non-pumping water level minus static water level). Water level recovery data shall be measured until the recovering water level in the pumping well reaches 90% of the pre-test static water level. If 90% percent recovery is not achieved in the equivalent amount of time as the pumping period, then an evaluation of the test will be conducted by the District to determine whether or not the calculated yield should be reduced.

Step 3, Calculation of Specific Capacity. The transmissivity shall be determined and the specific capacity calculated from the test drawdown data. If casing storage effects⁹ are suspected to influence early test data from the pumping well, these effects should be factored out of the transmissivity determination. If the apparent transmissivity decreases between the first half of the test and the end of the test, the 8-hour specific capacity shall be adjusted by multiplying the ratio of late-time transmissivity to early-time transmissivity.

Step 4, Calculation of Available Drawdown. Unless an alternate methodology is authorized in advance, available drawdown for setting #1 is defined as the lesser of:

- A) The distance from the static water level to the top of the perforations, or
- B) One-half of the saturated thickness penetrated by the well.

Step 5, Calculation of Well Yield. Unless modified as per Step 2 above, the yield of the well shall be calculated by multiplying the 8-hour specific capacity by the available drawdown. The well yield represents the theoretical maximum sustainable pumping rate

⁹ For an example discussion of casing storage effects, see *Groundwater and Wells* (Driscoll, 1986, page 232).

for the well.¹⁰ A well yield of 3 GPM per single-family dwelling is the minimum standard for WDS applications.¹¹ The District must approve any variation from this minimum standard on a case-by-case basis.

Step 6, Estimation of Demand. Estimated “annual demand” for the well shall be based upon all the intended potable and/or non-potable uses on the parcel. For most parcels in the unincorporated areas of the District, the District will accept up to 0.5 acre-feet per year (AFY) as the estimated annual demand for a typical single-family dwelling with standard outdoor landscaping. If the well is intended to supply water for large residences on large parcels with extensive landscaping, agriculture or other non-standard uses, then additional documentation (e.g., residential fixture unit count, non-residential demand based on square footage and type of use, area and type of irrigated use) must be provided as justification for the annual demand estimate. Once the annual demand estimate is established, it should be used to calculate “average day”, “dry season” and “maximum day” demands. Average day demand is the estimated annual demand divided by 365 days, and expressed as GPM. The six-month period from May through October should be used to estimate typical dry season demand. Based on Cal-Am system long-term water production records, May through October represents the highest six-month demand period, with approximately 60% of annual demand occurring during this period.¹² Similarly, maximum day demand can be estimated at 1.5 times the average day demand.¹³ These estimates are acceptable for most single-family residential applications, but may not be appropriate for applications associated with extensive non-potable uses (e.g., commercial, agricultural). Please contact the District with questions regarding selection of the appropriate demand estimation factors. The *dry season demand estimate* should be expressed in equivalent GPM over six months (183 days), and will be used in **Step 8** below. The *maximum day demand estimate* will be used in **Step 7** below and should be expressed in equivalent GPM over 12 hours pumping duration, as wells should not be planned to operate at more than 12-hour daily pumping cycles during maximum demand periods, when supply requirements will be most critical.¹⁴

¹⁰ The well casing size, pump size and discharge pipe size are factors that will influence the maximum sustainable pumping rate of a well. These factors may limit achieving the calculated well yield in practice and should be considered in the *Assessment*.

¹¹ A well pumping at 3 GPM each day on maximum 12-hour daily pumping cycles would produce 2.4 acre-feet in a year, which may exceed demand requirements for some WDSs. However, experience has shown that actual well yields in most hydrogeologic settings, tend to decline with time. This can be due to declines in ground water levels, degradation of well casing materials, well encrustation or other biological activity that reduces permeability in the zone around the well, pump wear, or a combination of any or all of these factors. The 3 GPM minimum well yield rate provides a safety factor that allows for declines in well performance over time.

¹² Monthly production records for the Monterey Division of California American Water for Water Years 1992 to 2003. Monthly breakdown is available from MPWMD.

¹³ Analysis of Cal-Am production records in Monterey Peninsula Water Supply Project Alternatives, Phase I Technical Memorandum (Camp, Dresser & McKee, March 2003). See page 2-3.

¹⁴ The maximum 12-hour daily well pumping limitation is incorporated into recommended mitigations for maintaining supply capacity for a large groundwater-supplied project in Carmel Valley (see Jones & Stokes Associates, Inc., 1995, Santa Lucia Preserve Project, Final EIR, page 8-31). This limitation is based on the understanding that pumping tests begin with static water level conditions in the well, in contrast to actual pumping conditions during maximum demand periods, when wells will already have undergone some cumulative seasonal drawdown from prior pumpage. Therefore, wells should not be relied upon to operate

Step 7, Confirmation of Well Capacity. If the *maximum day demand estimate* (in equivalent GPM over 12 hours pumping), as determined in **Step 6**, is equal to or less than the *calculated well yield* from **Step 5**, then proceed to **Step 8**. If the *maximum day demand estimate* exceeds the *calculated well yield*, then additional analysis to estimate anticipated drawdown under intermittent (cyclic) pumping conditions is required to confirm the well's capability to supply anticipated demands without excessive drawdown. An acceptable method to approximate drawdown from intermittent pumping can be found in *Groundwater and Wells* (Driscoll, 1986, page 235). This analysis should be conducted at the maximum day demand rate with maximum daily 12-hour pumping and 12-hour recovery cycles for a 30-day period to represent a reasonable assessment of the length of time that the well may be required to operate at or near the maximum rate. If *cumulative drawdown* from the intermittent pumping calculation exceeds available drawdown as determined in **Step 4**, then these results will be used by the District to further assess and adjust the allowable system capacity (i.e., production limit) for the proposed WDS.

Step 8, Calculation of Projected Drawdown. To evaluate the potential well pumping effects in the vicinity of the well, calculated drawdown projections shall be made. Comparison of calculated drawdowns should be made with actual drawdowns measured from nearby monitor wells where available. Drawdown calculations shall be based upon conventional hydrogeologic practices.¹⁵ For drawdown calculations, estimates of hydrogeologic parameters (i.e., transmissivity, storativity) are required. From **Step 3** above, the transmissivity as determined from late-time test data, if applicable, should be used. If storativity cannot be determined from the subject test data, then it should be approximated from other tests, formulas or available literature, as appropriate. The drawdown calculations should utilize the *dry season demand estimate*, expressed in equivalent GPM over six months (183 days), as determined from **Step 6** above. At a minimum, drawdowns shall be calculated for the end of the dry season at the locations of the nearest and farthest existing wells or other receptors within a 300-foot radius of the pumping well.

Step 9, Evaluation of Projected Drawdown Impacts. Using the drawdown calculations as determined from **Step 8** above, evaluate the significance of the projected drawdowns on existing wells or other receptors, as a result of pumping for the proposed WDS. Where available, well completion data (e.g., static and pumping water levels, well screened depths, depth of pump setting) for the existing wells within 300 feet shall be assembled and reviewed for this evaluation.

Optional Procedures for wells in Carmel Valley Alluvial Aquifer

The District strongly recommends that well testing and analysis be conducted for the actual well to be permitted, but this is not required for all wells completed in the Carmel

more than 12 hours per day to reduce the potential for exhausting available drawdown during maximum demand periods.

¹⁵ Drawdown calculations should utilize standard methods (e.g., Theis Nonequilibrium Equation, Cooper-Jacob Nonequilibrium Equation) that are described in most hydrogeology textbooks. The District can be contacted for assistance in determining the appropriate analytical methods.

Valley alluvial aquifer, provided that sufficient data are available from other nearby wells. Because groundwater is generally more available and well production more reliable within the Carmel Valley alluvial aquifer, the District may conditionally approve a WDS permit prior to the well's construction or completion of a pumping test for a new well. Accordingly, groundwater information from existing, nearby wells may provide sufficient data to process a WDS permit. Authorization to process the WDS permit based on information from existing nearby wells must be obtained from District staff and will be assessed on a case-by-case taking into account the following factors:

- Location of the proposed well within 1,000 feet of the existing well(s),
- Location of the proposed well and the existing well(s) in similar hydrogeologic settings within the alluvial aquifer (with respect to distances from the river, bedrock, creeks, water table, etc.),
- Similar construction of the proposed well and the existing well(s) including depth, screened depths, pump depth, etc.,
- Occurrence of any known water quantity or quality problems in the area,
- Willingness of nearby well owner(s) to provide well information,
- Acceptable quality of the existing well data to address these step-by-step procedures.

SETTING #2:

PROCEDURES FOR WELLS IN THE CARMEL VALLEY UPLANDS OR OTHER FRACTURED/CONSOLIDATED BEDROCK FORMATIONS

Step 1, Test Length. Pumping tests for wells completed in the Carmel Valley uplands bedrock complex or fractured/consolidated bedrock formations in other locations shall be for a minimum of 72 hours. If pre-testing is conducted to determine the proper pumping rate, the formal constant-rate pumping test shall be delayed until at least twice the pre-testing time has elapsed to allow water level recovery from the pre-testing.

Step 2, Documentation of Drawdown and Recovery. Drawdown and recovery data in the pumping and monitor wells shall be documented in a summary table(s) and shall include: static water level, flow meter totalizer readings, clock time, elapsed time since pump start (minutes), pumping water levels (feet below ground surface or specified reference point), drawdown (pumping water level minus static water level), elapsed time since pump stop (minutes), residual drawdown (non-pumping water level minus static water level). Water level recovery data shall be measured until the recovering water level in the pumping well reaches 95% of the pre-test static water level. If 95% percent recovery is not achieved after two times the pumping period has elapsed, then an evaluation of the test will be conducted by the District to determine whether or not the calculated yield should be reduced.

Step 3, Calculation of Specific Capacity. The transmissivity shall be determined and the specific capacity calculated from the test drawdown data. If casing storage effects¹⁶ are suspected to influence early test data from the pumping well, these effects should be factored out of the transmissivity determination. If the apparent transmissivity decreases between the first half of the test and the end of the test, the 24-hour specific capacity shall be adjusted by multiplying the ratio of late-time transmissivity to early-time transmissivity.

Step 4, Calculation of Available Drawdown. Unless an alternate methodology is authorized in advance, available drawdown for setting #2 is defined as:

one-third of the vertical distance from the static water level to the bottom of the well perforations (i.e., well screen).

Step 5, Calculation of Yield. Unless modified as per **Step 2** above, the yield of the well shall be calculated by multiplying the 24-hour specific capacity by the available drawdown. The well yield represents the theoretical maximum sustainable pumping rate for the well.¹⁷ A well yield of 3 GPM per single-family dwelling is the minimum

¹⁶ For an example discussion of casing storage effects, see *Groundwater and Wells* (Driscoll, 1986, page 232).

¹⁷ The well casing size, pump size and discharge pipe size are factors that will influence the maximum sustainable pumping rate of a well. These factors may limit achieving the calculated well yield in practice and should be considered in the *Assessment*.

standard for WDS applications.¹⁸ The District must approve any variation from this minimum standard on a case-by-case basis.

Step 6, Estimation of Demand. Estimated “annual” demand for the well should be based upon all the intended potable and/or non-potable uses on the parcel. For most parcels in the unincorporated areas of the District, the District will accept up to 0.5 acre-feet per year (AFY) as the estimated annual demand for a typical single-family dwelling with standard outdoor landscaping. If the well is intended to supply water for large residences on large parcels with extensive landscaping, agriculture or other non-standard uses, then additional documentation (e.g., residential fixture unit count, non-residential demand based on square footage and type of use, area and type of irrigated use) must be provided as justification for the annual demand estimate. Once the annual demand estimate is established, it should be used to calculate “average day”, “dry season” and “maximum day” demands. Average day demand is the estimated annual demand divided by 365 days, and expressed as GPM. The six-month period from May through October should be used to estimate typical dry season demand. Based on Cal-Am system long-term water production records, May through October represents the highest six-month demand period, with approximately 60% of annual demand occurring during this period.¹⁹ Similarly, maximum day demand can be estimated at 1.5 times the average day demand.²⁰ These estimates are acceptable for most single-family residential applications, but may not be appropriate for applications associated with extensive non-potable uses (e.g., commercial, agricultural). Please contact the District with questions regarding selection of the appropriate demand estimation factors. The *dry season demand estimate* should be expressed in equivalent GPM over six months (183 days), and will be used in **Step 8** below. The *maximum day demand estimate* will be used in **Step 7** below and should be expressed in equivalent GPM over 12 hours pumping duration, as wells should not be planned to operate at more than 12-hour daily pumping cycles during maximum demand periods, when supply requirements will be most critical.²¹

Step 7, Confirmation of Well Capacity. If the *maximum day demand estimate* (in equivalent GPM over 12 hours pumping), as determined in **Step 6**, is equal to or less than

¹⁸ A well pumping at 3 GPM each day on maximum 12-hour daily pumping cycles would produce 2.4 acre-feet in a year, which may exceed demand requirements for some WDSs. However, experience has shown that actual well yields in most hydrogeologic settings, including local fractured rock aquifers, tend to decline with time. This can be due to declines in ground water levels, degradation of well casing materials, well encrustation or other biological activity that reduces permeability in the zone around the well, pump wear, or a combination of any or all of these factors. The 3 GPM minimum well yield rate provides a safety factor that allows for declines in well performance over time.

¹⁹ Monthly production records for the Monterey Division of California American Water for Water Years 1992 to 2003. Monthly breakdown is available from MPWMD.

²⁰ Analysis of Cal-Am production records in Monterey Peninsula Water Supply Project Alternatives, Phase I Technical Memorandum (Camp, Dresser & McKee, March 2003). See page 2-3.

²¹ The maximum 12-hour daily well pumping limitation is incorporated into recommended mitigations for maintaining supply capacity for a large groundwater-supplied project in Carmel Valley (see Jones & Stokes Associates, Inc., 1995, Santa Lucia Preserve Project, Final EIR, page 8-31). This limitation is based on the understanding that pumping tests begin with static water level conditions in the well, in contrast to actual pumping conditions during maximum demand periods, when wells will already have undergone some cumulative seasonal drawdown from prior pumpage. Therefore, wells should not be relied upon to operate more than 12 hours per day to reduce the potential for exhausting available drawdown during maximum demand periods.

the *calculated well yield* from **Step 5**, then proceed to **Step 8**. If the *maximum day demand estimate* exceeds the *calculated well yield*, then additional analysis to estimate anticipated drawdown under intermittent (cyclic) pumping conditions is required to confirm the well's capability to supply anticipated demands without excessive drawdown. An acceptable method to approximate drawdown from intermittent pumping can be found in *Groundwater and Wells* (Driscoll, 1986, page 235). This analysis should be conducted at the maximum day demand rate with maximum daily 12-hour pumping and 12-hour recovery cycles for a 30-day period to represent a reasonable assessment of the length of time that the well may be required to operate at or near the maximum rate. If *cumulative drawdown* from the intermittent pumping calculation exceeds *available drawdown* as determined in **Step 4**, then these results will be used by the District to further assess and adjust the allowable system capacity (i.e., production limit) for the proposed WDS.

Step 8, Calculation of Projected Drawdown.²² To evaluate the potential well pumping effects in the vicinity of the well, calculated drawdown projections shall be made. Comparison of calculated drawdowns shall be made with actual drawdowns measured from nearby monitor wells where available. Drawdown calculations shall be based upon conventional hydrogeologic practice.²³ For drawdown calculations, estimates of hydrogeologic parameters (i.e., transmissivity, storativity) are required. From **Step 3** above, the transmissivity as determined from late-time test data, if applicable, should be used. If storativity cannot be determined from the subject test data, then it should be approximated from other tests, formulas or available literature, as appropriate. The drawdown calculations should utilize the *dry season demand estimate*, expressed in equivalent GPM over six months (183 days), as determined from **Step 6** above. At a minimum, drawdowns shall be calculated for the end of the dry season at the locations of the nearest and farthest existing wells or other receptors within a 1,000-foot radius of the pumping well.

Step 9, Evaluation of Projected Drawdown Impacts. Using the drawdown calculations as determined from **Step 8** above, evaluate the significance of the projected drawdowns on existing wells or other receptors, as a result of pumping for the proposed WDS. Where available, well completion data (e.g., static and pumping water levels, well screened depths, depth of pump setting) for the existing wells within 1,000 feet shall be assembled and reviewed for this evaluation.

²² Calculation and evaluation of projected drawdown impacts are not required for Review Level 1 WDS permit applications.

²³ Drawdown calculations should utilize standard methods (e.g., Theis Nonequilibrium Equation, Cooper-Jacob Nonequilibrium Equation) that are described in most hydrogeology textbooks. The District can be contacted for assistance in determining the appropriate analytical methods.

SETTING #3:
PROCEDURES FOR WELLS IN THE CARMEL VALLEY UPLANDS AND
WITHIN 1,000 FEET OF THE CARMEL VALLEY ALLUVIAL AQUIFER OR
CERTAIN TRIBUTORY CREEKS

If the proposed WDS supply well is located within 1,000 feet of the mapped extent of the Carmel Valley Alluvial Aquifer and/or the following five named Carmel River tributaries: Tularcitos Creek, Hitchcock Canyon Creek, Garzas Creek, Robinson Canyon Creek, Potrero Creek, then additional information and analysis are required to evaluate potential impacts from the supply well on those water sources on a seasonal and annual basis. The additional information required is found in Step 10. The additional analysis required is found in Step 11.

Steps 1 through 9 – refer to these under Setting #2.

Step 10, Compile Additional Information and Maps.

- ✓ A map that clearly delineates the relationship of the existing legal parcel to the location of the creek and/or the location of the Carmel Valley Alluvial Aquifer;
- ✓ Hydrological information describing the relationship of the proposed WDS well to the creek and/or Carmel Valley Alluvial Aquifer, and the potential use of the well both seasonally and annually;
- ✓ Existing and planned uses of any other existing wells on the applicant's property that are not part of the proposed WDS (non-WDS wells);
- ✓ Plan view drawing showing the distance of the proposed WDS well to the creek and/or Carmel Valley Alluvial Aquifer, and the distance to other wells not owned by the applicant within 1,000 feet of the proposed WDS well;
- ✓ Cross-sectional drawing showing elevation of channel bottom (thalweg) and/or Carmel Valley Alluvial Aquifer boundaries, the proposed WDS well perforations, and the expected water level elevations during operation;
- ✓ A table showing monthly breakdown of annual production expected from the proposed WDS well (in acre-feet and equivalent GPM);
- ✓ Location and volume of water associated with septic system and other sources of return flows, such as irrigation, and how these sources may contribute to the groundwater system.

Step 11, Calculation/Evaluation of Projected Drawdown Impacts on Creek Flow.

- ✓ Utilizing available streamflow information from the District and any other information the applicant wishes to develop, assess the potential well drawdown and the degree of dry season impact expected to the creek;
- ✓ Assess whether production from the proposed WDS well would affect the creek streamflow dynamics in a significant, measurable way (e.g., make the alluvial section of the creek dry up sooner or take the creek longer to resume flow upon return of the precipitation season);

- ✓ Base drawdown calculations on the distance of the proposed WDS well to the nearest potentially impacted receptor (creek or alluvium);
- ✓ Assess potential cumulative effects of the proposed WDS well with other non-WDS wells on the applicant's property and wells on other properties within 1,000 feet of the WDS well.

SETTING #4:

PROCEDURES FOR WELLS WITHIN THE SEASIDE GROUNDWATER BASIN

Step 1, Test Length. Pumping tests for wells completed within the Seaside Groundwater Basin shall be for a minimum of 24 hours. Consult with District staff prior to beginning the test to determine if the test length needs to be increased due to site specific factors including: distance to bedrock, known groundwater supply problems in the area, large pumping drawdowns, persistent pumping test water level declines, drought conditions, etc. If pre-testing is conducted to determine the proper pumping rate, the formal constant-rate pumping test shall be delayed until at least twice the pre-testing time has elapsed to allow water level recovery from the pre-testing.

Step 2, Documentation of Drawdown and Recovery. Drawdown and recovery data in the pumping and monitor wells shall be documented in a summary table(s) and shall include: static water level, flow meter totalizer readings, clock time, elapsed time since pump start (minutes), pumping water levels (feet below ground surface or specified reference point), drawdown (pumping water level minus static water level), elapsed time since pump stop (minutes), residual drawdown (non-pumping water level minus static water level). Water level recovery data shall be measured until the recovering water level in the pumping well reaches 90% of the pre-pumping static water level. If 90% percent recovery is not achieved in the equivalent amount of time as the pumping period, then an evaluation of the test will be conducted by the District to determine whether or not the calculated yield should be reduced.

Step 3, Calculation of Specific Capacity. The transmissivity shall be determined and the specific capacity calculated from the test drawdown data. If casing storage effects²⁴ are suspected to influence early test data from the pumping well, these effects should be factored out of the transmissivity determination. If the apparent transmissivity decreases between the first half of the test and the end of the test, the 24-hour specific capacity shall be adjusted by multiplying the ratio of late-time transmissivity to early-time transmissivity.

Step 4, Calculation of Available Drawdown. Unless an alternate methodology is authorized in advance, available drawdown for setting #4 is defined as:

one-third of the vertical distance from the static water level to the bottom of the well perforations (i.e., well screen).

Step 5, Calculation of Well Yield. Unless modified as per **Step 2** above, the yield of the well shall be calculated by multiplying the 24-hour specific capacity by the available drawdown. The well yield represents the theoretical maximum sustainable pumping rate

²⁴ For an example discussion of casing storage effects, see *Groundwater and Wells* (Driscoll, 1986, page 232).

for the well.²⁵ A yield of 3 GPM per single-family dwelling is the minimum standard for WDS applications.²⁶ The District must approve any variation from this minimum standard on a case-by-case basis.

Step 6, Estimation of Demand. Estimated annual demand for the well should be based upon all the intended potable and/or non-potable uses on the parcel. Appropriate documentation of anticipated water use (e.g., residential fixture unit count, non-residential demand based on square footage and type of use, area and type of irrigated use) must be provided as justification for the annual demand estimate. Once the annual demand estimate is established, it should be used to calculate “average day”, “dry season” and “maximum day” demands. Average day demand is the estimated annual demand divided by 365 days, and expressed as GPM. The six-month period from May through October should be used to estimate typical dry season demand. Based on Cal-Am system water production records, May through October represents the highest six-month demand period, with approximately 60% of annual demand occurring during this period.²⁷ Similarly, maximum day demand can be estimated at 1.5 times the average day demand.²⁸ These estimates are acceptable for most single-family residential applications, but may not be appropriate for applications associated with extensive non-potable uses (e.g., commercial, agricultural). Please contact the District with questions regarding selection of the appropriate demand estimation factors. The *dry season demand estimate* should be expressed in equivalent GPM over six months (183 days), and will be used in **Step 8** below. The *maximum day demand estimate* will be used in **Step 7** below and should be expressed in equivalent GPM over 12 hours pumping duration, as wells should not be planned to operate at more than 12-hour daily pumping cycles during maximum demand periods, when supply requirements will be most critical.²⁹

Step 7, Confirmation of Well Capacity. If the *maximum day demand estimate* (in equivalent GPM over 12 hours pumping), as determined in **Step 6**, is equal to or less than

²⁵ The well casing size, pump size and discharge pipe size are factors that will influence the maximum sustainable pumping rate of a well. These factors may limit achieving the calculated well yield in practice and should be considered in the *Assessment*.

²⁶ A well pumping at 3 GPM each day on maximum 12-hour daily pumping cycles would produce 2.4 acre-feet in a year, which may exceed demand requirements for some WDSs. However, experience has shown that actual well yields in most hydrogeologic settings, tend to decline with time. This can be due to declines in ground water levels, degradation of well casing materials, well encrustation or other biological activity that reduces permeability in the zone around the well, pump wear, or a combination of any or all of these factors. The 3 GPM minimum well yield rate provides a safety factor that allows for declines in well performance over time.

²⁷ Monthly production records for the Monterey Division of California American Water for Water Years 1992 to 2003. Monthly breakdown is available from MPWMD.

²⁸ Analysis of Cal-Am production records in Monterey Peninsula Water Supply Project Alternatives, Phase I Technical Memorandum (Camp, Dresser & McKee, March 2003). See page 2-3.

²⁹ The maximum 12-hour daily well pumping limitation is incorporated into recommended mitigations for maintaining supply capacity for a large groundwater-supplied project in Carmel Valley (see Jones & Stokes Associates, Inc., 1995, Santa Lucia Preserve Project, Final EIR, page 8-31). This limitation is based on the understanding that pumping tests begin with static water level conditions in the well, in contrast to actual pumping conditions during maximum demand periods, when wells will already have undergone some cumulative seasonal drawdown from prior pumpage. Therefore, wells should not be relied upon to operate more than 12 hours per day to reduce the potential for exhausting available drawdown during maximum demand periods.

the *calculated well yield* from **Step 5**, then proceed to **Step 8**. If the *maximum day demand estimate exceeds* the *calculated well yield*, then additional analysis to estimate anticipated drawdown under intermittent (cyclic) pumping conditions is required to confirm the well's capability to supply anticipated demands without excessive drawdown. An acceptable method to approximate drawdown from intermittent pumping can be found in *Groundwater and Wells* (Driscoll, 1986, page 235). This analysis should be conducted at the maximum day demand rate with maximum daily 12-hour pumping and 12-hour recovery cycles for a 30-day period to represent a reasonable assessment of the length of time that the well may be required to operate at or near the maximum rate. If *cumulative drawdown* from the intermittent pumping calculation *exceeds available drawdown* as determined in **Step 4**, then these results will be used by the District to further assess and adjust the allowable system capacity (i.e., production limit) for the proposed WDS.

Step 8, Calculation of Projected Drawdown. To evaluate the potential well pumping effects in the vicinity of the well, drawdown projections shall be made. Comparison of calculated drawdowns should be made with actual drawdowns measured from nearby monitor wells where available. Drawdown calculations shall be based upon conventional hydrogeologic practices.³⁰ For drawdown calculations, estimates of hydrogeologic parameters (i.e., transmissivity, storativity) are required. From **Step 3** above, the transmissivity as determined from late-time test data, if applicable, should be used. If storativity cannot be determined from the subject test data, then it should be approximated from other tests, formulas or available literature, as appropriate. The drawdown calculations should utilize the *dry season demand estimate*, expressed in equivalent GPM over six months (183 days), as determined from **Step 6** above. At a minimum, drawdowns shall be calculated for the end of the dry season at the locations of the nearest and farthest existing wells or other receptors within a 300-foot radius of the pumping well.

Step 9, Evaluation of Projected Drawdown Impacts. Using the drawdown calculations as determined from **Step 8** above, evaluate the significance of the projected drawdowns on existing wells or other receptors, as a result of pumping for the proposed WDS. Where available, well completion data (e.g., static and pumping water levels, well screened depths, depth of pump setting) for the existing wells within 300 feet shall be assembled and reviewed for this evaluation.

Step 10, Evaluation of Proposed WDS Impacts to Seaside Basin Water Resources. Notwithstanding the determinations based on the above steps, the projected water supply impacts of the proposed WDS in light of the current overpumped condition of the Seaside Basin need to be evaluated. District staff should be consulted in advance regarding the required scope and format of this evaluation.

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³⁰ Drawdown calculations should utilize standard methods (e.g., Theis Nonequilibrium Equation, Cooper-Jacob Nonequilibrium Equation) that are described in most hydrogeology textbooks. The District can be contacted for assistance in determining the appropriate analytical methods.