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March 2, 2015

Via e-mail and hand delivery

Monterey County Board of Supervisors
County of Monterey
168 West Alisal Street, 1st Floor
Salinas, CA 93901
COB@co.monterey.ca.us

Re: Harper Canyon Subdivision

Dear Members of the Board:

I write on behalf of LandWatch Monterey County to comment again on the proposed Harper Canyon Subdivision project (the "Project"). As explained in our December 1, 2014 letter and in the November 28, 2014 technical memorandum from hydrogeologist Tim Parker, the approvals sought should be denied because 1) the environmental review is inadequate and 2) the Board cannot make the required findings that the Project would be consistent with General Plan policies related to water supply.

The applicant has now finally submitted pumping tests for the Project's two wells in response to the Board's May 2014 directive. As the attached March 2, 2015 technical memorandum from hydrogeologist Tim Parker explains, those tests do not and cannot change those two conclusions because they do not and cannot address the Project's contribution to cumulative overdrafting of the Corral de Tierra subbasin and the Pressure 180/400-Foot subbasin.

Furthermore, the tests do not assure adequate pumping capacity because they were not performed consistently with Monterey County Department of Environmental Health guidelines. Finally, the tests do not adequately evaluate near-term local well interference because they show significant interference but then conclude that this should be disregarded because the calculations do not represent the actual conditions evaluated.

A. The Project is inconsistent with water supply provisions of the 1982 General Plan

As the Planning Commission found in its resolution denying the subdivision Project on an 8-0 vote, the Project is inconsistent with the following General Plan provisions:

- Goal 53 – "to promote adequate water service for all county needs."

- Objective 53.1 – "Achieve a sustained level of adequate water services."
- Policy 53.1.3 – "The County shall not allow water consuming development in areas which do not have proven adequate water supplies."
- Toro Area Plan policy 26.1.4.3 – prohibits subdivision approval without "evidence of an assured long term water supply in terms of yield and quality for all lots which are to be created through subdivision."

1. <u>There is substantial evidence that approving this Project in the Corral de Tierra subbasin is inconsistent with the General Plan</u>.

The 2007 Geosyntec report cited by the FEIR demonstrates that Corral de Tierra subbasin, the area in which the Project wells are located, is in overdraft, that water levels have been declining at the rate of 1.8 feet per year since 1999, and that water levels are projected to continue to decline as existing lots are built out.

As the planning staff's draft resolution for the August 20, 2014 Board of Supervisors hearing explained, mining groundwater is inconsistent with the General Plan Goals, Objectives, and Policies. Notably, mining groundwater is inconsistent with Goal 53 to "promote an adequate water supply for <u>all</u> County needs." Even if the Project itself may be able to mine groundwater for a period of years, that mining is contributing to a significant cumulative impact to the aquifer as a whole and to other water users depending on it.

As Mr. Parker's technical memorandum explains, continued overdrafting of the Corral de Tierra subbasin causes two significant cumulative impacts. First, it lowers the water table for all wells over time, which the FEIR defines as a significant impact. Second, it reduces recharge flows from the Corral de Tierra Aquifer to the Pressure 180/400-Foot subbasin, which is also in overdraft and suffering consequent seawater intrusion. Approving more development in the Corral de Tierra overddrafted aquifer, just because the Project's wells happen to have the longest straw and can pump for a period of years, frustrates the goal of serving <u>all</u> County needs.

Mining groundwater is inconsistent with Objective 53.1 because it is inconsistent with achieving "a <u>sustained</u> level of adequate water services." Groundwater mining is intrinsically not sustainable. The County has never interpreted the 1982 General Plan to approve projects on the basis of mining groundwater.

The Project is inconsistent with Policy 53.1.2 because the Geosyntec report clearly demonstrates that the area does not have a "proven adequate water supply." To the contrary, Geosyntec 2007 demonstrates that the water supply is not adequate for existing or future development.

In sum, the evidence in the record overwhelmingly supports the conclusion that more pumping in the Corral de Tierra subbasin frustrates the goal to serve <u>all</u> County needs and the objective of providing a sustainable water supply. Geosyntec 2007

documents the existing and projected overdraft condition. Mr. Parker's November 28, 2014 and his March 2, 2015 memoranda demonstrate the cumulative damage to the Corral de Tierra and Pressure 180/400-Foot subbasin.

2. There is no substantial evidence to support a finding that mining groundwater in the Corral de Tierra subbasin *could* be consistent with the General Plan

First, as Mr. Parker explains, the recently completed pumping tests simply do not address cumulative impacts to the Corral de Tierra subbasin or to the Pressure 180/400-Foot subbasin. The pumping tests show at most that there is sufficient capacity for this Project in the short term based on existing aquifer conditions. The Planning Commission rejected the Project because the Geosyntec report demonstrates that the Corral de Tierra subbasin is in an overdraft condition and expected to remain that way in the long term. The 72-hour pumping tests cannot change that conclusion.

Ironically, the only information in the pumping tests that is relevant to long-term cumulative impacts is the fact that the depth to groundwater has declined in both Project wells over the past 12 and 14 years, by 23 and 25 feet, consistent with the Geosyntec report's documentation of declining groundwater levels due to cumulative overdrafting.

Second, while the FEIR points out that there is a hydrologic connection between the Corral de Tierra subbasin and the Pressure 180/400-Foot subbasin, the record contains no evidence that this connection will reduce or halt overdrafting in the Corral de Tierra subbasin. In fact, as Mr. Parker explains, groundwater flows out of the Corral de Tierra subbasin to recharge the Pressure 180/400-Foot subbasin. These flows occur because, as Mr. Paker explains, groundwater elevations in the Corral de Tierra subbbasin are much higher than those in the adjacent subbasin. Thus, the Corral de Tierra subbasin recharges the Pressure 180/400-Foot subbasin, not vice versa.

Third, despite the FEIR's unattributed opinion that the Salinas Valley Water Project will somehow mitigate overdraft conditions in the Corral de Tierra subbasin, there is no actual evidence in the record that supports this claim. As Mr. Parker has explained, there is no available modeling or quantitative analysis to suggest that existing groundwater management efforts in the Salinas Valley have benefitted or will benefit the Corral de Tierra subbasin.[1] Furthermore, the 2007 Geosyntec report is silent on any anticipated benefits from the SVWP. Geosyntec 2007 projected continuing overdrafting and declining groundwater levels even though the Nacimiento and San Antonio

[1] The Planning Commission findings cited the omission of the Corral de Tierra subbasin from the benefitted areas in the Historical Benefits Analysis for the SVWP assessment as evidence that the SVWP would not mitigate overdrafting in the Corral de Tierra subbasin. It has since been argued that the Historical Benefits Analysis is merely silent on the question and that the omission is therefore not evidence that there is no benefit. Regardless, the omission is telling, and it is certainly not evidence that that there is a benefit. The Planning Commission decision, rendered after its review of the FEIR and its citation of the Geosyntec report conclusions, obviously recognizes that the Corral de Tierra subbasin is in overdraft, that it is in need of mitigation, and that there is no evidence that existing groundwater management efforts are providing that mitigation.

Reservoirs and the Castroville Seawater Intrusion Project were in place and the Salinas Valley Water Project had been approved.

Fourth, even if groundwater management efforts in the Salinas Valley subbasins could theoretically improve conditions in the Corral de Tierra subbasin by raising groundwater levels, there is no evidence that existing efforts have been or will be successful over a meaningful time period. The evidence is to the contrary: the SVWP and previous projects are not sufficient.

- As our December 1, 2014 letter explains, the Salinas Valley Water Project was not projected to reverse seawater intrusion under projected future conditions, especially if groundwater pumping and irrigated acreage in the Salinas Valley Groundwater Basin did not decline after 1995. We have documented, based on MCWRA's own reports, that groundwater pumping and irrigated acreage have substantially increased since 1995 and are projected to increase even more through 2030.

- As Mr. Parker explained, the Geoscience 2013 report documents the need for another groundwater management project to divert surface water supplies to provide adequate water to augment the Salinas Valley Water Project. MCWRA has announced its intention to secure a 135,000 afy surface water right for that purpose, but that will require it to propose a project and get SWRCB approval. That project has not been designed, environmentally reviewed, approved, or funded. And there is no assurance that the surface water right will be retained.

- The "State of the Salinas River Groundwater Basin Report" presented to the Board of Supervisors on December 9, 2014, concludes that the Salinas Valley Groundwater Basin, including the Pressure 180/400-Foot subbasin, is out of hydrologic balance and that the current pattern of groundwater extraction is not sustainable. Again, this conclusion demonstrates that existing groundwater management efforts, including the SVWP, have not halted overdrafting and seawater intrusion or ensured a "sustainable level of adequate water services" as required by General Plan Objective 53.1.

None of this evidence is mentioned or discussed in the EIR. Nor is it addressed in the recent pumping tests.

In sum, there is clear and substantial evidence that additional pumping in the Corral de Tierra subbasin will aggravate overdrafting in that basin and contribute to overdrafting and seawater intrusion in the Pressure 180/400-Foot subbasin. Neither the EIR nor the recent pumping tests nor the rest of the record provides any evidence to the contrary. Under the circumstances, approval of the Project would be inconsistent with the 1982 General Plan. The County cannot make the required findings to approve a subdivision on this record.

B. The pumping capacity tests cannot demonstrate adequate capacity because they were not conducted in accordance with MCDEH guidelines and cannot show adequate capacity

MCDEH guidelines mandate that pumping tests for wells in areas of know water shortage problems be conducted during the dry season, i.e., August to October. Unaccountably, the Encina Hills well test was conducted in December, even though the applicant has known since May 2014 that a test was required due to the Board's concerns about approving another project in an area of known water shortage problems. As Mr. Parker explains, a test outside the dry season cannot reliably demonstrate adequate capacity during dry season.

Furthermore, neither well test commenced on a Monday or Tuesday as required by MCEHB guidelines. Again, the untimeliness of the tests means that they do not reliably demonstrate adequate pumping capacity at periods of high water demand.

The untimeliness of the tests is particularly critical here because the test results are marginal. The Encina Hills well test barely meets the minimum capacity requirement. The Oaks well does not in fact meet the minimum capacity requirement; and as Mr. Parker explains, the claim that a test with a larger pump would get different results is not cognizable under MCEHB guidelines or consistent with the Board of Supervisors directive that the applicant actually demonstrate adequate capacity through a successful pump test.

C. The analysis of short-term local well interference does not assess long term cumulative impacts and the analysis is inconsistent because it disregards its own calculations

As Mr. Parker explains, the analysis of short-term local well interference is not intended to analyze long-term cumulative impacts to the aquifer or impacts to wells that are not within 1,000 feet. The Geosyntec report acknowledges that there is <u>already</u> well interference from excessive pumping. It states that current and projected rates of pumping will result in "lowering of the water table below the screened intervals of existing wells completed in the shallower portions of the aquifer system, <u>which has already occurred in portions of the Corral de Tierra</u>." Geosyntec 2017, p. ES-5, emphasis added. In short, the evidence already in the record demonstrates that additional pumping will aggravate existing well interference in the aquifer. Again, the new pumping tests do not even purport to address this problem; at most, the tests show that <u>this</u> Project can pump for a period of years.

Furthermore, the analysis of short-term interference with immediately adjacent wells (within 1,000 feet) is flawed because it simply discards its own calculations when they demonstrate significant short-term cumulative impacts. The well test report states that a 5% decrease in the saturated aquifer thickness would be a significant impact; it

calculates such a decrease in two out of the three wells analyzed; and then it dismisses that calculation as a result of conservative assumptions and local conditions for which the analysis does not account. In effect, the result shows a significant impact but the public is asked to ignore it because the modeling was not representative of local conditions. The report then calls for future caution to avoid dewatering wells and offsite impacts, in effect acknowledging that these impacts are possible or likely.

Again, this new analysis was not in the EIR. If the County intends to rely on such a belated and flawed analysis to determine that there will be no significant short-term well interference, it must revise and recirculate the EIR.

D. The County must revise and recirculate the EIR in light of significant new information

We again point out that Geoscience 2013 report, MCWRA's recent admission that additional groundwater management projects are required, and the State of the Basin Report are significant new information that requires recirculation of the EIR regardless of the General Plan consistency conclusions. The EIR's deficiencies in disclosing groundwater conditions and current projections cannot be remedied without recirculating the EIR because this information must be disclosed in the EIR itself to enable informed public participation and decision making..

In addition, the analysis of cumulative water supply impacts in the EIR is inadequate. The EIR fails to inform the public whether there is a significant cumulative impact now or whether there will be a significant cumulative impact in the future.

The FEIR defines significant impacts to include "a net deficit in aquifer volume or a lowering of the local groundwater table level." FEIR 3.6-20. The FEIR acknowledges that the Corral de Tierra subbasin is in overdraft, citing the Geosyntec report. The Geosyntec report projects that this overdraft condition, i.e., a net deficit in aquifer volume due to pumping in excess of recharge, has been occurring since at least 1999 and projects that it will continue due to existing pumping coupled with planned buildouts. The Geosyntec report also explains that groundwater levels have been declining and will continue to decline. Given the threshold for significant impacts identified by the EIR and the conclusions in the EIR and its supporting study, the EIR should have acknowledged that there is an existing significant cumulative impact in the Corral de Tierra subbasin even without the Project. It did not do so. The EIR should then have addressed the separate question as to whether the Project's pumping would be a considerable contribution to such a significant cumulative impact. It did not do so.

Instead, the FEIR argues that the Salinas Valley Water Project <u>may</u> be improving the hydrological balance of the Salinas Valley Groundwater Basin and that the Project's payment of assessments for the Salinas Valley Water Project mitigates its impact on the groundwater basin. This argument fails to clarify whether the County does or does not

project a significant cumulative impact from all projects, including the Harper Canyon project, in the future.

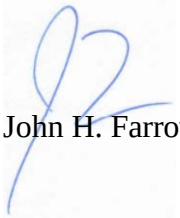
Furthermore, the FEIR's argument fails to demonstrate that payment of assessments for the Salinas Valley Water Project is sufficient mitigation. The Project cannot be found to adequately mitigate cumulative groundwater impacts through payment of assessments for the Salinas Valley Water Project ("SVWP") because, as we have pointed out, 1) there is no substantial evidence in the EIR that the SVWP is sufficient to mitigate long-term significant overdraft impacts in the Corral de Tierra subbasin and 2) there is substantial evidence to the contrary, including the Geoscience 2013 report, acknowledgements by MCWRA that additional projects are needed, the State of the Basin report, and the SVWP EIR itself. Additional groundwater management projects are required. However, there is no commitment for the Project to pay impact fees toward hypothetical future projects to mitigate cumulative groundwater impacts. Even if there were such a commitment to pay future impact fees for future projects, those hypothetical future projects have not been committed or environmentally reviewed. For all of these reasons, the payment of existing assessment fees cannot be deemed sufficient mitigation.

E. Conclusion

A short-term pumping capacity test does not and cannot rebut the comprehensive evidence in Geosyntec 2007 that the Corral de Tierra aquifer is in an overdraft condition and is expected to remain so in the long-term as existing lots are built out. The Board should follow the Planning Commission recommendation and find that the Project is inconsistent with General Plan provisions barring development where there is no long-term sustainable water supply.

Yours sincerely,

M. R. WOLFE & ASSOCIATES, P.C.



John H. Farrow

Cc: Amy White
Janet Brennan

Attachment: Timothy Parker, Technical Memorandum, March 2, 2015
Referenced materials, provided on separate CD:

- *State of the Salinas River Groundwater Basin Report*, Brown and Caldwell, December 10, 2014, available at http://www.mcwra.co.monterey.ca.us/index.php.
- Richard LeWarne, R.E.H.S, MCDEH, letter to Amy White, Sept. 4, 2014.
- MP3 Audio of October 29, 2014 Planning Commission hearing, available at http://monterey.granicus.com/ViewPublisher.php?view_id=14.

Technical Memorandum March 2, 2015

To: John H. Farrow, M.R. Wolfe Associates, P.C., Attorneys-at-Law

From: Timothy K. Parker, PG, CEG, CHG, Parker Groundwater

Subject: Technical Review of Harper Canyon (Encina Hills) Subdivision Aquifer Test Report

I have examined the "72-hour Constant Rate Well Pumping & Aquifer Recovery Tests on Ambler Oaks & Encina Hills Wells for Harper Canyon Subdivision," Feb. 7, 2015, prepared by Bierman Hydrogeologic ("Bierman 2015"). The report does not alter the conclusions in my November 28, 2014 Technical Memorandum that 1) the groundwater impact analyses in the DEIR and FEIR are fundamentally different and inconsistent; 2) the EIR fails to present evidence that the Salinas Valley Water Project or other existing groundwater management projects will mitigate project and cumulative impacts to the overdraft conditions in the Corral de Tierra Area Subbasin; 3) current groundwater management projects are not sufficient to meet the objectives of balancing the Salinas Valley Groundwater Basin and halting seawater intrusion; and 4) the source capacity test is not relevant to determining whether the project will make a considerable, significant or unreasonable contribution to the existing significant cumulative impact to the Corral de Tierra Area Subbasin represented by its long-term state of overdraft.

Bierman 2015 does not address the first three conclusions, although, as discussed below, it does contain some data that appears to confirm the continued long-term overdraft condition of the Corral de Tierra Area subbasin.

Bierman 2015 purports to address "cumulative" impacts, but that analysis is merely a determination whether the project wells will cause short term well interference and potential third party impacts, not a determination as to long-term cumulative impacts to the Corral de Tierra Area Subbasin from continued overdrafting. Thus, the well interference analysis is not relevant to the fundamental issue of exacerbation of the long-standing, well documented and continuing impacts to the Corral de Tierra Area Subbasin caused by cumulative overdrafing. In any event, the well interference analysis is incomplete and inconsistent, as explained below.

1. Long-term cumulative impact analysis

Geosyntec 2007 clearly establishes that the Corral de Tierra Area Subbasin is in overdraft, that groundwater levels have declined on average by 1.8 feet per year since 1999, and that the projected continued issuance of building permits will aggravate existing overdrafting. This is a long-term cumulative problem. Based on the FEIR's characterization (p. 3.6-20) of a net deficit to aquifer system volume or lowering of groundwater level as a significant impact, the continued issuance of building permits will contribute to an ongoing significant cumulative impact.

Continued cumulative overdrafting of the Corral de Tierra Area Subbasin may cause at least two environmental and economic impacts. First, it will potentially lower groundwater levels sufficiently to impair existing wells, even if those wells are not immediately adjacent to the project site. Second, as discussed in my November 28, 2014 memorandum, it has the potential to reduce the flows from the Corral de Tierra Area Subbasin to the Pressure Subarea, cumulatively adding to overdraft and seawater intrusion in that basin as well. As discussed below, there is new evidence that the Pressure Subarea is overdrafted and out of hydrological balance, notwithstanding the Salinas Valley Water Project.

As explained in my November 28, 2014 Technical Memorandum, a source capacity test is not relevant to determining whether the project will make a considerable contribution to these significant cumulative impacts. The source capacity test can only determine whether (1) the project wells are situated in an area from which there is sufficient pumping capacity to support a given demand level in the near term and (2) whether that pumping will interfere on the short-term with immediately adjacent wells. The source capacity test does not estimate potential third party well owner impacts long term, or determine how the project will affect the aquifer system as a whole, especially over the long term.

Bierman 2015 contends that the calculated well yield is a "good approximation of the wells long term sustainable yield." Bierman 2015 at p. 10. However, nothing in the report or the methodology used addresses whether pumping from the proposed project's wells is sustainable over the long term or will contribute to the existing and long-term depletion of the aquifer system when pumped in combination with other existing and foreseeable wells. The Bierman report contains no information about the cumulative demand on the Corral de Tierra Area Subbasin aquifer system and no information about the sustainable yield of that aquifer system as a whole.

There seems to be a real and significant disconnect in the source capacity test purpose and its use in a manner to assess the broader context of groundwater sustainability. Source capacity tests are designed, with the economic constraint of doing something short term that is not too costly, to determine (1) if there is sufficient water to supply the well and what that pumping capacity is on the short term, and (2) if there is a potential for short term third party impacts. These short term tests, while they are useful to obtain local aquifer parameters (transmissivity) proximal to the pumping well screen, and, if you monitor adjacent well drawdown and recovery, storage and transmissivity properties (both are aquifer parameters). However, unless you apply these estimated aquifer parameters to a larger context such as a hydrogeologic conceptual model or groundwater flow model, these tests results tell you nothing about the sustainability of the aquifer system and the hydrologic balance.

The analytical methods used to determine the aquifer parameters make the following assumptions, of which items 1, 2, 5, and 6 are non-conservative:

1. The aquifer could be either confined, unconfined, fractured, or leaky confined, and has an apparent infinite extent.

2. The aquifer is homogeneous, isotropic, and of uniform thickness over the area influenced.
3. The groundwater surface was horizontal prior to pumping.
4. The well is pumped at a constant rate.
5. The well is fully penetrating.
6. Groundwater removed from storage is discharged instantaneously with decline in head.
7. The well diameter is small so that well storage is negligible.

These assumptions will result in an over-estimation of aquifer parameters and also may not be applied uni-directionally across the aquifer system. For example, the pumping in the new well may have very little impact in one direction; however, a more significant impact on groundwater level may be seen in a well in a different direction. Only with more pumping and stressing the aquifer system over a longer period of time can this be known with some degree of certainty.

Beirman 2015 redacts the well completion reports, meaning that the well owner has not provided permission to make information documenting how the well was constructed and the geologic formations it was completed available for evaluation. However, based on review of previous reports on the topic of wells constructed in this area, the wells are completed in the Pliocene to Pleistocene age Paso Robles continental formation, consisting of semiconsolidated to consolidated, interbedded sand, gravel and clay beds. Table 1 and 5 are inconsistent: 1 lists wells penetrating the Paso Robles "Alluvial Aquifer," which is a misnomer (see below), and 5 lists the wells as penetrating the Paso Robles Formation. Under the Monterey County Source Capacity Testing Procedures, "alluvial" is defined as pertaining to or composed of alluvium or deposited by a stream or running water, while "non-alluvial" is a general term for consolidated or bedrock material. The Paso Robles Formation is not alluvial, but a consolidated to semi-consolidated formation and therefore should not be referred to as an alluvial aquifer.

Bierman 2015 does contain new data that confirm the long-term trend of declining groundwater levels in the Corral de Tierra Area Subbasin, which was systematically documented in Geosytec 2007. While the Bierman 2015 report provides information on the well yield for the wells tested, the methods used are specifically designed for just determining the potential amount of water the tested well can yield and simply does not in any way address the extent of cumulative demand or impact thereof nor the rate and amount of current groundwater level decline as reported by Geosyntec 2007 (see below). Both the Oaks well and the Encina Hills well (aka Harper Canyon well, aka New well) have had a substantial groundwater level decline since their previous source capacity tests in 2000 and 2002. Todd 2003 reports that the depth to groundwater in 2000 for the Oaks well was 95 feet, whereas Bierman 2015 reports that the depth to groundwater in 2014 was 120.05 feet. Todd 2003 reports that the depth to groundwater for the Encina Hills well was 102 feet in 2003, whereas Bierman 2015 reports that depth to groundwater in December 2015 was 125.15 feet. These 25 and 23 foot declines groundwater levels over the last 14 and 12 years respectively are consistent with the report in Geosyntec 2007 (page ES-4) that groundwater depth has increased by an average of 1.8 feet per year since 1999. While the

project wells may be able to mine the aquifer for a period of years, it is clear that the aquifer system storage as a whole has been and will continue to be diminished by cumulative pumping, to which the proposed project would contribute.

As I explained in my previous Technical Memorandum, the EIR provides no evidence for its claim that the Salinas Valley Water project will benefit the upgradient Corral de Tierra Area Subbasin. There is no quantitative analysis or reference to modeling. There is no acknowledgement and explanation of the fact that past groundwater management efforts in the Salinas Valley, including the Nacimiento and San Antonio Reservoirs and the Salinas Valley Water Project have not prevented or reduced the overdraft in the Corral de Tierra Area Subbasin. There is no evidence that increasing the groundwater levels in the Salinas Valley, e.g., in the adjacent Pressure Subarea, if such increases were possible, could be of sufficient magnitude to reverse or slow the current groundwater flow and discharge from the Corral de Tierra Area Subbasin in order to increase its groundwater levels. As discussed above, the source capacity testing scope of Bierman 2015 was not intended to and does not address this significant issue.

As I also explained in my previous Technical Memorandum, the EIR does not acknowledge that that the previous groundwater management efforts in the Salinas Valley have not in fact resulted in a hydrologic balance in the Salinas Valley, including the balance in the adjacent Pressure Subarea. Thus, even if there were evidence that increasing groundwater levels in the Pressure Subarea could reduce discharge from the Corral de Tierra Area Subbbasin, there is no evidence that that groundwater levels in the Pressure Subarea are increasing or will in fact increase in the future under existing and projected conditions. To the contrary, the evidence presented by Geoscience 2013 is that additional groundwater management projects will be required to bring the Salinas Valley Groundwater Basin into balance and to increase groundwater levels and to minimize and hopefully halt seawater intrusion. The source capacity testing scope of Bierman 2015 was not intended to and does not address this significant issue.

Since my November 28, 2014 Technical Memorandum, additional evidence has been made available that existing groundwater management efforts in the Salinas Valley, including the Salinas Valley Water Project, are inadequate to increase groundwater levels in the adjacent Pressure Subarea.[1] The *State of the Salinas River Groundwater Basin Report (Basin Report)*, presented to the Board of Supervisors on December 9, 2014, directly contradicts the

[1] Bierman 2015 states (p. 5) that the site is located in the Pressure Subarea of the Salinas Valley Groundwater Basin, citing the Salinas Valley Water Project EIR. This contention is inconsistent with Harper Canyon FEIR, which states (pp. 3.6-2, 3.6-7) that the project is in the Corral de Tierra Area Subbasin, which is distinct from the adjacent 180/400-Foot Subarea, aka Pressure Subarea (p. 3.6-8). As staff reports make clear, even if part of the project site is in the Pressure Subarea, the wells are in the Corral de Tierra Area Subbasin. In any event, whether the project is in the Corral de Tierra Area Subbasin or the Pressure/180/400-Foot Subarea, the available data establishes that both subareas are overdrafted and experiencing declining groundwater levels, and that the regional groundwater flows result in discharge of the Corral de Tierra Area Subbasin to the east toward the Pressure/180/400-Foot Subarea.

assumption that the currently implemented groundwater management projects will balance the basin, or for that matter, that the basin is moving towards being more hydrologically balanced. The report concludes that "the Basin is out of hydrologic balance" by approximately 17,000 to 24,000 afy.[2] The *Basin Report* concludes that the Pressure Subarea is losing storage at a rate of 2,000 afy.[3] It reports large decreases in groundwater storage and concludes that the current pattern of groundwater extraction is not sustainable:

> "Based on the large storage declines in the East Side and Pressure Subareas (and resulting groundwater head declines and seawater intrusion), the current distribution of groundwater extractions is not sustainable."[4]

Thus, the available hydrologic evidence indicates that groundwater levels are declining in the Pressure Subarea, to which groundwater from the upgradient Corral de Tierra Area Subbasin flows. Declining groundwater levels in the Pressure Subarea could of course accelerate the rate of discharge from the Corral de Tierra Area Subbasin, which of course may further aggravate the trend of declining groundwater levels in the Corral de Tierra Area Subbasin.

Furthermore, increased pumping in the Corral de Tierra Area Subbasin has the potential to in turn aggravate the unresolved problems in the downgradient Pressure Subarea. As I explained in my previous Technical Memorandum, the Corral de Tierra Area Subbasin is interconnected and a source of recharge for the Pressure Subarea. The *Basin Report* acknowledges that the Pressure Subarea is overdrafted and recommends pumping reductions there to mitigate impacts on groundwater storage and water quality including seawater intrusion.[5] Increased pumping from the upgradient Corral de Tierra Area Subbasin is inconsistent with this strategy and certainly has the potential to further aggravate overdraft and seawater intrusion in the Pressure Subarea.

2. The source capacity test for the Encina Hills/Harper Canyon well was not conducted in accordance with MCDEH guidelines

Bierman 2014 states (p. 10) that the 72-hour pump tests for the Oaks well and the Encina Hills well (aka Harper Canyon well, aka New well) were conducted in accordance with MCEHB guidelines. Those guidelines require that "[t]ests for non-alluvial wells and alluvial wells in areas of know 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."[6] The reasons that source capacity tests in critical areas should be conducted in late

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2 *State of the Salinas River Groundwater Basin Report*, Brown and Caldwell, December 10, 2014, pp. ES-7, ES-8, available at http://www.mcwra.co.monterey.ca.us/index.php.

3 *Id.* at ES-6.

4 *Id. at*. ES-9.

5 *Id.*

6 MCDEH, Source Capacity Testing procedures, Revised 3/96, 1/02, 5/06, 6/08, available at https://www.mtyhd.org/index.php/services/environmental-health/drinking-water-protection-services-2/source-capacity-testing/.

summer /early fall months are that 1) groundwater levels will be at their lowest during this period due to reduced recharge and increased demand, and 2) the potential for interference with adjacent wells will be at its highest. The reason that these tests should commence on Monday or Tuesday in critical areas is that groundwater levels will be at their lowest after typical increased usage during weekends. Both the requirement for late summer/early fall testing and the requirement for Monday-Tuesday commencement are intended to ensure that the pump test is adequately conservative and will ensure sufficient capacity during the dry season or at the beginning of the week.

Neither the Oaks nor the Encina Hills test complied with these requirements. Bierman 2015 indicates (p. 12) that the Oaks test commenced on Thursday October 23, 2014 not a Monday or Tuesday as required. More problematically, Bierman 2015 indicates (p. 13) that the Encina Hills well test commenced in December, well after the required late summer/early fall testing period, and also commenced on a Friday (December 5, 2015) rather than a Monday or Tuesday.

The wells are clearly in an area of known water shortage problems, as documented for example by Geosyntec 2007. Indeed, I understand that the reason for repeating these source capacity tests was to assure the County that there would be sufficient capacity in light of documented concerns about water shortage problems. Thus, compliance with the provisions for late summer/early fall testing and for commencing on a Monday or Tuesday was mandatory under the MCDEH Source Capacity Testing Procedures.[7] Failure to observe this requirement renders the pumping tests open to question with regards to the results. In addition, the report does not even attempt to address the potential impacts to the tests from not following the MCEHB guidelines, nor the rationale for deviating from them.

Additionally, the Oaks well pumping rate of 23.9 gpm was actually less than the 25 gpm requirement. Bierman 2015 attributes (p. 19) this shortfall to the use of a 2 hp pump instead of the 5 hp pump used in the 2000 pumping test. The assumption that the 2000 results are still valid may not be warranted given the 25 foot decline in depth to groundwater changes. The assumption that the previous test remains valid is also inconsistent the County's decision to require a new source capacity test in the first place. At any rate, the MCEHB guidelines contain no provision for ratifying a test that fails to meet

[7] Furthermore, the MCDEH has previously stated that "[t]he Harper Canyon Well is a fractured rock well and if a source capacity test were to be performed the 72-hour source capacity test protocol would be used." Richard LeWarne, R.E.H.S, MCDEH, letter to Amy White, Sept. 4, 2014. Bierman 2015 states (p. 5) that notwithstanding the fact that the well completion report for the Encina Hills well shows that it penetrates dense sandstone, "it has been inferred" that it is perforated in an alluvial aquifer, citing a December 19, 2014 MCEHB letter and Todd 2003. As discussed above, the Paso Robles Formation is not alluvial, but a consolidated to semi-consolidated formation and therefore should not be referred to as an alluvial aquifer. On this inconsistent record, and absent a definitive showing that the Encina Hills well is in fact an alluvial well, it should be treated as a fractured rock well for purposes of compliance with the MCEHB guidelines. Both the MCDEH Source Capacity Testing Procedures and State regulations at 22 CCR section 64554(g)(2) require that source capacity tests for fractured rock wells be conducted during August, September, or October.

minimum requirements based on the use of an underpowered pump based on the mere assertion that a larger pump would have gotten acceptable results.

3. The well interference analysis does not address long-term cumulative impacts to the aquifer, and, in any event, the analysis was limited and contradictory

Bierman 2015 addresses potential impacts on adjacent wells from the projects wells. Although it purports (p. 3) to determine that the project wells will have a "less than cumulative significant offsite impact to other wells," the analysis of short-term interference to adjacent wells does not address long-term cumulative impacts to the Corral de Tierra Area Subbasin aquifer system due to pumping from the project wells and other wells. Again, unlike Geosyntec 2007, Bierman 2015 contains no information regarding baseline and projected future cumulative pumping from the aquifer system or long term impacts.

Bierman 2015 indicates a more detailed analysis could be completed with more well construction data available and more adjacent well owner participation, implying more detailed analysis would be useful to further understand potential third party impacts from the proposed new pumping. In addition, the analysis of local well interference seems incomplete in this type of non-alluvial environment because a number of local wells within 1,000 feet were not tested. Bierman 2015 recommends (p. 23) that the water purveyor pay special attention to consumptive use in the future "to prevent over-pumping and potential dewatering of their own well including offsite impacts to neighboring wells." All of the above seems to acknowledge that the well interference remains a concern, especially since the well source capacity test was not conducted during peak demand times in the summer, and instead occurred during winter low demand times.

Further, the well interference analysis seems a bit contradictory because it disregards the fact that estimated well interference for two of the three wells analyzed are projected to exceed the stated threshold of significance. Bierman 2015 establishes (p. 19) a 5% reduction in any neighboring wells' saturated thickness as a reasonable significance threshold for offsite impacts. Table 5 then projects that the drawdown for two of the three wells for which data on saturated thickness is available, including a well at the San Bernancio School, will in fact exceed 5%. Despite the exceedance of the threshold of significance, the report concludes (p. 20) that impacts are less than significant. The stated reason for disregarding the quantitative analysis presented in Table 5 is that "the drawdown values are considered overestimated." Given the difficulty in making long-term projections of drawdown from short term tests during the wet season based on just a few days worth of data with just a few monitoring wells, it is a challenging situation for a technical consultant to estimate potential pumping well and third party impacts. Considering this is a confined aquifer system, based on calculated storativity values and the short time that drawdowns were encountered in monitoring wells, and that the test was not conducted in the highest demand time of the years when multiple wells will be pumping, there may be multiple well interferences caused by overlapping cones of depressions exacerbating the estimated drawdowns in the test which may or may not be acceptable to

third parties potentially effected. Accordingly, this may merit further data collection and a longer pumping interval during the higher demand season to reduce the uncertainty. Whatever the outcome though, these tests would not provide information to in any way address the overdraft in the Corral de Tierra Area Subbasin nor in any way help justify putting additional straws in to increase depleting the underlying aquifer system.

Finally, the Sustainable Groundwater Management Act (Water Code Part 2.74 and other ancillary provisions), signed by Governor Brown on September 16, 2014 and effective January 1, 2015, requires sustainable groundwater management in all high and medium priority basins in the state, which includes the Corral de Tierra Area Subbasin. "Sustainable groundwater management" means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results. "Sustainable yield" means the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, which can be withdrawn annually from a groundwater supply without causing an undesirable result. "Undesirable result" means a variety of effects caused by groundwater conditions occurring throughout the basin, including but not limited to, "chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon." The groundwater sustainability plans to be created by the new as yet to be formed groundwater sustainability agencies are required to set measurable objectives and timeframes to address undesirable results occurring after but not before January 1, 2015. The Tierra de Corral Area Subbasin already has a documented undesirable result and is not sustainable – adding to the documented unsustainability of the area is unreasonable and will need to be addressed and corrected under the new law in the near future.