



PHILIP WILLIAMS & ASSOCIATES

CONSULTANTS IN HYDROLOGY

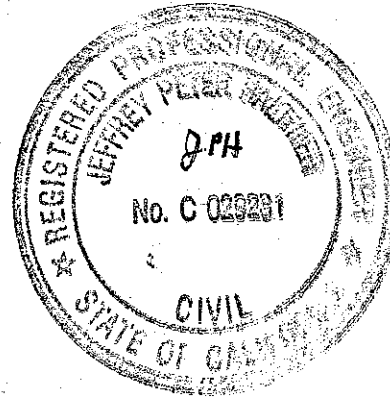
720 CALIFORNIA STREET SUITE 600, SAN FRANCISCO CA 94108-2404

TEL: 415 262 2300 FAX: 415 262 2303

E-MAIL: SFO@PWA-LTD.COM

## MEMORANDUM

**DATE:** October 20, 2004  
**TO:** Marcel Uzegbu  
**COMPANY:** City of Oakland Public Works Agency  
**FROM:** Christie Beeman  
Jeff Haltiner  
Emily Wisnosky  
Rick Ziegler



**COPY TO:**

**RE:** Addendum to July 20, 2004 Memo, "Conditions of Approval specific to hydrology"  
**PWA Ref. #:** 1674

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This memorandum serves as an addendum to PWA's earlier memo, "Conditions of Approval specific to hydrology" (July 20, 2004), regarding the proposed Leona Quarry development (PWA Project # 1674). The City of Oakland Public Works Agency requested that PWA address the following issues:

**1. Balance Hydrologics hydrology and hydraulics models:**

PWA reviewed Balance Hydrologic's (BH) hydrology and hydraulics (H/H) analysis and models dated April 8, 2004 and earlier. As stated in our July 20, 2004 memorandum, PWA concluded that BH's model input parameters and results met the project's hydrology-specific Conditions of Approval (COA) based on our review of BH's models and a limited review of construction plans dated March 23, 2004. Our conclusions were contingent on "recommendations" listed at the end of the July 20 memo.

Construction plans for the project have been revised since the time of our previous review. PWA performed a limited review of updated construction plans (BCA - Leona Quarry Development Tract 7351 Structures; Sheets S4, S5; revised 6/14/04) in an attempt to verify that the following key elements of the design remain consistent with BH's H/h analysis.

- 1) main outlet orifice dimensions & flow line
- 2) water quality outlet orifice dimensions & flow line

CBG and BH have asserted that the design plans remain consistent with BH's previous H/H models (letter to David Chapman dated 10/14/04). In addition, PWA has reviewed updated modeling results provided by BH on 10/12, 10/15 and 10/20/04 and found them to be substantially consistent with previous results and with the current design plans.

**RECOMMENDATION:** PWA again recommends that the City require complete documentation from BH of their final H/H modeling and analysis and its applicability to as-built conditions.

## 2. Detention basin:

PWA participated in a project site visit with City of Oakland staff, BH staff, Terrence O'Hare, representatives of the developer (The DeSilva Group), and others on October 6, 2004. PWA observed that construction of the detention basin was nearly complete. Based on a visual observation, the basic detention basin features (approximate detention basin size and location, inlet/outlet configurations and locations, etc) appeared to be consistent with CBG improvement plans, BH modeling efforts, past PWA recommendations, and project COA as discussed in our previous memorandum (7/20/04). However, the emergency spillway and water quality riser were not yet in place. In addition, PWA was unable to observe the location and configuration of the water quality outlet from the basin because it was submerged in water at the time of the site visit. Aside from these two items, PWA did not observe anything during the site visit that would prevent the basin from functioning as designed for flood control purposes.

**RECOMMENDATION:** We recommend that the City require the emergency spillway and water quality outlet be constructed prior to the beginning of the rainy season.

Detention basin features observed during the site visit cannot be precisely verified until an as-built survey of the basin and associated structures is performed. At the site visit, the City of Oakland indicated that an as-built survey of the detention basin would be conducted upon completion of the basin and associated features.

**ACTION ITEM:** PWA will review the detention basin design again based on results from the "as-built" survey and in light of any design changes addressed by BH (see 1. above), including, but not limited to, the water quality outlet and temporary riser.

At the October 6, 2004 site visit PWA learned that a temporary outlet riser is to be installed on the water quality outlet structure in the basin. BH staff provided information regarding the configuration of the proposed riser and also the MOUSE model and results they used to evaluate the design to PWA on 10/12 and 10/14/04. According to our review of BH's analysis, the temporary riser was modeled appropriately by assuming that the basin will hold standing water up to elevation 296.0 feet at the time the design storm begins. Model results show that the proposed temporary riser and resulting standing water will not interfere with the stormwater control functions of the basin discussed in our previous memorandum (July 20, 2004).

**RECOMMENDATION:** We recommend that the City require BH to provide complete documentation from BH of their H/H modeling and analysis of the proposed temporary water quality riser.

**3. CBG storm drain calculations:**

The City of Oakland requested that PWA review the proposed Leona Quarry development storm drain system calculations produced by CBG. PWA found CBG's proposed storm drain calculations (dated July 16, 2004) to be consistent with CBG's improvement plans (Tracts 7493 & 7351, dated July 6, 2004) and in compliance with the "Western Alameda County: Hydrology and Hydraulics Criteria Summary" (ACFCD, 1989).

Since the time of our review, CBG has made minor changes to the storm drain calculations and corresponding improvement plans; PWA received updated storm drain calculations and plans from CBG on October 5, 2004.

**ACTION ITEM:** PWA will review the latest revisions for compliance and produce a technical memorandum outlining our review methodology and findings.