1.0 REQUEST CLARIFICATION ON SOME ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION

1.1 Water Tank and Emergency Radio Facilities Impacts

Comments were made regarding the design feasibility of the proposed water tank and the design impact of raising the base of the tank from elevation 580 to 590. Also there were comments concerning the potential visual impact of the raised water tank in conjunction with the proposed adjacent emergency radio facilities, especially as viewed from the Old Saint Hilary's property. There were also comments requesting input from the Marin Municipal Water District (MMWD) on the proposed and mitigated water tank designs.

Response

The proposed water tank would be located in Parcel C, on the ridgeline that is mapped as massive geologically stable Franciscan bedrock. Because the geology of the tank site is underlain by stable bedrock, it is anticipated that any foundations for the tank or tank site improvements would be the minimal necessary required to satisfy building code slope requirements. As proposed the water tank and access road would be located upslope of landslide areas and is not in the path of any landslides. Draft EIR ***Section 5.4 Geology and Soils*** discusses landslides located near Parcel C. Landslide 16 is located south of the proposed water tank site and could potentially pose a threat to the water tank and access road. The applicant's geotechnical consultant recommends repair of the upper portion of Landslide 16, within 100 feet of the proposed water tank and the construction access road, through the use of a compacted fill buttress. Landslides 19 and 20 are located approximately east and north of the proposed water tank, respectively. Both of the landslides are proposed to be improved with the use of subsurface drainage and the use of a pier and grade beam retaining structure for Landslide 20.

Members of the EIR consultant team met with the MMWD staff on August 28, 2013 to discuss the technical feasibility of the proposed and mitigated designs for an 180,000 gallon water tank. According to MMWD staff, a drilled pier foundation that is founded on rock would be required for construction of the water tank. According to MMWD staff both the proposed water tank (tank base elevation 580 feet) and the mitigated water tank (tank base elevation 590 feet) appear technically feasible from an engineering perspective. [1] The Easton Point Project's engineers concur, that from an engineering perspective, a water tank design utilizing pier foundation is technically feasible for both the 580 feet base of tank elevation and the 590 feet base of tank foundation. [2] It was noted by MMWD staff that retaining walls would likely serve to support the earth around the foundation and area adjacent to the tank that would be necessary for equipment shelter and access. The applicant's engineers believe the retaining walls should be designed to further insure the stability of the water tank site. MMWD staff expressed reluctance to accept a water tank design that is supported by a deep drilled pier foundation that, subsequently relative to

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1 Nichols • Berman personal meeting with MMWD staff on August 28, 2013.

2 Nichols • Berman personal communication with John Roberto, notes from meeting with Easton Point project engineer Michael Tarnoff, September 14, 2003.

the depth of the piers, would require extensive retaining walls. At this time design level drawingss for the water tank have not been provided to the MMWD for review.

In regards to the design and construction of the water tank, the design would be subject to the *MMWD Design Guidelines for Water Storage Tanks*.[3] These guidelines provide general design criteria for the construction of water storage tanks; however each individual site will present design constraints and require unique solutions. Excerpts from the MMWD Design Guidelines that would influence the extent of construction for site preparation and foundation/support include the following:

- General – No. 4: The tank and all the associated facilities and elements shall be designed to all applicable, current local, state and federal regulations and guidelines (e.g. California and Federal OSHA, California Building Standards Code, ASCE, ACI, AWWA, ASTM, APWA) to ensure public safety, as well as safe operations and maintenance of the facility.

- Site Selection – No. 3: The tank foundation will be located on a geologically stable feature. Site stability will be investigated and certified by a registered soils engineer or registered engineering geologist. For tanks to be built on foundation other than hard rock excavation, the designer shall comply with the soils engineer's recommendations and applicable codes.

- Site Selection – No. 4: Siting of the tank will be such that the visual impact is minimized and/or mitigated. Typical mitigation measures can include: a knuckle roof edge, placing the tank in a bowl; berming in keeping with existing features of the site; revegetating/landscaping to provide screening for the tank; retaining existing vegetation; minimizing cut slopes; and painting. The District reserves the right to select the final design criteria for visual impact mitigation.

- Access Road – No. 1: Tank access roads shall, at a minimum, be designed to allow access to the tank site by a vehicle meeting ASHTO, H10 loading. The following design requirements may be waived if site conditions do not allow their use. The road shall have a minimum inside curve radius of 30-feet and a minimum outside radius of 45 feet. The tank access road will be at least 12 feet wide with an average grade no greater than 15 percent and a maximum grade not exceeding 20 percent measured at any point along its length. Paving, or other approved access and erosion control measures, will be required on slopes greater than 10 percent. The road route will be selected so as to minimize cut and fill slopes. The cross-slope of the roadway and the drainage facilities will be designed to mitigate erosion, ponding and flooding.

Based on conversations with MMWD staff and information from the *MMWD Design Guidelines*, MMWD's normal approach to design a water tank would be to cut the tank into the hillside, which would reduce the tanks visual prominence. Upon review of plans for parcel C it appears that the tank could be cut into the hillside with resulting elevation approximately 570 feet. This would result in an average drop of water pressure for all lots approximately four pounds psi. Draft EIR **Exhibit 5.7-1** shows the results of a preliminary water feasibility analysis, which indicates certain lots would have low water pressure and require low pressure agreements (see *Impact 5.7-7 Water Service Impacts*). Reducing the tank elevation would exacerbate water pressure impacts for residential lots proposed at higher elevations; such as lots proposed along Mt. Tiburon Court (see Draft EIR **Exhibit 3.0-4)**. Impacts related to water pressure for

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3 *Marin Municipal Water District Design Guidelines for Water Storage Tanks*, MMWD, September 2008.

residential water service (*Impact 5.7-7*) and fire flow (*Impact 5.7-8 Inadequate Fire Flow*) were addressed in the Draft EIR. Mitigation measures would reduce these impacts to a less-than-significant level. Although the exact elevation of the water tank is not determined at this time, it is anticipated that decreases in water pressure approximately four pounds psi, based on project design that reduces the base elevation of the water tank, would continue to require low pressure agreements and water pumps for domestic service. Please see **Response 7.2** for more discussion regarding water pressure, mitigation measures, and health and safety issues.

In conclusion, based on information provided by the MMWD, the feasibility of the proposed water tank location and Mitigation Measure 5.7-7 is affirmed by feedback on the preliminary design. MMWD staff did not condone the proposed design or indicate any preliminary approval. Approval would be subject to review of final design plan by MMWD staff.

Throughout the EIR process mitigation measures requiring a MERA antenna have been refined, adding specific design requirements (see Mitigation Measure 5.7-1(b)). Visual impacts resulting from construction of water tank and MERA antenna is discussed in the EIR. Draft EIR **Exhibit 3.0-8** provides a cross-section of the water tank. The *Visual Changes Created By The Project* section beginning on page 504 of the Draft EIR includes a description of the water tank. Secondary impacts resulting from the potentially raised elevation of the water tank (Mitigation Measure 5.7-7) are discussed on page 475. Master Response 7 in the *Response to Comments to the Draft Environmental Impact Report* contains a discussion of visual impacts related to the MERA facility.

The EIR provides an analysis of impacts to visual quality from the perspective of selected study viewpoints that allow a comparison of the existing setting with the amount of visual changes that would result from project implementation. The viewpoints are documented on page 501 of the Draft EIR. The visible appearance of the water tank is discussed under *Impact 5.8-2 View from Heathcliff Drive* and *Impact 5.8-4 View from Ayala Cove*. The EIR presents varying circumstances that affect the degree of visual presence the water tank and MERA antenna. For example implementation of Mitigation Measure 5.7-1(b) and Mitigation Measure 5.7-7 would increase the visual conspicuousness of these facilities. Furthermore, MMWD design guidelines may reduce the elevation of these facilities therefore reducing the visual conspicuousness to some degree. However, it is important to note that the visual impacts discussed above were found to be significant and unavoidable in the Draft EIR.