IV. ENVIRONMENTAL IMPACT ANALYSIS
E. HYDROLOGY & WATER QUALITY

INTRODUCTION

This section addresses the potential impacts of the proposed project with regard to surface water hydrology. In addition, this section addresses the potential impacts of the proposed project with regard to surface water quality, drainage, and runoff, during both construction and longer-term operational phases of the proposed project.

ENVIRONMENTAL SETTING

Topography and Hydrology

The site consists of hilly terrain and generally slopes from a peak in the southeast portion (approximately 440 feet above mean sea level [msl]) of the site to a low point in the northwest region (240 feet above msl) of the project site. The average slope from the highest to lowest point on the project site is approximately 17.7 percent. An approximately 50-foot high ridge exists in the middle portion of the property, roughly parallel to Fassler Avenue.

Runoff and Drainage

The proposed project site occupies a topographic "bench" on a relatively narrow ridge. The bench was apparently created as the result of quarrying of bedrock. Therefore, the portion of the site that would be developed is underlain directly or at shallow depth by Franciscan sandstone bedrock. This type of bedrock has relatively low permeability (i.e., ability to transmit water through the rock mass) but fractures in the rock provide a secondary permeability. In this setting, groundwater would be expected to occur in fractures within the bedrock but this groundwater resource is not typically regarded as an aquifer. Additionally, the site is located on the steep south margin of a stream valley. The valley provides a discharge boundary for groundwater contained in the fractured bedrock. Subsurface investigation of the site included drilling and sampling of five exploratory borings and excavation of nine test pits. The depths of investigation at the borings ranged from 23.8 to 29.5 feet and up to 13 feet in the test pits. Groundwater was encountered in only one of the borings at a depth of approximately 20 feet below the ground surface.[1] There are no streams traversing the project site.

Currently, the proposed project site contains 24,078 sf (approximately four percent of the total area) of impermeable surfaces, consisting primarily of remnants of the old paved road. The northeast portion of the project site (approximately 48 percent of the site) drains east toward the Rockaway neighborhood. The

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[1] *Bay Area Geotechnical Group (BAGG), Geotechnical Engineering Investigation, Proposed Residential Development, Fassler Avenue, Pacifica, California, consulting report prepared for Home Pride Construction, 24 p., Figures and Appendices, April.*

central portion of the site (approximately 29 percent of the site) drains west toward the western portion of the site and beyond to the adjacent vacant land and toward Highway 1. The southeast portion of the project site (the remaining 23 percent of the project site) drains south toward Fassler Avenue and through the City's storm drains prior to being discharged into the Pacifica Ocean.

Water Quality

The quality of surface and groundwater at the project site is affected by land uses within the watershed that drain through the site and the composition of geologic materials. Drainage from the site could contribute to the quality of water in drainages downstream and eventually in the San Francisco Bay and Pacifica Ocean.

Water quality monitoring data for local seasonal creeks or groundwater are not available. However, it is possible that water quality has been affected by the operation of the quarry that formerly occupied the project site. In addition, in developed portions of the watersheds, leaks of fuel or lubricants, tire wear, and fallout from exhaust contribute petroleum hydrocarbons, heavy metals, and sediment to the pollutant load in runoff being transported to receiving waters. Residues of these substances could be incorporated into the runoff from the site and upstream areas and discharged to receiving waters.

Precipitation and Climate

The City's proximity to the Pacific Ocean results in Mediterranean climate conditions; dry foggy summers and cool moist winters. The average annual rainfall of 22.8 inches occurs primarily from November through March.[2] Average temperatures range from 45˚ F in the winter to 71˚ F in the summer.[3] High winds and severe rainstorms can occur in the area.

REGULATORY SETTING

Federal and State Water Quality Programs

NPDES Permits

The 1972 amendments to the Federal Water Pollution Control Act, later referred to as the Clean Water Act (CWA), prohibit the discharge of any pollutant to navigable waters of the United States from a point source unless the discharge is authorized by a National Pollution Discharge Elimination System (NPDES) Permit. While the original CWA focused on point source discharges (defined pipes and outfalls), stormwater discharges were added to the scope of the law by Congress in 1987. The EPA adopted final

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[2] *World Climate website, retrieved October 17, 2006 from http://www.worldclimate.com/cgi-bin/grid.pl?gr=N37W122.*

[3] *Western Regional Climate Center website, retrieved October 17, 2006 from http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6599.*

regulations that established Phase I stormwater discharge control requirements for the NPDES program in 1990. These regulations required large municipalities and specific industrial sites to obtain stormwater discharge permits under the NPDES program. In addition, these regulations required that stormwater discharge permits be issued to large construction activities consisting of five acres or more of land. In 2003, the Phase II NPDES program requirements took effect, regulating nonpoint source discharges from all construction sites one acre or more in size and expanding the permit requirements to smaller municipalities. In California, the NPDES program is administered by the State Water Resources Control Board (SWRQB) through the nine Regional Water Control Boards (RWQCBs). The San Francisco Regional Water Quality Control Board has jurisdiction over the Bay area, including the City of Pacifica.

In 1992, the California State Water Resources Control Board (SWRCB) adopted the General Construction Activity Storm Water Permit (GCASWP) which is "...required for all stormwater discharges associated with construction activity where clearing, grading, and excavation results in a land disturbance of 5 or more acres." However, by Modification of Water Quality Order 99-08-DWQ (approved by Motion on December 2, 2002), the SWRCB lowered the threshold acreage of soil disturbance requiring permit coverage from 5 acres to 1 acre. Since the project site falls within these criteria, a permit must be obtained from the SWRCB prior to start of construction. In order to be covered under the General Permit, the project applicant must submit a Notice of Intent (NOI) to the SWRCB.

The General Permit requires all owners of land where construction activities occur (i.e., dischargers) to:

- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP); and
- Perform inspections of stormwater pollution prevention measures (control practices).

The General Permit authorizes the discharge of stormwater associated with construction activity from construction sites. However, it prohibits the discharge of materials other than stormwater and all discharges which contain hazardous substances in excess of reportable quantities established at Title 40 Code of Federal Regulations Sections 117.3 or 302.4 unless a separate NPDES permit has been issued to regulate those discharges.

The General Permit requires development and implementation of a SWPPP, emphasizing Best Management Practices (BMPs), which is defined as " schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States." The SWPPP has two major objectives:

- To help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and

- To describe and ensure the implementation of practices to reduce sediment and other pollutants in stormwater discharges.

In addition, dischargers are required to conduct inspections before and after storm events and to annually certify that they are in compliance with the General Permit.

San Mateo Countywide Stormwater Pollution Prevention Program (STOPP)

The San Mateo Countywide Stormwater Pollution Prevention Program (STOPPP) maintains compliance with the NPDES Storm Water Discharge Permit and promotes stormwater pollution prevention within that context. Compliance with the NPDES Permit is mandated by State and federal statutes and regulations and the STOPPP requirements are outlined in the Stormwater Management Plan (SWMP). Participating agencies (including the City of Pacifica) must comply with the provisions of the County permit by ensuring that new development and redevelopment mitigate, to the maximum extent practicable, water quality impacts to stormwater runoff both during construction and operation periods of projects. The City of Pacifica's Storm Water Management and Discharge Control Ordinance (Chapter 12, Article 2) further addresses these requirements. Private property owners are responsible for implementing a Operation and Maintenance (O&M) Verification Program that meets the requirements of 3C Provisions of the NPDES Permit program.

New development and significant redevelopment projects that are subject to Provision C.3 are grouped into two categories based on project size. While all projects regardless of size should consider incorporating appropriate source control and site design measures that minimize stormwater pollutant discharges to the maximum extent practicable, new and redevelopment projects that do not fall into Group 1 or Group 2 are not subject to the requirements of Provision C.3. The general criteria for establishing whether a project is a Group 1 or Group 2 project are as follows:

Group 1: New development and redevelopment projects that would create or replace more than one acre of impervious surface (e.g., roof area, streets, sidewalks, parking lots) and the deadline for compliance was February 15, 2005.

Group 2: New development and redevelopment projects that would create or replace more than 10,000 square feet of impervious surface. Projects consisting of one single family home are excluded from Group 2 and the deadline for compliance was August 16, 2006.

Water Quality Standards and TMDLs

In addition, the CWA requires states to adopt water quality standards for water bodies and to have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, and fishing) and water quality criteria necessary to support those uses. Water quality criteria are expressed either in the form of set numeric concentrations or levels of constituents, such as lead, suspended sediment, and fecal coliform bacteria, or

narrative statements that describe the quality of water necessary to support a particular beneficial use. In 2000, USEPA established numeric water quality criteria for certain toxic constituents in California receiving waters with human health or aquatic life designated uses in the form of the California Toxics Rule (CTR).[4]

Under Section 303(d) of the CWA, states, territories, and authorized tribes are required to develop lists of impaired waters. Impaired waters are those particular waterbodies whose beneficial uses are being compromised by poor water quality. The law requires that these jurisdictions establish priority rankings for these impaired waters and develop Total Maximum Daily Loads (TMDLs) for the impairing pollutant(s) affecting each impaired waterbody. A TMDL is an estimate of the total load of each pollutant that a waterbody can receive from point, nonpoint, and natural sources without exceeding water quality standards. Once established, a TMDL allocates pollutant loadings among current and future point and nonpoint pollutant sources discharging to the waterbody.

Regional Water Quality Control Board Water Control Plan (Basin Plan)

Water quality in surface and ground water bodies is regulated by the State and Regional Water Quality Control Boards. The proposed project site is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), which is responsible for implementation of State and Federal water quality protection guidelines in the vicinity of the project site. The RWQCB implements the Water Quality Control Plan (Basin Plan),[5] a master policy document for managing water quality issues in the region. The Basin Plan establishes beneficial water uses for waterways and water bodies within the region. The smaller tributary streams have no designated beneficial uses. However, existing and potential beneficial uses have been designated for the San Francisco Bay, which is the ultimate receiving water for most of the proposed site drainage, including commercial fishing, estuarine habitat, industrial service supply, navigation, fish migration, water recreation, and wildlife habitat. The project site is not located within a "significant groundwater basin" as described in the Basin Plan.[6]

Local Programs

City of Pacifica General Plan

The following policies found in the Seismic and Safety Element of the General Plan relate to hydrology, flooding, and water quality:

Policy 1: Prohibit development in hazardous areas, including flood zones, unless detailed site investigation ensure that risks can be reduced to acceptable levels and the structure

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[4] *Title 40 Code of Federal Regulations Section 131.38.*

[5] *San Francisco Bay Regional Water Quality Control Board. Water Quality Control Plan. Website: http://www.waterboards.ca.gov/sanfranciscobay/basinplan.htm. Accessed December 2, 2006.*

[6] *Ibid, Figure 2-10c.*

will be protected for its design life. Development shall be designed to withstand a minimum of the 100-year hazard event, regardless of the specific nature of the hazard. This concept applies to both on-site and off-site hazards.

Action Program 3: Develop regulations, which consider location in a flood zone and tsunami run-up areas as major factors in determining future land uses.

Action Program 5: Development in areas subject to flooding should be carefully reviewed for public safety and property loss prior to permitting new development or redevelopment.

Action Program 20: Regularly maintain flood control structures, including but not limited to drainage channels, pipes, culverts, and stream beds.

PROPOSED PROJECT

The proposed project consists of 34 residential units, a community center, amphitheater, a subterranean parking garage, gardens, open space areas, and promenades/pedestrian walkways. All surface runoff would be captured and routed through a series of detention ponds, waterfalls, swales, open channels, and pipes to the final collection point within the proposed amphitheater area. The water would then be pumped as needed and used to recharge the proposed underground cistern that would be sited beneath the subterranean parking garage. In total, the underground cistern would act as a retention basin and would have a total capacity of 200,000 gallons. It is proposed that this water stored in the underground cistern be used for irrigation purposes. According to hydraulic analysis prepared for the project,[7] the storm water detention features mentioned above would provide approximately 7,463 cubic feet of temporary storage for runoff generated at the developed site.

The proposed amphitheatre areas (the final collection point for all other on-site water detention features) would be designed to serve as storm water storage with the capacity to exceed that of tributary runoff corresponding with a 100-year storm event. The overflow weir is at an elevation of 293 feet. The storage would exceed the expected volume (7,030 cubic feet) of runoff during a 60-minute duration 100-year storm event. The storage site would have an overflow outlet as a safety factor so that in the event of a severe storm that exceeds capacity, excess runoff would be discharged into the existing storm drainage facilities along Fassler Avenue. Additionally, the project proposes to use pervious roadways, living roofs, and rain gardens that would serve as bio-retention areas for absorption of runoff.

At this time there is no additional information available on the proposed detention basins and underground cistern because the design process has not been completed. All storm drain paths and storm

[7] *Pacifica Quarry Homes (PQH), 2005, Notes, Appendix B "Hydrology and Storm Water Analysis", November.*

sewer pipes are at higher elevation than the nearby sanitary sewers, therefore eliminating the possibility of sewer leaks into stormwater.

ENVIRONMENTAL IMPACTS

Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, a project would have a significant impact related to hydrology and water quality if the project would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Be inundated by seiche, tsunami, or mudflow.

Hydrology and Water Quality Issues Not Analyzed Further

As discussed in the Initial Study (Appendix A) the proposed project would not substantially deplete groundwater supplies or interfere with groundwater recharge. Construction and operation of the proposed project would reduce the potential for infiltration into the fractured bedrock through construction of impervious surfaces (i.e., buildings and pavement) by increasing the amount pervious surfaces on the

project site from approximately 24,078 sf to approximately 60,840 sf. Changes to the quantity of infiltration and flow characteristics of the bedrock would not be a significant impact of the project.

In addition, the project site is not located within or adjacent to a 100-year flood hazard zone identified by the Federal Emergency Management Agency's Flood Insurance Rate Mapping program and would not place housing within a 100-year flood hazard area.

The project is not within a drainage basin which has dams or levees. Therefore, the risk of flooding resulting from levees or dams is negligible.

Finally, as described in the Initial Study, the risk of inundation of the site by a seiche, tsunami, or mudflow is negligible due to the physiographic location of the project site.

Project Impacts

Impact IV.E-1 The proposed project could violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality.

Operation of the proposed project would not include activities which would result in point source discharges of contaminants to surface or subsurface waters. However, the construction of the project would require significant grading which would expose surface soils to erosion and potentially result in sediment discharges to surface water. Potential adverse effects of non-point source (i.e., diffuse) sediment discharges include increases in suspended sediment load of streams draining the project. Increased sediment loads could possibly degrade habitat within the streams or cause sedimentation which may affect hydraulic conditions (e.g., flood capacity or erosion hazards).

In addition, implementation of the proposed project would result in the potential for an increase in pollutants related to urban runoff. The potential pollutants include sediment caused by erosion of soils, leaks or spills of petroleum hydrocarbons, leaching or runoff of pesticides used for landscaping or other pest control, and metals related to wear of automobile parts. The control of urban runoff pollutants is controlled through State stormwater regulations.

Specifically, as discussed above under Regulatory Setting, runoff water quality is regulated by the NPDES Nonpoint Source Program (established through the Clean Water Act); the NPDES program objective is to control and reduce pollutants to water bodies from nonpoint discharges. The NPDES program is administered by the California RWQCB. The proposed project site is under the jurisdiction of the San Francisco RWQCB. The San Mateo Countywide STOPPP maintains compliance with the NPDES Storm Water Discharge Permit and promotes stormwater pollution prevention within that context. Compliance with the NPDES Permit is mandated by State and federal statutes and regulations and the STOPPP requirements are outlined in the SWMP.

Compliance with the requirements of the STOPPP SWMP by the proposed project would provide measures by which the potential discharge of pollutants in urban runoff would be reduced. Information presented with the application for the proposed project indicates that '(t)he condominium Home Owner Association …will address, require and make provisions for responsible handling, disposal and recycling of all wastes, including toxic materials..".[8] Additionally, the information required for the NPDES Data Collection Worksheet will be presented "at the point of Building Permit issuance". Compliance with the STOPPP requirements for control and treatment of urban runoff generated at the site in addition to the Best Management Practices (BMPs) included in Mitigation Measure MM IV.E-1 and MM IV.E.2 would ensure impacts related to water quality remain ***less than significant***.

Impact IV.E-2 The proposed project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, either in a manner which would result in substantial erosion or siltation on- or off-site or by substantially increasing the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

The proposed project site occupies a topographic bench on a ridge. There are no streams traversing the project site. Runoff from the site would be controlled and directed into the proposed on-site water detention features (including the upper level pond, cistern, and amphitheater) and ultimately the underground cistern located under the proposed subterranean parking structure. According to hydraulic analysis prepared for the project,[9] this storm water detention feature would provide approximately 7,463 cubic feet of temporary storage for runoff generated at the developed site. The detained runoff would be used as a supplemental irrigation supply. The storage exceeds the expected volume (7,030 cubic feet) of runoff during a 60-minute duration 100-year storm event. The on-site water detention features would include an outlet that would provide for flow to the existing storm drain system under more extreme runoff events. Due to the topography of the site and proposed storm water management facilities (described above under "Proposed Project"), the project would not substantially change the existing drainage pattern or alter the course of a stream.

Implementation of the project would not alter the existing drainage features at the proposed project site. The construction of the proposed project would, however, increase impervious cover at the project site. Under existing conditions, the permeability of the area of the project site is relatively low. As discussed above, the site was excavated by quarrying operations and is directly underlain by bedrock; there is limited unconsolidated material (i.e., soil or sediments) to provide pervious cover. The project would increase the area of impervious cover at the site from 24,078 square feet (approximately 9.5 percent) to 60,840 square feet (approximately 23.3 percent). The proposed project includes on-site water detention

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[8] *PQH, 2005, op. cit.*

[9] *Pacifica Quarry Homes (PQH), 2005, Notes, Appendix B "Hydrology and Storm Water Analysis", November.*

features (as described above) which would provide temporary storage of runoff generated by the developed site. However further detailed information on the basin is needed, and currently unavailable, as the applicant has proposed only preliminary on-site water detention basins and underground cistern locations and designs. The preliminary plan does not include a detailed design and maintenance plan for these features of the project. Without proper design and regular maintenance, the basins may not operate adequately to mitigate the potential impacts associated with on-site and downstream flooding. Therefore, without these details impacts remain significant. However, implementation of Mitigation Measure MM IV.E-3 would ensure that the detention basins would operate properly through requiring design specifications and a maintenance plan. This would reduce impacts to a ***less-than-significant*** level.

Impact IV.E-3 The proposed project could create or contribute runoff water which exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

As described above, the proposed project would include the construction of detention basins to provide storage for runoff generated by the project. The basins would have the capacity to store runoff generated during a 60-minute duration, 100-year storm event. In the event of more intense runoff, the design of the on-site water detention basins would include an outlet which would drain to the existing storm water drain along Fassler Avenue. However, the detention basins would delay the discharge of runoff to the storm drain system relative to the peak of flow within the existing drain system. As stated above, lacking a detailed design plan for the retention and detention basins, impacts remain significant. Implementation of Mitigation Measure MM IV.E-3 would ensure that detention basins operate properly. Impacts would therefore be reduced to a less-than significant level.

Additionally, the project proposes to increase impervious cover from 24,078 square feet to 60,840 square feet, therefore it would be subject to Provision C.3 of the NPDES permit as described above in the Regulatory Setting section above. Compliance with the requirements for the NPDES permit, and as described below under MM IV.E-2, would mitigate the impacts to ***less than significant***.

MITIGATION MEASURES

The following mitigation measures are recommended to reduce construction- and project operation-related hydrology and water quality impacts.

MM IV.E-1: Storm Water Pollution Prevention Plan

The applicant shall file a Notice of Intent (NOI) to comply with the General Construction Activity permit. This permit requires that the project proponent prepare a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction-period of the project. It is not required that the SWPPP be submitted to the RWQCB, but must be maintained on-site and made available to RWQCB staff upon request. The SWPPP shall include:

- Specific and detailed Best Management Practices (BMPs) designed to mitigate construction-related pollutants to a level of insignificance. At minimum, BMPs shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

An important component of the storm water quality protection effort is knowledge of the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP.

- The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046[10], monitoring shall be required during the construction period for pollutants that may be present in the runoff that are "not visually detectable in runoff".[11] The developer shall retain an independent monitor to conduct weekly inspections and provide written monthly reports to the City of Pacifica to ensure compliance with the SWPPP. RWQCB personnel, who may make unannounced site inspections, are empowered to levy considerable fines if determined that the SWPPP has not been properly prepared and implemented.

- BMPs designed to reduce erosion of exposed soil shall include, but are not limited to: soil stabilization controls such as erosion control blankets or tarps, perimeter silt fences, placement of hay, rice, or straw bales, and sediment basins. Watering for dust control shall be performed during the dry season. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. If hydroseeding is selected as the primary soil stabilization method, then these areas shall be seeded by September 1st using native grasses only, and irrigated as necessary to ensure that adequate root development has occurred prior to October 1. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be provided and designed to be accessible and functional during both dry and wet conditions.

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[10] *State Water Resources Control Board, 2001, Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) National Pollutant Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity.*

[11] *Construction materials and compounds that are not stored in water-tight containers under a water-tight roof or inside a building are examples of materials for which the discharger may have to implement sampling and analysis procedures.*

- To the extent practicable, the detention basins shall be installed at the earliest possible time during grading and that grading shall occur progressively so that disturbed areas drain to the detention basins. By accomplishing this, the detention basins would provide water quality treatment of runoff during project construction and during the operational life of the project. Following the construction-period, the basins shall be inspected to ensure that the design capacity of the basins has not been reduced by sedimentation. If necessary, sediment shall be removed to provide adequate capacity for the post-construction period.

MM IV.E-2: National Pollution Discharge Elimination System

The project shall include full compliance with the requirements and intent of the current County NPDES permit. The permit requires a comprehensive approach to stormwater management that implements (a) site design measures to minimize impervious area, reduce direct connections between impervious areas and the storm drain system, and mimic natural systems; and employs (b) source control and (c) treatment control measures, that can reduce runoff and the entry of pollutants into stormwater and receiving waters. The project shall incorporate site design measures for reducing water quality impacts of the project in compliance with the County NPDES stormwater permit Provision C.3. requirements. These requirements include, but are not limited to:

- *Numeric Sizing Criteria for Pollutant Removal Treatment Systems.* The project must include source controls, design measures, and treatment controls to minimize stormwater pollutant discharges. Treatment controls must be sized to treat a specific amount--about 85 percent--of average annual runoff. The project proposes the use of a detention basin (treatment control) to mitigate increased flows and water quality degradation associated with the project. The basins shall be designed and operated in compliance with the design recommendation for detention basins (BMP TC-22) included in California Stormwater Quality Association, Stormwater Best Management Practice Handbook for Development and Redevelopment (2003). Specifically, the basins shall be sized to treat the permit-specified water quality volume.

- *Operation and Maintenance of Treatment Measures.* Treatment controls often do not work unless adequately maintained. The permit would require an Operations and Maintenance (O&M) agreement which would include: 1) identifying the properties with treatment controls, 2) developing agreements with private entities to maintain the controls (which would be incorporated into CC&Rs or homeowner's association duties), 3) periodic inspection, maintenance (as needed), and reporting. The O&M agreements would run with the land.

- *Limitation on Increase of Peak Stormwater Runoff Discharge Rates.* San Mateo County released their Hydromodification Management Plan (HMP) on May 12, 2005. The HMP is a requirement of the new County NPDES Permit to guide participating city agencies and individual development projects toward a unified approach to mitigate potential watershed-wide impacts.

The applicant shall work with the City staff to comply with the current requirements of the RWQCB-approved HMP, as available.

MM IV.E-3 Grading and Drainage Plans

Final grading and drainage plans shall be submitted to the City for its review and approval. The final drainage plan for the project shall be prepared by a licensed professional engineer. As a condition of approval of the final grading and drainage plans for the project, it must be demonstrated through detailed hydraulic analysis that implementation of the proposed drainage plans will:

- Not increase total peak runoff rates from the project site (relative to pre-development conditions).

- Ensure that runoff associated with storm events up to and including the 100-year event will not flood residential structures proposed by the project. The project shall be designed so that if the subsurface piping system capacity is exceeded, that excess flow will be conveyed on the surface in gutters and streets toward Fassler Avenue. If it would be possible to exceed the detention basins capacity from project storm flows, a spillway shall be included in the final detention basins design that would allow flood waters that exceed the basins capacity to drain overland without causing excessive erosion or catastrophic releases from the basins.

- Include drainage components that are designed in compliance with City of Pacifica standards. The grading and drainage plans shall be reviewed for compliance with these requirements by the City of Pacifica Department of Public Works. At the City's discretion, the detailed detention basins hydraulic design could be reviewed for adequacy by City staff or by a consulting engineer retained by the City (any expenses associated with this review shall be paid by the applicant). Any improvements deemed necessary by the City and/or the City's expert consult, will be required components in the final drainage plan.

- Include a self-perpetuating drainage system maintenance program (to be managed by an HOA or similar entity), that includes annual inspections of detention basins, culverts, drainage ditches, and drainage inlets. Any accumulation of sediment or other debris shall be promptly removed on a schedule to be determined by the HOA or similar entity. The detention facility will require regular vegetation control during wet months. Adequate budget for mowing and vegetation control shall be included in operating cost estimates. Mosquito and vector control shall be primarily achieved by ensuring that the water detention features are drained within 72 hours into the catchment basins located under the parking structure. The catchment basins shall be sealed. An annual report documenting the inspection and any remedial action conducted shall be submitted to the City of Pacifica Planning and Economic Development Department for review.

- The detention basins shall be designed and constructed to serve as a water quality treatment feature. Energy dissipation and adequate detention times within the basins are important to allow

the solids to settle out prior to discharge. Inflow and outflow structures should be designed to minimize turbulence to allow more rapid settling of sediments.

CUMULATIVE IMPACTS

Other related development in the City of Pacifica within proximity of the site includes the 1 @ Harmony project and the project on Old County Road. Similar to the proposed project, the 1 @ Harmony project would result in the disturbance of more than one acre, and as such, the applicant of this project would be required to comply with the NPDES General Construction and Municipal Stormwater Discharge permit requirements, San Mateo County design criteria standards, and City Municipal Code requirements to ensure that implementation of these developments would not result in significant water quality impacts. As stated previously, through compliance with the SWPPP, City Municipal Code requirements, and the mitigation measures described above, water quality, drainage, and runoff impacts of the proposed project would be less than significant. Therefore, the proposed project would not contribute to cumulative impacts related to water quality, drainage, stormdrain capacity/flooding. Therefore, cumulative hydrology and water quality impacts would be ***less than significant***.

MITIGATION MEASURES

Because no cumulative impacts related to hydrology and water quality have been identified, no additional mitigation measures are required.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

With the implementation of mitigation measures listed above, construction-related and project operation-related impacts associated with hydrology and water quality would be reduced to a ***less-than-significant*** level.