

MITIGATION MONITORING AND REPORTING PROGRAM

This chapter provides a Mitigation Monitoring and Reporting Program (MMRP) for the proposed Miraflores Housing Development Project. The purpose of the MMRP is to ensure the implementation of mitigation measures identified as part of the environmental review for the project. The MMRP includes the following information:

- ◆ A list of mitigation measures;
- ◆ The party responsible for implementing the mitigation measures;
- ◆ The timing for implementation of the mitigation measure;
- ◆ The agency responsible for monitoring the implementation; and
- ◆ The monitoring action and frequency.

The City of Richmond must adopt this MMRP, or an equally effective program, if it approves the Miraflores Housing Development Project with the mitigation measures that were adopted or made conditions of project approval.

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TABLE 1 MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Implemented By	When Implemented	Monitored By	Monitoring Action and Frequency	Verification By/Date
AIR QUALITY					
<p><u>AQ-1:</u> Implement control measures for remediation- and construction-related air emissions. Each project sponsor is responsible for ensuring that the contractor reduces particulate, ROC, NOx, and CO emissions by complying with BAAQMD guidelines. The project sponsor and contractor should implement the following control measures based on BAAQMD guidelines.</p> <ul style="list-style-type: none"> ◆ Cover all trucks hauling construction and demolition debris, including soil, sand and other loose materials from the site. ◆ Water on a continuous as-needed basis all earth surfaces during clearing, grading, earthmoving, and other site preparation activities. ◆ Use watering to control dust generation during demolition of structures or break-up of pavement. ◆ Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved parking areas and staging areas. ◆ Sweep daily (with water sweepers or vacuum/street sweepers) all roads, paved areas and staging areas at the site. ◆ Provide daily clean up (with a vacuum/street sweeper) if visible mud and dirt is carried onto adjacent public streets. ◆ Conduct renovation and demolition activities and removal or disturbances of any material that contain asbestos, lead paint or other hazardous pollutants in accordance with BAAQMD <u>and</u> DTSC rules and regulations. ◆ Install wheel washers for all exiting trucks, or wash off the tires or tracks of trucks and equipment leaving the site. ◆ Suspend dust-producing activities during periods when instantaneous gusts exceed 25 mph when dust control measures are unable to avoid visible plumes. ◆ Limit the area subject to excavation, grading and other con- 	Project Developer and Contractor	Remediation, site preparation, and construction phases	Richmond Planning & Building Services	Review at beginning of each phase, then monthly	

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struction or demolition activity at any one time.					
◆ <u>Suspend use of all construction equipment operations during second stage smog alerts.</u>					
◆ Apply soil stabilizers to previously graded portions of the site inactive for more than ten days, or cover or seed these areas.					
◆ Water or cover stockpiles of debris, soil, sand, or other materials that can be blown by the wind.					
◆ Limit traffic speeds on unpaved roads to 15 mph.					
◆ Replant vegetation in disturbed areas as quickly as possible.					
◆ Opacity is an indicator of exhaust particulate emissions from off-road diesel powered equipment. The project shall ensure that emissions from all construction diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately.					
◆ The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).					
◆ Clear signage shall be posted indicating that diesel equipment standing idle for more than five minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite and away from residences.					
◆ Properly tune and maintain equipment for low emissions.					
◆ <u>Configure construction parking to minimize traffic interference.</u>					
◆ <u>Consolidate truck deliveries when possible.</u>					
◆ <u>Establish a staging zone for trucks that are waiting to load or unload material at the work zone in a location where diesel emissions from the trucks will have minimum impact on abut-</u>					

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<p><u>ters and the general public.</u></p> <ul style="list-style-type: none"> ◆ <u>Locate construction equipment away from sensitive receptors such as fresh air intakes to buildings, air conditioners and operable windows.</u> ◆ <u>Implement a carpool program for construction workers.</u> ◆ <u>Prohibit the use of conventional cut-back asphalt for paving and restrict the maximum VOC content of asphalt emulsion.</u> ◆ <u>Use low-ROG paints and other low-ROG construction materials.</u> 					
BIOLOGICAL RESOURCES					
<p><u>BIO-1: Prior to issuance of a grading permit that will impact the creek, a Section 401 Certification shall be obtained from the San Francisco Bay Regional Water Quality Control Board (RWQCB), a Nationwide Wetlands Permit obtained from the Corps, and a Streambed Alteration Agreement from the California Department of Fish and Game (CDFG).</u></p>	Project Developer	Prior to issuance of a grading permit that will impact the creek	Planning & Building Services	Review and certification/ permit issuance	
CULTURAL RESOURCES					
<p><u>CR-1: CR-1: The proposed project would preserve the Sakai House, tank house and Greenhouse 20 of the Sakai nursery on-site. (The proposed project would also include on-site relocation and rehabilitation/preservation of the Oishi House and either Greenhouse 9 or 17 of the Oishi Nursery on-site.) Prior to implementation of the project, all existing buildings and landscape features shall be documented in accordance with Historic American Buildings Survey (HABS) Documentation Level III standards using archival quality photography of the exterior and interior and archival negatives of the original construction drawings. The project City shall also include -develop a permanent, interpretive historical exhibit on the site, or if not feasible, at an appropriate public venue, that incorporates information from the historic report, historic photographs, and Historic American Landscape Survey and HABS Historic American Buildings Survey documentation.</u></p>	Richmond Community Redevelopment Agency (Agency)	Prior to demolition and prior to issuance of an occupancy permit	Planning & Building Services	Review of rehabilitation and relocation methods, preservation methods, documentation, and historical exhibit design, once, prior to demolition, then prior to issuance of an occupancy permit	

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These measures would reduce project impacts, but not to a less-than-significant level.					
<u>CR-2:</u> For any archaeological resources discovered during the remediation and construction phase, all project activities in the immediate vicinity of the discovery would halt. Procedures of 36 CFR Part 800.13(b) and (c); PRC Sections 5097.94, 5097.98 and 5097.99; and the California Health and Safety Code Section 7050.5 would be followed, including calling an archaeologist or paleontologist to evaluate the materials.	Project Contractor and Property Owner	Remediation and construction phases	Planning & Building Services	Review and verification, continuous during remediation and construction	
<u>CR-3:</u> If paleontological resources were found during site remediation and construction, work would be halted until a paleontologist could evaluate the nature and significance of the resources. If significant resources were confirmed, the OHP and the California Department of State Parks would be contacted for further guidance on documentation and preservation. Protocol for the discovery of paleontological resources during construction would be the same as that for archaeological resources, per the MOA: project activities in the immediate vicinity of the discovery would halt, and procedures of 36 CFR Part 800.13(b) and (c); PRC Sections 5097.94, 5097.98 and 5097.99; and the California Health and Safety Code Section 7050.5 would be followed, including calling an archaeologist or paleontologist to evaluate the materials.	Project Contractor and Property Owner	Remediation and construction phases	Planning & Building Services	Review and verification, continuous during remediation and construction	
GEOLOGY, SEISMICITY AND SOILS					
<u>GEO-1:</u> The following site preparation and grading measures shall be performed to address soil condition issues of existing undocumented fill and shallow groundwater. ♦ Prior to site grading, tall grasses and weeds that cover the majority of the site shall be mowed and removed. Existing structures, foundations, trees and abandoned underground utilities, septic tanks, leach fields and other existing abandoned improvements shall be demolished and removed from the site either following or as part of site remediation. Existing fill along the north and east sides of the site shall be removed down to stiff native soil.	Project Contractor and Project Engineer, and Project Geotechnical Consultant	Prior to issuance of permits	Planning & Building Services	Review of site conditions periodically throughout remediation and grading activity	

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<ul style="list-style-type: none"> ◆ Areas to receive fill, following remediation, shall be scarified to a depth of about 12 inches below the existing ground surface, moisture conditioned and compacted according to the requirements stipulated in the Berlogar Geotechnical Report from November 2006. ◆ The shallow patches of fill that cover most of the site shall be addressed by 12-inch deep scarification. If zones of soft or saturated soils are encountered during grading and over-excavation operations, deeper excavations may be required to expose firm soils. This shall be determined in the field by the soil engineer. ◆ Imported fill, except as provided in the RAP, shall be free of deleterious matter and rock fragments greater than 4 inches, and have a Plasticity Index of 15 or less and contain sufficient clayey binder to allow for stable utility trench excavations. ◆ All fill and backfill shall be placed in thin lifts (between 8 and 12 inches depending on compaction equipment), properly moisture conditioned and compacted to degrees indicated by the Berlogar Geotechnical Report from November 2006. ◆ Observations and soil density test shall be conducted during grading and backfill operations to obtain the proper degree of compaction and moisture content. Where compaction is outside the range required, additional reworking and moisture conditioning shall be made until the specified compaction and moisture conditioning are achieved. ◆ The soil engineer, except as provided for in the RAP, shall be notified at least 48 hours prior to any grading operations to discuss the procedure and methods of grading. 					
<p><u>GEO-2:</u> If excavation bottoms require stabilization due to proximity to groundwater, imported drainage rock, geotextile fabric, or lime treatment may be used to accomplish this stabilization. If groundwater is encountered during soil excavation before the limits of the soil contamination are reached, a determination shall be made to dewater and excavate further, or to discontinue the excavation.</p>	Project Contractor and Project Engineer, Project Geotechnical Consultant	During excavation	Richmond Public Works Department (Public Works)	Scheduled site inspections for duration of excavation and grading phases	

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<p>vation. If the determination made is to dewater and continue the excavation, groundwater removed from the excavation shall be pumped into aboveground containers for subsequent analysis prior to treatment and/or disposal.</p>					
<p><u>GEO-3a</u>: Post-tension concrete slab-on-grade foundations shall be used in residential units to help reduce the potential impacts of expansive soils. Construction activities shall provide proper moisture conditioning of the sub-grade soils under building foundations and concrete pavements to mitigate the potential impacts of expansive soils. Slab foundations shall be designed by a structural engineer according to the following parameters:</p> <ul style="list-style-type: none"> ◆ Slab foundations shall accommodate 3 inches total soil movement and 1 inch in 25 horizontal feet differential soil movement. ◆ The subgrade of the building pad shall be presoaked to at least 7 percent over the optimum moisture content for a depth of 12 inches. Building pads shall not be allowed to dry out to less than the recommended moisture content prior to the construction of the slab. The soil engineer shall check the moisture content prior to the placement of moisture vapor retarder. 	Project Developer and Project Engineer, Contractor	During construction	Planning & Building Services	Scheduled site inspections for duration of excavation and grading phases	
<p><u>GEO-3b</u>: To reduce the effects of expansive soils on exterior concrete flatwork such as sidewalks, walkways and driveways, the following measures shall be incorporated during subgrade preparation:</p> <ul style="list-style-type: none"> ◆ The subgrade in these areas shall be scarified to a depth of at least 12 inches, properly moisture conditioned to at least 5 percent optimum moisture content and compacted between 85 and 90 percent relative compaction. ◆ The moisture content of subgrade soils shall be checked immediately prior to the placement of baserock or concrete (if supported directly on the subgrade). ◆ Any previously compacted subgrade soils that are disturbed during utility trench excavation and backfilling shall be uniformly moisture conditioned to at least 5 percent above opti- 	Project Developer and Project Engineer, Contractor	During subgrade preparation and plan review	Planning & Building Services, Public Works Department	Scheduled site inspections during subgrade preparation	

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<p>imum moisture content and recompacted to between 85 and 90 percent relative compaction to provide a smooth and unyielding surface.</p>					
HYDROLOGY AND WATER QUALITY					
<p><u>HYDRO-1:</u> The following measures shall be incorporated into the restoration design of Baxter Creek to reduce the potential for erosion:</p> <ul style="list-style-type: none"> ◆ Conduct hydrologic flood modeling to determine the appropriate width and design of the creek channel to disperse creek flow velocity and convey water without increasing erosion. ◆ Cut creek banks at gradients no steeper than two-feet horizontal to one-foot vertical (2H:1V) to reduce the risk of erosion in the creek channel. ◆ Plant native vegetation within the creek channel and floodplain to provide groundcover to prevent erosion from bare soils. ◆ Where flood modeling indicates unavoidable increases in water velocity, use soil bioengineering in areas of the restored channel. (Soil bioengineering is the use of structural support and vegetative cover of natural materials to provide structure and support to prevent creek bank erosion and restore natural stream habitat.) Include the use of woody cuttings and poles or posts collected from native plants to provide structural support, control creek bank erosion and restore natural stream habitat. Exact methods used and locations would be determined through further planning and design. ◆ Channel hardening would be used as needed at the transition between the restored channel and culvert outfalls and infalls to prevent erosion. Channel hardening would be limited to areas where soil bioengineering is incapable of addressing the potential for erosion due to high velocities caused by supercritical flow. 	Project Engineer	Final Site Plan Design	Planning & Building Services, Public Works	Review and approval of Final Site Plan Design, scheduled site inspections	
<p><u>HYDRO-2:</u> To address risks associated with erosion and flooding, the following features shall be incorporated into the final creek</p>	Project Engineer	Final Site Plan Design, creek restoration and drainage plan	Planning & Building Services, Public Works	Approval of Final Site Plan Design, scheduled site	

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restoration design:		review		inspections	
<ul style="list-style-type: none"> ◆ Locate the creek channel within a wide floodplain, with widths throughout most of the floodplain at approximately 120 feet to 140 feet wide to provide increased capacity for out-of-channel flooding. ◆ Conduct hydrologic flood modeling to assess the effects of detention storage on the system. The model run will be used to design flood detention storage or peak attenuation as needed to meet the NPDES C.3 regulations. ◆ Incorporate creek bank stabilization measures, including grading, bioengineering and hardening, in the final design to demonstrate that erosion and flooding impacts are mitigated. ◆ Incorporate landscaping throughout the creek channel and floodplain to prevent erosion. ◆ Design floodwalls and landscape berms to increase storage of flows within the creek channel and accommodate break-out flows at the downstream end of the restored creek at Wall Avenue. Based on the modeling results, the dimensions and placement of floodwalls and landscaped berms would be determined. 					
NOISE					
<u>NOI-1a:</u> During final design of the project, a detailed acoustical analysis of exterior and interior noise reduction requirements and specifications shall be conducted by a qualified Acoustical Specialist in accordance with City of Richmond and HUD standards.	Project Developer and Acoustical Specialist	Final Site Plan Design	Planning & Building Services	Plan review, scheduled site inspections	
<u>NOI-1b:</u> During the final site plan design, noise-sensitive outdoor use areas shall be located away from Interstate 80 and BART wherever possible. Noise-sensitive spaces shall be shielded with buildings or noise barriers whenever possible to maintain exterior noise levels of 65 L _{dn} or less at multi-family housing. Potential noise barrier locations are shown in Figure 4.11-4.	Project Developer and Project Architect	Final Site Plan Design	Planning & Building Services	Plan review, scheduled site inspections	
<u>NOI-1c:</u> Design and construction of noise barriers shall be incor-	Project Developer and Acoustical Specialist	Final Site Plan Design	Planning & Building Services	Plan review, scheduled site inspections	

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<p>porated to reduce BART noise at private exterior use areas at multi-family homes proposed in the north part of the site to 65 L_{dn} or less. Design and construction of noise barriers shall be incorporated to reduce Interstate 80 traffic noise at ground-level outdoor use areas of multi-family homes along the eastern portion of the site bordering the open space area (i.e. near Interstate 80). Preliminary calculations indicate that 6- to 8-foot high walls or solid fences would be necessary to protect these areas from BART and traffic noise. The final detailed design of the heights and limits of these barriers shall be completed at the time that the final grading and site plans are submitted.</p>					
<p>NOI-1d: A project-specific acoustical analysis where exterior levels exceed 60 dBA L_{dn} shall be conducted. Results of the analysis, including the description of the necessary noise control treatments, shall be submitted along with the building plans and approved prior to issuance of a building permit. Feasible construction techniques such as those listed below would adequately reduce interior noise levels to 45 dBA L_{dn} or lower.</p> <ul style="list-style-type: none"> ◆ Building sound insulation shall be provided for a minimum of 5 decibels additional sound attenuation (minimum 25 dBA exterior-to-interior noise reduction) at first and second stories, and 10 decibels (minimum 30 dBA exterior-to-interior noise reduction) at third stories or higher. ◆ Special building construction techniques including sound-rated windows, doors, building façade treatments, sound-rated wall constructions and acoustical caulking) may be required for new residential uses adjacent to Interstate 80 and BART. 	Project Developer and Acoustical Specialist	Final site plan design	Planning and Building Services	Plan review, scheduled site inspections	
<p>NOI-2a: Prior to initiation of the project, the contractor shall prepare and submit a noise monitoring plan for the construction and remediation phases to the City. The noise monitoring plan shall identify monitoring locations and frequency, instrumentation to be used, and appropriate noise control measures that can be incorporated. The plan shall include the following provisions:</p> <ul style="list-style-type: none"> ◆ Noise levels shall be measured for comparison to the noise limits set forth in the Richmond Noise Ordinance. 	Project Developer and Contractor	Prior to issuance of demolition or grading permit	Planning & Building Services	Noise monitoring at the beginning of each new phase of construction and remediation and when noise levels are expected to change	

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<ul style="list-style-type: none"> ◆ Noise levels shall be monitored at locations representing the highest noise exposure levels to the west and south of the project site. ◆ Noise monitoring shall occur at the beginning of each major phase of construction and remediation, and/or when noise levels are expected to change. 					
<u>NOI-2b:</u> Noise-generating construction and remediation activity shall comply with City construction noise standards and shall be limited to daytime hours.	Project Developer and Contractor	Remediation and construction phases	Planning & Building Services	Scheduled site inspections	
<u>NOI-2c:</u> All internal combustion engine-driven equipment shall be equipped with intake and exhaust mufflers that are in good condition and appropriate for the equipment.	Project Developer and Contractor	Remediation and construction phases	Planning & Building Services	Scheduled site inspections	
<u>NOI-2d:</u> Stationary noise-generating equipment shall be located as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.	Project Developer and Contractor	Remediation and construction phases	Planning & Building Services	Scheduled site inspections	
<u>NOI-2e:</u> Construction and remediation equipment shall utilize state of the art noise suppression techniques and be shielded with temporary noise barriers to reduce temporary, construction-related noise impacts.	Project Developer and Contractor	Remediation and construction phases	Planning & Building Services	Scheduled site inspections	
<u>NOI-2f:</u> The contractor shall prepare a detailed construction plan identifying the schedule for major noise-generating construction and remediation activities. This plan shall identify a procedure for coordination with the adjacent noise sensitive facilities so that construction and remediation activities and the event schedule can be scheduled to minimize noise disturbance.	Project Developer and Contractor	Prior to issuance of grading permit	Planning & Building Services	Scheduled site inspections	
<u>NOI-2g:</u> A “disturbance coordinator” shall be designated who would be responsible for responding to any local complaints about construction and remediation noise. The disturbance coordinator will determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site and included in the notice sent to neighbors regarding the construction schedule. The City shall be	Project Developer and Project Disturbance Coordinator	Remediation and construction phases	Planning and Building Services	Scheduled site inspections	

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responsible for designating a noise disturbance coordinator and the individual project sponsor shall be responsible for posting the phone number and providing construction schedule notices.					
<u>NOI-2h</u> : During construction and remediation, trucks and equipment shall be running only when necessary.	Project Developer and Contractor	Remediation and construction phases	Planning & Building Services	Continuous during remediation and construction	
<u>NOI-3</u> : For residential buildings to be constructed within 100 feet of the BART tracks, an on-site vibration monitoring study and building design study shall be completed pursuant to Federal Transit Agency Guidelines during project design. Based on the results of the vibration study, control measures to reduce floor vibrations to acceptable levels, such as foundation stiffening, shall be designed and implemented.	Project Developer and Project Structural Engineer	During Final Site Plan Design	Planning & Building Services	Monitoring study per Federal Transit Agency guidelines	