

# San Francisco Bay Conservation and Development Commission

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October 18, 2017

**TO:** Engineering Criteria Review Board (ECRB) Members

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**SUBJECT: Latitude Project (previously referred to as the Terminal One Project), City of Richmond, Contra Costa County (35% Design)**  
(For Board consideration on November 1, 2017)

## Project Summary

**Project Name.** The Latitude Project (previously referred to as the Terminal One Project), City of Richmond.

**Applicant.** Laconia Development LLC (Laconia) and the City of Richmond.

**Project Representatives.** Cleve Livingston (Laconia); Lina Velasco (City of Richmond); Sam Yao and Max Argo (SGH); Jeff Fippin, Pedro Espinosa, and Todd Bradford (ENGE0); Jason White (BKF Engineers); and Scott Cataffa and Justin Aff (CMG).

Engineers); and Scott Cataffa and Justin Aff (CMG).

**Summary of the Proposed Presentation for the August 8, 2017 ECRB Meeting.** On May 24<sup>th</sup>, 2017 and August 8, 2017, the ECRB reviewed the engineering criteria of the project. At the August 8<sup>th</sup> meeting, the Board agreed that the project should move forward and in relation to the wharf as a public access return to the Board to address the ECRB's following comments:

1. Look at the amount of information gathered on the western part of the site to see if additional work and exploration is warranted to better characterize the materials below the Bay mud.
2. Questions were raised regarding the strength parameters used in evaluating the stability of the sand and clayey sand using Phi (friction angle) of 31 and an undrained strength of 780 psf.
3. Reexamine the deflections for the piles during an event and the configuration and depth of the DSM buttress.
4. Given that liquefaction is expected, justify why the soil profile at the site was classified as E and not F. The classification ranges from A to F from hard rock to very weak soils, respectively.

5. Provide information gathered regarding subsurface profiles in other parts of the site, and provide a longitudinal profile (along the wharf-front).
6. Include a narrative describing the processes and time histories used in developing the ground response analysis. The Board asked if the seismic hazard had been disaggregated and how time/history records were chosen (e.g., should there be a mix of Hayward- and San Andreas-type sources?). And should the target spectrum be natural shaped as developed from a hazard analysis, rather than flat-topped? He noted that most hazard in this area is Strike Slip, but the chart in Slide 19, site response, includes one Reverse and one Normal fault type, which is surprising, but does not include the San Andreas fault. He suggested taking the average from at least seven sources instead of the five shown on the slide.
7. A revised Base Flood Elevation for the site is 12 feet NAVD88. Would the new information impact the flood readiness of the wharf and more specifically the area of the western access? Check whether old data is based on MSL (e.g., NGVD29) or MLLW (e.g., NAVD88), and compare with more recent data.
8. It was not clear whether the cross-section drawings agreed with the elevation of boring logs. Please confirm that elevation references have been reconciled between these two and perform a check on the stability analysis.
9. The board commented on long-term resilience and public access to the Bay. Since the project is based on performance-criteria, which may not be designed for access or egress in the event of an earthquake, would there be provisions incorporated in the project, outside code, to enable passage.
10. The board had questions regarding the inspection program to monitor piles that become classified Severe, how the program would work and what measures would be in place to repair after the public park is built.
11. In the slope stability analyses results, show the constraints on the search for the critical slip surface.
12. Because of the complexity of the Soil-Structure-Interaction problem of slope deformation, where piles are providing strength but may themselves also degrade, consider whether it might be more appropriate to use a finite element or finite difference numerical modeling approach for the final analyses.

**Response to Comments.** In response to these Board comments from the August 8<sup>th</sup> ECRB meeting, the project sponsor has submitted the following two written documents (both of which are attached) for Board consideration at the November 1, 2017 meeting:

1. "Technical Memorandum No. 1 – Supplemental Basis of Design – Response to ECRB Comments," prepared by ENGEO, September 29, 2017, as revised October 12, 2017 [includes responses to ECRB Comments Numbers 1-6]; and

2. Correspondence from Project Applicant with attached “List of ECRB Comments from August 8, 2017 Meeting (As Prepared by Staff with Annotations by Applicant), October 16, 2017 [includes annotated supplemental responses to ECRB Comments Numbers 1-6 and annotated responses to ECRB Comments Numbers 7-12].

The November 1<sup>st</sup> ECRB meeting that is the subject of this staff report serves as a follow-up to the August 8<sup>th</sup> project presentation.

A copy of the minutes of the August 8<sup>th</sup>, 2017 ECRB meeting is provided for reference.

**Project Description.** The Latitude Project (“Project”) contemplates the redevelopment of a 13-acre shoreline site located in the Point Richmond area of the City of Richmond which previously served for over 80 years as a port terminal and tank farm. The Project proposes to replace these heavy industrial port-related land uses with a mix of public park and private residential uses, the two principal components of which will consist of:

1. An approximately 5.5-acre public waterfront park that would run the length of the Project’s approximately 1,100-foot shoreline frontage and would feature the existing Terminal One Wharf repurposed for public use and a shoreline extension of the Bay Trail (the “Waterfront Park”); and
2. An approximately 8.7-acre residential neighborhood with 316 residential dwelling units (consisting of 21 single-family homes, 295 stacked condominium flats in five multi-story buildings that would be constructed over two single-story parking podiums) that will be developed on the interior of the site, beyond the Commission’s 100-foot shoreline band.

An important aspect of the project involves reusing the existing Richmond Municipal Wharf No. 1 as a public recreational amenity that is the centerpiece of the Project’s Waterfront Park. This 1915 era wharf is approximately 555 feet in length and 90 feet in width, with coverage of almost 50,000 square feet.

**Law and Policy Considerations.** Section 66605 of the McAteer-Petris Act allows the Commission to approve fill<sup>1</sup> only when public benefits from fill clearly exceed public detriment from the loss of the water areas, and should be limited to water-oriented uses or minor fill for improving shoreline appearance or public access to the Bay. Authorized fill shall meet certain additional criteria, including among others, that the fill be constructed “in accordance with sound safety standards which will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters.”

**Bay Plan Policies.** The applicable BCDC Bay Plan policies in relation to the proposed project include policies on Safety of Fills, Shoreline Protection, Public Access and Climate Change.

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<sup>1</sup>Fill is defined in the McAteer-Petris Act as "earth or any other substance or material, including pilings or structures placed on pilings, and structures floating at some or all times and moored for extended periods, such as houseboats and floating docks" (Section 66632(a)).

### Policies on the Safety of Fills

1. **Policy No. 1** states, in part, that the Commission has appointed and empowered the ECRB to “establish and revise safety criteria for Bay fills and structures thereon.”
2. **Policy No. 2** states, in part, that “even if the Bay Plan indicates that a fill may be permissible, no fill or building should be constructed if hazards cannot be overcome adequately for the intended use in accordance with the criteria prescribed by the ECRB.”
3. **Policy No. 3** states, “[t]o provide vitally needed information on the effects of earthquakes on all kinds of soils, installation of strong-motion seismographs should be required on all future major land fills. In addition, the Commission encourages installation of strong-motion seismographs in other developments on problem soils, and in other areas recommended by the U.S. Geological Survey, for purposes of data comparison and evaluation.”
4. **Policy No. 4** states, in part, that “[a]dequate measures should be provided to prevent damage from sea level rise and storm activity that may occur on fill or near the shoreline over the expected life of a project. The Commission may approve fill that is needed to provide flood protection for existing projects and uses. New projects on fill or near the shoreline should either be:
  - set back from the edge of the shore so that the project will not be subject to dynamic wave energy,
  - be built so the bottom floor level of structures will be above a 100-year flood elevation that takes future sea level rise into account for the expected life of the project,
  - be specifically designed to tolerate periodic flooding, or
  - employ other effective means of addressing the impacts of future SLR and storm activity.”

### Policies on the Shoreline Protection

1. **Policy No. 1** states, in part, that, “[n]ew shoreline protection projects and the maintenance or reconstruction of existing projects and uses should be authorized if:
  - (a) the project is necessary to provide flood or erosion protection for (i) existing development, use or infrastructure, or (ii) proposed development, use or infrastructure that is consistent with other Bay Plan policies;
  - (b) the type of the protective structure is appropriate for the project site, the uses to be protected, and the erosion and flooding conditions at the site;
  - (c) the project is properly engineered to provide erosion control and flood protection for the expected life of the project based on a 100-year flood event that takes future sea level rise into account;...and

- (e) the protection is integrated with current or planned adjacent shoreline protection measures. Professionals knowledgeable of the Commission's concerns, such as civil engineers experienced in coastal processes, should participate in the design.”
2. **Policy No. 2** states, in part, that, “[r]iprap revetments, the most common shoreline protective structure, should be constructed of properly sized and placed material that meet sound engineering criteria for durability, density, and porosity. Armor materials used in the revetment should be placed according to accepted engineering practice.... Riprap revetments constructed out of other debris materials should not be authorized.”
  3. **Policy No. 4** states, in part, that, “[w]henver feasible and appropriate, shoreline protection projects should include provisions for nonstructural methods such as marsh vegetation and integrate shoreline protection and Bay ecosystem enhancement, using adaptive management. Along shorelines that support marsh vegetation, or where marsh establishment has a reasonable chance of success, the Commission should require that the design of authorized protection projects include provisions for establishing marsh and transitional upland vegetation as part of the protective structure, wherever feasible.”

#### **Policies on Public Access**

**Policy No. 5** states, in part, that, “[p]ublic access should be sited, designed, managed and maintained to avoid significant adverse impacts from sea level rise and shoreline flooding.”

#### **Policies on Climate Change**

1. **Policy No. 2** states, in part, that “[w]hen planning shoreline areas or designing larger shoreline projects, a risk assessment should be prepared by a qualified engineer and should be based on the estimated 100-year flood elevation that takes into account the best estimates of future sea level rise and current flood protection and planned flood protection that will be funded and constructed when needed to provide protection for the proposed project or shoreline area. A range of sea level rise projections for mid-century and end of century based on the best scientific data available should be used in the risk assessment. Inundation maps used for the risk assessment should be prepared under the direction of a qualified engineer. The risk assessment should identify all types of potential flooding, degrees of uncertainty, consequences of defense failure, and risks to existing habitat from proposed flood protection devices.”
2. **Policy No. 3** states, in part, that “to protect public safety and ecosystem services, within areas that a risk assessment determines are vulnerable to future shoreline flooding that threatens public safety, all projects should be designed to be resilient to a mid-century sea level rise projection. If it is likely the project will remain in place longer than mid-century, an adaptive management plan should be developed to address the long-term impacts that will arise based on a risk assessment using the best available science-based projection for sea level rise at the end of the century.”

3. **Policy No. 5** states that, “[w]herever feasible and appropriate, effective, innovative sea level rise adaptation approaches should be encouraged.”

**Request for the ECRB’s Technical Advice.** The project proposal includes repurposing an approximately 100-year-old wharf as a prominent public park that is anticipated to attract people from around the region. In addition to reviewing the applicant’s responses to the ECRB’s August 8, 2017 comments (see Page 2, above), the staff seeks the Board’s advice on the following two questions related to the project’s engineering design criteria:

1. Are the design criteria (goals) suitable and achievable, given the vulnerabilities and physical hazards of the site? Are there significant constraints to implementing the criteria?

Section 66605 (e) of the McAteer-Petris Act requires that fill be authorized and constructed only in accordance with sound safety standards which will afford reasonable protection to persons and property against the hazards of earthquakes and flooding. The Bay Plan Safety of Fills Policy 2 states that “[e]ven if the Bay Plan indicates that a fill may be permissible, no fill or building should be constructed if hazards cannot be overcome adequately for the intended use in accordance with the criteria prescribed by the Engineering Criteria Review Board.”

2. Is the public access wharf able to withstand periodic flooding after mid-century, given reasonable sea-level-rise scenarios?

**Material Enclosed with this Staff Report for November 1, 2017 ECRB Meeting**

1. August 8, 2017 ECRB draft meeting minutes
2. Technical Memorandum No. 1/Supplemental Basis of Design-Response To ECRB Comments, ENGEO, September 29, 2017/Revised October 12, 2017.
3. Correspondence from Project Applicant with attached “List of ECRB Comments from August 8, 2017 meeting (As prepared by Staff with Annotations by Applicant),” October 16, 2017.