

City of Brisbane

Agenda Report

TO: Honorable Mayor and City Council

FROM: Community Development Director via City Manager

SUBJECT: **Brisbane Baylands Planning Applications (Concept Plans, Specific Plan Case SP-01-06, General Plan Amendment Cases GP-01-06/GP-01-10) and related Final Environmental Impact Report (SCH #2006022136) - Site Remediation, Title 27 Landfill Closure, and Related Issues (continued from the November 17, 2016 City Council meeting)**

DATE: Meeting of December 15, 2016

Introduction:

The City Council continued the November 17, 2016 public hearing addressing hazards and hazardous materials, site remediation, and Title 27 landfill closure for further discussion, and for responses to be provided to the questions raised at the November 17 hearing. The City Council Baylands hearing schedule is attached for reference.

Discussion:

The Baylands review process to date and discussion at the November 17 public hearing demonstrates the community's ongoing concern regarding site contamination and remediation, and the clear expectation that the site be rendered safe for future use prior to any subsequent development. The ongoing discussion focuses on how that goal is defined, achieved, and implemented on a long-term basis.

Questions Raised at the November 17, 2016 City Council Hearing

Responses to issues raised at the City Council's November 17 hearing are provided below. Also provided below are responses to additional questions subsequently submitted into the public record.

What triggers the need for Title 27 landfill closure? Could the Regional Water Quality Control Board (RWQCB) or the Local Enforcement Agency (LEA) require Title 27 landfill closure in the absence of a change in use?

The former landfill ceased operations prior to adoption of Title 27. Methane gas collection and groundwater monitoring systems were installed in accordance with the regulations in place at the time. The requirement for official landfill closure in compliance with the requirements of Title 27 would be triggered by a change of land use on the site. The RWQCB and the San Mateo County Health System (the LEA) have the authority to require continued maintenance of existing landfill gas and leachate collection systems and groundwater monitoring wells.

In the event of a change of use, the County Health System and RWQCB have the authority to require Title 27-compliant landfill closure, including preparation and implementation of closure and post-closure maintenance plans to ensure that landfill closure post-closure maintenance, and the eventual reuse of the former landfill will (1) conform to state performance standards and substantive requirements, including but not limited to potential effects of sea level rise due to climate change, (2) prevent exposure of wastes within the landfill to the public and the environment, and (3) manage generation of landfill gas and leachates within the landfill so as to protect public health and the environment.

What is the history of characterization and other studies for the Baylands?

Over the years, a number of site and waste characterization, as well as other studies have been conducted to support eventual preparation of remedial action plans for OU-1 and OU-2 and for Title 27 landfill closure plans. The information, analyses, and conclusions provided in these reports, which are summarized in Attachment 1 to this staff report and in Draft EIR Appendices H.2 (Landfill) and H.# (OU-1 and OU-2), for the landfill, were obtained from the subsurface soil and groundwater investigations and ongoing monitoring. These investigations and studies, which were prepared by various consulting firms with specialized expertise in site remediation, landfill operations and closure, and geotechnical investigations, include:

Remediation and Characterizations Studies for OU-1 and/or OU-2

- Environmental Assessment of Fill – 1982
- Soil and Groundwater Investigation – 1985
- Remedial Action Alternative Feasibility Study – 1986
- Groundwater Monitoring Program –1989
- Groundwater Monitoring – 1989
- Remedial Investigation Data Study – 1989
- Supplemental Remedial Investigation – 1990
- Interim Remedial Investigation – 1995
- Field Investigation, Project Site and Schlage Site – 1998

- Remedial Investigation Report Joint Groundwater Operable Unit – 2002
- Soil Conditions Summary – 2005
- Soil and Groundwater Sampling – 2005/2006
- Soil Sampling Summary Report – 2006
- OU-1 Additional Investigation – 2006
- Sampling and Analysis for Lead and Arsenic in Soil – 2009
- Groundwater Monitoring – Ongoing
- Risk-Based Cleanup Levels – 2009

Landfill Studies

- Preliminary Geotechnical Investigation – 1977
- Detection Monitoring Program Investigation – 1987
- Phase 1 Geotechnical Investigation – 1990
- Air Quality Solid Waste Assessment – 1990
- Water Quality Solid Waste Assessment – 1992
- Landfill Footprint Delineation – 2000
- Landfill Cover Thickness Investigation – 2001
- Interior Drainage Channel Investigation – 2002
- Proposed Final Closure and Post-Closure Maintenance Plan – 2002
- Landfill Gas Surface Emission Evaluation – 2006
- Preliminary Geotechnical Investigation and Recommendations Report – 2008
- Leachate Management Plans - 2002-2008
- Landfill Groundwater, Surface-Water and Leachate Monitoring – 2002-Present
- Settlement Evaluation Program – 2008-Present
- Characterization Study, Brisbane Landfill – 2008
- Preliminary Fill Soil Import Criteria – 2011
- Hazardous Materials Summary Report, Brisbane Landfill – 2012

Since characterization studies were generally conducted prior to 2010, how would such studies differ if they were undertaken today in terms of methodology and the constituents being evaluated?

The analytical testing methodologies that would be used in characterization studies undertaken today are essentially unchanged from those used in the studies cited above. In addition, there have been no substantial changes in minimum laboratory detection limits that would affect the reports' conclusions. Thus, re-creating the studies identified above at the present time would result in similar results to those found in the previous studies.

As noted in the November 17 staff report, each of the studies cited in the Draft EIR had been prepared consistent with industry standards at the time they were prepared, and while there were prepared at different times, for different areas of the site, and for different purposes, two different reviewed by CDM and a review by Dr. Susan Mearns undertaken on behalf of the City concluded that these studies paint an adequate overall picture of onsite contamination and wastes within the Baylands for use in the Baylands EIR, recognizing that both the land use planning and site remediation processes are in their early stages¹.

It should also be noted that the results of ongoing monitoring of the Baylands have been consistent with the studies cited above, and that, except for existing industrial uses within the Baylands and recycling activities within the former landfill, the site has not been subject to activities that could have introduced new contamination. If the characterization studies identified above were to be undertaken today, there would possibly be a more robust examination of the potential presence of hexavalent chromium and analysis of the presence of soil vapors. Because human health risk assessments have yet to be prepared for OU-1 and OU-2, additional studies of these constituents could be completed prior to establishment of risk-based cleanup standards and remedial action plans.

While site and waste characterization methods have not changed appreciably, there has been a notable change in remedial approach over time related to the removal of contaminated soils from sites as part of site remediation. Recognizing the risks involved in exposing contaminated soils, transporting such soils over long distances and depositing them in Class I landfills in other communities, there has been a growing preference for treatment and/or containment of soils onsite. As noted below, the Baylands Sustainability Framework and the Planning Commission both recommend that the City maintain an active role in the review of remedial action plans being reviewed by the DTSC and RWQCB. This would include retaining an independent expert to (1) identify any additional characterization studies needing to be undertaken prior to completion of a RAP or landfill closure plan, and (2) ensure that all appropriate studies were completed prior to any land use approvals being granted by the City of Brisbane.

Was the Baylands site tested for radioactive material?

The only radioactivity testing undertaken for the Baylands is for the recent export of 20,000 cubic yards of material being stockpiled on top of the former landfill by Brisbane Soils Processing to Hunter's Point. This testing was undertaken per US Navy requirements. No radioactive materials were found.

¹ Neither CDM nor Dr. Mearns reached any conclusions as to whether Baylands characterization studies contained all of the information that DTSC and the RWQCB would need for development and approval of RAPs and Title 27 landfill closure plans.

Because human health risk assessments for the OU-1 and OU-2 remedial action plans and the Title 27 landfill closure plans have yet to be prepared, investigations for the presence of radioactive materials could be required prior to establishment of risk-based cleanup standards, remedial action plans, and landfill closure plans. As noted below, the Baylands Sustainability Framework and the Planning Commission both recommend that the City maintain an active role in the review of remedial action plans being reviewed by the DTSC and RWQCB. This would include retaining an independent expert to (1) identify any additional characterization studies, such as investigations for the presence of radioactive materials, if warranted, to be undertaken prior to completion of a RAP or landfill closure plan, and (2) ensure that all appropriate studies, including investigations for the presence of radioactive materials, were completed prior to any land use approvals being granted by the City of Brisbane.

What would be the effects of sea level rise on contaminants within the Baylands? Would sea level rise cause leachates from the landfill to escape into the groundwater or San Francisco Bay?

The potential impacts of sea level rise on landfills include: inundation, leachate migration, physical erosion, and saltwater intrusion.

1. Inundation can result if flood waters are high enough. A ponding effect may cause increased leachate production by adding water to the volume of wastes in the landfill and causing varying degrees of saturation.
2. Floodwaters may result in increased leachate production and the potential migration of leachate.
3. Waves may cause extensive erosion of any uncompacted cover material. The degree of impact would relate directly to the amount of wave action resulting from a coastal flood. Erosion is particularly significant at landfills constructed such that the waste is above ground level.
4. Salt intrusion from sea level rise may affect landfills with clay caps and/or liners. In coastal areas, where the extent of saltwater intrusion inland may be significant, it is common to have shallow unconfined aquifers with depths that respond rapidly to fluctuations in sea level. A rise in sea level may result in a rise in groundwater. The liner of a landfill may become inundated as the shallow groundwater rises, increasing the hydrostatic pressure on the liner. If the shallow groundwater mixes with saltwater, there may be significant clay-salt interaction, which can result in increased permeability of the clay liner and potential migration of leachate.

Thus, landfill closure plans reviewed and approved by the RWQCB and the San Mateo County Health System would incorporate measures to protect the former landfill area within the Baylands from any inundation, erosion, and flooding that may occur due to sea level rise. Proven mitigation measures exist to address the risks that could be created by sea level rise (Golder Associates 2016). While review and approval of closure plans are within the regulatory authority of the RWQCB and the San Mateo County Health System, the Baylands Sustainability Framework and the Planning Commission both recommend that the City maintain an active role in the review of remedial action plans by the DTSC and RWQCB. This would include the City retaining an independent expert to ensure studies were undertaken prior to completion of landfill

closure plans, and ensure that appropriate measures to protect future development from sea level rise were set forth prior to any land use approvals being granted by the City of Brisbane.

Since 2009, the RWQCB has required that landfills located adjacent to the San Francisco Bay, rivers or the ocean submit a long-term flood protection plan when updating existing Waste Discharge Requirements (WDRs). WDRs are most commonly updated every 10-15 years, or with a proposed expansion, significant changes in monitoring parameters or well locations, when ownership changes, or if new regulations are promulgated. Long-term flood protection plans must consider feasible options for achieving protection from the 100-year flood in the face of rising sea levels and increasing flood frequency and intensity. Once in place these plans must be updated every 5 years throughout the operational life and post-closure maintenance period of the landfill. Additionally, the RWQCB can require consideration of long-term flood protection and sea level rise in actions requiring landfill implementation of site cleanup and other corrective actions.

How could clusters of cancer or other disease in the Baylands be detected if they occur in the future?

The San Mateo County Health System maintains a protocol for identification of “cancer clusters,” which is about 10 years old, and in the process of being updated. The County’s protocol is based on undertaking an initial investigation following receipt of a request, which involves a health professional or other interested party submitting a form provided by the County to capture information on the cancer cases. The County Health System then analyzes the data (basically comparing expected vs. observed number of cases) to determine if further, more detailed investigation is warranted. If further investigation is determined to be warranted, the information is provided to the California Cancer Registry for detailed investigation.

The California Cancer Registry (CCR) is a program of the California Department of Public Health’s Chronic Disease Surveillance and Research Branch, and is a statewide population-based cancer surveillance system. It has collected detailed information on over 7 million cases of cancer among Californians diagnosed since 1988, with more than 175,000 new cases added annually. The availability of data on cancer in the state is intended to allow health researchers to analyze demographic and geographic factors that affect cancer risk, early detection, and effective treatment of cancer patients.

Has any landfill been subjected to a major earthquake? Are there any lessons to be learned that would be helpful when considering landfill closure in the Baylands?

The most extensive studies available of municipal landfill performance in a major earthquake come from the 1994 Northridge earthquake (M6.7). A team of experts from UC Berkeley and GeoSyntec Consultants examined 22 landfills within 44 miles of the Northridge epicenter. None of the locations sustained major damage as a result of the earthquake. Damage that was sustained included surface cracking of landfill covers, cracking of landfill gas and leachate collection system pipes, and minor tearing of the landfill liner at one landfill. No release of contaminants to the environment was found to have resulted from earthquake damage. These results are consistent with observations reported from the 1987 Whittier and the 1989 Loma Prieta earthquakes.

In California, regulations exist to ensure that hazardous waste sites are designed to withstand a maximum earthquake without damage to the foundation or leachate, drainage, erosion and gas controls (CCR Title 27, Section 20370). These requirements are typically applied to municipal landfills as well, although municipal landfills need only resist maximum horizontal bedrock acceleration in an earthquake. Because the former landfill within the Baylands was not subject to modern design standards, current seismic design standards cannot be applied to the design of the landfill itself. However, the lessons from recent major earthquakes can be used to assist in the design of landfill gas and leachate collection systems, so that they remain functional following a major earthquake.

What would be the effects of a major earthquake or liquefaction on the landfill post-closure? What protections are there that a major earthquake or liquefaction would not cause contaminants within the landfill to escape into the groundwater, San Francisco Bay, or the atmosphere?

As noted above, a major earthquake could result in surficial cracking of the landfill cover, as well as damage to landfill gas and leachate collection systems. Damage could also be caused to any leachate barriers that may be installed in the landfill. Appropriate landfill closure design can be employed to prevent seismically-induced escape of landfill gas and leachates.

Liquefaction occurs primarily in saturated, loose, fine-to-medium-grained soils in areas where the groundwater table is within 50 feet of the surface. Shaking suddenly increases pore water pressure, causing the soils to lose strength and behave as liquid. The sandy alluvial saturated sediment underlying the Young Bay Mud within the Baylands is relatively dense and cohesive and has the potential to resist liquefaction. Saturated artificial fill and younger sandy deposits within and overlying Young Bay Mud, on the other hand, may be susceptible to liquefaction. Various geotechnical investigations within the Baylands have confirmed the presence of potentially liquefiable deposits in subsurface materials within the former railyard; however, the potential for surface manifestations of liquefaction beneath the former landfill area is limited due to the depths of the sandy materials underlying the landfill. Liquefaction hazards to any future buildings constructed within the former landfill are also limited since buildings constructed within that area would be designed with deep pile foundations drilled down to bedrock.

The California Building Code requires site-specific analysis of liquefaction potential, and addresses mitigation measures to be incorporated in structural design, which may include selecting appropriate foundation type and depths. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. EIR Mitigation 4.E-2a requires that site-specific construction methods be designed and implemented to avoid structural damage from liquefaction in accordance with current California Building Code requirements. However, as noted below, the Planning Commission has recommended that the former landfill area be reserved for renewable energy generation and open space uses, and that large-scale buildings not be constructed within that area.

What provisions, if any, are there to require post-closure inspections and repair of the landfill following an earthquake or other geologic event? Who would be responsible to pay for any needed repairs to the landfill cap and containment systems?

EIR Mitigation Measure 4.E-2.b states “To address recovery from damage to future structures and to the landfill itself that may be caused by future earthquakes², a Post-Earthquake Inspection and Corrective Action Plan (Plan) for the site-specific development projects within the former landfill portion of the Project Site shall be prepared and implemented by all Project applicants in accordance with Title 27 landfill closure requirements as approved by the RWQCB and the San Mateo County Department of Environmental Health prior to issuance of a building permit.”

The owner of the property on which the former landfill sits is required to have the inspection performed pursuant to the requirements of Title 27, and to report the results of the inspection within 72 hours of the event, which does not preclude repairs being performed in that time if needed. A specific timeline is not set in Title 27 for completion of repairs since the nature of repairs to each specific landfill after an earthquake cannot be known. Emergency repairs to address immediate threats to public health and the environment will typically be completed quicker than more complex long-term repairs. A 7.0 magnitude earthquake is the applicable design event pursuant to current state requirements.

The responsibility to repair earthquake damage would fall to landowner(s) at the time such repairs would be required.

The design of monitoring systems for formal landfill closure under the regulatory authority of the RWQCB will take into account the area’s seismic risks.

Are there good examples of long-term monitoring programs for site remediation and Title 27 landfill closure in terms of defining who will monitor, who will audit the monitoring, who will cover the costs of monitoring, and who will cover the costs when issues arise?

Title 27 landfill closure plans approved by the RWQCB will include requirements for on-going groundwater, surface water, and leachate quality monitoring and reporting.

To address the need for ongoing monitoring of site remediation and Title 27 landfill closure, the Baylands Sustainability Framework calls for (1) installation of permanent testing and monitoring stations, (2) engaging a credible third-party source, acceptable to the City, to recommend appropriate monitoring protocols, (3) engaging a third-party testing body to perform regular testing and provide an annual report to the City of Brisbane, and (3) establishing a financial mechanism to support long-term monitoring.

Sierra Point provides a good example of the use of a property owners’ association to undertake long-term monitoring, along with responsibility for any future remediation actions should any become necessary. As set forth in the Sierra Point Environmental Compliance CC&Rs, the Sierra Point Property Owners’ Association is obligated to:

² Because the required plan addresses specific structures that might be designed as part of subsequent actions, and also addresses specific yet to be approved by the RWQCB measures related to landfill closure, it cannot be prepared until after specific structures that might be permitted by the City have been designed and a landfill closure plan has been approved.

- Comply with an approved groundwater monitoring plan, and to update, modify, supplement, or amend the plan from time to time as may be required by the RWQCB;
- Maintain any wells associated with the approved groundwater monitoring plan;
- Retain a consultant to sample water extracted from monitoring wells in accordance with all applicable regulations;
- Operate and maintain³ leachate control systems;
- Dispose of any hazardous materials extracted from the landfill;
- Monitor all stormwater within the Project Site as required by the SWPPP in conformance with all RWQCB requirements;
- Operate and maintain any landfill gas monitoring system installed at the landfill;
- Ensure compliance with applicable irrigation guidelines, including monitoring of landscape irrigation undertaken by private property owners within Sierra Point;
- Maintain an up-to-date earthquake monitoring and inspection plan to provide for inspections of the landfill following an earthquake, along with prompt repairs, if any are needed;
- Maintain Environmental Insurance; and
- Provide regular compliance reporting to the RWQCB⁴.

As noted in the November 17 staff report, the City could require establishment of a property owners' association for a development within the Baylands that would be required to undertake long-term monitoring of soils and groundwater conditions, along with responsibility for any future remediation should it become necessary.

Such a requirement for long-term monitoring would be consistent with the requirements placed on landowners within Sierra Point for long-term monitoring of conditions at the former landfill on that site.

What happens if a need for remediation or additional work on the landfill to meet Title 27 landfill closure requirements occurs in the future?

In the highly unlikely event that additional work is required following remediation of Title 27 landfill closure to meet applicable requirements, it would be the responsibility of the landowner at the time such work is needed to pay for completion of the work. Costs for such additional work could also be paid for through pollution legal liability insurance.

³ The requirement for the Sierra Point Property Owners' Association related to leachate control systems also requires the Association to install such a system if required by the RWQCB.

⁴ Although not required for Sierra Point, reporting to the City of Brisbane could be required in addition to reporting to the RWQCB.

Are the existing monitoring wells within the Baylands all in place and functioning properly?

There are 22 groundwater monitoring wells at the Brisbane Landfill and monitoring results are reported to the RWQCB semi-annually. Within OU-1 30 groundwater monitoring wells at the Schlage site were decommissioned in November 2016 to accommodate project development as approved by the DTSC. Monitoring wells on the Schlage property will be reestablished in locations approved by DTSC once the Schlage horizontal improvements have been completed. In OU-2, 23 monitoring wells in OU-2 were eliminated from the monitoring program by RWQCB several years ago and are no longer monitored on a regular basis. The 23 wells in OU-2 are still available on a standby basis for sampling.

To what extent can environmental insurance be used to protect future property owners within the Baylands and the City from potential financial liability for unforeseen problems with site remediation and Title 27 landfill closure?

Environmental insurance policies are available to cover claims for bodily injury and property damage, and associated legal expenses resulting from pollution or contamination events, whether such events are “sudden and accidental” or “gradual” in nature. Related costs such as business interruption losses (e.g. loss of profit, loss of rental income) can also be covered.

Pollution legal liability (PLL) insurance is a relatively common risk transfer tool used on real estate related exposures. The main concept of this insurance is, based on approved site remedial action plans, to cover:

1. 1st party claims for clean-up costs for pollutants that are discovered at the covered location subsequent to site remediation;
2. 3rd party claims for clean-up costs, bodily injury, or property damage arising from:
 - a. Unknown pollution releases on, under, or migrating from a covered location;
 - b. Pollution conditions as a result of the “upset and overturn” during third party transportation of the goods or waste from an insured site; and
 - c. Pollution conditions at disposal sites where pollutants from an insured site are delivered.

The principal environmental insurance coverages, which can be tailored to meet a specific risk, are:

1. Historical Pollution Coverage - Arranged for liabilities associated with pre-existing contamination (e.g. due to previous industrial operations, such as has occurred within the former railyard and landfill) or for contingent liability exposures associated with previous divestments.
2. Operational Pollution Coverage - Coverage for on-going pollution risks, for example from unanticipated discharges, leakages or spillages.

3. Contractor’s Pollution Liability - Coverage for pollution liabilities associated with contractor's operations, whether from the new incidents or the spreading of existing contamination.
4. Remediation Cost Cap – “Stop loss” programs designed to protect against cost overruns on contamination clean-up projects.
5. Combined Programs and Liability Buyouts - A blend of the principal coverages with a funded element to cover known remediation costs. Such programs can be structured to provide buyers and/or sellers with a long-term buy-out of environmental liabilities.

Most environmental insurers are routinely able to offer aggregate policy limits of up to \$50,000,000 per risk, with higher limits available, up to \$1 billion. Premium levels will depend on factors such as the limit of coverage required, policy deductible, policy period, and the nature of the risk. The environmental insurance market is currently very competitive; longer term policy premiums can vary from less than 1% to approximately 4% of the policy limit.

Policy terms are currently available up to a maximum of 10 years, but certain insurance carriers may restrict policy terms to shorter periods (e.g., 3 to 5 years). These policies can then be subsequently renewed depending on remediation status and future market conditions.

It is important to note that coverage for known pollution conditions may be limited or excluded depending on the nature and extent of the known contamination and current status of remediation. In general, coverage for clean-up of known contamination will be restricted or excluded pending completion of site remediation an issuance of a “no further action” statement by the regulatory agency and/or development activities.

In many cases, pollution legal liability insurance policies can be structured to provide additional insured status for lenders, the City, and others, including assignment provisions in the event of a default.

Will a single remediation technique or a variety of techniques be employed at the Baylands?

The methodologies that will be required by the DTSC and RWQCB for remediation within OU-1 and OU-2 will be used to remediate specific constituents of concern within the Baylands, and will differ for different contaminants. For example, bioremediation with common products such as Simple Green can be successfully employed for carbon-based contaminants, but this technique would be ineffective in addressing metals. Thus, it is likely that a variety of techniques, potentially including bioremediation, would be employed within the Baylands based on the variety of contaminants present within the site. Table 3-6 of the Draft EIR (re-printed below) identifies potential remediation technologies as follows:

**TABLE 3-6
POTENTIAL REMEDIAL TECHNOLOGIES FOR OPERABLE UNIT 1 (OU-1) AND
OPERABLE UNIT 2 (OU-2)**

Contaminants	Remedial Technologies							
	Targeted Excavatio	Targeted Excavation	Targeted Excavation	Targeted Soil-Vapor	Capping	Vapor	In Situ Bio-	Monitored Natural

	n with Offsite Disposal	with Onsite Treatment	with Onsite Relocation	Extraction		Systems	remediation	Attenuation
VOCs in soil	X	X	X	X	X	X		
Metals in soil	X		X		X			
Residual Bunker C in soil	X	X	X		X	X		
Free Product Bunker C in soil	X	X						
VOCs in groundwater						X	X	X
TPH in groundwater						X	X	X

VOCs = volatile organic compounds
 TPH = total petroleum hydrocarbons

The identified remedies in this Table represent a range of potential technologies for remediating these OU-1 and OU-2 to meet risk-based cleanup levels to be established by the DTSC and RWQCB as part of their RAP review and approval process.

Are there toxins present within the Baylands that would be better off removed, rather than left in the ground? Are there some toxins present that would not pose a serious health risk if removed?

In general, remediation of toxins in place results in less risk to human health and the environment than does removing and transporting contaminated soils to an approved Class I landfill. This is due to the potential exposure to humans and the environment and resulting health risks that contaminant removal and transport could have. Ultimately, the RWQCB and DTSC will weigh the risks to human health and the environment of the various technologies available for site remediation of the specific constituents present within the Baylands. Generally, the most cost-effective technology available to meet established cleanup goals will be selected.

Should remediation standards from Europe (e.g., “Dutch Standards”) be used as a guide to ensure that can be done is being done to make the site safe for development?

“Dutch Standards” refers to a set of standards being used in Europe⁵. These standards contain both “intervention values,” which are the level at which soil contamination is considered to be “serious,” and the need of remediation is deemed to exist⁶. While they are underpinned by an environmental risk analysis, “target values” for individual substances represent goals based on a national background concentration that was determined for the Netherlands. As such they are not necessarily representative of conditions within the San Francisco Bay Area or the Baylands⁷.

⁵ While the European Union has been moving towards Europe-wide standards, many European nations currently maintain their own standards.

⁶ Intervention values in “Dutch Standards” thus operate in a manner similar to “significance thresholds” in CEQA.

⁷ For example, the CalEPA standard for arsenic is 0.68 ml/kg. By comparison, the background concentration of arsenic used for human health risk assessments in the Bay Area is 11 ml/kg, the cleanup goal for arsenic applied to the Schalge Lock site is 19 ml/kg, and the “Dutch Standard” target value for arsenic is 29 ml/kg.

“Dutch standards” also do not take into account differences between land uses in terms of potential amounts of exposure and resulting health risks.

While the City of Brisbane maintains land use authority over the Baylands, the City does not have the authority to approve or to impose any remediation standards. DTSC has regulatory authority for remediation of OU-1, while the RWQCB has regulatory authority for remediation of OU-2.

Pursuant to the requirements of state law, the RWQCB and DTSC will set site-specific cleanup standards for Operable Units 1 and 2 to ensure that the site is safe for the intended future uses determined by the City to be appropriate for the Baylands based on very conservative estimates of how existing site-specific contamination might affect future populations for different uses within the site.

What are the relevant provisions of the 2009 Risk Assessment for OU-1 that guided DTSC’s review of the RAP for Schlage Lock?

Residential development within the Schlage Lock site is intended to be “podium-style,” in which housing is located above parking, and not on the ground floor. As a result, the potential exposure of residents to ground surfaces would be less than would occur for ground level housing, such as a standard single family home. As a result, risk-based cleanup goals were less stringent than would be applied to ground level (e.g., single family) housing. Because the Schlage Lock site is not being remediated for unrestricted use, institutional controls restricting development of schools, hospitals day care and elderly care facilities within the site were imposed as such facilities are used by “sensitive populations”.

In the case of the Baylands, should the City remove its prohibition against residential use in the Baylands from the General Plan and the developer proposes podium-style housing, establishment of similar cleanup standards and institutional controls as those applied to the Schlage Lock site could be expected for the Baylands. While the City would not have the legal authority to require application of any specific cleanup standard, the City could use its land use authority to require any residential development permitted within the Baylands to be designed with ground floor housing, that any residential community permitted within the Baylands accommodate ancillary uses such as schools and/or day care, and that risk-based site remediation be sufficient for uses.

Could a remedial action plan that proposes site cleanup to residential (unrestricted use) standards be prepared for regulatory agency review as a means of demonstrating whether and how the site could be made safe for residential use without the City first having to take an action removing the current prohibition of housing in the Baylands from the General Plan?

UPC as the landowner could choose to work with the DTSC and RWQCB to establish human health risk assessments and risk-based cleanup goals based on residential (unrestricted) use within the Baylands, even if the City does not first take an action to permit housing within the Baylands. However, the City does not have the legal authority to require that cleanup goals based on residential (unrestricted) use be applied to areas where the City’s General Plan and zoning

prohibit housing, nor is the landowner obligated to propose unrestricted clean-up absent land use approvals from the City necessitating clean up to an unrestricted level.

Are there any potential similarities between contamination at the Baylands and Love Canal?

The relevance of Love Canal to the Baylands was raised at various times during Planning Commission hearings and in questions placed in the public record following the Council's November 17 hearing. This history of contamination at Love Canal is instructive in that it illustrates clear distinctions from the Baylands. At Love Canal, schools and a residential community were constructed atop a hazardous waste landfill that accepted approximately 21,000 tons of toxic chemical wastes between 1942 and 1953, including wastes from military chemical weapons experiments⁸. Containment structures at the landfill were breached at various times during construction activities during the 1950's causing spills of toxic chemicals that were spread by heavy rains, causing widespread soil contamination that was never remediated. As a result, the local population was directly exposed to toxic chemicals on the ground surface, and two schools and a residential community were built on heavily contaminated soils with no apparent efforts at remediation.

Under current California law, closure of the former landfill pursuant to the requirements of Title 27 is required prior to any future development within the landfill footprint. This includes preparation and implementation of closure and post-closure maintenance plans to ensure that landfill closure post-closure maintenance, and the eventual reuse of the former landfill will (1) conform to state performance standards and substantive requirements, (2) prevent exposure of wastes within the landfill to the public and the environment, and (3) manage generation of landfill gas and leachates within the landfill to protect public health and the environment. No such standards applied to the closure of the Love Canal landfill. Closure of the former landfill within the Baylands will include a landfill cap of sufficient thickness to prevent future construction from breaching containment systems in a manner that could expose wastes to the public and the environment. Should breaching the Baylands landfill cap be unavoidable (such as for construction of piles down to bedrock), drilling will be required to be designed in a manner that will not expose wastes within the landfill to groundwater, Bay water, or soils underlying the landfill, and protocols will be required to be implemented to safely handle materials brought to the surface from drilling operations.

Does the EIR reflect the most recent FEMA flood mapping for the Baylands?

The most recent FEMA flood mapping for the Baylands was effective October 16, 2012, and is contained in two map panels (06081C0042E covering the area north of the lagoon and 06081C0035E, covering the lagoon area). A revision to map panel 06081C0042E was effective on September 9, 2013. The most recent FEMA maps are reflected in revised Figure 4.H-3 on page 3-74 of the Final EIR.

Planning Commission Recommendation in Relation to Hazards and Hazardous Materials, Site Remediation, and Title 27 Landfill Closure

⁸ The Love Canal was intended solely for the disposal of hazardous wastes, and did not accept general municipal wastes.

The Planning Commission considered many of these issues in its public hearings and deliberations for the Baylands, as well as the issues discussed in the Council's November 17 staff report. Based on its review and deliberations, the Commission reached several basic conclusions in relation to remediation and Title 27 landfill closure that formed the basis for its recommendations to the City Council as follows:

- The site and waste characterization studies to date indicated that much more is known regarding contamination of former railyard that is known regarding the former landfill.
- The City's existing General Plan prohibition against housing in the Baylands should remain.
- Development of large-scale buildings within the former landfill should not occur. Instead, the former landfill should be used for renewable energy generation and open space uses.
- An explicit limit on the total amount of development that could be permitted within the Baylands is needed in the General Plan.
- Existing General Plan policies that rely on regulatory agencies for the review and approval of site remediation should be revised to provide for a greater role for the City in the review process as recommended in the Baylands Sustainability Framework.

Thus, the Commission's overarching policy recommendation for the Baylands is to ensure that the site is safe for the future uses approved for development by the City. To this end, the Planning Commission has recommended the following:

- **Limit the total amount of development within the Baylands to an increase of 1-2 million square feet of building area in addition to that which is now present within the Baylands.**

The Commission believed that limiting the total amount of development to an increase in building area consistent with the amount of development permitted by the 1994 General Plan would reduce the level of impacts as compared to those resulting from the four proposed concept plan scenarios. Placing a defined limit on the amount of development permitted within the Baylands into the General Plan, whether such a limit reflects the applicant's proposal, another of the concept plan scenarios and alternatives evaluated in the EIR, or the Planning Commission's recommendation, provides definitive parameters for future Baylands development.

- **Maintain the existing General Plan prohibition against residential use.**

After considering the body of information and substantial public testimony on this critical issue, the Planning Commission ultimately determined there was not a compelling case to be made for changing long-held city policy that housing be prohibited on the Baylands. Rather, the Commission's recommendations pertaining to amending the General Plan focused on better defining the intensity and mix of non-residential uses already permitted under the General Plan, and recommending policy language for the City to proactively engage with the regulators in the approval process for remedial action plans and landfill closure plans.

- **Incorporate a concept plan into the General Plan that would concentrate new Baylands development adjacent to the Bayshore Caltrain station, and reserve the former landfill area for renewable energy generation and open space uses.**

The Concept Plan the Commission recommends be incorporated into the General Plan reserves the former landfill area for renewable energy generation and open space uses. The Planning Commission specifically factored in concerns about placing substantial new development on the former landfill site in their decisionmaking process.

- **Strengthen existing General Plan policies that call for reliance on state and federal regulatory agencies to approve remediation plans for the Baylands by incorporating provisions of the Sustainability Framework into the General Plan and specifying the City take a proactive and aggressive role in ensuring the protection of public health and safety in regulatory agency review of site remediation and Title 27 landfill closure. The policy framework recommended by the Planning Commission includes the following:**

- Defining the types, intensities, and location of land uses to be permitted by the City as the basis for site remediation studies, plans, clean-up standards and actions by regulatory agencies as:
 - An additional 1.0 to 2.0 million square feet of building area for a total of 1.64 to 2.64 million square feet of R&D, office, industrial, commercial, and institutional uses along with approximately 330 acres of open space/open area and the 135.6-acre lagoon, which is consistent with the 1994 General Plan; and
 - No development of R&D, office, industrial, commercial, or institutional uses within the former landfill area.
- Working with regulatory agencies to establish the highest practical standard for remediation of the site to ensure human health. While DTSC and the RWQCB would retain regulatory authority, the City would advocate for establishment and implementation of the highest practical standard for remediation of the Baylands;
- Providing City input to regulatory agencies regarding site remediation and landfill closure studies, plans, and actions, including the City engaging third party technical professionals to assist in:
 - Seeking implementation of best practices for testing, remediating, and monitoring onsite contamination;
 - Seeking the highest practical standard for remediation of the Baylands;
 - Reviewing remediation and landfill closure studies, along with proposed remediation and landfill closure plans and actions;
 - Providing comments to regulatory agencies;
 - Negotiating any differences in standards, implementation requirements, or expectations for performance between the City, regulatory agencies, and developer;

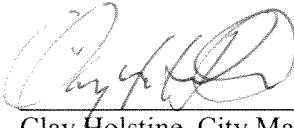
- Performing regular testing, monitoring, and providing an annual report to the Brisbane City Council; and
- Establishing a financial mechanism to support long term monitoring;
- Ensuring that site remediation and Title 27 landfill closure plans are completed and approved by regulatory agencies prior to City approval of a specific plan for the Baylands. The Planning Commission is thus recommending that adoption of a specific plan for the Baylands not be considered until after site remediation and Title 27 landfill closure plans are approved by regulatory agencies;
- Ensuring that approved specific plan(s) are consistent with General Plan policies and approved site remediation plans;
- Ensuring that site remediation is completed prior to development as follows:
 - For OU-1, before permitting site-specific development within OU-1; and
 - For OU-2, before permitting site-specific development within OU-2; and
- Ensuring that Title 27 landfill closure is completed prior to development of renewable energy facilities south of the proposed Geneva Avenue extension and prior to development of other uses within the former landfill north of the proposed Geneva Avenue extension.

Attachments:

1. Summary of Baylands Hazardous Materials and Landfill Studies
2. November 17, 2016 City Council Report
3. City Council Baylands Hearing Schedule



John Swiecki, Community Development Director



Clay Holstine, City Manager