



**EAST CONTRA
COSTA COUNTY
HABITAT
CONSERVANCY**

City of Brentwood

City of Clayton

City of Oakley

City of Pittsburg

Contra Costa County

February 28, 2020

Knightsen Town Community Services District
P.O. Box 763
Knightsen, CA 94548
(sent via email: knightsenCSD@gmail.com)

Dear Chairperson Bello-Kunkel and Directors of the Knightsen Town Community Services District (KTCS D) Board:

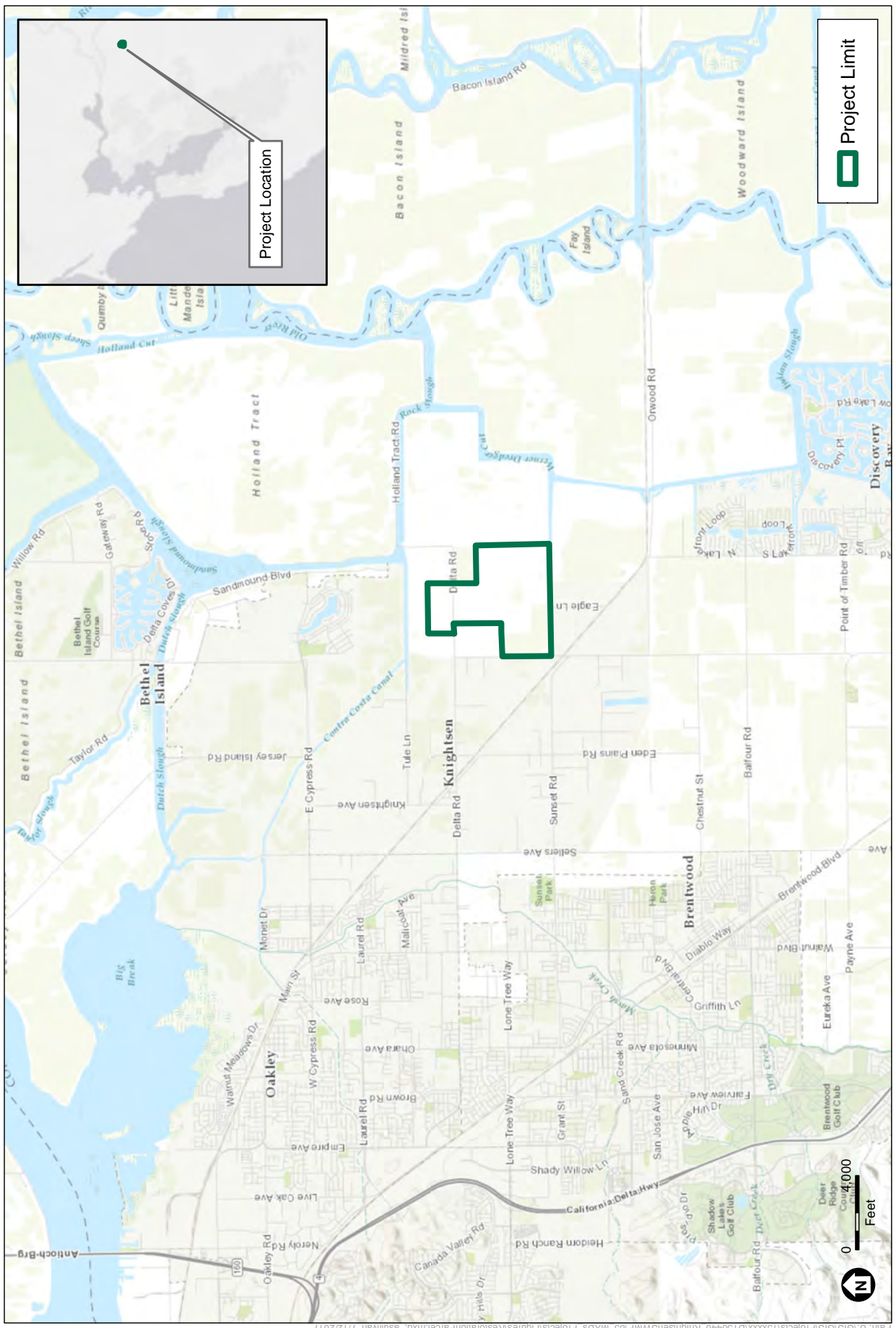
The East Contra Costa County Habitat Conservancy (Conservancy) is providing written responses to the questions you sent to the Conservancy about the proposed restoration project on the east side of Knightsen (letter dated September 11, 2019).

Your letter posed a number of questions about the project. Some questions can be answered at this time, while others require additional studies to be completed before definitive answers can be provided. In the following pages we will answer your questions to the extent that we can and indicate where additional data needs to be collected to provide the complete answer you have requested.

We apologize for the length of time it's taken to assemble this response to your letter. We have gone through extended processes both contractual and analytical in response development. This project is in its planning phase, with conceptual design alternatives and associated reports finalized at the end of September 2019. The project team is continuing to work on the next phase of planning which will develop more information and data to inform project decisions.

In response to KTCS D and community concerns and to inform design development we have initiated a second phase of data collection and analysis that will continue over the coming months. It should be noted that all projects go through a process of defining conceptual alternatives and then analyzing and evaluating those alternatives to refine and select the preferred project alternative. Our project is in the analysis and evaluation phase and we are sharing our plans for additional data collection and analysis with you at this time though the data collection and analysis is not complete. We do this in the spirit of sharing and seeking further comment from the Community of Knightsen (Community), and we ask for understanding when a full response cannot yet be given until further data is collected and analyzed.

The project team would be pleased to meet with the KTCS D to discuss these responses and provide additional clarification if requested. Members of the project team will also be available at future public outreach meetings to discuss the project and answer questions.

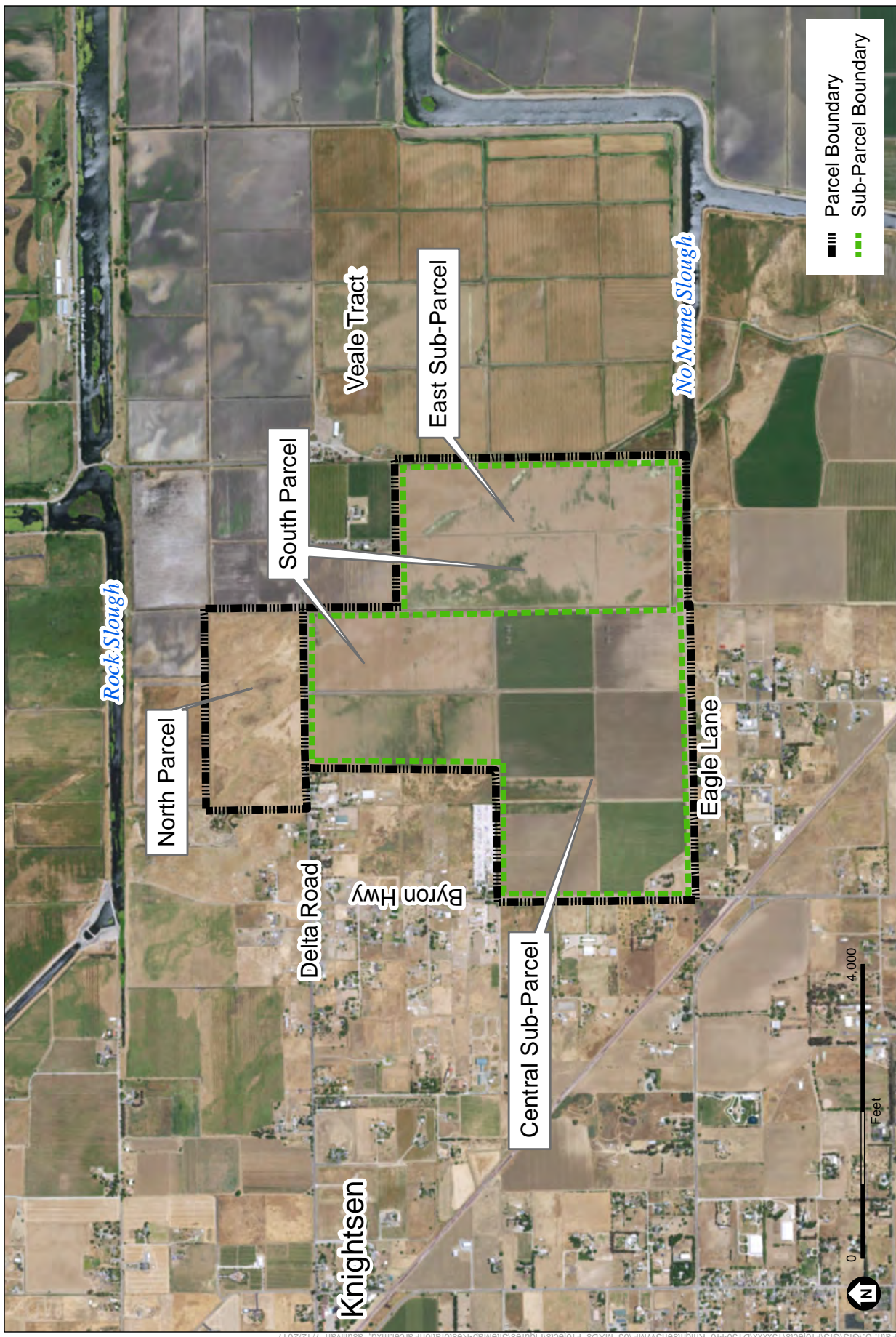


Knightsen Wetland Restoration and Flood Protection Project. D170045.00

Figure 1
Location Map

SOURCE: ESRI World Topographic Map





Knightsen Wetland Restoration and Flood Protection Project. D170045.00

Figure 2
Project Site Map

SOURCE: ESRI World Topographic Map



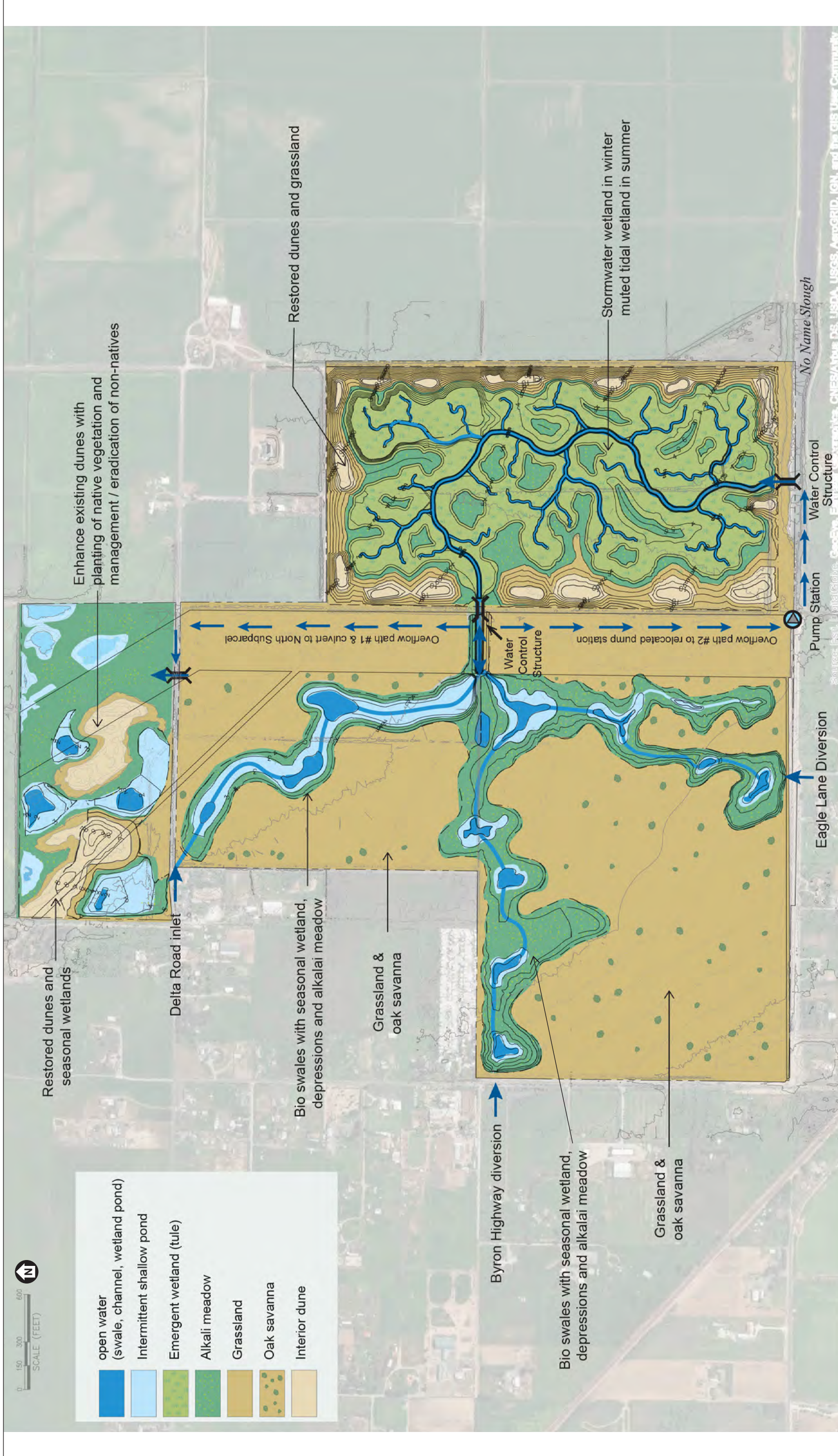
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SOURCE: ESA, 2019

Knightsen Wetland Restoration and Flood Protection Project. D170045.00

Figure 3
Concept Alternative 1

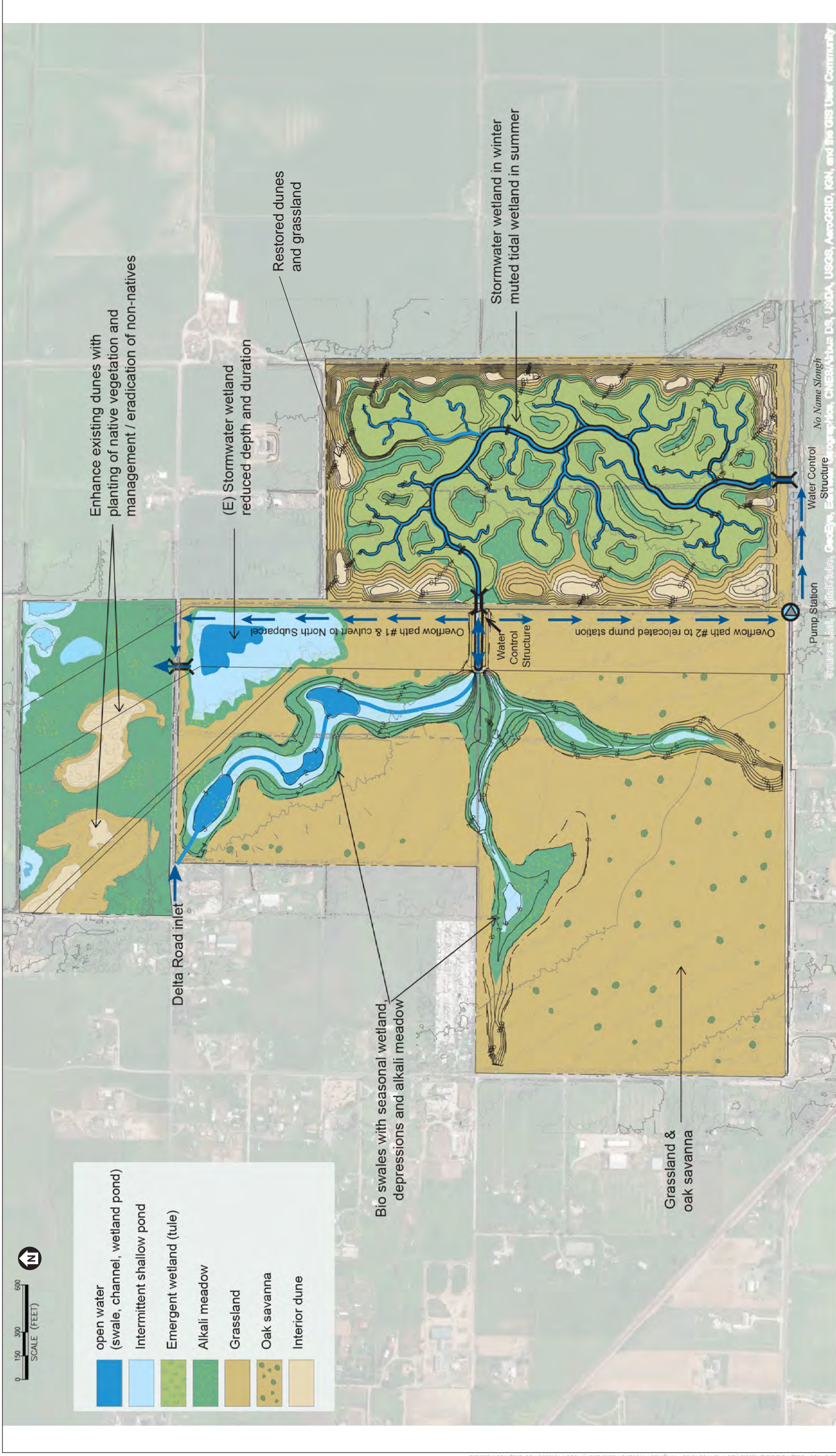


SOURCE: ESA, 2019

Knightsen Wetland Restoration and Flood Protection Project. D170045.00

Figure 4

Concept Alternative 2



Knightsen Wetland Restoration and Flood Protection Project. D170045.00

Figure 5
Concept Alternative 3

SOURCE: ESA, 2019



To assist in reading the responses to your questions, a list of abbreviations and acronyms are provided below. For reference, the project vicinity, project location and conceptual alternative maps (3) from the January 2020 Knightsen Wetland Restoration and Flood Protection Project Conceptual Alternatives Report are included for reference herein as Figures 1-5. The full report can be accessed online: <https://www.contracosta.ca.gov/7624/Knightsen-Wetland-Restoration-Project> .

Acronyms/Abbreviations

CCCFC	Contra Costa County Flood Control and Water Conservation District, also referred to as CCC Flood Control or Flood Control District
CCCMVCD	Contra Costa County Mosquito and Vector Control
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
EBRPD	East Bay Regional Park District
ECCCHC	East Contra Costa County Habitat Conservancy also referred to as the Conservancy, or Conservancy
ESA	Environmental Science Associates
FEMA	Federal Emergency Management Agency
KTCSD	Knightsen Town Community Services District
NAVD	North American Vertical Datum
USFWS	U.S. Fish and Wildlife Services

KTCSD Q1: In the “Knightsen Habitat Restoration Feasibility Study,” prepared by Environmental Science Associates (ESA) dated 1/28/2013, it states, “Potential constraints to neighbor properties may include a high ground water table and increased flood risk and seepage with restoration” (page 7). In the “Knightsen Wetland Restoration and Flood Protection Project Baseline Soils Evaluation and Hydrologic Monitoring” document prepared by Balance Hydrologics dated June 2019, it states, “Overall, the site is extremely well-suited for restoring tidal marsh but not without a potential for increased seepage and flood risk to neighboring properties” (page 2).

It is absolutely critical for the KTCSD board and members of this community to know whether the proposed wetlands will INCREASE the flood risk and impede existing groundwater/surface water drainage patterns for property owners in the vicinity of the proposed wetlands. We need to know specifically what the Habitat Conservancy (ECCCHC)/East Bay Regional Parks (EBRPD) will do to ensure the proposed wetlands will not increase the flood risk. We need proof regarding the effectiveness of any measures ECCCHC/EBRPD will implement to eliminate this risk.

Response 1:

Flood risk management has been on the forefront of all conversations since this project was originally described in 1998 as the Knightsen Biofilter Project - initially as a single purpose flood control and stormwater management project. The project has evolved from a single purpose project to a multi-objective project, and this has enabled additional partners and funding to support the project. The project team and partners have prioritized flood risk management in the development of the conceptual designs for this project

The reports quoted were produced by consultants that were hired and paid for by public agency partners (Conservancy, KTCSD and CCC Flood Control). The Conservancy and CCC Flood Control are working to best protect the Community from flooding while also achieving other needed benefits in the region. In addition to the quotes selected in the above question, the reports describe how the project intends to address these noted potential constraints/impacts. ESA’s Knightsen Habitat

Restoration Feasibility Study (ESA, 2013) indicates these potential constraints “could be managed by 1) limiting the site location where full tidal circulation is allowed, 2) allowing for dampened or managed tidal circulation in certain areas, 3) providing engineered flood control levees around the site, 4) providing drainage ditches/maintaining pumping to manage groundwater elevation around the site, and 5) implementation of an adaptive monitoring/management program to identify problems and to manage the site if problems are identified.” Similarly, Balance Hydrologics’ Baseline Soils Evaluation and Hydrologic Monitoring report (Balance, 2019) indicates that “A number of concepts were proposed to manage this constraint” – referencing the management/mitigation measures cited by ESA’s Feasibility Study.

The KTCSD’s question has two components, flood risk and increased groundwater levels/seepage, each of which are responded to below.

Flood Risks from No Name Slough and water on the project site:

FEMA maps indicate that areas within and around the project site that are below approximately EL 9’ NAVD (elevation nine feet) are within the 100-year floodplain. The US Army Corps of Engineers identified a 100-year flood level of EL 9.55’ NAVD along Old River at the mouth of Rock Slough near the project site. Areas around the project site are currently protected from flooding by existing agricultural levees along Rock Slough and No Name Slough. While these existing levees do not meet FEMA criteria, they do provide a level of flood protection to neighboring properties.

For areas of the project site where restoration of tidal marsh is proposed, the project would include a new, engineered flood control levee to provide equal or higher than current levels of flood protection on the project site and for adjacent properties. The new levee would be built to current standards, providing increased seismic stability in addition to similar or higher levels of flood protection from water on the project site. Thus a benefit of the project would be a decrease in flood risks from No Name Slough due to a more robust levee system on site.

Flood risk from storm water from within/traveling through the Community of Knightsen:

The Community is already impacted by runoff from upgradient land that drains stormwater toward Knightsen and around the project site, where it is pumped into No Name Slough. Impacts from this drainage pattern include localized flooding during high rainfall years and the Community has been significantly impacted for extended periods with historically high rainfall-runoff. The 1982-83 and 1998 flood events are examples of this. One of the most heavily impacted areas of the Community is located adjacent to the project site including areas along Byron Highway, Delta Road, and to a lesser extent, along Eagle Lane.

During high rainfall years, septic systems in low lying areas have been impacted due to high groundwater levels exacerbated by storm water sitting in drainage ditches and stormwater pooling on private properties.

During extended periods of extreme rainfall-runoff, areas along Delta Road and Byron Highway have experienced more significant flood impacts due to limited conveyance in existing drainage ditches & culverts. In 2010, the KTCSD entered into an agreement with the prior owner of the project site (Ron Nunn) to allow stormwater to flow on to the property and then supported the pumping of this water from that site into No Name Slough. With the agreement in place, flood risk in the community has been significantly reduced, particularly for the properties near the intersection of Delta Road and Byron Highway, and the project site now serves as temporary flood storage, holding excess stormwater from Knightsen’s drainage network before it is pumped over the levee into No Name

Slough. The existing flood control function of the project site is now limited by the capacity of the existing agricultural drainage pump and site configuration. Even with additional rented pumps during the winter months in 2019, water remained ponded on the project site for several weeks at a time, causing crop damage and potentially backing up onto the neighboring Veale Tract. A long-term low-maintenance solution is therefore needed to manage stormwater at the project site, so that it can continue to provide the flood control benefit established by the 2010 KTCSD agreement.

One of the objectives of the proposed project is to provide better long-term flood management by increasing conveyance and storage for stormwater runoff generated by upgradient properties that currently flows toward the project site. Project conceptual designs include elements that provide increased conveyance capacity to move stormwater runoff away from homes, increase storage volumes on the project site to store runoff, and increase capacity to allow for gravity discharge to the Delta (in addition to potentially providing a new and larger pump included for overflows). Thus, the project would support the KTCSD's efforts to address flooding within the Community in the vicinity of the project site.

The Conservancy values the collaborative efforts that KTCSD has engaged in in the past to address stormwater drainage issues in this part of the Community and welcomes the opportunity improve flood conveyance across the project site with the project. In order to achieve a mutually beneficial solution, ongoing communication, continued collaboration, effective pump operations, and routine ditch maintenance will all be required.

Work already planned that will help respond to KTCSD Questions/Concerns

Developing design parameters for a new flood protection levee began in December 2019. The Conservancy hired Hultgren-Tillis Engineers, a well-respected geotechnical engineering firm with extensive experience in designing flood control levees in the Delta Region, to provide geotechnical engineering support for the project.

The geotechnical scope of work includes:

- Exploration of subsurface conditions by drilling soil borings and performing cone penetrometer tests along the alignment of proposed new levees and berms to depths of up to 40 feet below ground surface.
- Excavation of test pits within areas of proposed excavation to determine if existing soils are suitable for levee construction.
- Based on the field exploration results, Hultgren-Tillis will analyze slope stability, including static and seismic loading and settlement, and evaluate the potential for under-seepage.
- Develop levee design recommendations to meet current standards for slope stability, estimated settlement, and any special considerations to address under-seepage in areas with sands in the subsurface.
- Installation of additional monitoring wells to assist in evaluating surface-groundwater interactions along the perimeter of the property that is proposed for the introduction of tidal influence and neighboring properties.

The work that Hultgren-Tillis is doing will generate information required to design levees that meet current engineering standards, maintain or increase flood protection from No Name Slough for properties neighboring the project site, and employ engineering measures to address potential under-seepage if necessary.



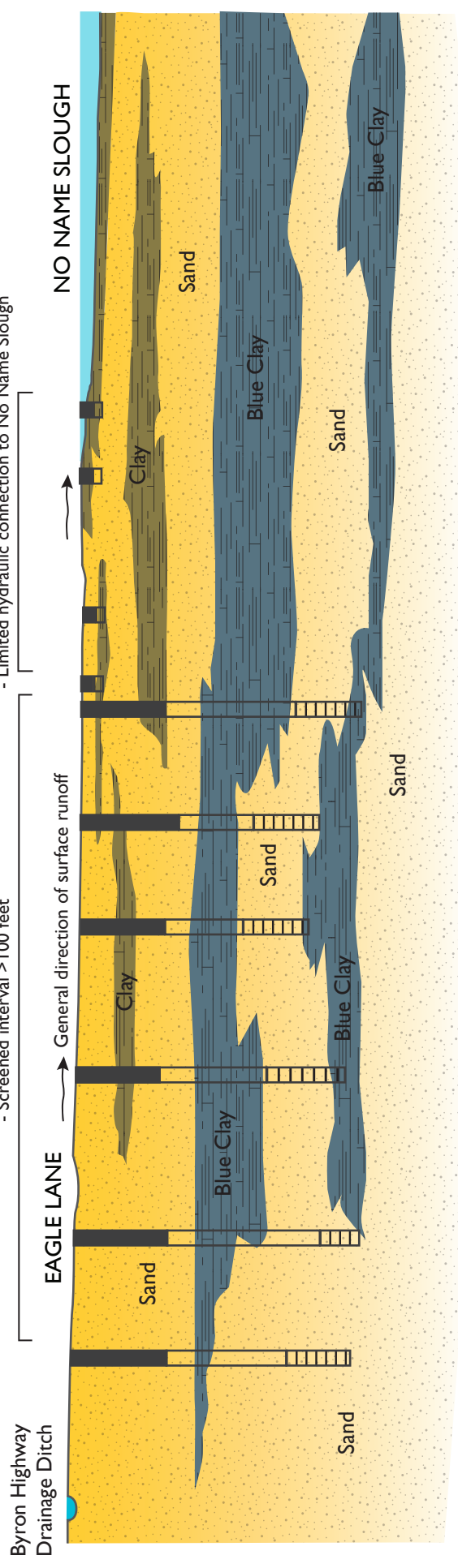
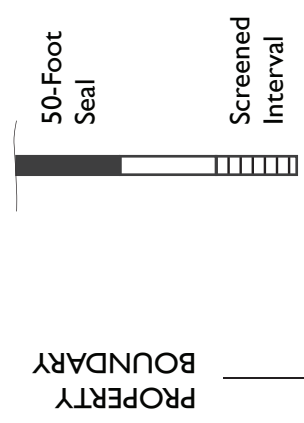
BYRON HWY /
PROPERTY
BOUNDARY

A
WEST

A'
EAST

DOMESTIC WELLS
 - >150-foot total depth, 50-foot seal
 - Screened interval > 100 feet

SHALLOW MONITORING WELLS
 - 16-foot total depth, 10-foot seal
 - Limited hydraulic connection to No Name Slough



NOT TO SCALE

Figure 6. Schematic geologic cross-section A-A' along Eagle Lane, Knightsen, CA.

Wetlands proposed for restoration at the Nunn Property will be supported by surface runoff from the west and tidal action via connection to No Name Slough, with limited influences on shallow groundwater, as observed in monitoring wells on site. Domestic wells in the vicinity of the Nunn Property are greater than 100 feet deep with screens at depths greater than 50 feet, and are required to have a 50-foot seal. Domestic wells draw on a deeper aquifer semi-confined by a clay aquitard, and therefore are expected to have limited or no hydrologic connectivity to the surface water, stormwater, or associated shallow groundwater at the Nunn Property. Additional analyses including groundwater modeling and geochemical “fingerprinting” of various waters will allow this conceptual understanding of groundwater to be tested.



Groundwater Levels/Seepage

The project concept designs consider groundwater levels and potential for seepage. To provide additional context on these terms, this response letter discusses the surface water and groundwater (shallow groundwater and deeper aquifers) as well as tidal water. These three water sources are illustrated in Figure 6 and further described below:

- No Name Slough is under the influence of “tidal action.” Water in the tidal action zone fluctuates between approximately 2 and 8 feet (NAVD), and is relatively fresh, with lower salinity than water found on the project site.
- “Shallow groundwater” fluctuates between 2 and 8 feet below the ground surface on the project site, and is affected primarily by seasonal rainfall, onsite irrigation, and surface drainage from neighboring properties, with very limited effects from tidal action in No Name Slough. Salinity in shallow groundwater is generally higher than that found in No Name Slough.
- Domestic wells in the vicinity of the project site draw on the “local aquifer,” which is located deeper than 100 feet below the ground surface and thick clay layers.

The potential for increased groundwater levels identified in ESA’s 2013 Feasibility Assessment relate to shallow groundwater, and potential influences from tidal action near properties that are down-gradient from the project site (north & east of the site). For example, there is potential to raise groundwater levels to a small degree on Veale Tract. One of the primary concerns that Hultgren-Tillis Engineers will be considering in developing recommendations for construction of new levees to prevent the potential for under-seepage below new levees, in particular for the neighboring Veale Tract which relies upon pumping to control groundwater levels in support of their agricultural practices. Higher water on one side of the levee (e.g. high tide) could create pressure that may cause water to seep under the levee to the other side where water levels are lower. This under-seepage could influence groundwater levels on the lower side.

As discussed in Balance Hydrologics’ 2019 Baseline Soils Evaluation and Hydrologic Monitoring Report, there appears to be limited subsurface hydraulic connectivity between tidal action and shallow groundwater levels on the project site. Data collected from August 2017 through March 2019 indicate very minor (less than 6 inches) tidal influence in only 1 shallow monitoring well, located approximately 300 feet to the north of No Name Slough, with no tidal influences detected beyond 750 feet from No Name Slough (the next closest well). In addition, tidal influences are not anticipated to be detected in domestic wells which draw on the local aquifer, due to separation by clay layers at depth and overall distance from current and potential future tidal action on the project site (Figure 6). Balance Hydrologics is in the process of conducting additional analyses to further evaluate and document the separation between these water bodies (tidal [No Name Slough], shallow ground water and aquifer).

Monitoring data indicate that groundwater at the site generally flows from southwest to the northeast (similar to surface grades). Thus, properties to the south and west are not anticipated to see any significant changes in shallow groundwater (i.e. septic systems) or the local aquifer (i.e. drinking water wells). Additional analysis is continuing and includes the development of a numerical groundwater model that will allow for further evaluation of the potential impacts associated with the different project alternatives. This new information will help refine project design parameters to avoid project impacts.

Proposed swales and wetlands near the southern and western boundaries of the project site will support surface water ponding and shallow groundwater levels during the wet season and will be

designed to convey most storm water flows at depths less than 6- to 12-inches. There is no new tidal influence proposed on the project site that is adjacent to homes on Eagle Lane. Soils and existing groundwater data developed in the 2019 indicate that changes to shallow groundwater levels from this ponding would be limited to the immediate vicinity of the proposed swales and wetlands, and changes in the local aquifer are not likely to be detectable. Furthermore, areas that are upgradient from new wetland features are not anticipated to be affected by the changes in surface water ponding. Additional work is currently being carried out to confirm this understanding and guide the development of project elements.

New Work in Response to KTCSD Question

To better address the KTCSD's concerns, the Conservancy has contracted with Balance Hydrologics to develop a more detailed understanding of surface/subsurface groundwater through data collection and modeling to evaluate whether the proposed project could potentially impact shallow groundwater hydrology or the local aquifer and modify the project design to avoid such impacts. The groundwater model will compare existing vs. anticipated conditions with the proposed alternatives during extended periods of heavy stormwater-runoff that have historically caused localized flooding and issues with septic systems in the area. As part of the analysis, Balance Hydrologics will consider:

- Current irrigation practices along the southern and western site boundaries to support irrigated agriculture that raise the groundwater table.
- Current drainage conditions within ditches along Delta Road, Byron Highway, and Eagle Lane where clogged and undersized culverts create high surface water levels within the existing road side ditches during and following extended periods of heavy rainfall-runoff, and may impact shallow ground water levels when inundated for longer periods of time.
- Proposed drainage conditions which would increase conveyance capacity on the project site resulting in reduced surface water levels in existing roadside ditches while routing runoff into proposed swales and wetlands on the project site.
- Potential impacts of tidal or muted tidal wetlands on the site on shallow ground water and the local aquifer.

The Conservancy will utilize the results of the groundwater modeling assessment in choosing a preferred alternative and in developing the design of the preferred project. If modeling indicates that groundwater levels at neighboring properties could be increased, the design for onsite swales and/or wetlands would be modified as needed to avoid any estimated increases in shallow groundwater levels. Potential modifications could include:

- Moving proposed swales and wetlands away from neighboring properties sufficiently to avoid any significant changes in groundwater levels at adjacent offsite properties.
- Moving proposed swales and wetlands away from areas with sandy soils to reduce shallow groundwater levels at adjacent offsite properties during extended periods of heavy rainfall-runoff.
- Limiting the degree of tidal action in muted tidal wetlands.
- Moving the location of restored tidal marsh to sufficiently limit changes in shallow groundwater or local aquifer conditions.

KTCSD Q2: What risk does the higher ground water table discussed above and acknowledged by your consultants pose with regard to wells and septic systems on properties in the vicinity of the proposed

wetlands? We need to know specifically what ECCHC/EBRPD will do to ensure the proposed wetlands will not negatively impact wells and septic systems. We need proof regarding the effectiveness of any measures ECCHC/EBRPD will implement to eliminate this impact.

Response 2:

The initial task in understanding any project concept is to identify potential project impacts. The “higher groundwater table” comment made by the Conservancy’s consultants was offered as a potential project constraint to inform design. This potential impact was addressed at the feasibility level as one that could be managed, and several management actions to address the potential for a higher groundwater table were discussed. The potential for higher groundwater levels referenced at the feasibility level were discussed primarily in consideration of the neighboring, down-gradient Veale Tract which depends on groundwater pumping to support agriculture. The potential constraint/impact was not meant to refer to adjacent properties to the south and west of the project site.

We do not expect wells or septic systems would be impacted by the proposed project as presented in the conceptual alternatives for the following reasons.

- Domestic groundwater wells in this region typically draw from a local aquifer, over 100-feet below the ground surface, that is separated by clay layers from surface water and shallow groundwater. Additional studies are being conducted by Balance Hydrologics to confirm this understanding of the separation between the local aquifer, domestic wells, and surface water at the site.
- As described in the 2019 baseline soils and n=hydrology report (Balance, 2019), shallow groundwater generally flows to the northeast. The project is therefore not likely to have a significant effect on shallow groundwater levels and septic systems at up-gradient locations adjacent to the project site, such as residential properties along Eagle Lane, Byron Highway, or Delta Road.
 - Under current conditions, local septic systems are impacted by very poor drainage. Runoff conveyance along Byron Highway and especially Delta Road is significantly restricted by undersized and clogged culverts. This poor drainage results in higher water levels within existing ditches during and after extended periods of heavy rainfall-runoff, which, in turn increases shallow groundwater levels in the vicinity. The project concept designs are intended to ameliorate these drainage problems by providing a place for water that backs up and sits in ditches to flow.
 - Some residents have mentioned that their septic systems already back up during rainy winters and some residents are already impacted under the current land use and drainage practices in Knightsen. Since the project aims to alleviate existing drainage issues, we anticipate the project will also alleviate septic system back-up issues.
 - The project has offered to accept stormwater from the community at locations that would more efficiently move stormwater onto the project site, reducing flows and stormwater levels in roadside ditches on Byron Highway and Delta Road. If some stormwater conveyance improvements can be made to deliver the runoff away from the residences and on to the project site more quickly, this will help directly alleviate some of the problems that residents currently experience related to poor drainage in existing roadside ditches.

New work in Response to KTCSD Question

To evaluate whether the proposed conceptual alternatives could potentially impact neighboring wells or septic systems, the Conservancy has contracted with Balance Hydrologics to provide additional analysis.

To the extent that residents will allow, Balance Hydrologics will gather data on neighboring properties and collect water samples and groundwater elevations from existing wells. This information, combined with shallow groundwater sampling and measurements from piezometers on the project site, and surface water sampling and elevation observations will provide a more complete picture of subsurface water conditions in the area. The samples will be analyzed for general minerals and salinity to evaluate hydrologic connectivity between shallow groundwater and surface water at the site and the deeper local aquifer from which the residential wells draw.

To assess potential changes to shallow groundwater elevations, Balance Hydrologics will develop a surface water/shallow groundwater model to analyze the potential for impacts to shallow groundwater levels associated with project alternatives. If needed, the Conservancy will revise the design of the preferred alternative to avoid potential increases in groundwater levels at adjacent properties as discussed in Response 1.

KTCSO Q3: The January 28, 2013 feasibility study also states, "With a low gradient slopes and no barriers to estuarine transgression, there is potential for tidal wetlands to transgress landward as sea level rises" (page 7). Some of the proposals you presented at the community meeting on July 11, 2019, included plans for the installation of gates that would allow tidal flow to transgress on to the parcel. During the community meeting concern was raised about the future impact of global warming/sea level rise if tidal wetlands is a feature of the proposed wetlands, but that concern was not addressed.

As you know, there are developed real estate parcels including homes that are immediately adjacent to the proposed wetlands property. It is absolutely critical for the KTCSO Board and community members to know whether the proposed wetlands project will put Knightsen residents at increased risk with regard to global warming/sea level rise. We need to know specifically what ECCHC/EBRPD will do to ensure the proposed wetlands does not increase the likelihood of Knightsen being impacted by global warming/sea level rise. We need to know how the gates will be monitored and who will be accountable for maintaining that monitoring (including the funding source) to ensure that they open and close in a timely and effective manner. We need proof regarding the degree to which any measures ECCHC/EBRPD implement will negate any increased risk of impact from global warming/sea level rise.

Response 3:

Sea level rise is an issue for the Knightsen area regardless of the project. Many of the properties in Knightsen are already in the 100-year floodplain, and protected by an agricultural levee that will experience increased pressure as sea levels rise. The risk to these properties related to sea level rise does not increase with a project on this site.

Rather, the project site is now a site in the community that is publicly held with the purpose of providing wetlands to facilitate flood water conveyance and is factoring in near-term sea level rise projections in the development of project plans. Proposed levees would be constructed with a wide footprint to allow for future raising of the levees to accommodate projected sea level rise to 2050 or 2100 depending on the sea level rise scenario considered.

With respect to maintenance of proposed gates:

- The Conservancy is evaluating two operational seasons – wet & dry, with gates closed in the wet season allowing only outflow and opened in the dry season allowing limited muted tidal action (i.e. 1-2 feet of tide range).
- Responsibility for maintaining and monitoring the gates has not been determined at this early stage of planning. The Conservancy currently anticipates the gates would open/close seasonally, so it is not a burdensome task. On other project sites where this kind of management regime is utilized, the landowner, the tenant (grazing or agricultural), or other local agency (like the local mosquito abatement district) has taken on this responsibility.

In conclusion, the proposed approach is not significantly different than the current situation where the community is 100% dependent on stormwater flowing on to the project site and being pumped from the site. If those pumps stop running, runoff would overflow onto the Veale tract and/or back up into the ditch along Delta Road and flood upgradient residential properties. Thus, the Community is dependent maintenance and monitoring of existing flood conveyance facilities either with or without the project.

KTCS D Q4: The wetlands proposal includes plans for regrading and altering topography of the wetlands parcel. As you are aware, stormwater naturally flows towards and onto the proposed wetlands. Will the Habitat Conservancy/EBRPD plans to regrade and alter the topography of the site change the way stormwater runoff flows on to and/or through the property? Will the Habitat Conservancy/EBRPD plans impede, or limit the natural flow of stormwater from the outlying areas in any manner?

Response 4:

Throughout the September 11th letter, the KTCS D refers to the concept that water flows “naturally” to the project site under current conditions. The topography in this area is highly altered from its original natural configuration. Figure 3 in the Conceptual Alternative Report shows that the historical land cover in the area was predominantly tidal marsh, alkali meadow, oak savanna and interior dune. This figure is taken from the Historical Ecology Study (Stanford et al., 2011) which shows the local landscape at a larger geographic scale. Before land modifications, such as the construction of levees, this project site, as well as other properties in the region, formed part the Delta Shoreline. Water likely drained to the shoreline through shallow swales across the landscape. There is nothing to indicate that water had a focused drainage pattern along what is now Delta Road and then flowed south to No Name slough (which is also a constructed feature, not historically present). As the land was modified to drain marshes and tidal wetlands for agriculture and other uses, ditches and other features were constructed to move water across the landscape. The project alternatives are designed to address this altered drainage pattern that does not function effectively for the Community of Knightsen, for agricultural operations on the project site, for native habitats or for water quality.

Regardless of the historical configuration of the landscape, there are now features that need to be protected -- homes, infrastructure, and other land uses. The project team has taken these human made features into account when developing the restoration concept alternatives, incorporating these current drainage patterns into the alternatives and proposing additional places where water can enter the project site to benefit drainage that flows through and from Knightsen. As stated in all project descriptions, one of the project objectives is to move stormwater away from adjacent residential areas and towards wetland areas on the project site as quickly as possible to reduce

flooding in adjacent residential areas. Each of the proposed alternatives provides significantly more flood conveyance from neighboring properties onto the project site than under current conditions.

KTCSO Q5: At the outreach meeting on July 11, 2019, the Habitat Conservancy/EBRPD presented aerial photos from 1998 which purportedly show accumulated water in the Knightsen community caused by stormwater runoff. These aerial photos were presented as evidence of flooding and evidence of how stormwater moves in Knightsen

A community member testified that this accumulation of water did not entirely result from stormwater runoff and that much of the water came from irrigation district facilities. Other community members have also stated that excess water accumulation in 1998 was largely due to other causes aside from direct stormwater runoff. Has the Habitat Conservancy/EBRPD looked into this matter to ascertain what caused the accumulated water shown in the pictures? Has Habitat Conservancy/EBRPD verified that these aerial photos truly depict how rainfall runoff moves in Knightsen.

Response 5:

The photos in question were provided by Seth Cockrell from the community of Knightsen in 2001 shortly after the 1998 flood event and were presented to illustrate what occurs during a major flood event. These photos are extremely valuable to understand where stormwater flows and where flooding occurs during an extreme event. Those photos were included in Philip Williams and Associates' (PWA) 2002 Knightsen Water Quality Wetland Feasibility Assessment. Those photos were accepted at the time as representative of flood conditions in Knightsen. The source of that water can be argued, but that is not the intent of referencing the photos. Rather the photos illustrate which areas are vulnerable to flooding in the Community.

Knightsen is the downstream receiving location for runoff that is generated east of Marsh Creek. During the rainy season, irrigation district facilities are generally filled with runoff as upstream property owners commonly pump stormwater into these facilities. Thus, it is possible that irrigation district facilities were utilized by local/upgradient properties to pump runoff into irrigation ditches and the local tile drain network that allowed this runoff to reach Knightsen faster. However, all of the runoff shown in those photos ultimately flows towards Knightsen and the project site whether by irrigation canals, overland, or by the existing drainage network.

The 1998 storms and the resulting accumulation of water shown in those photos were significant storm events and they were preceded by large storms around the new year. The state saw more than 3 times the average rainfall in February. The 1998 event was historic, and while we have not had a winter as significant as 1998 in the past 20 years, it is not unreasonable to prepare for a similar event of that magnitude (or larger).

KTCSO Q6: Community members have expressed concern about the proposed wetlands possibly resulting in future water quality regulations. In particular, at the outreach meeting on July 11, 2019, concern was raised that as protected species (plants and/or animals) migrate to the proposed wetlands parcel, water that naturally flows there, or water that may in the future be routed to the property will be regulated and/or be subject to some form of water quality treatment.

During the outreach meeting ECCHC/EBRPD officials stated that no such regulations or treatment requirements would be implemented. Nevertheless, there are concerns that if the proposed wetlands

are created, at some future date, ECCCHC, EBRPD, Contra Costa County, or some other entity (e.g. EPA, Fish and Wildlife, etc.), may implement such regulations and/or treatment requirements.

Are these concerns warranted? If no, what assurances, if any, can you provide that such concerns are unwarranted?

Response 6:

The project alternatives developed include features that serve to improve water quality. y. These conceptual design alternatives incorporate state guidance on the design of swales and shallow wetlands for water quality treatment while also providing valuable habitat for special status species and other flora and fauna. There are no existing or proposed regulations that would require treatment of water entering a water quality treatment facility.

The project partners (ECCCHC, Contra Costa County and EBRPD) have no intent nor plan to impose any such regulations, nor have we received any indication of such intent from any regulatory agency.

KTCS D Q7: As you are aware, KTCS D is currently considering a number of drainage projects. Is the development of the wetlands project dependent upon KTCS D implementing some, or all of these drainage projects? If yes, which projects in particular?

Response 7:

The project has developed alternatives that consider the stormwater improvement projects recommended to the KTCS D and also has workable alternatives if the KTCS D chooses not to implement any stormwater improvement projects.

The most important of the recommended stormwater improvement projects both for the restoration project site and for drainage issues in Knightsen include:

- **Byron Highway Diversion** - would divert runoff flowing towards Delta Road and deliver this runoff directly to the project site. This project allows the project site to convey this runoff at higher elevations allowing for gravity drainage towards No Name slough. This project also significantly reduces runoff that currently gets backed up at Delta Road & Byron Highway due to the undersized and clogged culverts along Delta Road.
- **Delta Road Drainage Improvements** – increasing the size of the culverts along Delta Road (east of Byron Highway) to match (ideally exceed) the capacity of the existing 30-inch culvert at Delta Road under Byron Highway would significantly reduce the potential for drainage issues and flooding at Delta Road & Byron Highway. This project is critical to address the drainage issues along Delta Road as all of this runoff flows to the project site regardless of whether the KTCS D (and/or residences along Delta Road) improves the existing driveway crossings. These improvements would need to be adopted by all residences along Delta Road, as the capacity of the system is limited by the smallest and/or most clogged culvert along the road.
- **Eagle Lane Diversion** - would divert runoff from the Eagle Lane area directly to the project site. This diversion would allow properties along Eagle Lane to more quickly discharge runoff to the project site and provide for increased capacity to route stormwater runoff via gravity across the project site towards No Name Slough. This project could help reduce groundwater levels in the Eagle Lane area by reducing nuisance ponding and moving runoff away from residential properties.

The project can move forward without drainage improvements, though there may be greater community benefits realized from the implementation of flood management and drainage improvements within Knightsen.

KTCS D Q8: If KTCS D does not implement any of the seven proposed drainage projects under consideration, what impact will that have on the proposed wetlands project? If KTCS D does not implement any projects, what impact will that have with regard to storm water which naturally flows towards and onto the wetlands parcel?

Response 8:

As stated above, the Conservancy has developed conceptual alternatives that allow for the KTCS D to decline to participate in the project. However, we believe this approach would not serve the Community's interests.

- Not taking advantage of the project site would be a missed opportunity for the Community. This parcel has been identified in numerous studies by the County and their consultants as an ideal place to implement stormwater improvement projects because so much runoff flows by and towards this parcel.
- The project site offers the potential to receive significantly increased runoff volumes and flows resulting from installing larger culverts along existing drainage corridors along up-gradient parcels to help reduce surface water depths in existing ditches along up-gradient parcels.

KTCS D Q9: Liquefaction. The proposed wetland parcel is in a zone that has been identified by US Geological Survey as subject to liquefaction in the event of an earthquake. Increasing the saturation of surface sands will worsen the impact of liquefaction on neighboring properties. Is the proposed wetlands project being designed to take liquefaction into account in regard to wetland flood control designs as well as impact to structures on neighboring properties? If soils that are prone to liquefaction are converted to wetlands, what impact does that have in the event of an earthquake? Is the potential for liquefaction increased? If liquefaction occurs on the proposed wetlands parcel, does that pose increased risk to neighboring properties? This was brought up by a community member during the outreach meeting on July 11, 2019. This concern was not addressed during that meeting.

We need to know specifically what ECCHC/EBRPD will do to ensure the proposed wetlands will not increase the risk to neighboring properties in the event of seismic activity.

Response 9:

The design of the proposed new flood control levees would take into account liquefaction as part of slope stability analyses included in the geotechnical engineering investigation, analysis and recommendations. New levees on the project site, constructed to current geotechnical standards, would be less likely to be impacted by liquefaction during a potential earthquake than the existing agricultural levees the Community currently relies on for flood protection.

Wetlands on the project site would not increase liquefaction potential or risks for other properties as a result of seismic activity because:

1. The project would not alter the soils below other parcels, and
2. The project will evaluate the potential to increase shallow groundwater levels at adjacent parcels and, if necessary, refine the proposed designs of swales and wetlands as needed to limit any potential increases in shallow groundwater levels at neighboring properties.

KTCSD Q10: Do you have any knowledge of, or information regarding wetlands restoration projects that have been implemented in other places where the wetlands are in such close proximity to private residences and/or in an area requiring above grade septic systems? What have you learned from studying those projects?

Response 10:

The Conservancy has hired a consultant team that has designed, implemented, and monitored wetland restoration projects adjacent to existing homes in many locations.

Examples of projects implemented by implemented by the Habitat Conservancy's consultant team that are adjacent to residential areas include:

- Hamilton Wetlands – Novato
- Bahia Wetlands – Novato
- Martinez Regional Shoreline – Martinez at Alhambra Creek
- Muzzi Marsh – Corte Madera
- Dutch Slough – Oakley (largest Delta Restoration so far & currently under construction)
- Crissy Field Restoration – San Francisco

Regarding the proximity to properties with above grade septic systems, we are not sure if any of the residences adjacent to the above projects were dependent on septic systems or a sanitary sewer system, however, we believe most are likely on a sanitary sewer system since these sites are in areas that are more intensely developed than Knightsen. As discussed in Response 2 above, potential impacts to upgradient septic systems will be analyzed and studied in greater detail, but are not expected to be significant. By contrast, if the KTCSD and the Community implement stormwater improvement projects to more efficiently route runoff away from residential areas and on to the project site, issues with high groundwater during wet years impacting septic systems are likely to improve.

KTCSD Q11: During the community outreach meeting on July 11, 2019, many community members expressed concern that ECCHC/EBRPD had not done a sufficient job notifying community members about the outreach meetings and involving community members in the planning process. Several people felt your consultant team lacked the technical knowledge of Knightsen to accurately design the wetlands. Several people suggested that a citizen advisory group be formed, but that suggestion did not seem to be well received by ECCHC/EBRPD.

Since that meeting, you have created a website and made several documents available on the website. This information is very helpful with regard to informing the community. Nevertheless, community members expressed interest in having ECCHC/EBRPD increase efforts to include community members in the planning process. What immediate steps are you taking to do this? How will you advertise future outreach meetings? Will you consider establishing a citizen advisory group or some other mechanism for involving the community in your project planning?

Response 11:

The question multiple parts. Responses are provided below in separate sections.

Noticing of Meetings, Outreach, and Opportunities to Engage: The ECCHC wishes to cultivate a positive, collaborative relationship with the Knightsen Community that supports our mutual interests. Acting transparently, as evidenced by the updated website and release of planning documents, are part of the Project’s outreach plan. There will also be opportunities for public engagement and outreach in the current phase of project development.

At the community meeting, it was suggested that future meetings be noticed in the Brentwood Press in addition to posting a sign at the Knightsen post office, sending an email notice to the KTCSD and the project email list. People who are interested in receiving project updates and notices can sign up on the project website: <https://www.contracosta.ca.gov/7624/Knightsen-Wetland-Restoration-Project> . The Conservancy is planning to notice meetings using all of these suggestions that were received.

There was a suggestion that the Conservancy convene a citizen’s advisory group. The Conservancy and partners have considered this and would prefer to host a series of topic-focused outreach meetings that are open to all who are interested, not a selected subgroup of the community. These meetings will be structured to provide information as well as engage in dialog to receive comments and answer questions. These meetings will be noticed (as indicated above) and be facilitated by a 3rd party.

Qualifications of Consultant Team: The Conservancy selected consultants to work on this project specifically because of their experience in studying drainage, soils, and shallow groundwater-surface water interaction in Knightsen, Veale Tract, and Holland Tract. Team members have experience completing large-scale Delta and Bay wetland projects. The team also has extensive biological knowledge of special status species (plants and animals) in the area, and how to manage habitats and create and restore wetlands to support these target species. The project team was selected through a competitive process that included an interview by a panel with representatives from the Habitat Conservancy, East Bay Regional Park District, Contra Costa County Flood Control District and the Knightsen Town CSD.

New/Additional Work in Response to KTCSD Questions/Concerns

The project team plans to convene a total of six meetings in 2020-2021. Three meetings will each be focused on a key topic. The project team is open to suggested topics for these focused outreach meetings.

An additional three meetings will be held to discuss project development milestones and any other items of interest to the community. The project milestone meetings are anticipated to be scheduled in conjunction with completion of the following:

- Completion of geotechnical studies and groundwater modeling
- Alternatives Evaluation and Selection of preferred alternative
- Initiation of CEQA process

Future meetings will be announced on the Project’s website, and shared at least 2 weeks in advance using the noticing strategies listed above.

KTCSD Q12: In April 2016, property owners in the vicinity of the proposed wetlands project received a letter from you “re: East Contra Costa County HCP/NCCP Preserve System Neighboring Landowner Assurances Program.” That letter stated, in part, that neighboring farmers, “may be concerned that populations of state or federally listed species in the Preserve System may expand and colonize or use

their lands, potentially restricting land use activities.” The letter addressed a permit program of some type for farmers.

The letter was not clear regarding what limitations the proposed wetlands may impose on farming activities and what the extent of such limitations may be. The letter was not clear with regard to what farmers can or should do to exempt themselves from such limitations.

Knightsen residents ask for more information and clarification regarding what limitations, if any, may be placed on farming activities as a result of creation of the proposed wetlands, and what farmers can do, if anything, to exempt themselves from such limitations.

Response 12:

The Neighboring Landowner Assurances in the East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan requires the East Contra County Habitat Conservancy send a letter to all agricultural properties within 1 mile of a property that has been conserved and will be managed to support special status species (state and federally listed). As the ECCCHC cannot be certain of all the land uses within one mile of an acquired conservation property, the letter is sent to all properties even though it only applies to properties in an agricultural use. The section of the guiding documents that includes this requirement can be found here: <https://www.contracosta.ca.gov/depart/cd/water/HCP/news.html> .

The acquisition of and restoration of this property does not change any laws or regulations related to agricultural activities. If the owner of an agricultural property within one mile of the conserved property is concerned there will be adverse impacts related to state or federally listed species, the Conservancy is willing to provide assurance by issuing a permit to that property owner for incidental take of species that may populate the agricultural property as a result of a change in management on the conserved property.

The Conservancy does not anticipate any limitations being placed on nearby agricultural activities as a result of conservation or restoration of the property. However, during the development of the guiding documents of the Conservancy, the Contra Costa Farm Bureau requested this assurance be included in case there was an unanticipated consequence to agricultural activities.

KTCSD 13: What is the proposed timeline for implementation (i.e., design, permitting, EIR/EIS, and construction) of the proposed wetlands project? What are the steps (phases) and specific currently proposed dates for that implementation process? At what steps (phases) in the process will community input be solicited and incorporated into the proposed project?

Response 13:

The project construction schedule depends on project readiness and funding. The earliest we anticipate construction is 2023. A general schedule of next steps is provided below:

- 2020 – Selection of preferred alternative and preliminary design
- 2021 – Design Development, Permitting, CEQA
- 2022 – Summer, Final Design and Construction Bid Package
- 2023 – Spring/Summer, earliest anticipated start of construction window

Anticipated Community meetings:

Please see response to Q12. Three meetings will be tied to project milestones and three topic-focused meetings will be convened in 2020 – 2021.

KTCSD: What other agencies (public, private, not for profit) are involved in providing input regarding the proposed wetlands project? What other agencies (public, private, not for profit) are involved in funding the proposed wetlands project? What is the Delta Conservancy's role and involvement in this proposed project?

Response 14:

Currently, the local agency partners are:

- East Contra Costa County Habitat Conservancy
- Contra Costa County Flood Control & Water Conservation District
- East Bay Regional Park District

Other agencies that have been contacted to provide feedback in this process so far (and will receive follow-up communication) include:

- Contra Costa County Mosquito and Vector Control District
- Contra Costa County Water District
- East Contra Costa County Irrigation District
- Knightsen Town Community Services District
- Reclamation District 2065 (Veale Tract)
- Reclamation District 799 (Hotchkiss Tract)
- Western Area Power Administration (on-site utility)
- Pacific Gas and Electric (on-site utility)

State funding partners (current/recent):

- California Department of Fish and Wildlife (proposition 1 funds)
- Delta Conservancy (proposition 1 funds)
- Future phases of funding TBD

Delta Conservancy's role: The Delta Conservancy's role is currently as a funder.

KTCSD Q15: Contra Costa County has capital improvement plans that include improving and/or widening roads in the vicinity of the proposed wetlands including Delta Road and Byron Highway. Will these roadway improvements impact the proposed wetlands project? If yes, what will those impacts be and how will they be addressed?

Response 15:

The proposed wetlands project will need to consider existing road easements and capital improvement plans in the design development phase. We anticipate that all improvements along roads would be located outside of the existing road easements and/or any areas that are included in the County's future capital improvements. Coordination with the agencies responsible for those improvements will be engaged with prior to preliminary design work.

KTCSD Q16: *What impact will the proposed wetlands have with regard to mosquitos and vector control issues in the community? If there is any adverse impact, what steps will ECCHC/EBRPD take to address those impacts?*

Response 16:

The team understands from the local Contra Costa County Mosquito Vector Control officer and in meetings with neighboring property owners, existing issues in the community require regular treatment. Activities associated with the current agricultural operations will be eliminated at the site after the wetlands restoration (including drainage ditches that do not drain fully due to the reverse gradient along the ditches to route runoff and agricultural water towards the pump station). The project team has met with the local Mosquito and Vector Control agency and are incorporating their recommendations regarding site configuration and wetland inundation into the project alternatives.

Related to the project, design guidance from CCC Mosquito and Vector Control includes:

- Designing tidal wetlands to drain so there is a consistent flow into and out of tidal wetlands areas that minimizes ponding and areas of limited movement.
- Designing seasonal wetlands that are shallow enough to dry out by April / May before the mosquitos begin their more significant breeding seasons.
- Providing access for mosquito abatement personnel to treat areas as needed.

The expectation is that with the reduction of standing water on site during mosquito breeding periods, the on-site sources will be greatly reduced or eliminated.

As reports are completed, information will be made available on the project website. The project team will continue to work to address the concerns raised by the KTCSD and Community. The project team would be pleased to meet with the KTCSD to discuss these responses and provide additional clarification if requested.

Sincerely,



Abigail Fateman
Executive Director