

Slide #	Slide information (title)	Question (or Comment)	Answer or Response (8/25/22)	Follow-up Response (Blue Coast Engineering)
1	Cover Slide			
2	Overview			
3	Contextual Project Map			
4	Contextual Project Map with specific data gathering points			
5	Average Surface Water & Precipitation			
6	Salinity Along PNP Road	Where along Point No Point Road did you test salinity?	Salinity and surface water were measured where the blind corner is in the road - on the south side there is a ditch channel that goes out toward Puget Sound. It was measured here.	
7	Water Elevation & Precipitation during King Tide	Water Surface Elevation within the channel, or in marsh? What do you mean by "within the channel"?	When we look at the blue lines, it is adjacent to the tide gate. A ditch/channel is very straight and linear, with an instrument within that ditch specifically.	
8	Salinity at Tide Gate during King Tide			
9	Water Elevation & Precipitation during King Tide	Does this show surface fresh water actually across the Point No Point Rd to the North (during high rain period)?	This is the existing conditions with high precipitation events. This and the simulation show some surface water moving onto the road in these scenarios. We need to check elevations. Lidar can be inaccurate across very flat areas and many not capture subtle differences in elevation. The area near the blind corner is where flooding is coming out of the marsh.	
10	Existing Surface Water Conditions - Jan 7, King Tide	King Tide impact based on tidal elevation only, or wind-driven waves?	Jan 7 King Tide event simulation only simulates the king tide, not wave overtopping with wind wave event. We will consider this in a future phase of the design.	
10	Existing Surface Water Conditions - Jan 7, King Tide	King Tide impact based on tidal elevation only, or wind-driven waves?	As a starting point, the levee designed for our simulation at 2 ft above king tide. FEMA Flood elevation (13). We will do a zero rise analysis (required by FEMA & County) to show if there would be a change in the FEMA Flood elevation. In general, Puget Sound has infinite storage capacity so on coastal projects the FEMA flood elevation typical does not change. It is considered a flood zone now, and that won't change.	
10	Existing Surface Water Conditions - Jan 7, King Tide	King Tide impact based on tidal elevation only, or wind-driven waves?		
11	(Transition Slide) Groundwater Measurements Existing Conditions			
12	Contextual Project Map with specific data gathering points			
13	Lots of Data (Precipitation, Tidal, Groundwater & Surface Water graph)	Is it too early to estimate a benefit of project for Sea Level Rise, compared to existing conditions?	It's never too early. Raising both the N and E beach area are major consideration for resiliency.	In a later design phase, the levee for the chosen project footprint. will be designed to adjust for sea level rise.
14	Groundwater in Feet: W End of PNP / Inside Tide Gate following tidal signal 11/21-12/21			
15	Groundwater in Feet: Intense rain/King Tide/ Saturation Decreases 1/1-1/19/22	How deep are the wells?	4 of the wells are 20' deep 1 is 50' (#4, confirming the lack of a confining layer) In the marsh itself the wells are 10' deep.	
16	Plan View of Ground Water	Is it too early to estimate a benefit of project for Sea Level Rise, compared to existing conditions?		
17	Current Conditions (Elevation drawing)	Comment: Most homes have no hill slope between them and marine waters. Need better concept image.	Fair enough. There is always a vertical exaggeration on the scales for these type of figures. Seem higher in scale.	
18	(Transition Slide) Possible Future Conditions			
19	Lidar detail project view	Does levee height take into consideration wind-driven wave effect?	We haven't actually included wind driven waves on top of the king tide yet but we set the levee at 2' above the king tide level, and typically in Puget Sound wind-driven tides are 1', and that's just as it hits the beach. We will be creating a more detailed design.	
19	Lidar detail project view	Where is the dike along Point No Point Road?	Orange line in the diagram. Starts at the Lighthouse, and parallels the road on the inside of the marsh on the southern side of PNP Rd itself, and then we are also showing levee that comes across the western side. The home there has a wetland. That is going to require detailed design. Whether this is the best solution we need to do more study. We need to convey water from the wetland behind that home into the marsh, and wrap around the levee to protect that home. Just a concept.	
19	Lidar detail project view	Why is a levee system necessary if the plan is to "restore" to original natural condition?	We're not restoring to original natural conditions (channel to the N historically), but an analogue to a barrier embayment. A saltwater estuary system. We have natural examples (Doe Kag Wats, Thorndyke Bay, Natural systems with high salt marsh). Given development, we need a levee to protect homes and road on the N side. PNP Rd is 8 feet relative to MLLW . When we are talking about resiliency, the levee is at 13 ft. Levees and dikes are very common, and the amount of habitat that can be achieved are much greater than the impact of installing a levee.	
19	Lidar detail project view	I can't see where the stability of the enhancement comes from.	Beaches are dynamic. They change over time, in response to wind waves and storm events. Sand will be transported along shore on the N side from the W to E. On E side, it moves from the N to the S. We account for all of these dynamic changes - enough beach width and height to work with these natural coastal processes, and with these forces.	
19	Lidar detail project view	Comment: We're not talking about sand on the road. Each year sand from both the N beach & E beach have great movement during winter storms		
20	Possible Surface Water Conditions: Jan 2-4, Intense Rain	How high will water go at high tide N of Hillview Lane?	If we do a full footprint design, the water N of Hillview will fluctuate with the tide. Up until the elevation of the ground is higher. At a king tide event 11 ft of surface water would be up to 5 ft in some locations for a short period of time, and then drain out. A lot of that area will transition to salt water, have channels, and sand, and provide drainage.	
20	Possible Surface Water Conditions: Jan 2-4, Intense Rain	How does storm water move from N residential area to S of levee?	We do not have an answer yet. At the end of the year we are fairly confident that we will know more. The drainage ditches that are to be handling stormwater are filled with groundwater. If we are capturing groundwater in channels in the marsh itself, so those ditches will be freed up for stormwater. We need to build the groundwater model to confirm. High groundwater table is key.	
21	Possible Surface Water Conditions: Jan 7, King Tide	How deep is the water at the W end?		
21	Possible Surface Water Conditions: Jan 7, King Tide	How tall is the levee?		
21	Possible Surface Water Conditions: Jan 7, King Tide	Comment: Simulation of King Tide is absolutely frightening as a homeowner living on PNP near levee	Response: (To the additional verbal question, "Who gives you the right?")	
22	Possible Future Groundwater			
23	New Wetland Profile (Elevation drawing)	How will you manage surface water on N side of the levee and protect homeowners' septic systems?		
23	New Wetland Profile (Elevation drawing)	Where does stormwater ditch drain to? Is it pumped?	We're not talking about pumping in our model. We will be able to convey some of that ground water into channels in the saltmarsh, and then it will drain twice a day with the tide.	
24	Current Conditions (Elevation drawing)			
25	Aspect Boring Logs			
26	Greenbank Project comparison			
27	(Transition Slide)	Have climate change / Sea Level Rise calculations been considered in the modeling? (No slide - general question)	Future conditions at this point was simply a conceptual exercise for this meeting. We move into building a model and design we will have additional considerations. We can build the layer higher and higher, but there is a balancing act with the surrounding area.	

			The substrate itself is marsh on top and then sand beneath that. We would excavate out channels, and that sand would become exposed. In the places that are currently fresh water marsh that would decay then recolonize with salt marsh vegetation. We have seen this happen within as short a time as a year (Stillaguamish River Delta, for example) where they have restored parts of the river delta to tidal inundation. Salt Marsh Plants come in quickly. You will still have high marsh and salt marsh plants rather than fresh water plants. As a comparison, Carpenter Creek Estuary in Kingstons has a substrate that is quite silty/muddy material. Different geology than PNP. Here we have sand in the channels and open areas.	
28	Next Steps	How do you expect substrate in the marsh to change? With the low velocity it seems the marsh & ditches would currently be very fine.		
28	Next Steps	A little confused about flow of water. Looks like if there was no road, the water would flow N naturally. The levee looks like it moves water to tide gate area.		
28	Next Steps	It will take 3 to 3-1/2 years to process & implement something. In the meantime, is it useful to permanently open the flood gate now?		
28	Next Steps	It was helpful to see Greenbank comparison for soil structure. Can the slide deck include the equivalent structure for the Hansville area?	Yes we can do that. Aspect conveyed this through conceptual diagram showing sand. No layers to show in a drawing, but we can produce a drawing for the upland area as well. We have the borings in a well at Norwegian Point, which confirms continuous geology to share as well.	
28	Next Steps	Who gives you the right (to make these changes to the land)?	property. In this case, the property where the estuary restoration is proposed is owned by Kitsap County, which means the County will decide whether or not to move the project forward from investigation, analysis, and design (current phase) to construction. Kitsap County will make this decision by evaluating the work that	
28	Next Steps	What considerations are there for the displacement of animals that occupy the area?	We are going to be in conversation with resource managers, with Audubon, and area biologist from WDFW (Nam Sit). Assessing impact and coming up with a plan that minimizes impact is a requirement of permitting. These partners have been with us through the preliminary design phase, and they will be crucial to project success when we move to the permitting phase.	
28	Next Steps	How does the beaver dam affect the results of the gauge?	We are aware of the existence of the beaver dam, and yes, it could affect the surface water measurements, but the beaver dam was not in place for any of the time periods shown here. A dam would dam up water, we would have less drainage.	
28	Next Steps	Why is the opening on the E rather than the N?	Homes, cultural artifacts discovered, historic location. Primary reason is that we would not be able to control ground water infiltration if we had an opening to the N, and protecting private properties is paramount. From study throughout the Sound and elsewhere we have a good sense of the conditions required for a barrier embayment from a geomorphic perspective - coastal processes and geology interacting to create a system that is sustainable and intact. The conceptual diagram is based upon this research.	
28	Next Steps	What is the source of permanent funding to keep the 150' opening open?	The 150' opening was designed based on regression models. It is scaled to the size of the footprint that is chosen. These are self-sustaining channels. They have barrier spits with "arms" that are designed to protect the tidal channel preventing sand and woody debris from flowing directly into the channel. IT would come out on the eastern shoreline, then curve to the N. Turning in that direction would prevent wood from becoming trapped, and it is wide enough and shallow enough to create the necessary velocities to keep it open. This is scaled based upon our studies, and Skagit River Systems Cooperative (Whidbey Basin) who have looked at another 30+ systems as well.	
28	Next Steps	If you divert surface water and most of the ground water to the E shore, wouldn't the lack of hydraulic pressure be too low for saltwater to penetrate into the properties N of the levee? Would it be enough to kill mature landscape?	Peter at Aspect Consulting will follow up. On N side of PNP Rd we are not seeing salinity now, and we do not expect to see saltwater here in future conditions. This is a groundwater question and Aspect will follow up. The surface water will be contained by the levee.	
Session 1	General Questions (not attached to a specific slide)	What is the length of time for project to finish?		
Session 1	General Questions (not attached to a specific slide)	How will beach erosion on the north side be controlled? And who will be responsible for it?	When we do beach enhancement it's a combination of sand and large woody debris and vegetation. We work with a landscape architect to maintain recreational opportunities and have a vegetation plan to stabilize the beach. In terms of erosion, we allow for a certain amount of adjustment of a beach, and we do wind wave and beach profile changes over time. We over nourish in order to allow our beach to adjust. Maintenance plan would be discussed with - Healthy drift cell without blockages, and sediment supply is good.	
Session 1	General Questions (not attached to a specific slide)	Have climate change / Sea Level Rise calculations been considered in the modeling?	Yes. The current conditions & problems will get worse over time. A lot of what we are talking about would address several climate change scenarios, and make the area more resilient to climate change, particularly that N Beach enhancement, and there needs to be a pathway for the water to go. The ditch channel is very unstable. In nature, creeks are sinuous, and have a stable configuration including flood plains. The channels now have caved in and become blocked. We consider future scenarios in everything we do. The levee height and possible future conditions model is conceptual. It was built for the meeting to demonstrate what a levee and tidal channel and an opening would allow in terms of management and drainage; something that is not happening right now.	
Session 1	General Questions (not attached to a specific slide)	What are the considerations for displacement of animals that occupy the area?	There are a number of projects that have been done with regard to converting fresh water marsh to salt water. Overall the results show us that there is generally an increase in diversity of animals and birds and plants - species that use those habitats. In Puget Sound we are lacking in salt marsh habitat, which is the impetus for this project. We will need to write a biological assessment (NOAA, WDFW, Audubon will review) to convince regulatory agencies that we are making a net positive impact. The protections for existing species are part of the construction process. Mid Sound would be moving species out of active project footprint... fish rescue to minimize disturbance during construction.	

