

RE: [EXTERNAL] RE: SpaceX Revegetation Question

Kelsey Condell <Kelsey.Condell@spacex.com>

Wed 4/14/2021 12:22 PM

To: Perez, Sonny <sonny_perez@fws.gov>; Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Winton, Bryan <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>

Thank you very much for your support, we will proceed with the approved mixes.

Best,

Kelsey Condell

Office: 321-730-1677

Cell: 310-941-5393



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From: Perez, Sonny <sonny_perez@fws.gov>

Sent: Wednesday, April 14, 2021 12:56 PM

To: Kelsey Condell <Kelsey.Condell@spacex.com>; Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Extranet Contact - bryan_winton <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>

Subject: Re: [EXTERNAL] RE: SpaceX Revegetation Question

Kelsey,

Kendal and I have coordinated and we approve of the proposal.

Thank you,

Sonny

From: Kelsey Condell <Kelsey.Condell@spacex.com>

Sent: Tuesday, April 13, 2021 2:38 PM

To: Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>; Perez, Sonny <sonny_perez@fws.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Winton, Bryan <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>

Subject: RE: [EXTERNAL] RE: SpaceX Revegetation Question

Good afternoon Sonny and Kendal,

I wanted to see if I could provide any additional information about the proposed seed mixes. Mr. Falk was able to conduct a site visit to make his recommendations and he also discussed our site with DK seeds, the proposed supplier, as well.

Thank you,

Kelsey Condell

Office: 321-730-1677

Cell: 310-941-5393



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From: Kelsey Condell

Sent: Tuesday, April 6, 2021 5:08 PM

To: Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>; Extranet Contact - Sonny Perez <sonny_perez@fws.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Extranet Contact - bryan_winton <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>

Subject: RE: [EXTERNAL] RE: SpaceX Revegetation Question

Hi Sonny and Kendal,

We coordinated with Mr. Tony Falk with South Texas Natives, and he provided us with two sets of recommendations for our site. The "Pad Slope" set of species he specifically recommends for the eroded areas on the site, such as the edges of the launch pad, while the "Restoration" list of species he recommends for use throughout our site as needed. He recommended we coordinate with Douglass King Seeds, and they have the species available. DKS confirmed that these seeds are sourced from the Texas Native Seed Program or the Plant Material Center in Kingsville, TX.

I've also attached the spec sheet for the Flexterra growth medium we are proposing to use as well.

We would appreciate any feedback provided on the attached species and sources.

Thank you,

Kelsey Condell

Office: 321-730-1677

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From: Kelsey Condell

Sent: Wednesday, March 17, 2021 12:06 PM

To: Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>; Extranet Contact - Sonny Perez <sonny_perez@fws.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Extranet Contact - bryan_winton <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>

Subject: RE: [EXTERNAL] RE: SpaceX Revegetation Question

Hi Kendal,

Thank you for also providing such great information. We are planning to revegetate the edges of the built up pad that you highlighted below. We are looking at the Flexterra Flexible Growth Medium (spec sheet attached) for stabilization. It is fully biodegradable, made of recycled wood fibers, phytosanitized, and it is free of weed seeds and plastics.

We will reach out to the contacts you provided at South Texas Natives and Native American Seed, thanks very much for providing them. We will also look into seed collection in Boca Chica in the fall from the seacoast bluestem at the site and other species as they produce seeds too.

Thank you,

Kelsey Condell

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Cell: 310-941-5393



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From: Kendal Keyes <Kendal.Keyes@tpwd.texas.gov>

Sent: Tuesday, March 16, 2021 7:15 PM

To: Extranet Contact - Sonny Perez <sonny_perez@fws.gov>; Kelsey Condell <Kelsey.Condell@spacex.com>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Extranet Contact - bryan_winton <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>

Subject: RE: [EXTERNAL] RE: SpaceX Revegetation Question

Hi All:

Thank you for the great info Sonny. I have been out for a week and haven't caught up with my e-mail backlog yet.

As you said, TPWD would prefer locally harvested seed be used, and that will generally offer the best chance of success also. Although these seed collections from Bamert and Native American Seed are native to Texas, there is a lot of variation within species from site to site and we generally try to use seed native to the immediate area.

We should also consider the type of soil the seed would be planted into and the slope of the planting site. Is the area that needs to be revegetated the edge of the built up pad that we can see eroding in the photo below? If so, there may need to be some type of soil stabilization fabric used.

I agree it would be good to consult with South Texas Natives (<https://www.ckwri.tamuk.edu/research-programs/south-texas-natives>). Contact Tony Falk at (815)762-6178, anthony.falk@tamuk.edu in Kingsville. He may be able to do a site visit and provide a lot of valuable assistance. I recently spoke to Zenobia Wooten also at Native American Seed, in Junction, (znobia@seedsource.com, 800-728-4043) and she may be able to help also. TPWD does not usually use commercially available seed mixes, but STN, DK Seed and NAS have all developed custom mixes for our use when we cannot harvest from the site.

Thank you



Kendal Keyes, Regional Natural Resources Coordinator
Texas Parks & Wildlife Department - State Parks Division
715 S. Hwy. 35, Rockport, TX 78382
office (361) 790-0325
mobile (361) 205-4086
kendal.keyes@tpwd.texas.gov

From: Perez, Sonny <sonny_perez@fws.gov>

Sent: Tuesday, March 16, 2021 12:14 PM

To: Kelsey Condell <KelseyCondell@spacex.com>; Kendal Keyes <Kendal.Keyes@tpwd.texas.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Winton, Bryan <bryan_winton@fws.gov>; Reagan Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>

Subject: Re: [EXTERNAL] RE: SpaceX Revegetation Question

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Kelsey,

FWS is conferring with TPWD regarding recommendations that our Plant Ecologist made a week ago. I believe that it is reasonable to advise you that the seed mixes were not recommended for the use. Please see the suggestions in italics below.

*I do not recommend either mix that they proposed. The Bamert seed mix came from what sounds like a wild collection at Brazoria NWR, and does not list the species in the mix, other than identifying little bluestem as being a major component (we do not have *Schizachyrium scoparium* here). The Native American seed mix primarily contains seeds that are not native to here either.*

I would recommend that they do one of two things:

- collect locally from Boca Chica, focusing on seacoast bluestem or other locally dominant native species*

OR

- consult with South Texas Natives (<https://www.ckwri.tamuk.edu/research-programs/south-texas-natives>) for commercially available seed developed from deep south Texas collections and for a list of commercial seed producers that are currently carrying these releases. The most local commercial seed producer I am aware of that provides these releases is Douglas King Seed Company out of San Antonio. Ultimately what is important is that the producer carries the local ecotypes that was developed through South Texas Natives.*

Some other general recommendations that has been provided to various other projects:

- recommend a seeding rate of 20 pounds PLS/acre for drilling or 35 pounds PLS/acre for hydroseeding. The general rule of thumb is that drilling will result in better establishment than seeding, so if possible, seeding the area with a seed drill will provide better results.*
- recommend a time frame for seeding between February 1 - April 15 (or August 15 - October 15 if looking to do the work in the fall). If seeding falls outside of these time windows, then a cover crop should be added to help the establishment of native grasses.*

Thank you,

Sonny

From: Kelsey Condell <KelseyCondell@spacex.com>

Sent: Tuesday, March 16, 2021 12:05 PM

To: Perez, Sonny <sonny_perez@fws.gov>; Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Winton, Bryan <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>

Subject: RE: [EXTERNAL] RE: SpaceX Revegetation Question

Good afternoon Sonny and Kendal,

I just wanted to follow up on the below email and see if you all had any feedback on the two seed mixes listed below.

The FAA received comments from TPWD in January of this year through the scoping process with a number of recommendations, including the offer of technical guidance for revegetation efforts. We would greatly appreciate any feedback your offices can provide so that we can ensure our revegetation efforts are appropriate. We're currently working on slope stabilization at the pad, if you could all provide us with feedback by Friday 3/19 it would be very helpful for our efforts.

Bamert's Gulf Coast Prairie Collection: <https://shop.bamertseed.com/collections/reclamation-blends/products/gulf-coast-prairie-collection>

The gulf coast prairie collection is Primarily little bluestem that is adapted to the Gulf Coast Prairie region of Texas. This collection is a native harvest that does include some biodiversity to add to reclamation projects. There is also small amounts of Brownseed Paspalum, Dolls Dais, Liatris, Prairie Sunflower, Rattlesnake Master, and Tridens.

Native American Seed's Coastal Prairie Mix: https://www.seedsources.com/catalog/detail.asp?product_id=2801

Contains American Basketflower, Aster, Big Bluestem, Black-Eyed Susan, Boneset, Blazing Star Gayfeather, Broomsedge Bluestem, Brownseed Paspalum, Doll's Daisy, Florida Paspalum, Goldenrod, Gulf Coast Muhly, Indian Blanket, Indiangrass, Lemon Mint, Gulf States Little Bluestem, Marsh Elder, Partridge Pea, Plains Coreopsis, Rattlesnake Master, Prairie Agalinis, Rough Dropseed, Muhly, Swamp Sunflower, Sand Lovegrass, Sand Dropseed, Splitbeard Bluestem, Switchgrass, Tall Dropseed, Tall Gaura, Threeawn, Wild Buckwheat

Thank you,

Kelsey Condell

Office: 321-730-1677

Cell: 310-941-5393



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From: Kelsey Condell

Sent: Wednesday, March 10, 2021 11:09 AM

To: 'Perez, Sonny' <sonny_perez@fws.gov>; Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Extranet Contact - bryan_winton <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>

Subject: RE: [EXTERNAL] RE: SpaceX Revegetation Question

Good morning Sonny and Kendal,

We would like to propose the following seed mixes for the slopes surrounding the launchpad in order to help reduce erosion and promote native coastal species. Can you all advise if these seed mixes would be acceptable?

Bamert's Gulf Coast Prairie Collection: <https://shop.bamertseed.com/collections/reclamation-blends/products/gulf-coast-prairie-collection>

Native American Seed's Coastal Prairie Mix: https://www.seedsources.com/catalog/detail.asp?product_id=2801

Thank you for the opportunity to discuss this effort.

Best,

Kelsey Condell

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Cell: 310-941-5393



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From: Kelsey Condell

Sent: Thursday, March 4, 2021 1:17 PM

To: 'Perez, Sonny' <sonny_perez@fws.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Extranet Contact - bryan_winton <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught <Reagan.Faught@tpwd.texas.gov>; Katy Groom <Katy.Groom@spacex.com>; Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>

Subject: RE: [EXTERNAL] RE: SpaceX Revegetation Question

Thanks Sonny, Leo is coordinating with Bryan now while he's out there at the area.

Kelsey Condell

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From: Perez, Sonny <sonny_perez@fws.gov>

Sent: Wednesday, March 3, 2021 11:42 PM

To: Katy Groom <Katy.Groom@spacex.com>; Kelsey Condell <Kelsey.Condell@spacex.com>; Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>; Extranet Contact - bryan_winton <bryan_winton@fws.gov>; Extranet Contact - Reagan.Faught

<Reagan.Faught@tpwd.texas.gov>

Subject: Re: [EXTERNAL] RE: SpaceX Revegetation Question

Kelsey/Katy,

Bryan Winton will be at Boca Chica Thursday, March 4 at 10AM to follow up with Leo Alaniz regarding the SN10 anomaly. Would it be possible to have someone take the opportunity of having Bryan onsite to elaborate further on your request? We need some more details.

Thank you,

Sonny

From: Katy Groom <Katy.Groom@spacex.com>

Sent: Tuesday, March 2, 2021 10:13 AM

To: Kelsey Condell <Kelsey.Condell@spacex.com>; Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>; Perez, Sonny <sonny_perez@fws.gov>

Cc: Extranet Contact - Stacey.Zee <Stacey.Zee@faa.gov>

Subject: [EXTERNAL] RE: SpaceX Revegetation Question

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+Stacey Zee

Katy

Cell: 904-434-2215

Desk: 321-730-1469

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From: Kelsey Condell <Kelsey.Condell@spacex.com>

Sent: Tuesday, March 2, 2021 11:12 AM

To: Extranet Contact - kendal.keyes <kendal.keyes@tpwd.texas.gov>; Extranet Contact - Sonny Perez <sonny_perez@fws.gov>

Cc: Katy Groom <Katy.Groom@spacex.com>

Subject: SpaceX Revegetation Question

Good morning Kendal and Sonny,

SpaceX is planning soil stabilization and revegetation at the Boca Chica launch facility and would like to coordinate with TPWD and USFWS for technical guidance on appropriate plant species for the project area. We appreciate the opportunity to coordinate with your offices to determine suitable species and appreciate any guidance your offices can provide.

Thank you,

Kelsey Condell, MS

Environmental Health and Safety
Space Exploration Technologies-Cape Canaveral
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Kelsey.Condell@spacex.com



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