

PORT OF BROOKINGS HARBOR

Special Commissioner Meeting

16350 Lower Harbor Rd Suite 202

Tuesday, September 29, 2020 • 2:00pm

Teleconference / Meeting Room (Limited Space)

Teleconference Call-In Number: 1 (253) 215-8782

Meeting ID: 771 205 4017 Participant ID: # (to mute/unmute: * 6)

When calling in, please announce your arrival and state your name when you join the meeting.

TENTATIVE AGENDA

1. CALL MEETING TO ORDER

- Roll Call
- Modifications, Additions, and Changes to the Agenda
- Declaration of Potential Conflicts of Interest

2. APPROVAL OF AGENDA

3. **PUBLIC COMMENTS** (Limited to a maximum of three minutes per person. Please email your comments to danielle@portofbrookingsharbor.com prior to the meeting. ***Please wait to be called on before speaking***)

4. ACTION ITEMS

- A. McLennan Excavation Change Order No. 1

5. INFORMATION ITEMS

- A. None

6. COMMISSIONER COMMENTS

7. **NEXT REGULAR MEETING DATE** – Tuesday, October 20, 2020 at 6:00pm

8. ADJOURNMENT

A request for an interpreter for the hearing impaired, for those who want to participate but do not have access to a telephone, or for other accommodations for persons with disabilities should be made at least 48 hours in advance of the meeting to Port of Brookings Harbor Office at 541-469-2218.

From: Jack <emc@emcengineersscintists.com>
Sent: Wednesday, September 30, 2020 2:04 PM
To: Gary Dehlinger-Port of Brookings Harbor; Travis Webster
Subject: For you and the Board of Commissioners

Based on the photos and phone discussions with you, Gary, Mike and Casey, you have encountered unforeseen soil conditions under the former Zolas building. Saturated soils comprised of sand/silt with a little clay, high groundwater, draining water from under surrounding pavement, etc., puts this area in a category of its own, as Casey, a contractor with decades of experience stated by phone today "We have never worked in soil like this". Poor subgrade soils are those that become quite soft and plastic when wet. Included are those soils having appreciable amounts of fine silt (50 percent or more) passing a No. 200 sieve. The coarse silts may also exhibit poor bearing properties in areas where frost penetration into the subgrade is encountered for any appreciable periods of time. This also is true where the water table rises close to the surface during certain periods of the year.

The asphalt surrounding this building could not be of this same material, otherwise the parking lot surrounding the Zolas building would not have maintained its present condition through even one wet season in Brookings. But the Zolas building was "floating" on its own concrete slab, reportedly an average of 6 – 8" thick.

So we now are looking at a need to stabilize these problematic soils beyond standard procedure generally applicable to all other locations at the Port. Travis asked about a slurry stabilization. A soil-cement stabilization is what he is probably referring to. Since dry testing would delay this project into the wet season (the very worst weather conditions for these conditions), a conservative soil amendment specification will be used.

A field test was performed to estimate for Silty-sand, a fine textured soil, as it formed a ribbon 1 1/2" to 2 1/2" in length without breaking. Slightly Plastic Sandy Loam (sl pl SL): This soil usually contains less than 10% clay and will form a thin ribbon 0-3/4" in length before breaking under its own weight. AASHTO classifications A-2-4. We are conservatively classifying this soil as A-5.

Since we aren't clear on materials below, I am assuming that the same materials we are seeing are what is below. Such an assumption matches soil characterizations made in the basin. So I putting forth the following specifications, designed to give us 150 lbs/in², as follows (job sequence is included). Casey said that at present the area is layered with fabric atop non-compacted wet, sandy silt, topped with 8 -10" 4" rock, topped with 4 – 6" of 1 1/2". This construction is reportedly not passing a roll test.

So, to use soil amendment, we need 14" thick of soil amended with Portland cement, topped with, after 5 -6 days of curing, about 3" of 3/4" – gravel for grading (the amended soil will not be easy to grade, plus the 3/4"-, when compacted, will somewhat mix into the amended soil, to form a tight mat, bridging the surface). So

1. Remove existing material to 20" depth,
2. Place 7" of sand or sand/silt, watering to wet, do not over-saturate,
3. Place 10-12% by weight dry Portland cement (one 96 lb. bag per 12 sq.},
4. Use a roto tiller to thoroughly mix the concrete with the soil,
5. Watering to thoroughly wet, while mixing-do not over-saturate,
6. Compact (be careful not to press water through the mix)-3 passes should suffice,

7. Place 7" of sand or sand/silt,
8. Place 10-12% by weight dry Portland cement (one 96lb. bag per 12 sq.},
9. Use a roto tiller to thoroughly mix the concrete with the soil,
10. Watering to thoroughly wet while mixing, do not over-saturate,
11. Compact (be careful not to press water through the mix)-3 passes should suffice,
12. Allow 6 days to cure,
13. Place 3 – 6 inches (whatever is need to grade) of ¾",
14. Place asphalt (3 – 4"). The amended soil will expand, probably about ¾", so you probably won't get 4" in.

The reason for the two 7" lifts of sand is because I am assuming that the roto-tiller will only thoroughly mix that deep. If the contractor has a roto-tiller that can thoroughly mix to 14",by all means he should feel free to do it in one lift. However, he must be sure to water while mixing.

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From: Jack <emc@emcengineersscientists.com>
Sent: Wednesday, September 30, 2020 6:42 PM
To: Gary Dehlinger-Port of Brookings Harbor; Travis Webster
Subject: Addendum to the Commissioners

Gary, Travis – I spoke with Casey this afternoon and we spoke about the soil amendment alternative. I had specified that, assuming a density of the soils to be 110 lbs/cf, making the soil weight 147 lbs/sf surface area, that about one 94 lb bag would be needed every 6 sf for a 10% mix. He mentioned that, since there are 3000 sf of footprint at the work area, that the 94 lb bags of concrete (1.0 cubic feet) per 6 sf would require about 500 bags. Now to account for expansion of the amended soil, and leveling course, we can reduce the amended soil thickness to 14", thus reducing the number of bags to 440 bags. But this is a lot of work. Casey therefore requested that the idea of placing a slurry instead would actually cost less.

If a slurry would be used, it would need to be a three-sack slurry ($10\% = 1 \text{ cf (one sack) cement} / 27 \text{ cf sand} \times 3 = 3/27 \times 100 = 11\%$).

The cost for a three sack slurry was quoted to Casey at \$95/cy. 14" thick x 3000 sf 3-sack slurry would therefore cost about \$12315.

The slurry is just cement, sand and water, be adequately compacted and would be thoroughly mixed. This idea is superior due to the assurance thus provided that the cement is properly mixed, and because the soils to be amended would have to be imported (not using that already removed). It would also eliminate the concern of groundwater seepage due to over-compaction. Further, according to Casey, the cost for using a 3-sack slurry is less than that for labor and materials to place cement and mix it with a roto-tiller.

The only concern I had was moisture. Casey suggested specifying a medium slump of 5 to 6 (Ref ASTM C-143). That is a little wet but workable.

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From: Jack <emc@emcengineersscientists.com>
Sent: Wednesday, September 30, 2020 7:33 PM
To: Gary Dehlinger-Port of Brookings Harbor; Travis Webster; Casey McLennan
Subject: Addendum to the addendum

I have done some calcs and found that a two-sack slurry, 188 ;bs/cy, will provide a compressive strength of about 100 psi, strong enough.

I am copying this to Casey to get him to see if reducing from 3 sacks to 2 will appreciably reduce the price. If so, it works OK to use 2 sack slurry.

Thanks (hopefully there isn't another addendum to the addenda 😊)

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