

As a follow-up to last night's PAC meeting drainfield discussion, I've gone back and revived the email chain included below and the attachments passed along to ODAV by HDSE previously. In response to HDSE's information, clarification requests were sent to HDSE through ODAV as was requested at that time. The round of requests below are where we (CWE) left off in February of 2022.

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We have looked through what was sent over and still have questions and information needed. We also still need a copy of the report that opens & displays all the figures (this was stated as included but it was not one of the attachments). Since other questions are focused on details of the proposed improvements we have not received, we have responded to NV5's answers in that area in orange below:

- **Materials/Construction Proposed**

- o What materials specification is to be used (ODOT, proprietary, etc.) for the aggregate?

*Per the GeoWeb Manufacturer the infill material should consist of one third pulverized topsoil and two thirds crushed aggregate. The aggregate portion should be crushed rock that has a particle size range from 0.375 to 1.0 inches with a D50 of 0.5 inches and a 30 percent void space. The engineered fill should lightly be compacted to allow vegetation growth.*

What are the assumed properties of these materials if there are not more specifics as to what might be used? What is "light compaction"? Is there a minimum void space requirement that should be met? Performance spec for infiltration?

- o What compaction specifications and test methods are proposed to achieve the proposed Geoweb strengths?

*After the cells have been filled the prepared ground surface should be proofrolled with a fully loaded dump truck. Some rutting and deflection is acceptable considering that the FAA specifies the upper 4-inches of subgrade consist loose uncompacted soil over 12-inches of compacted subgrade.*

Again, what is the density intended for these layers? We are not analyzing the rest of the RSA and we need to know how much rutting or deflection is being assumed to be "acceptable". We are concerned with what is being proposed and whether it can support aircraft and vehicle loading.

- o What compaction specifications and test methods are proposed for soil layers to be placed along with the Geoweb?

*The only other soil that will be placed is the washed gravel or drain rock in the drainage trenches. We recommend only light compaction of this material until it is well keyed. Even at this level of compaction we believe its load bearing characteristics will be superior to the soil that exists in the RSA. Over compacting this material will inhibit its drainage characteristics.*

What are the assumed properties of these materials if there are not more specifics as to what might be used? What is “light compaction”? Is there a minimum void space requirement that should be met? Performance spec for infiltration? What load bearing characteristics will these yield? Will these layers retain their characteristics when the grass is mowed or a vehicle passes over the top of them?

o What subgrade compaction specifications and test methods are proposed for the expanded drain field areas?

*See our response to the two prior questions.*

Same.

o What materials are proposed for use in the rest of the elements of the drain field system (pipes, manifolds, perf spec., etc.)?

*To be addressed by others. [[Note: Attachment 6 added by Aron Faegre to this memo for providing this information to Tony Beach.]*

Attachment Six does not provide enough detail about the weight rating for proposed elements (structures/pipes/manifolds/etc) or even the proposed cross section in any of the different areas with the geoweb installed. The 2005 design also does not address grading in the proposed drainfield area, but shows a “capping fill” which would not meet RSA grading standards. Please provide a detailed design that includes structure weight ratings and grading plans that meet FAA RSA grading standards. Also, please provide proposed typical sections showing the pipes/structures/geoweb/etc.. Include layer depths, typical surface grades, and detail where the proposed sections will intersect proposed drain field structures/drainage elements.

To pick up where this trailed off, we would need answers to the questions above as well as a proposal that would comply with FAA standards. We need to see structures proposed that would carry vehicle and aircraft loads. We would need to see a design package (with grading plans) that addresses reconstruction of the drainfield to push it to depth under the proposed structural layer. The proposal needs to detail features that will allow drainfield functionality while avoiding use of capping fills or protruding pipes/structures that would create primary surface obstructions and violate RSA grading criteria. ODAV would need to

be able to mow and operate equipment over the entire proposed drainfield for maintenance and mitigation of wildlife attractants. We would also need to know if Marion County is willing to issue an Alteration Permit for this system or if a new location (and construction permit) would be needed.

To be clear, this is an uphill battle. FAA has provided guidance to:

“Please reject future proposed septic (drainage) fields under Aurora State Airport’s safety areas and take action to remove existing septic drainage fields under the airport’s safety areas at your earliest opportunity. The safety area must remain, “capable, under dry conditions, of supporting snow removal equipment, ARFF equipment, and the occasional passage of aircraft without causing major damage to the aircraft.” Septic (drainage) fields risk compromising this requirement by:

- Including elements structurally incapable of supporting these loads either initially or over the length of time the drainage fields remain under the safety area;
- Supersaturating the subsurface, undermining the surrounding soil’s load bearing capacity.

We allow a temporary reduction in load bearing capacity due to natural precipitation. We will not allow artificial saturation of the subsoil to compromise the safety area’s load bearing capacity. If a drainage field Engineer is somehow able to provide documented evidence that the drainage field will not compromise the safety area’s load bearing capacity over the length of time the drainage fields remain under the safety area”. . . “this would be considered a nonstandard condition and not a Modification of Standards (MOS) in this case because the drainage fields were not federally funded. In addition, we will not approve MOS requests in any case that will diminish the safety area’s ability to perform its function”

The burden to show the ability to be standards compliant with this facility falls to the proposer here. We need to see a thorough proposal that will meet these requirements as well as the scrutiny of our geotech. We look forward to reviewing your responses and continuing the conversation.

**James Kirby, PE** | Senior Project Manager

Century West Engineering

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**From:** Aron Faegre <[faegre@earthlink.net](mailto:faegre@earthlink.net)>  
**Sent:** Tuesday, December 21, 2021 3:07 PM  
**To:** BEACH Anthony <[Anthony.BEACH@odav.oregon.gov](mailto:Anthony.BEACH@odav.oregon.gov)>; 'Michelle DaRosa' <[mdarosa@landandcondolaw.com](mailto:mdarosa@landandcondolaw.com)>; 'Tony Helbling' <[helbling@wilsonconst.com](mailto:helbling@wilsonconst.com)>  
**Cc:** STANSBURY Betty <[Betty.STANSBURY@odav.oregon.gov](mailto:Betty.STANSBURY@odav.oregon.gov)>; 'Ted Millar' <[tmillar@tlmholdingsllc.com](mailto:tmillar@tlmholdingsllc.com)>; 'Martha Meeker' <[meekerma92@msn.com](mailto:meekerma92@msn.com)>  
**Subject:** RE: HDSE drainfield expansion area at UAO

This message was sent from outside the organization. Treat attachments, links and requests with caution. Be conscious of the information you share if you respond.

Hi Tony,

Attached are the answers to your detailed questions. Does this provide the information you need to approve our proposal?

Aron

*Aron Faegre, AIA, PE, ASLA*

*Aron Faegre Architect*

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**From:** BEACH Anthony <[Anthony.BEACH@aviation.state.or.us](mailto:Anthony.BEACH@aviation.state.or.us)>  
**Sent:** Thursday, December 9, 2021 4:20 PM  
**To:** Michelle DaRosa <[mdarosa@landandcondolaw.com](mailto:mdarosa@landandcondolaw.com)>; Tony Helbling <[helbling@wilsonconst.com](mailto:helbling@wilsonconst.com)>  
**Cc:** STANSBURY Betty <[Betty.STANSBURY@aviation.state.or.us](mailto:Betty.STANSBURY@aviation.state.or.us)>; Ted Millar <[tmillar@tlmholdingsllc.com](mailto:tmillar@tlmholdingsllc.com)>; Aron Faegre - Aron Faegre & Associates ([faegre@earthlink.net](mailto:faegre@earthlink.net)) <[faegre@earthlink.net](mailto:faegre@earthlink.net)>; Martha Meeker ([MeekerMA92@msn.com](mailto:MeekerMA92@msn.com)) <[meekerma92@msn.com](mailto:meekerma92@msn.com)>  
**Subject:** RE: HDSE drainfield expansion area at UAO

Hi Michelle, thank you for your patience as we look into the information you have provided.

Our consultants have taken a first pass through the report along with their Geotech GRI, and they came up with the following list of questions/clarifications/additional information needed:

GRI requests the additional data listed below based on reviewing the November 8, 2021 report “Report of Geotechnical Engineering Services: Aurora State Airport Septic Drain Field Improvements for HDSE Sewer System.” [*HDSE drainfield expansion Geotech Study AronFA-2-01-110821-geor.pdf*]

- Field Data Collection
  - Date of soil sampling
  - Were any logs prepared to describe the bulk sampling results?
  - Was a sieve analysis and/or Atterberg Limits test performed to validate the Silt visual classification?
  - Was infiltration testing performed? If not, why?
- As-builts or other construction documents pertaining to the existing drain field
- Report references
  - Geoweb design procedure
  - Provide addition discussion on how the 6-inch geoweb, with 2/3 aggregate and 1/3 topsoil, replaces 12 inches of compacted soil.
  - Equivalent Single Wheel Load source
  - Source identifying the critical aircraft type
- Report figures
  - Figure A-1: graphic does not show up in the provided pdf
  - Figure A-2: graphic does not show up in the provided pdf
- “Such stringent compaction is not permitted in the soil cover of drain fields”
  - Where does this statement come from?

In addition to the list above, we will also need specifics on the proposed Geoweb reinforced drain field construction.

- Materials/Construction Proposed
  - What materials specification is to be used (ODOT, proprietary, etc.) for the aggregate?
  - What compaction specifications and test methods are proposed to achieve the proposed Geoweb strengths?
  - What compaction specifications and test methods are proposed for soil layers to be placed along with the Geoweb?
  - What subgrade compaction specifications and test methods are proposed for the expanded drain field areas?
  - What materials are proposed for use in the rest of the elements of the drain field system (pipes, manifolds, perf spec., etc.)?

Could you please provide this information so I may forward it to our consultants for review?

Thank you,

**Tony Beach**

**OREGON DEPARTMENT OF AVIATION**

STATE AIRPORTS MANAGER

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M-F 7:30am – 4pm

**From:** Michelle DaRosa <[mdarosa@landandcondolaw.com](mailto:mdarosa@landandcondolaw.com)>

**Sent:** Monday, November 15, 2021 3:51 PM

**To:** BEACH Anthony <[Anthony.BEACH@aviation.state.or.us](mailto:Anthony.BEACH@aviation.state.or.us)>; Tony Helbling <[helbling@wilsonconst.com](mailto:helbling@wilsonconst.com)>

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**Subject:** RE: HDSE drainfield expansion area at UAO

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Re-sending to include Ms. Martha Meeker.

**Michelle D. Da Rosa**

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**From:** Michelle DaRosa

**Sent:** Monday, November 15, 2021 3:25 PM

**To:** Tony Beach ([anthony.beach@aviation.state.or.us](mailto:anthony.beach@aviation.state.or.us))

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**Subject:** FW: HDSE drainfield expansion area at UAO

Dear Betty and Anthony,

This missive from me, in my capacity as the attorney for TLM Holdings LLC and from Tony Helbling, as a director of HDSE Sewer System Owners Association and Chairperson of the Southend Corporate Airpark Condominium Owners Association, requests that you (i) rescind your denial of HDSE's plans to expand the HDSE drainfield on UAO property, (ii) retract ODA's stated intention to not renew HDSE's drainfield lease in 2024, and (iii) issue an approval of the expansion plans as previously submitted earlier this year. The attached study and our explanations below respond to the concerns ODA cited as the reason for its decisions.

The denial of the proposed expansion was sent to me in the email from Anthony dated July 30, 2021 in the email string below. ODA's expansion denial and threat to terminate the drainfield located on the Aurora State Airport that serves HDSE users (all buildings at Southend) sent concerned shock-waves through the Southend Airpark community because of the vital importance of the drainfield to the HDSE Sewer System, and the HDSE Sewer System to the continued operation of all of the property at Southend. The threat to "not renew" was made notwithstanding that the Non-Commercial Site Lease provides HDSE with two 5-year options and that the Utility Easement recorded as Instrument No. 2020-00001957 on January 13, 2020 is perpetual.

The attached geotechnical study by NV5 (formerly known as GeoDesign), dated November 8, 2021 demonstrates through detailed soil analysis that the drainfield areas already are likely capable "under dry conditions, of supporting snow removal equipment, aircraft rescue and fire-fighting equipment, and the occasional passage of aircraft without causing damage to the aircraft" [AC 150/5300-13A, p. 61]. The area is also free of objects, is drained by grading and a perimeter drain system to avoid accumulation of water, and has no ruts, humps, depressions or other surface variations, as required by the FAA's design standards for RSA's.

We propose resolution of this issue by:

1. Making no changes to the existing drainfields as they have been in the RSA for around 20 years now, with no problems occurring, and the gravel filled drainfield trenches already demonstrating regular supporting of tractors for mowing and thus physically demonstrating meeting the RSA vehicle support requirements.
2. For the new expansion drainfields use the addition of the 6 inch geo-fabric in the top layer, which then results in gaining of 95% compaction (in fact with a 1.5 safety factor bearing capacity over that).



In addition, we note as mitigating factors that:

- To promote the functionality of Aurora Airport as a resiliency resource following a major earthquake, the septic system will allow the airport to seamlessly continue operation following an earthquake, whereas those airports relying on urban sanitary systems will generally require from one month to a year to become functional after the earthquake – thus the HDSE’s septic system is an advantage to promote at Aurora Airport.
- The existing and proposed drainfields are approximately 150 feet or more to the side of the runway centerline, and thus they are areas that are least likely to be needed for emergency use.
- Many existing areas of the RSA do not currently meet the 95% compaction requirement (as shown in the geotech study).

Sincerely yours,

**Tony Helbling**

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**From:** BEACH Anthony <[Anthony.BEACH@aviation.state.or.us](mailto:Anthony.BEACH@aviation.state.or.us)>

**Sent:** Friday, July 30, 2021 10:20 AM

**To:** Michelle DaRosa <[mdarosa@landandcondolaw.com](mailto:mdarosa@landandcondolaw.com)>

**Subject:** RE: HDSE drainfield expansion area at UAO

Good morning Ms. DaRosa,

I am writing to follow up on your request for 103,104 square feet of additional drain field and reserve area lease space at the Aurora State Airport. We understand your client, HDSE Sewer System Owners Association, already has 61,375 square feet of premises leased for a drain field, reserve area, and piping. We are also aware that the existing lease was entered into with a general understanding that additional space would be needed, and that additional space would be made available by the Oregon Department of Aviation. Though both drain field use and leasing within Runway Safety Areas are unusual in my experience, I have been working to honor that arrangement with the intent of accommodating the expansion.

In initiating the Pen and Ink change to our Airport Layout Plan for this expansion, some concerns were raised by the FAA regarding compatibility of drain fields and Runway Safety Areas (RSA). The RSA enhances the safety of aircraft which undershoot, overrun, or veer off the runway, and it provides greater accessibility for firefighting and rescue equipment during such incidents. There are four requirements that our RSAs must meet, those include being:

1. cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;
2. drained by grading or storm sewers to prevent water accumulation;

3. capable, under dry conditions, of supporting snow removal equipment, Aircraft Rescue and Fire Fighting (ARFF) equipment, and the occasional passage of aircraft without causing damage to the aircraft; and
4. free of objects, except for objects that need to be located in the RSA because of their function...

To address these concerns we closely evaluated the information you provided, and we analyzed what impacts, if any, a drain field would have on meeting the RSA's design standards. What we have found is that generally leach field soils are not compacted to the densities needed to support vehicle loads. The effluent from the waste stream has to be able to move into the pores of the soil around the drain tiles for the leach field to function. This increases the moisture content of the soils and further reduces their ability to support loads. At best, we are concerned that vehicle loading (including mowers) will reduce the porosity of the leach field soil (resulting in slower infiltration over time) or, at worst, cause damage to the shallow drain tiles and manifolds resulting in surface failures. It is our conclusion that drain fields in the RSA present a potential hazard to aircraft forced to roll out in the RSA. They are especially hazardous for heavier aircraft or those with higher tire pressures.

Due to the decreased soil strength and increased water accumulation caused by a drain field's function, we are unable to expand your client's drain field and reserve areas. Further, because the existing drain field and reserve area are not compatible within the RSA, we will not be able to renew the lease once the current term expires August 30th, 2024. At that time, all pipes and associated equipment will need to be removed by the Lessee, and the site will need to be returned to its original condition.

I am sorry I don't have a better answer for you, please let me know if you have any questions,

**Anthony Beach, C.M., ACE**

**OREGON DEPARTMENT OF  
AVIATION**

STATE AIRPORTS MANAGER

M-F 7:30am – 4pm



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