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November 9, 2022
Project No. 19-0557

Sultan School District #311
514 4th Street
Sultan, WA 98294

Attn: **Mr. Dan Chaplik**
Superintendent

Regarding: **Response to Review Comments**
Sultan Bus Barn
NEC of Cascade View Dr. & 329th Ave. SE
Sultan, WA

Dear Mr. Chaplik,

GeoTest Services, Inc. (GeoTest) previously provided engineering services for the proposed Sultan School District Bus Barn. GeoTest prepared a report titled *Final Geotechnical Engineering Report, Sultan Bus Barn, Cascade View Drive and 329th Avenue SE, Sultan, Washington 98249*, dated September 11, 2019. GeoTest provided a supplemental report titled *Supplemental Geotechnical Services, Sultan Bus Barn, NEC of Cascade View Dr. & 329th Ave. SE, Sultan, WA 98294*, dated March 8, 2021. GeoTest understands that these reports were used by the design team and referenced in submittal documents to the City of Sultan (City).

Post-Submittal Review Comments

On November 1, 2022, GeoTest was provided, via e-mail, a copy of review comments made by the City of Sultan. The intent of this letter is to respond to the comments made by the City that are relevant to the previously submitted Geotechnical documents or reports. In the sections below, GeoTest will first present the entirety of the review comment that is applicable to GeoTest's report or knowledge base and then respond to the comment.

The comments that are applicable to GeoTest are as follows:

Comment #2 – C2.0(SWPPP)

> "*Previous Comment: Please have geotechnical engineer revise the submitted e-mail for typo to indicate disturbance in setback is allowed.*"

GeoTest Response to Comment #2

On August 8, 2021, GeoTest sent over an e-mail that was intended to indicate that disturbance in a top-of-slope building setback per our Geotechnical Report was acceptable. The e-mail response was addressed to David Harmsen with Harmsen LLC and reads as follows:

> *David,*
>
> *We had an opportunity to review the Civil plan set and the photos you sent over. The vegetation in question is grass and blackberries…Not old growth forest or something that would require a dramatic shift away from the current site conditions. Thus, vegetation management and landscaping are unlikely to have negative impacts with regard to the slope. Thus, it is GeoTest's opinion that either the vault pad, the water line, or the planned fence line will be an issue with regard to our recommended setback if constructed as shown on the project documents.*

It was brought to GeoTest's attention that the word "either" was included in the e-mail when, in fact, the word "neither" was intended. The e-mail should have read "*Thus, it is GeoTest's opinion that neither the vault pad, the water line, or the planned fence line will be an issue with regard to our recommended setback if constructed as shown on the project documents*".

The intent of the e-mail was to definitively state that that the disturbance indicated in the submitted plan set was appropriate and did not conflict with the intent of the recommended setback. GeoTest has attached a copy of the e-mail with corrections to the text.

Comment #6 – C4.0 (Storm Drainage)

"*Per 5-12 of EDDS, bioretention facilities shall not be located within 200 feet of the top of an erosion hazard area or a landslide hazard area unless a geotechnical analysis shows that no slope instability will result. Please provide a geotechnical analysis supporting the bioretention facility location.*"

GeoTest Response to Comment #6

Based on the height and inclination of the slope to the east of the subject property, the horizontal separation between the bioretention facility and the top of slope condition is sufficient to not have impacts to the existing slope. Further, the Pilot Infiltration Test that was performed on the project site suggests an infiltration rate of the native soil that is more than 4 times larger than that of the treatment soil

that will be used within the bioretention facility. Knowing that bioretention facility design requires that the sizing of the facility is based on the layer that has the most restrictive infiltration rate (i.e, the treatment soil with an engineered infiltration rate of 3 inches per hour), it must be accepted that any water in the bioretention facility will drain out of the system significantly slower than the native soil's ability to accept these waters. Due to the native soil's high permeability, it makes it unlikely that water pressures would collect or develop in soils close to the slope such that it would affect slope stability. Please note that the native soil was assigned a corrected, design infiltration rate of 12.9 inches per hour based on the Pilot Infiltration Test.

Comment #7 – C4.1 (Storm Drainage)

"*Previous Comment: Per 5-4D of EDDS, minimum aggregate for infiltration trench is 1.5" diameter and maximum if 3", Gravel Backfill for Drains per WSDOT as called out on plans does not meet this requirement."*

GeoTest Response to Comment #7

It is GeoTest's opinion that the use of WSDOT 9-03.12(5) Gravel Backfill for Drywells, as indicated in the submitted plan set, is suitable for use in the planned infiltration trench provided that the specified material has a porosity that is greater than or equal to those drainage aggregate assumptions made by the Civil Engineer during the design phase. The sizing of the infiltration trench is more about the ability of a drainage aggregate to hold and store water than it is about the size of the aggregate. It is GeoTest's opinion that the reviewing agency can conditionally approve the use of Gravel Backfill for Drywells as a suitable aggregate material in the infiltration trench by requiring a material submittal that includes a verification of porosity prior to the start of construction.

The Civil Engineer used a porosity of 0.35 in their design, which is within normally assumed values for a clear, open-graded crushed rock product similar to WSDOT 9-03.12(5) Gravel Backfill for Drywells. GeoTest does not object to the use of Gravel Backfill for Drywells for the specified purpose.

Comment #8 – C4.1 (Storm Drainage)

"*Previous Comment: Per 5-14D of EDDS, geosynthetic shall surround all of the aggregate fill material except for the top one-foot, which is placed over the geosynthetic. Please revise infiltration trenches.*

GeoTest Response to Comment #8

Based on previous project experience, it is not recommended that geosynthetic fabric be placed under the aggregate fill material on the bottom of the infiltration trench. Rather, GeoTest recommends that the bottom of the infiltration trench be left open to facilitate drainage and that only the sides and top of the infiltration trench include geosynthetic fabric. The function of the fabric is to keep smaller-grained soil particles out of the infiltration trench. Placing fabric on the sides and on top of the drainage aggregate will accomplish that goal. Notably, water will be stored in the trench or drain (down) in a vertical direction. Thus, there is little risk of soil particles piping up into the drainage aggregate or otherwise fouling the drainage aggregate should the bottom of the facility be left open (i.e., not include a geosynthetic at the bottom of the trench).

A review of Civil Sheet C4.1, details 6 and 7 show the placement of the geosynthetic as expected and in general accordance with similar projects in the region.

Closure

We appreciate the opportunity to be of service to you on this project. If any questions should arise regarding this memorandum, please contact the undersigned.

Respectfully Submitted,
GeoTest Services, Inc.

Edwardo Garcia, P.E.
Geotechnical Department Manager

Attachment: August 8, 2021 e-mail. Modified by correcting a typo from original mailing.
October 31, 2022 City of Sultan Review Comments (2 pages)

Ed Garcia

From: Ed Garcia
Sent: Thursday, August 12, 2021 8:13 AM
To: David Harmsen
Cc: Tim Chylla
Subject: RE: Sultan SD Bus Facility

Should be "neither". The intent is to indicate that these elements at the referenced locations are appropriate and do not conflict with the intent of the recommended setback.

E.G. 2022.11.04

David,

We had an opportunity to review the Civil plan set and the photos you sent over. The vegetation in question is grass and blackberries…Not old growth forest or something that would require a dramatic shift away from the current site conditions. Thus, vegetation management and landscaping are unlikely to have negative impacts with regard to the slope. Thus, it is GeoTest's opinion that either the vault pad, the water line, or the planned fence line will be an issue with regard to our recommended setback if constructed as shown on the project documents.

Let me know if this e-mail is sufficient to address the City's comments.

Thanks!

Ed G.

Edwardo Garcia, P.E. (WA, ID) | Geotechnical Department Manager
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From: David Harmsen <davidh@harmsenllc.com>
Sent: Wednesday, August 11, 2021 2:06 PM
To: Ed Garcia <edg@geotest-inc.com>
Subject: Sultan SD Bus Facility

Ed,

The review comments we received back from the City indicated that the 40 foot slope setback is to be treated as a no-disturbance zone instead of the building setback we thought it was. They refer back to your geotechnical report.

We have minor clearing grading impacts in a portion of the setback for the placement of a water line, a vault pad for an emergency generator, and a chain link fence. These items would occur in the existing lawn area. See photos.

The area is now pasture grass that was lawn when mown. Then a section of blackberries. Not sure if this was lawn and they have crept in during the lack of summer maintenance. Then a tree line consisting of what appears to be decade old alder trees. The exterior fence would occur at the tree line and the waterline just into the blackberries.

Will this be an issue?

CITY OF SULTAN

October 31, 2022

Dan Chaplik
514 4th St
Sultan, WA 98294

Development Permit Application: First Review Letter on Resubmitted Civil Plans
File No(s). DEV21-001
Project Name: Sky Valley Transportation Co-Op Facility

Dear Mr. Chaplik,

The City of Sultan is in receipt of the Resubmitted preliminary permit application package dated originally submitted July 8, 2021 and the second submittal on for the Sky Valley Transportation Co-Op Facility located on Snohomish County tax parcel number 28083300302700 and 27080400200100; Township 28, Range 08, Section 33, Willamette Meridian (W.M.).

The following comments are being submitted after the first review by staff by our consulting engineers these comments need to be addressed prior to the pre con meeting on November 7th:

Civil Plans

General

1. **Previous Comment**: Per checklist plan sheet requirements, include the following:
    a. Existing easement dimensions for access easement.
    b. Please show and callout City cemetery maintenance equipment on plans. Area is not apparent.

C2.0 (SWPPP)

2. **Previous Comment:** Please have geotechnical engineer revise the submitted email for typo to indicate disturbance in setback is allowed.

C4.0 (Storm Drainage)

3. **Previous Comment:** Per 5-07 of EDDS, **all** catch basins and manholes must be per WSDOT standards, please indicate on the plans.

4. **Previous Comment:** Interceptor trench appears to act as an infiltration trench. Please size the infiltration trench accordingly using WWHM or guidelines set forth in BMP T5.10A and Figure V-4.2.
5. Please revise the bioretention cell detail to be in compliance with the EDDS and DOE manuals. Please include width.
6. Per 5-12 of EDDS, bioretention facilities shall not be located within 200 feet of the top of an erosion hazard area or a landslide hazard area unless a geotechnical analysis shows that no slope instability will result. Please provide a geotechnical analysis supporting the bioretention facility location.

C4.1 (Storm Drainage)

7. **Previous Comment:** Per 5-14D of EDDS, minimum aggregate for infiltration trench is 1.5" diameter and maximum if 3", Gravel Backfill for Drains per WSDOT as called out on plans does not meet this requirement.
8. **Previous Comment:** Per 5-14D of EDDS, geosynthetic shall surround all of the aggregate fill material except for the top one-foot, which is placed over the geosynthetic. Please revise infiltration trenches.

C5.0 (Grading & Paving)

9. **Previous Comment:** Section view of 329th Ave paving references section #2, dimensions are incorrect on section #2. Please revise reference.

Stormwater Report

10. **Previous Comment:** Frontage improvements do not appear to infiltrate through infiltration galleries and do not appear to be included in WWHM modeling to be shown as flow control exempt. Please provide exemption for frontage improvements.
11. The dimensions of the bioretention facility and the first gravel trench bed 1 do not match the dimensions shown on the plans. Please revise the plans for consistency or the WWHM calculations.

Please send the updated plan sheets that get corrected to nate.morgan@ci.sulran.wa.us as well as update them in the Mygov permit system. If you have any questions please give me a call at 360-793-2262.

Sincerely,

Nate Morgan
Public Works Director