

**Oregon Department of Transportation**

Delivery & Operations Division/

Engineering & Technical Services

7163 ­‑ Geotechnical Engineering,

Engineering Geology & Hazmat Section

4040 Fairview Industrial Dr SE, MS 6

Salem, Oregon 97302

Phone: (503) 986-3377

Fax: (XXX) XXX-XXXX

FILE CODE:

**DATE: Wednesday, November 22, 2023**

**TO:** Susan C. Ortiz, P.E., G.E.

State Geotechnical Engineer

**FROM: Curran Mohney Phone: (503) 508-3628**

**Engineering Geology Program Leader**

Oregon Department of Transportation

**SUBJECT: Proposed Revision to Geotechnical Design Manual**

**To Section Number** 4.3

**Problem Statement:**

Current GDM Section 4.3 references the AASHTO 1988 Manual on Subsurface Investigations for the base level of investigation.

[Provide a copy of the section being revised]

4.3 Exploration Plan Development

The Exploration Plan is a document that describes the subsurface investigation activities that will take place

to obtain the engineering properties required for geotechnical design. The objective of the Exploration Plan

is to:

•Assure that the sampling and testing carried out for the subsurface investigation thoroughly covers

each of the geologic units applicable to the geotechnical design.

•Verify that the maximum amount of information can be obtained from the fewest number of

borings or other higher-cost methods.

In order to achieve this, the plan must be updated and modified as exploration proceeds to make sure that

the number of samples taken, and tests performed in each unit provides enough numeric measurements of

each critical engineering property. The plan must also assure that information is collected throughout the

geologic unit to provide enough confidence to base the geotechnical design upon. In this regard, the

properties of a material at one end of a long alignment may not hold true for the other end, and a

geotechnical designer will not want to base all design parameters for that material on only one or a few

samples.

Subsurface investigation conducted during the project design phase must fully define the subsurface

conditions at a project site to meet the requirements of geotechnical design. The proper execution of the

Exploration Plan will assure that samples and tests are numerically adequate and distributed vertically and

laterally throughout each geologic unit, and that every important geologic unit at the site is discovered and

investigated to the maximum feasible extent. The Exploration Plan will also assure that the site investigation

is conducted in accordance with the standards of practice outlined in the 1988 AASHTO Manual on

Subsurface Investigations and augmented in this manual. These standards are further

subject to modification due to the variability of the site geology, sensitivity to potential changes, and risk or

potential impact.

Note:

Exploration Plans should be created, reviewed, and executed by an experienced engineering

geologist or geotechnical engineer.

The geotechnical designer should comprehensively evaluate the various methods and procedures for

subsurface exploration that are currently available to maximize the amount of information gathered while

reducing costs to the extent possible. The most common method for achieving this is to gain the most

information from the fewest number of borings.

Alternatively, various types of exploration methods may be used where practical in lieu of the more

expensive borings to realize those cost savings without compromising the necessary acquisition of

information.

**Proposal:**

GDM Section 4.3 should be revised to reflect adoption of the updated 2022 2nd edition of the AASHTO Manual on Subsurface Investigations.

[Provide a copy of the proposed revised language here]

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**Analysis / Research / Other Supporting Data:**

None

Attached:



**Geotechnical Engineering, Engineering Geology & HazMat Section Response:**

Accepted for consideration as submitted

Accepted for consideration as noted

Proposal tabled, see Remarks

Proposal not accepted, see Remarks

**Remarks:**

[Enter Remarks here]



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