

# Void and Water Flow Mitigation Rule Summary

Section 1.12.0 of the Environmental Criteria Manual, Item No. 658S of the Standard Specifications Manual, and Standard Details 658S-1 through 658S-7 of the Standard Details Manual

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## Effective date:

April 22, 2008

## Where is it applied?

City of Austin limits and ETJ.

## What does it apply to?

All excavations including utility trenches, ponds, tunnel shafts and others.

## Are there special requirements for projects located in the Recharge Zone of the Edwards Aquifer?

A Texas-licensed geologist (P.G.), "Geologist," or their designated representative, "Geologist's Representative," must inspect all trenching greater than 5 feet deep at least once daily. If applicable to a project, there will be a note on the cover sheet of the plan set. The Contractor is responsible for reporting all voids intercepted during excavation or trenching, in all other cases.



## Are there special requirements for projects located outside of the Recharge Zone of the Edwards Aquifer?

Yes, if there is a known spring or seep within 500 feet of the project, then the project requires trench inspection by a "Geologist" or "Geologist's Representative." A comment on the requirement will be made during project review by ERM staff that there is a spring or seep that triggers the inspection requirement and to place a note on the cover sheet of the plan set. This will alert the engineer, contractor, and owner to arrange for the geological inspection. This project, (shown on the left) located off of the Recharge Zone, was subject to the Geologist inspection provision due to trenching within 500 feet of 3 springs.

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## What if a void or water flow feature is found on a project not in the Recharge Zone?

The contractor must notify the Environmental Inspector, in accordance with the existing rule (Note 8 of Appendix P-1 of the Environmental Criteria Manual) that is included as a note on the site or construction plan. That note reads: "All work must stop if a void in the rock substrate is discovered which is; one square foot in total area; blows air from within the substrate and/or consistently receives water during any rain event. At this time it is the responsibility of the Project Manager to immediately contact a City of Austin Environmental Inspector for further investigation."

If the project is within the area regulated by the TCEQ under the Edwards Rules, then the owner or contractor must also notify the TCEQ Edwards Aquifer Protection Program staff.

If the project is within Karst Zones 1 or 2, as designated by the U.S. Fish and Wildlife Service (USFWS), then the owner or contractor must follow the USFWS Karst Survey Protocols or other permit-designated protocol.

## How are the owners notified that this rule is in effect?

Notification occurs during the plan review process when review comments require that the following note be placed on the cover sheet: "This site is subject to the Void and Water Flow Mitigation Rule (ECM 1.12.0 and COA Standard Specification Item No. 658S). All trenching greater than five (5) feet deep must be inspected by a licensed geologist (Texas P.G.) or a geologist's representative."



## What are my responsibilities as the Contractor?

The Contractor has to give 24-hour notice to the "Geologist" or "Geologist's Representative" that excavation will start. Also, the contractor must provide access to the vertical face of the trench prior to backfilling or covering the trench. Safety equipment such as trench shoring must be provided by the Contractor.

The Contractor must report all voids meeting the criteria. Mitigation measures on the project will be determined by the engineer and must meet COA criteria (and TCEQ, where applicable). This includes filling out the forms in Attachment A of Item No. 658S, providing exact location of the void and documenting materials and methods of mitigation measures. The Contractor submits this information to the Engineer. Construction of the mitigation cannot proceed without COA approval.

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## The geologist found a void. Now what?

The geologist must submit a report to the owner about the void size, geological characteristics, etc. The engineer uses this information to submit a site plan correction that uses one of the prescribed mitigation measures (Class II through V) or is specifically designed. Once the site plan correction is approved, the contractor may install the mitigation measure.

### GEOLOGIST VOID DESCRIPTION AND DOCUMENTATION LOG SHEET

City of Austin Site Plan No.: SPC-2016-9999

TCEQ EAPP ID No: \_\_\_\_\_

Inspection Date: 4/14/16

Latitude: 30.499600 OR

Longitude: -97.751000

Datum: NAD 83

Coordinate System & Units: WGS 1984

Trench Station ID: \_\_\_\_\_

Intercepted By: Backhoe Trencher Dozer

Size: 15 ft Length 5 ft Width 2 ft Height 150 ft<sup>3</sup> Volume

Extends into Rock: 4 ft

Project Name: Unity Park

Feature ID: Void KS22

Time: 12:12 p.m.

Easting: \_\_\_\_\_

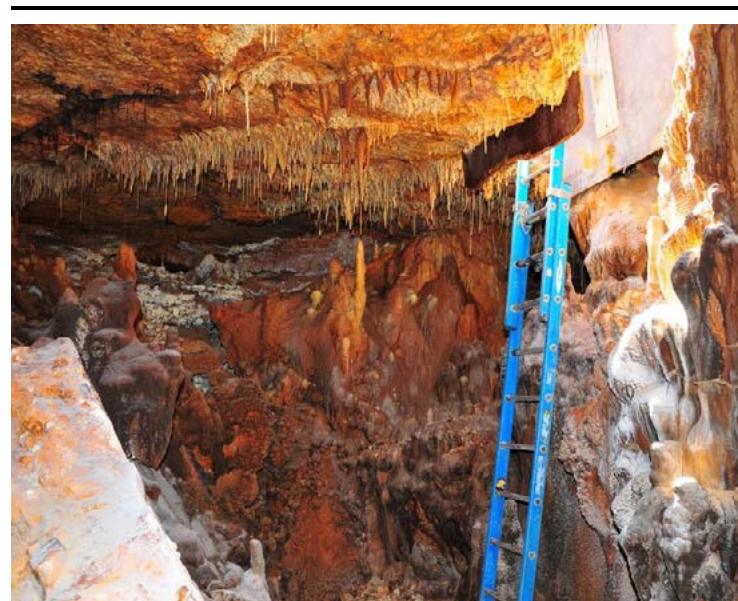
Northing: \_\_\_\_\_

Datum: \_\_\_\_\_

Coordinate System & Units: \_\_\_\_\_

Depth Below Surface: 18 ft

Drill Other



**The void is large. In fact, the shortest span width of the ceiling is greater than 10 feet. Are there additional requirements for investigation and mitigation design?**

Yes, as it's important to minimize the potential for future void collapse. The 2014 revision to the Void and Water Flow Mitigation Rule includes the requirement to provide a Cave Stability Analysis to demonstrate that the proposed mitigation will support the ceiling and walls of the void. An engineer must evaluate the competency of the rock and geometry of the void then model how the mitigation measures will sustain future traffic loads. Attachment B of the Rule describes the procedure.

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## Is my project shut down until the void is mitigated?

No. The trenching or excavation may resume 50 feet away from the subsurface footprint of the void.

## Is a site plan correction approval needed for each and every void mitigation?

No. For small (less than 18 cubic feet in volume) voids that are dry, biologically inactive and above the flow line of a utility pipe then the mitigation measure may be installed following a site meeting of the engineer, the geologist, the City of Austin environmental inspector and the City of Austin geologist (Item No. 658S.5,B9). The Environmental Inspector will issue a punch list that will require a site plan correction approval prior to the issuance of a Certificate of Occupancy on any private project or prior to a final walk-through on a subdivision project and prior to the issuance of the engineer's concurrence letter. If it is a General Permit project, then a member of that office must be at the meeting and agree with the proposed mitigation method.

In certain instances, the corrections are submitted informally to Watershed Protection Department and other affected departments prior to formal submittal to the Development Assistance Center (DAC). This typically occurs when large numbers of voids or very large voids are encountered or the mitigation occurs in phases.

## How long will it take to get a site plan correction approved?

It takes 2 days to 2 weeks after the engineer submits the correction. If the mitigation involves a water line or wastewater line, the Pipeline Engineering office of the Austin Water Utility must also review the proposed mitigation. This may delay the project slightly beyond the 2 weeks.

## The road/wastewater line/etc. has to be moved. Will this delay the site plan correction?

Yes. These are considered major changes and that triggers a site plan revision rather than correction. Site plan revision review is approximately 3 weeks.

## The TCEQ also wants a report. Will they require a different mitigation method?

The TCEQ and the City of Austin coordinate on all void mitigation projects. It isn't anticipated that different requirements would be imposed.

## The geologist has been inspecting the trenches. Who has to notify the City of Austin Environmental Inspector and the City of Austin Geologist?

The geologist must notify the City of Austin Geologist and the contractor must notify the Environmental Inspector.

## We're ready to install the void mitigation measures. Do we have to notify the City of Austin Environmental Inspector and the City of Austin Geologist?

Yes. Typically, 48 hours notification is requested. This is to allow time for us to reschedule other obligations in order for us to observe and photograph the mitigation. If COA staff notifies you that we can't attend, then we require that digital photos be taken and sent via email.

**The link to the online posting of the rules is:**  
[www.austintexas.gov/department/online-tools-resources](http://www.austintexas.gov/department/online-tools-resources)

From here, go to City Codes. ECM 1.12.0 is under Technical Manuals, Environmental Criteria Manual. COA SS Item No. 658S and the Details are under Standard Details and Specifications.