



<h1 style="margin: 0;">GEOTECHNICAL</h1> 	<p><i>Chapter</i></p> <p>PROJECT INITIATION</p>
	<p><i>Subject</i></p> <p>Planning Studies</p>

DATA TO BE INCLUDED:

The Division of Planning or others may request a preliminary geotechnical overview. This request should include:

- Ø County name
- Ø Project number
- Ø MARS (Management Administrative and Reporting System) number
- Ø Item number
- Ø Location and limits of project area or corridors on a topographic map (Scale 1 inch = 2,000 feet [1:24,000])
- Ø Class of proposed roadway
- Ø Project manager
- Ø Desired completion date
- Ø Aerial photographs, if available

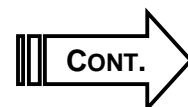
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<h1 style="margin: 0;">GEOTECHNICAL</h1> 	<i>Chapter</i> PROJECT INITIATION
	<i>Subject</i> Roadway Design Investigations

OVERVIEW: This section describes the data that should be included in a request for a geotechnical report. Submittals shall be made by the Division of Highway Design, the District Project Manager, or the design consultant after the preliminary line and grade have been approved.

ROADWAY DESIGN INVESTIGATIONS: The designer may request a geotechnical report for a proposed roadway project. This request should include:

- Ø County name, project number (MARS number), and item number
- Ø Project layout, location, and manuscript sheets
- Ø Location of proposed alignment on a topographic map (1 inch = 2,000 feet [1:24,000]) with stations indicated on maximum 1,000 feet (300 meters) intervals (**Exhibit 02**)
- Ø Datum (sea level/benchmark datum, or assumed datum)
- Ø Preliminary plan and profile sheets (half-size only; minimum of two sets)
- Ø Preliminary cross-section sheets (half-size only; minimum of two sets)
- Ø Property owner strip map (minimum of two sets)
- Ø Upon request, aerial photographs, if available
- Ø Design engineer or consultant responsible for the project




**ROADWAY DESIGN
INVESTIGATIONS
(cont.):**

- Ø Baseline profile sheets, showing groundline and gradeline, are to be used for developing the soil profile. It is required that all of the above be submitted electronically in Microstation format. The vertical and horizontal scales shall be 1 inch = 10 feet (1:120) and 1 inch = 100 feet (1:1,200), respectively, on English drawings or 1:100 and 1:1,000 on drawings with metric units. If approved by the Geotechnical Branch, the vertical and horizontal scales may be 1 inch = 5 feet (1:60) and 1 inch = 50 feet (1:600), respectively, on English drawings or 1:50 and 1:500 on drawings with metric units. (Refer to the *Highway Design Guidance Manual* for details concerning the preparation of the soil profile sheets.)

The District Branch Manager for Preconstruction shall notify the Division of Materials, Geotechnical Branch, of the estimated date when right-of-way plans are due in the Central Office and the milestone date for final joint inspection. The Geotechnical Branch shall arrange for a drill crew to perform the subsurface investigation. This may be a Geotechnical Branch drill crew, a district drill crew, or a prequalified drilling company.

The Geotechnical Branch will prepare a boring plan and, if necessary, schedule a preliminary meeting at the project site with the District Branch Manager for Preconstruction and the drill crew supervisor. The purpose will be to discuss the scope of work and the proposed boring plan. Drilling operations shall not begin prior to receiving an approved boring plan from the Geotechnical Branch.

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<p>GEOTECHNICAL</p> 	<p><i>Section</i></p> <p>STRUCTURAL FOUNDATION INVESTIGATIONS</p>
	<p><i>Subject</i></p> <p>Data for All Structural Investigations</p>

REQUESTING AN INVESTIGATION:

After the approval of the preliminary line and grade, the District Project Manager, the Division of Bridge Design, or, if applicable, the design consultant shall be responsible for submitting to the Geotechnical Branch a request for a structural foundation investigation. Such a request is to include certain data.

DATA TO BE SUBMITTED FOR ALL INVESTIGATIONS:


The following data shall be submitted with all requests for geotechnical investigations, regardless of the type of structure:

- Ø County name
- Ø Project number (including MARS number)
- Ø Road number and name
- Ø List of structures on project
- Ø Project manager responsible for project
- Ø Firm or agency responsible for staking boring locations
- Ø Item number
- Ø Type of datum used (sea level/benchmark datum, or assumed)
- Ø All drawings to be submitted electronically in Microstation format
- Ø Location on a 1 inch = 1,000 feet [1:24,000] topographic map

ADDITIONAL DATA FOR SPECIFIC TYPES OF STRUCTURES:

Other data to be submitted with requests for specific types of structures are listed in subsequent subjects. Submittals shall be within 10 days after preliminary line and grade have been approved for structure replacement projects.

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<h1 style="margin: 0;">GEOTECHNICAL</h1> 	<i>Section</i> STRUCTURAL FOUNDATION INVESTIGATIONS
	<i>Subject</i> Bridges

**ADDITIONAL DATA
FOR BRIDGE
FOUNDATION**

INVESTIGATIONS: A submittal for a bridge foundation investigation includes the data listed in **GT- 203-1**. In addition, the submittal includes:

- ∅ Plan and profile sheets showing structure with abutment and pier stations
- ∅ Plan view and natural scale profile view of proposed bridge showing normal pool and high-water elevations, if applicable
- ∅ Contour map showing project centerline, with stations and proposed substructure units, if available
- ∅ Estimated foundation loading, if available
- ∅ Scour analysis, if applicable, presented at each substructure location, as elevations rather than as depths
 - ◆ For bridges at wet crossings, if rock is known to be deep and deep foundations are anticipated, a scour analysis is required.
 - ◆ If rock is shallow and spread footings are anticipated, a scour analysis is not required.
 - ◆ If subsurface investigation subsequently indicates a possibility that piles will be used or that footings might be placed on scourable bedrock, the bridge designer will be informed that a scour analysis is required and that the final report will not be issued until this information is received.
 - ◆ If subsurface investigation indicates footings are to be placed on nonscourable bedrock, scour analysis is not required.

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<p>GEOTECHNICAL</p> 	<p><i>Section</i></p> <p>STRUCTURAL FOUNDATION INVESTIGATIONS</p>
	<p><i>Subject</i></p> <p>Culverts</p>


**ADDITIONAL DATA
FOR CULVERT
FOUNDATION**

INVESTIGATIONS: A submittal for a culvert foundation investigation includes the data listed in **GT-203-1**. In addition, the submittal includes:

- ∅ Natural scale section along the centerline of the culvert showing:
 - ◆ Roadway grade
 - ◆ Fill slopes
 - ◆ Existing and proposed profiles (including inlet and outlet elevations)
 - ◆ Flowline
- ∅ Contour map with project centerline with stations and structure baseline, if available
- ∅ Plan sheet showing structure location
- ∅ Cross-sections in area of culvert

PIPE CULVERTS: The roadway designer may request subsurface investigations for pipe culverts whenever the fill height at the pipe location, the depth of the foundation soils, or the size of the pipe is sufficient to indicate the possible development of settlement or stability problems. Submittals for pipe culvert investigations shall be the same as above.

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<p>GEOTECHNICAL</p> 	<p><i>Section</i></p> <p>STRUCTURAL FOUNDATION INVESTIGATIONS</p>
	<p><i>Subject</i></p> <p>Retaining Walls</p>

**ADDITIONAL DATA
FOR RETAINING WALL
FOUNDATION**

INVESTIGATIONS : A submittal for a retaining wall foundation investigation includes all data listed in **GT-203-1**. In addition, the submittal includes:

- Ø Wall profile showing existing groundline, low-side finished grade, high-side finished grade, and top of wall
- Ø Cross-sections showing the proposed wall, backslope, and foreslope, every 20 feet (6 meters) along the wall
- Ø Plan sheet showing the proposed wall
- Ø Contour map showing project centerline and stations

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<p>GEOTECHNICAL</p> 	<p><i>Section</i></p> <p>STRUCTURAL FOUNDATION INVESTIGATIONS</p>
	<p><i>Subject</i></p> <p>Noise Barrier Walls</p>

**ADDITIONAL DATA
FOR NOISE
BARRIER WALL
FOUNDATION**

INVESTIGATIONS: A submittal for a noise barrier wall foundation investigation includes all data listed in **GT-203-1**. In addition, the submittal includes:

- ∅ Wall profile showing existing groundline and finished grade, including proposed top and bottom of wall
- ∅ Centerline cross-sections, every 50 feet (15 meters), showing the proposed wall
- ∅ Plan sheet showing the proposed wall
- ∅ Contour map showing project centerline and stations


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<p>GEOTECHNICAL</p> 	<p><i>Section</i></p> <p style="text-align: center;">MAINTENANCE INVESTIGATIONS</p>
	<p><i>Subject</i></p> <p style="text-align: center;">Landslides</p>

POLICY:


A request for the Geotechnical Branch to conduct a preliminary investigation of a landslide shall originate from the Chief District Engineer or from the Director of the Division of Maintenance. If necessary, the requesting party will provide surveying and utility locations and obtain right of entry. The Division of Maintenance will be responsible for obtaining the necessary funds if a comprehensive geotechnical investigation is required. Total funding shall include expenses for surveying, drilling, aerial photography, traffic control, etc. The Geotechnical Branch should be contacted for input on the funds necessary for a geotechnical investigation.

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<p>GEOTECHNICAL</p> 	<p><i>Section</i></p> <p>MAINTENANCE INVESTIGATIONS</p>
	<p><i>Subject</i></p> <p>Unstable Rock Slopes</p>


POLICY: Requests for the Geotechnical Branch to conduct a preliminary investigation of an unstable rock slope shall originate from the Chief District Engineer or from the Director of the Division of Maintenance. If necessary, the requesting party will provide surveying and utility locations and obtain right of entry. The Division of Maintenance will be responsible for obtaining the necessary funds if a comprehensive geotechnical investigation is required. Total funding shall include expenses for surveying, drilling, aerial photography, traffic control, etc. The Geotechnical Branch should be contacted for input on the funds necessary for geotechnical investigations.

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GEOTECHNICAL 	<i>Section</i> CONSTRUCTION INVESTIGATIONS
	<i>Subject</i> Landslides


POLICY: A geotechnical investigation for a landslide that occurs on a construction project shall be conducted at the request of the District Branch Manager for Construction or the Project Engineer. If necessary, the requesting party will provide surveying and utility locations and obtain right of entry.

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GEOTECHNICAL 	<i>Section</i> CONSTRUCTION INVESTIGATIONS
	<i>Subject</i> Rock Cuts

POLICY: A geotechnical investigation necessary to revise a rock-cut slope on a construction project shall be conducted at the request of the District Branch Manager for Construction or the Project Engineer. If necessary, the requesting party will provide surveying and utility locations and obtain right of entry.

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<h1 style="margin: 0;">GEOTECHNICAL</h1> 	<p><i>Section</i></p> <p style="text-align: center;">CONSTRUCTION INVESTIGATIONS</p>
	<p><i>Subject</i></p> <p style="text-align: center;">Excess Material Sites</p>

POLICY: The Geotechnical Branch will review the contractor's excess material site proposals upon request of the District Branch Manager for Construction or Project Engineer. All excess material sites meeting any of the conditions specified in the Transportation Cabinet's *Construction Guidance Manual*, **Section 63-07**, shall be considered for investigation. Proposals shall include the following:

- Ø Topographic map (1 inch = 2,000 feet [1:24,000]) showing the limits of the proposed excess material site
- Ø Profiles and cross-sections showing the natural groundline, proposed template, proposed benching, drainage, etc.
- Ø Recommendations for lift thickness, type of material, compaction requirements, etc.


It shall be the contractor's responsibility to engage a prequalified geotechnical engineering consultant, approved by the department, when a geotechnical investigation is required. The department will pay for the geotechnical investigation and analysis of the proposed excess material site when the Project Engineer requests one (see **Section 204** of the *Standard Specifications for Road and Bridge Construction*, current edition). The consultant shall prepare a plan consisting of the proposed borings, plotted on cross-sections, with a discussion of any analysis necessary, and submit it to the Geotechnical Branch for review. Subsurface investigations shall not begin without approval from the Geotechnical Branch.

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GEOTECHNICAL 	<i>Section</i> CONSTRUCTION INVESTIGATIONS
	<i>Subject</i> Subgrade Stabilization


POLICY: The Geotechnical Branch will conduct investigations of subgrades upon request of the District Branch Manager for Construction or the Project Engineer.

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<p>GEOTECHNICAL</p> 	<p><i>Section</i></p> <p>CONSTRUCTION INVESTIGATIONS</p>
	<p><i>Subject</i></p> <p>Field Instrumentation</p>

POLICY: The District Branch Manager for Construction or the Project Engineer (not the contractor) shall notify the Geotechnical Branch or the geotechnical consultant (if applicable) when the contractor is ready for any instrumentation to be installed. Plan notes shall specify the time necessary for installation from time of notification.

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<p>GEOTECHNICAL</p> 	<p><i>Section</i></p> <p>PERMITS</p>
	<p><i>Subject</i></p> <p>Right-of-Way Encroachment</p>

POLICY: The Permits Branch may request that the Geotechnical Branch review right-of-way encroachment permits and offer comments and recommendations.

Requests for review of a right-of-way encroachment permit should include:

- Ø County name and project number (MARS number), if applicable
- Ø Location of proposed encroachment on a topographic map (1 inch = 2,000 feet [1:24,000])
- Ø Any plan, manuscript, or cross-section sheets showing proposed encroachment
- Ø Any subsurface information obtained or geotechnical report prepared for proposed encroachment
- Ø Any construction procedures to be followed

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<h1 style="margin: 0;">GEOTECHNICAL</h1> 	<p><i>Section</i></p> <p>PERMITS</p>
	<p><i>Subject</i></p> <p>Mining Encroachment</p>

POLICY: The Permits Branch may request that the Geotechnical Branch review mining encroachment permits and offer comments and recommendations.

Requests for review of a proposed mining encroachment permit should include:

- Ø Topographic map (1 inch = 2,000 feet [1:24,000]) showing proposed mine crossing
- Ø Mine production map with crossings and surface features indicated
- Ø Name, elevation, and thickness of coal seam
- Ø Drill logs of borings through the coal seam and rock profiles in the vicinity of crossings
- Ø Proposed mining method
- Ø Sizes of entries, crosscuts, and pillars if room-and-pillar method is proposed
- Ø Secondary recovery plans for the area
- Ø Problems with water or ground control
- Ø Planned subsidence control measures
- Ø Names and/or owners of other known mines in the area

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