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## Chapter 2

# GEOTECHNICAL SECTION COORDINATION

The administration and management of the MDT Geotechnical Program requires coordination with many other internal MDT units and with entities external to MDT. Proper communication between the Geotechnical Section and the other MDT offices throughout the project development process and during construction is essential to the success of the Geotechnical Program. The Geotechnical Section must be an active member of the design team. Early and continuous communication between the Geotechnical Section and MDT units within Preconstruction and Construction to identify the impacts of the geotechnical design features will yield the best project design.

Chapter 2 discusses the coordination between the Geotechnical Section and others. Where appropriate, Chapter 2 references other Chapters in the *MDT Geotechnical Manual* for more detailed information.

### 2.1 MDT COORDINATION

#### 2.1.1 District Offices

The following discusses Geotechnical Section coordination with various units in the Districts:

1. General. Data may be obtained from the District relative to nearby projects, special concerns, landslides, etc., that may assist the Geotechnical Section with the field investigation. In addition, the data received from the field investigation may be used by the District for nearby construction and/or maintenance operations. [Chapter 8](#) provides additional guidance on subsurface investigations.
2. District Laboratories. The primary responsibility of the District Laboratories is to conduct lab tests as part of the Soil Survey used for pavement design and to test soils during construction. Information collected from these tests includes the following data:
  - soil classification (based on the AASHTO system),
  - specific gravity,
  - Atterberg limits, and
  - Proctor compaction (optimum moisture content and maximum dry density).

Under some conditions, the District Lab may not have the experience or equipment to analyze the soil sample (e.g., testing soils for R-Values). In these situations, the District Lab will provide the Geotechnical Section or Physical Test Section with the soil sample for testing. Increased communication between the District Laboratory and the Geotechnical Section regarding the Soil Survey may improve the effectiveness of both the Survey and the geotechnical subsurface investigation. By outlining areas of concern in the preliminary stages of a project, the Soil Survey can be used to supplement the preliminary subsurface investigation. Alternatively, the Soil Survey may identify potential areas of concern that, if communicated to the Geotechnical Section, can be addressed

in design or by further investigation. Although the District equipment used to conduct Soil Surveys has inherent limitations, these limitations can be minimized with proper interaction between the District Laboratory and the Geotechnical Section.

3. District Field Survey. Field surveys are conducted following the completion of the field work to identify the exploration location. Where accuracy of the exploration location is critical, the project geotechnical specialist may request that the District Survey mark the exploration locations prior to drilling.
4. District Maintenance. Prior to a field exploration and dependent upon project requirements, the Field Investigations Unit Supervisor and project geotechnical specialist may need to coordinate with District Maintenance to:
  - discuss the planned location, scope and schedule for the exploration work;
  - identify nearby features that could change the subsurface exploration plans (e.g., nearby sink holes, landfills, unstable slopes);
  - arrange for other logistical support (e.g., access to site); and/or
  - review previous construction and operational performance in the area if available.

If significant site damage occurred within the right-of-way (e.g., rutting) or there is need to remove the access point, the project geotechnical specialist or field supervisor may request District Maintenance to repair the damage. District Maintenance may also be requested to assist with the closure of the borehole and cleanup of the site.

5. District Right-of-Way. Prior to the subsurface investigation, the project geotechnical specialist may request that District Right-of-Way contact the owner to obtain the Right-of-Entry Form.
6. District Traffic. Where necessary, the project geotechnical specialist may request assistance from the District Traffic Section to develop a traffic control plan for the field investigation.
7. District Construction. The Geotechnical Section has significant interaction with District Construction. Section 2.1.2 discusses this coordination.

### **2.1.2 MDT Construction Program**

The MDT Construction Program is administered by:

- Headquarters Bureaus, which provide the overall management and support for the Program (e.g., setting MDT policies and practices, technical support services for materials and geotechnical work, computer system applications, budgeting);
- District Construction, which provides the District Office support for the field construction personnel (e.g., construction project staffing, materials testing); and

- field construction crews, who are on-site at construction projects and provide the MDT field services necessary for construction (e.g., inspection, materials samples, surveying).

### 2.1.2.1 Field Construction Personnel

The geotechnical engineering design work performed by the Geotechnical Section is predicated on subsurface investigations that, by their nature, are based on accepted sampling techniques and laboratory analyses. Geotechnical engineers realize that actual field conditions encountered during construction may differ from what was anticipated from field and laboratory evaluations. Therefore, the Geotechnical Section devotes a significant portion of its resources assisting the MDT field construction personnel in the MDT Construction Program to resolve problems that arise during construction. It is essential that the Project Manager and the project geotechnical specialist develop and maintain good dialogue whenever field support is required.

Chapter 22 provides a detailed discussion on the Geotechnical Section's involvement in Construction. The following summarizes the Section's involvement:

1. Communication Protocol. During construction, the Geotechnical Section serves as a "technical advisor" to the Project Manager, and all communication in the field must go through the Project Manager. Chapter 22 discusses the proper communications protocol in more detail.
2. Troubleshooting. The Geotechnical Section is frequently contacted on an as-needed basis by the Project Manager to assist with geotechnical-related problems encountered in the field (e.g., soft subgrade, equipment not operating properly within geotechnical elements).
3. Contract Changes. If there are contractor claims, change order request or value engineering proposals, the Project Manager may contact the Geotechnical Section for guidance on the geotechnical issues.
4. Subgrades. The Geotechnical Section, on a routine basis, advises the Project Manager on issues related to subgrades, including:
  - modified/stabilized soils,
  - unsuitable soils,
  - soft subgrade materials,
  - shrink/swell, and
  - groundwater.

The Geotechnical Section is also sometimes involved in the interpretation of field testing on subgrades (e.g., nuclear density, Proctor, gradation, in-situ moisture) and, where appropriate, selecting a course of corrective action.

5. Embankments. On an as-needed basis, the Geotechnical Section will spot-check activities related to the construction of embankments (e.g., benching, field tests, material suitability, shrink/swell, compaction, density control). Geotechnical personnel may field inspect embankment placement with respect to the correctness of the contractor's work.

6. Backfill Around Structures. The Geotechnical Section provides assistance and advice to field construction personnel on the acceptability of backfill materials and their placement around structures.
7. Driven Piles. The Geotechnical Section works with field construction personnel during pile driving operations in regard to:
  - ensuring adequate pile capacity and tip elevation,
  - pile load testing,
  - PDA test results and pile driving log evaluation, and
  - pile hammer acceptance (before driving pile).
8. Drilled Shafts. Through a special provision, the contract usually requires that representatives of the Geotechnical Section be on-site during certain critical phases of drilled shaft construction to:
  - observe conditions during drilling,
  - judge the acceptability of the actual soils exposed after excavation,
  - check conditions at the bottom of the drilled shaft excavation, and
  - conduct static capacity tests (if performed).
9. Shallow Footings. The special provisions generally require the Geotechnical Section to observe footing excavations to ensure that the bearing soils have adequate capacity.
10. Rock Excavation. Often, the Project Manager requests a Geotechnical Section inspection after rock has been blasted to, for example, check the stability of the rock slope. The Geotechnical Section will also review and comment on the contractor's Rock Blasting Plan.
11. Field Instrumentation. For MDT-designed projects, the Geotechnical Section is responsible for monitoring foundation performance during construction (e.g., settlements, lateral displacements, pore water pressure beneath embankments). [Chapter 11](#) provides guidance on geotechnical field instrumentation.
12. Retaining Structures. The Geotechnical Section may review and comment on contractor submittals, and specifying and reviewing testing required for anchored and soil nail walls. The Geotechnical Section may support other types of wall construction where the Project Manager determines that the wall construction is not consistent with the contract documents.

### 2.1.2.2 Contract Plans Bureau

The following summarizes the coordination between the Geotechnical Section and Contract Plans Bureau:

1. Contract Plan Review. The Contract Plans Bureau develops a "blue-sheet" mark-up of the Contract plans for distribution, review and comment. The Geotechnical Section receives the blue-line markup from the Bureau. If necessary, the Bureau will issue Addenda to the final Contract Plans and changes the blue sheets before final plans.

2. Special Provisions. The Geotechnical Section submits any geotechnical-related special provisions to the Road Design Section or Bridge Bureau, which are then transferred to the Contract Plans Bureau as part of the PS&E package.
3. Log of Borings. The Geotechnical Section provides an electronic file (i.e., PDF format) of the log of borings to the Contract Plans Bureau for inclusion in the PS&E package.
4. Advertisement Period. After construction project advertisement, the Geotechnical Section responds to any questions or comments from prospective bidders on geotechnical-related issues. This process is administered by the Contract Plans Bureau.

#### **2.1.2.3 Construction Administration Services Bureau**

The Geotechnical Section's primary coordination with the Construction Administration Services Bureau is with the Specifications Section. The primary responsibility of the Specifications Section is for the preparation of:

- the *MDT Standard Specifications for Road and Bridge Construction*,
- Supplemental Specifications, and
- special provisions.

The Specifications Section seeks review and comment from the Geotechnical Section for any geotechnical-related provisions for all of the above.

#### **2.1.2.4 Construction Engineering Services Bureau**

[Section 2.1.2.1](#) discusses the Geotechnical's Section's involvement with field construction personnel. Typically, the Construction Engineering Services Bureau is involved in developing traffic control plans and the identification and resolution of any geotechnical-related construction issues. More specifically, the Bureau manages the administrative functions related to construction activities, including:

- change orders;
- value analysis/value engineering proposals;
- claims; and
- any project-related reports, memoranda, documents, etc.

Where any of these involve geotechnical issues, the Bureau will coordinate with the Geotechnical Section.

#### **2.1.2.5 Physical Test Section**

The Physical Test Section is responsible for:

- conducting the various index tests (e.g., grain size, Atterberg limits, asphalt, chemical tests) for field samples collected by the Geotechnical Section;

- performing laboratory testing of all materials required for construction (e.g., geosynthetics);
- performing R-value laboratory testing of materials provided by the District;
- conducting lab inspections; and
- maintaining the *Materials Manual*.

For additional guidance on material testing, see [Chapter 10](#).

The subsurface investigation, lab testing and design of a pavement structure are a collaborative effort between the District, Geotechnical Section, Physical Test Section and Pavement Analysis Section. [Chapter 14](#) discusses the respective responsibilities in detail.

### **2.1.2.6 Pavement Analysis Section**

Design of a pavement structure from the subgrade up is performed by Pavement Analysis Section. The Geotechnical Section is not usually involved unless requested.

## **2.1.3 MDT Preconstruction Program**

### **2.1.3.1 Road Design Section**

For Road Design lead projects, the Road Design Section will invite the Geotechnical Section to attend the project Preliminary Field Review. The Geotechnical Section will prepare the Geotechnical portion of the Preliminary Field Review Report (e.g., embankment slopes, rock cuts, earth-retaining structures) and submit it to the Road Design Section for incorporation into the overall Preliminary Field Review Report.

Where applicable, the Geotechnical Section will prepare a Geotechnical Report for roadway projects. The Report presents the soil and rock types, bearing capacities, settlements, slope recommendations, rock cut recommendations, muck excavation, subdrainage needs, erosion control strategies, etc. The Road Design Section comments on the Geotechnical Report and works with the Geotechnical Section to resolve any conflicts.

The Road Design Section will usually request the Geotechnical Section to attend the Alignment and Grade Review Meeting to discuss how the geotechnical issues may affect the alignment and grades (e.g., embankment heights, right-of-way restrictions). The road designer incorporates the geotechnical recommendations into the road design plans (e.g., alignment, grades, fill heights). During the Plan-in-Hand Review, the project geotechnical specialist checks the plans to ensure the required information is accurately presented in the plans. For additional guidance on embankments and slopes, see [Chapter 15](#).

For all permanent earth retaining systems, the Road Design Section (in coordination with the Geotechnical Section) determines the height and location of the wall, while the Geotechnical Section selects the wall type. In essence, this determination involves a trade-off between the

height of the wall and the steepness of the roadway slope. For additional guidance, see [Chapter 17](#).

### **2.1.3.2 Hydraulics Section**

For bridge crossings over or reinforced walls near flowing water, the Geotechnical Section will coordinate with the Hydraulics Section to determine realistic scour depths. The Geotechnical Section evaluates the soil type, gradation, rock type, depth to rock, competency of bedrock, etc. The Hydraulics Section evaluates the scour potential based on the information provided by the Geotechnical Section and estimates potential scour depths. Based on information obtained from the Hydraulics Section, the Geotechnical Section may make recommendations in the Geotechnical Report pertaining to scour.

For projects where scour protection is required along the river or stream banks, or around in-water foundations, the project geotechnical specialist works closely with the Hydraulics Section to identify the most appropriate scour protection system. The project geotechnical specialist will often establish the bedding and filter requirements for these systems.

The Geotechnical Section also assists the Hydraulics Section in:

- geotechnical-related issues (e.g., culvert foundation, undercut) for the design of a culvert;
- erosion protection;
- geosynthetic selection; and
- determining if an embankment or cut slope would encroach on or be inundated by flowing water.

### **2.1.3.3 Photogrammetry and Survey Section**

The Photogrammetry and Survey Section, in combination with the District field survey crews, is responsible for all surveying needs required for the Department's program of projects. This coordination is performed with the District survey personnel.

If during design the location for piers, abutments, walls or structures has significantly changed, the Geotechnical Section may need to conduct additional investigations at the new sites. These additional sites should again be surveyed after the exploration has been completed.

### **2.1.3.4 Bridge Bureau**

The following summarizes the coordination between the Geotechnical Section and Bridge Bureau:

1. Geotechnical Report. The Geotechnical Section prepares a Geotechnical Report for all new bridge projects. Based on subsurface investigation, lab testing and analyses, the

Report presents the soil and rock types, bearing capacities and foundation recommendations. The Bridge Bureau comments on the Geotechnical Report and works with the Geotechnical Section to resolve any conflicts.

The bridge designer incorporates the relevant geotechnical information into the bridge design plans. More specifically, the bridge designer prepares the Log of Borings Detail for the Foundation Plan Sheet. The information from the Geotechnical Report is transferred to the Sheet in a form suitable for the construction plans. The information includes the borehole location and number, elevations and number of blows from Standard Penetration Tests. A full set of the log of borings is included in the special provisions.

2. Foundation Type and Design. The foundation type may be a spread footing, pile or drilled shaft. The selection of the foundation type is a collaborative effort between the Bridge Bureau and Geotechnical Section based on the Geotechnical Report, expected superstructure type, scour potential, etc. The Bridge Bureau provides the Geotechnical Section with the applicable loads and a preliminary bridge foundation type and layout. [Chapter 16](#) discusses, in detail, the collaboration between the Geotechnical Section and Bridge Bureau on the selection and design of foundations. In summary, the coordination works as follows:
  - a. Driven Piles. The Geotechnical Section recommends the use of piles and selects the pile type. The project geotechnical specialist provides the Bridge Bureau with the lateral deflections for the given lateral loads, resistance factors for each limit state, nominal axial capacity, settlement for the service limit state, design pile tip elevations and required capacity during driving.
  - b. Spread Footings. The Geotechnical Section determines whether the use of spread footings is appropriate. The project geotechnical specialist provides the Bridge Bureau with appropriate resistance factors for each limit state, nominal footing bearing capacity, settlements for the Service Limit State and base footing elevations.
  - c. Drilled Shafts. Where proposed by the Bridge Bureau, the Geotechnical Section evaluates the use of drilled shafts and provides the Bridge Bureau with the resistance factors for each limit state, nominal axial capacities for different shaft diameters, settlement for the Service Limit State, lateral load versus deflections, and shaft length and diameter.
  - d. Redesign. When a redesign of a foundation is required, the Bridge Bureau should resubmit the redesign information (e.g., new foundation layout, sizes, foundation load combinations) to the Geotechnical Section. The project geotechnical specialist will analyze the new foundation and resubmit the necessary information to the Bridge Bureau.

Once the foundation type and basic dimensions are selected, the Bridge Bureau performs the structural design of the foundation.

3. Scour. For hydraulic scour evaluations at existing bridges, the Hydraulics Section, Geotechnical Section and Bridge Bureau participate in an interdisciplinary team to

evaluate the existing foundation design and to determine if any corrective actions are warranted.

4. **Earth Retaining Systems.** The role of Bridge Bureau will depend on the type of wall:
  - a. **Cast-in-Place (CIP) Concrete Walls.** Based on the allowable bearing capacity, expected settlement and earth pressures provided by the Geotechnical Section, the Bridge Bureau performs the structural stability design for the wall (e.g., size and spacing of reinforcing steel). The Bridge Bureau also performs the overturning, sliding and bearing checks. See [Chapter 17](#) for additional guidance.
  - b. **MSE, Gabion or Modular Block Walls.** The Bridge Bureau has minimal involvement in the design of these walls. However, during construction, the Bridge Bureau may review the contractor's submittals for walls that have structural facing.
  - c. **Soil Nail Walls.** The Bridge Bureau will normally design the reinforcing for the structural facing of the wall.
5. **Seismic Design.** The Geotechnical Section provides the Bridge Bureau with the expected ground motions, site amplification/deamplification factors, potential for active faults and expected geologic hazards. The Bridge Bureau evaluates the response of bridge structures, retaining walls and other structural facilities to the seismic load.

#### **2.1.3.5 Consultant Design Bureau**

The coordination between the Geotechnical Section and Consultant Design Bureau depends on the type of consultant project:

1. **Term Contracts.** Term contracts are used by the Geotechnical Section for in-house designed projects where there is inadequate staff available to complete a project by the scheduled date. For term contracts, the Geotechnical Section coordinates with the Consultant Design Bureau in:
  - selecting which firms qualify for the on-call lists,
  - determining and justifying the need for consultant services,
  - developing the scope of work for term assignments,
  - evaluating the consultant's cost estimate,
  - selecting a prequalified geotechnical consultant for a term assignment,
  - negotiating the term assignment,
  - administering the contract, and
  - monitoring and evaluating the consultant.

In general, the Geotechnical Section is the focal point for Term contracts for contract negotiations and contract administration for all non-contract project issues. The Consultant Design Bureau manages all contract issues (e.g., invoices, overhead rates, time extensions).

2. Full Consultant Design Project. The applicable MDT engineering unit is responsible for coordinating with the Consultant Design Bureau on any technical aspects of consultant-designed projects administered as a Regular Project. Therefore, the Geotechnical Section is responsible for reviewing any geotechnical issues within a consultant contract as part of an overall road or bridge design project. The following summarizes the Geotechnical Section's coordination with the Consultant Design Bureau on a Regular Project:

- determining the scope of work for geotechnical-related items;
- working with the consultant on an as-needed basis;
- attending field meetings as required to provide input to the consultant for the preparation of the Preliminary Field Review, Scope of Work and Plan-in-Hand Reports;
- reviewing all work performed by the geotechnical consultant to ensure that it meets the applicable Department criteria;
- assisting the Consultant Design Bureau with the performance evaluation; and
- in general, providing any needed technical support to the Consultant Design Bureau in the implementation of its responsibilities.

See [Chapter 3](#) for additional information on consultant contracts.

#### **2.1.3.6 Environmental Services Bureau**

The Geotechnical Section typically coordinates with the Environmental Services Bureau during the subsurface investigation phase (see [Chapter 8](#)) and provides comments on Environmental Assessment (EA) or Environmental Impact Statement (EIS) documents. Coordination with the Environmental Services Bureau generally consists of the following:

1. Resources Section. Where it is known or expected that a permit is required for drilling, the project geotechnical specialist will request that the District Biologist within the Resources Section obtain the necessary permits (e.g., SPA, Section 404) from the Montana Department of Natural Resources and Conservation; Montana Department of Fish, Wildlife and Parks; Montana Department of Environmental Quality; US Army Corps of Engineers; etc. This request is typically part of the Drill Request Memorandum submitted to the Field Investigation Unit Supervisor and Environmental Services Bureau.

The Resources Section may also coordinate with the Geotechnical Section to determine the soil permeability, soil identification for wetland mitigation, ground water verification and monitoring, embankment locations near wetlands or other environmentally sensitive areas, walls in or adjacent to wetlands or other environmentally sensitive areas, etc.

2. Hazardous Waste Section. Prior to drilling, the Geotechnical Section may request the Hazardous Waste Section to identify any known or expected hazardous waste sites. If hazardous materials are found or anticipated during the subsurface investigation, a

certified hazardous waste specialist must be onsite to address these issues. If hazardous wastes are found, drilling must stop until the hazardous waste specialist determines the appropriate mitigation.

If a hazardous waste site is expected, the Hazardous Waste Section may request the Geotechnical Section to conduct a subsurface investigation to retrieve subsurface samples for analysis by the Hazardous Waste Section.

The Geotechnical Section will work with the Hazardous Waste Section if an embankment or wall is being constructed where contaminated soil or groundwater are known to exist.

#### **2.1.3.7 Right-of-Way Bureau**

Prior to the subsurface investigation, the Geotechnical Section coordinates with the Right-of-Way Bureau to request that the Right-of-Way Bureau contact affected landowners and obtain permission to enter the property (Right-of-Entry Form) and conduct the exploration drilling.

If it is determined that there may be an issue with utilities near the exploration site beyond what can be resolved by the one-call locate system, the project geotechnical specialist will contact the Utilities Section within the Right-of-Way Bureau to coordinate with utility companies. For underground utilities, the Utilities Section may be required to conduct a Subsurface Utility Engineering (SUE) survey. Utility companies will mark the location of their utilities. In addition, coordination with the utility company may be required to de-energize the overhead line or to protect the overhead line during drilling.

If the subsurface investigation or field work is near or within railroad right-of-way, it is necessary to coordinate the field work with the railroad company. This coordination is also conducted through the Utilities Section. The Geotechnical Section provides the Utilities Section with information on the proposed boring locations, the type of equipment proposed and the approximate investigation time frame. The Utilities Section works with the railroad company to obtain permission/permit and/or an easement for MDT to work within the railroad right-of-way. The schedule for obtaining permission/permits from the railroad company can sometimes be in excess of a year. Consequently, this coordination should begin as soon as possible once it is realized that sampling and/or testing is required within the railroad right-of-way.

#### **2.1.3.8 Traffic and Safety Bureau**

On a traffic-lead project, the Traffic Engineering Section may request that the Geotechnical Section conduct a subsurface investigation for large, overhead signs, traffic signal poles, etc. If a consultant or contractor designs these traffic appurtenances, the Traffic Engineering Section may request that the Geotechnical Section review the design.

#### **2.1.3.9 Engineering Information Management Section**

The Engineering Information Management Section monitors and updates the Preconstruction Management System (OPX2 program), which is used to schedule projects and develop

preconstruction manpower needs. Project Managers have been assigned the responsibility to monitor the design of projects from inception until they are let to contract. Functional Managers (Geotechnical District Managers) have been assigned the everyday responsibility of completing the project activities set forth in the OPX2 program schedule. See [Section 4.1.4](#) for additional guidance.

After the Preliminary Field Review Report has been transmitted for comment and the Functional Managers have submitted overrides for their activities, the Project Manager releases the approved project schedule back to the Functional Managers who manage the project activities assigned to their unit. The Functional Managers are charged with regularly reporting the status of their activities to the OPX2 system and thus to the Project Manager. The computerized OPX2 program compiles a standardized list of activities and anticipated man-hours that must be performed before the submittal of the final plan package to the Contract Plans Section. The Project Design Manager modifies the list and required man-hours as dictated by the proposed scope of the project. The Engineering Information Management Section is charged with maintenance of the OPX2 System and is available for technical assistance to the managers in determining the project status of their projects.

## **2.2 EXTERNAL UNITS**

### **2.2.1 Federal**

#### **2.2.1.1 FHWA**

The Geotechnical Section may use the FHWA Resource Center in Denver for technical assistance and to gather information on geological formations, seismic probabilities, soil maps, etc. In addition, the Geotechnical Section uses numerous FHWA documents (e.g., NHI publications, Geotechnical Engineering Circulars) to determine the appropriate procedures for field exploration, sample testing, interpretation and design procedures.

Occasionally, the Geotechnical Section may request FHWA to review and comment on the Geotechnical Report, geotechnical designs and geotechnical special provisions.

#### **2.2.1.2 Natural Resource Conservation Service (NRCS)**

The NRCS annually publishes a list of soil surveys and maps. These maps only show shallow surficial deposits (i.e., usually limited to 60 in (1.5 m) in depth), but may assist in establishing frost penetration depths, drainage characteristics, erosion susceptibility and agrarian data.

### **2.2.2 Montana State Agencies**

#### **2.2.2.1 Department of Natural Resources and Conservation (DNRC)**

To obtain necessary drilling permits, the Geotechnical Section coordinates with the DNRC through the Environmental Services Bureau. As a resource, the Geotechnical Section may also request information from DNRC on nearby water wells, if this information is not available on the internet. Montana requires that drillers of water wells file logs of the wells. These are good sources of information regarding the materials encountered and water levels recorded during previous well installations in an area of future development. The well owners, both public and private, may have records of the water levels after installation that may provide extensive information on fluctuations of the water level. After wells have been closed and sealed, the Field Supervisor must file a closure report with the Montana DNRC.

On rare occasions, the Geotechnical Section may also coordinate with DNRC on dam safety.

#### **2.2.2.2 Other Coordination**

The Geotechnical Section coordinates with other State agencies on an as-needed basis, including:

- with the Department of Environmental Quality for a Section 401 Certification; and

- with the Department of Fish, Wildlife and Parks for a Stream Preservation Act 124 Permit.

All coordination is through the MDT Environmental Services Bureau.

### **2.2.3 Tribal Governments**

MDT coordination with the Tribal governments and the Bureau of Indian Affairs will be necessary for any geotechnical-related work on Indian Reservations (e.g., subsurface investigations). The Geotechnical Section is not authorized to contact the head of a Tribal Council directly; the MDT Director is the only authorized point of contact, unless that Office delegates the authority elsewhere. Through the Director's Office, the project geotechnical specialist will keep the Tribal governments informed on the project's progress and will work with the Director on processing documents (e.g., TERO (Tribal Employment Rights Office) Agreements, Right-of-Way Entry Forms, permits).

### **2.2.4 Local Entities**

The following describes the coordination between the Geotechnical Section and local entities:

1. Design. The Geotechnical Section may solicit input from the local entity on roadway slopes and preferred aesthetics for earth retaining systems in that locality. In addition, larger municipalities may have their own design criteria, which must be considered during the design process.
2. Assistance. The Geotechnical Section provides technical assistance to the city and county governments, upon request. The Geotechnical Section responds to any verbal or written inquiries from local entities on geotechnical issues.
3. Information from Locals. Where applicable, the project geotechnical specialist will obtain information (e.g., sinkholes, landslides) from local entities prior to the field investigation.