

GEOTECHNICAL POLICIES AND PROCEDURES MANUAL

CHAPTER 2

ORIENTATION

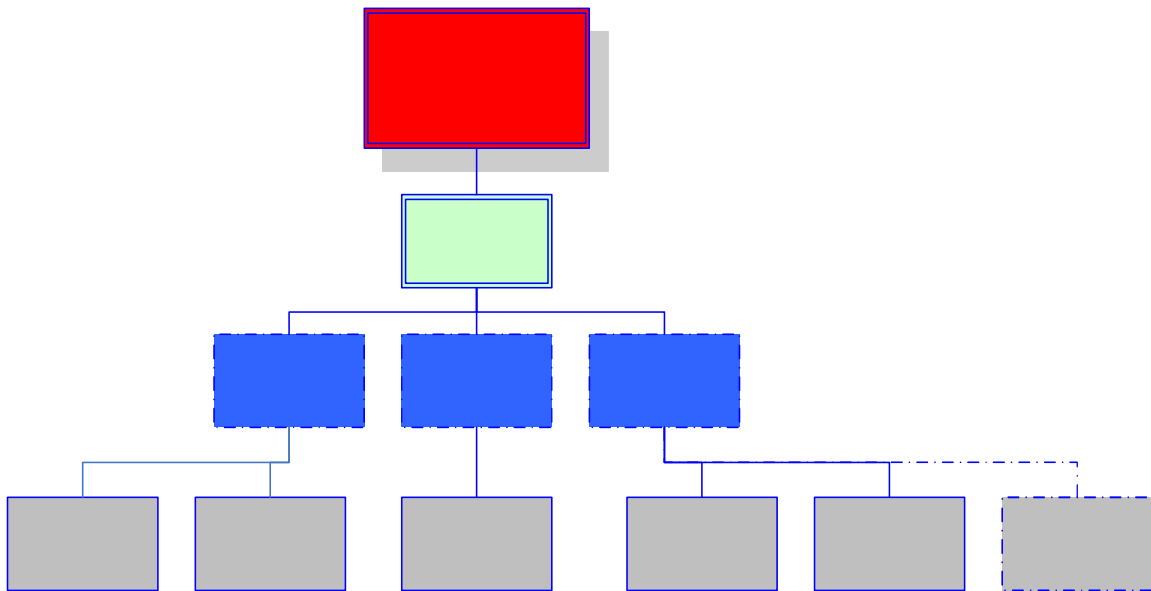


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1. PURPOSE

This Chapter summarizes the organization of the Department and function of the Geotechnical Section. It also discusses responsibilities and processing of newly hired employees and includes information regarding policies and documents that new employees should be aware of and could use to understand and verify that all in-processing procedures have been followed. Information in this Chapter is helpful as a reference to all Geotechnical Section employees and outside parties seeking knowledge of current responsibilities and organizational relationship of the Geotechnical Section.

2. ORGANIZATIONAL RELATIONSHIPS

The Department is divided into divisions which are further divided into sections. The chief executive of the Department is the Director. The major organizational areas of the Department include the Divisions of Administration, Operations, Planning and Program Development, and Engineering. Support offices include Human Resources and Equal Employment Opportunity (EEO), Internal Audit, Programs and Budget, Legal Services, and Special Assistant to the Director. District offices are located in Las Vegas, Reno and Elko, Nevada.

The Director of the Department reports to the Transportation Board. The Transportation Board is composed of the Governor (Chair), Lt. Governor (Vice Chair), Comptroller, Attorney General, and three individuals appointed by the Governor. The functions of the Transportation Board include such items as approval of right of way actions, condemnations and selling of properties, budget review, and the naming of highways. A typical organization chart of the Department is included as Figure 2-1. For a current chart, see the Administrative Assistant of the Materials Division.

3. MATERIALS DIVISION

The Materials Division reports to the Assistant Director, Operations, of the Department. This Division is composed of six sections, consisting of Administration, Las Vegas Facility, Structural and Chemical, Roadbed and Pavement Design, Bituminous, and Geotechnical. A typical organization chart of the Materials Division is included as Figure 2-2. For a current chart, see the Administrative Assistant of the Materials Division.

3.1 Administration Section

This Section is responsible for the administrative matters of the Division, such as payroll, new employee processing, records management, etc.

3.2 Las Vegas Facility

The Las Vegas Facility is organized into three labs. These labs consist of Concrete and Steel, Asphalt, and Bituminous.

3.3 Structural And Chemical Section

The offices of this Section consist of the Concrete and Steel Lab, Concrete Specialist, and Chemical.

3.4 Roadbed And Pavement Design Section

This Section is organized into the two offices of Pavement Analysis and Roadbed Design.

3.5 Bituminous Section

Offices of this Section are organized into Bituminous Operations, Roadbed Aggregates, Asphalt Lab, and Bituminous Lab.

3.6 Geotechnical Section

This Section is organized into the offices of Field Exploration and Geotechnical Engineering (which includes the Geotechnical Lab).

4. WORK REQUIREMENTS OF GEOTECHNICAL ENGINEERS

The job performed by Geotechnical Engineers requires a high level of skill, knowledge, competency, and judgment. Geotechnical Engineers are expected to successfully interpret and apply Federal and State regulations, as well as existing policies and procedures. They are also required to apply their skills to solve difficult problems, involving the analysis of complex data. Geotechnical Engineers conduct investigations and collect soil samples for submission to the laboratory for testing. They review plans and specifications, and work with individuals at all levels, both within and outside of State government.

Typical duties of Geotechnical Engineers include exploring, sampling and testing soils underlying new and existing roadbeds and structures, special studies, geotechnical analyses and design, reviewing and writing documents, composing reports, and attending meetings. The official job requirements for Geotechnical Engineers may be found in the State of Nevada, Department of Personnel Class Specifications. The Administrative Assistant of the Materials Division has a copy of the appropriate job requirements. The job requirements included in this document are meant to provide a general framework. Specific details of all duties required of the position are not included.

5. WORK BY GEOTECHNICAL ENGINEERS

Following is a discussion of typical work produced by Geotechnical Engineers. It is noted that the items described do not represent an all-inclusive list. This discussion is not intended to provide comprehensive detail, but rather to offer a general discussion, which provides an orientation.

5.1 Geotechnical Reports

Geotechnical Reports are probably the most important and significant work produced by Geotechnical Engineers. This is especially true considering the potential for construction disputes, claims and litigation over varying site condition issues. Disputes, claims and litigation occur commonly in spite of contract language, which attempts to assign responsibility to the contractor for site condition verification. The information contained in Geotechnical Reports is typically utilized during project design, construction, and in the resolution of claims and litigation. Careful and comprehensive documentation of the site investigation findings of the Geotechnical Engineer is essential for projects that involve complex geotechnical issues.

Geotechnical Engineers should note that according to the FHWA, "Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications," FHWA-PD-97-002, 1985, all Geotechnical Reports should contain at least the following information:

- Summary of all subsurface exploration data, including subsurface soil profile, exploration logs, laboratory and/or in situ test results and ground water information
- Interpretation and analysis of the subsurface data
- Specific engineering recommendations for design
- Discussion of conditions which may be encountered during construction, including recommendations for solution of anticipated problems
- Recommended geotechnical special provisions

The recommendations for solution of anticipated construction problems are an area which needs to be treated with caution due to the potential of claims and litigation, which can result from such recommendations. Geotechnical Engineers should discuss recommendations with the Principal Geotechnical Engineer prior to including them in the Geotechnical Report.

5.2 Geotechnical Project Files

Geotechnical Engineers are required to maintain Geotechnical Section project files. These files may contain such items as calculations, laboratory results, fieldwork notes, site investigation results, correspondence, minutes of meetings. It is necessary that the project files be complete and well organized. Materials are organized in these files by category/subject of material, in chronological order. A project file is complete when:

- It contains documentation of all geotechnical efforts
- It is organized in a logical manner (this means other persons can easily and quickly find information they are seeking)
- The project is constructed and closed

Geotechnical Engineers must provide pertinent information regarding completed projects to the Principal Geotechnical Engineer prior to placing the project files in the appropriate location of the Geotechnical Section file storage area. The Principal Geotechnical Engineer enters this information into a Project Files Database.

5.3 TEMPORARY STAFF ASSIGNMENTS

Geotechnical Engineers may occasionally have other individuals temporarily assigned to them for guidance and training. The most common positions assigned are:

- Rotational Engineers
- Student Interns
- Highway Construction Aides

The Geotechnical Engineer needs to maintain a positive and professional relationship with temporarily assigned individuals. Geotechnical Engineers must also provide necessary direction, encouragement and training to the temporarily assigned individuals. The Geotechnical Engineer needs to provide input to these temporary staff regarding the following items:

- Policies and regulations
- Proper conduct
- Objectives of the job
- Duties to be performed
- Accepted methods of performing duties
- Work performance standards
- How improvements can be made and capabilities are developed

The successful training and development of temporarily assigned individuals have positive, long-term impacts on the entire organization.

5.4 Other Tasks

The services provided by the Geotechnical Section vary, depending on such things as project size, complexity and environmental conditions. Following is a list of general tasks required of Geotechnical Engineers. It is noted that tasks other than those listed are also assigned.

- Attending meetings to discuss the nature and scope of the project (these meetings may include Department employees, Consultants and other outside parties such as cities staff, counties staff , State staff, elected officials, and interested citizens)
- Conducting exploration
- Conducting laboratory testing
- Performing analysis and design

- Providing notes for Special Provisions
- Providing notes and details for, and reviewing Construction Plans
- Performing calculations
- Responding to comments
- Reviewing documents pertaining to geotechnical issues
- Providing technical support to the Resident Engineer (RE) during construction
- Writing Right of Entry memorandums to obtain a right of entry permit to a property

When it is necessary to obtain a right of entry permit to a property, a memorandum to the Right of Way Division must be prepared. This memorandum must indicate the specifics of the request, including the following:

- Project Identification
- Specific property location – attach plan sheets, with boundaries and drill locations marked
- Why access is needed (example – to drill boreholes)
- When access is needed – (provide sufficient lead time)
- Method and detailed description of exploration
- Your name and phone number

An example of an Entry Permit form, developed by Right-of-Way Division, is included as Figure 2-3.

6. PROJECT DEVELOPMENT PROCESS

Geotechnical Engineers must be familiar with the development process of projects. They are required to keep track of deadlines so that schedules are maintained.

7. OUTSIDE SERVICES

The duties of Geotechnical Engineers, with respect to Consultants, are mainly concerned with the review of the work performed by these firms. Geotechnical Engineer duties may include tasks such as reviewing Geotechnical Reports, Construction Plans, specifications, calculations, and review comments regarding shop drawings to verify completeness and accuracy. Some reviews are comprehensive, while others require “spot checks” of Consultant work.

When it is determined that further work is needed, or errors or omissions need to be corrected in work performed by a Consult, the Geotechnical Engineer shall not make any changes in the work product of the Consultant. Applicable comments are to be forwarded to the Consultant, and the Geotechnical Engineer is to verify that necessary actions are taken by the Consultant, and that the Consultant meets required time frames. Consultants are

responsible for their work product, and must, therefore, perform all tasks using their own staff.

8. NEW HIRE PROCESSING

It is incumbent upon the new hire to read and understand all of the documents provided and to insure completion of all necessary paperwork. Figure 2-4 is a checklist including some of the items that each new employee should have received. This checklist is useful as a quick reference to the various documents. All employees should review the items in this list periodically for the purpose of insuring a comprehensive understanding of policies and procedures. Employees should note that many documents described herein require a signature, indicating understanding and acceptance of the materials, and that the documents will become a permanent part of their personnel file.

8.1 Safety in the Workplace

Workplace safety is the responsibility of everyone in the workplace. It is the duty of all employees to insure their workplace is safe. This means everything from wearing approved safety equipment to reporting an unsafe work condition or practice. When a work-related injury does occur, the employee must report it promptly to their immediate supervisor. The document, "Employee Responsibilities," describes the need to immediately report all accidents, where to go for medical treatment, and what procedures are in effect during the recovery and rehabilitation periods. Safe work habits and practices are required of all employees. Geotechnical Engineers must maintain safe work habits and practices at all times, especially in the potentially more hazardous areas, such as drilling sites or other field-related work. Any potential safety issues or safety training needs are to be brought to the attention of the Principal Geotechnical Engineer.

8.2 Hazardous Materials

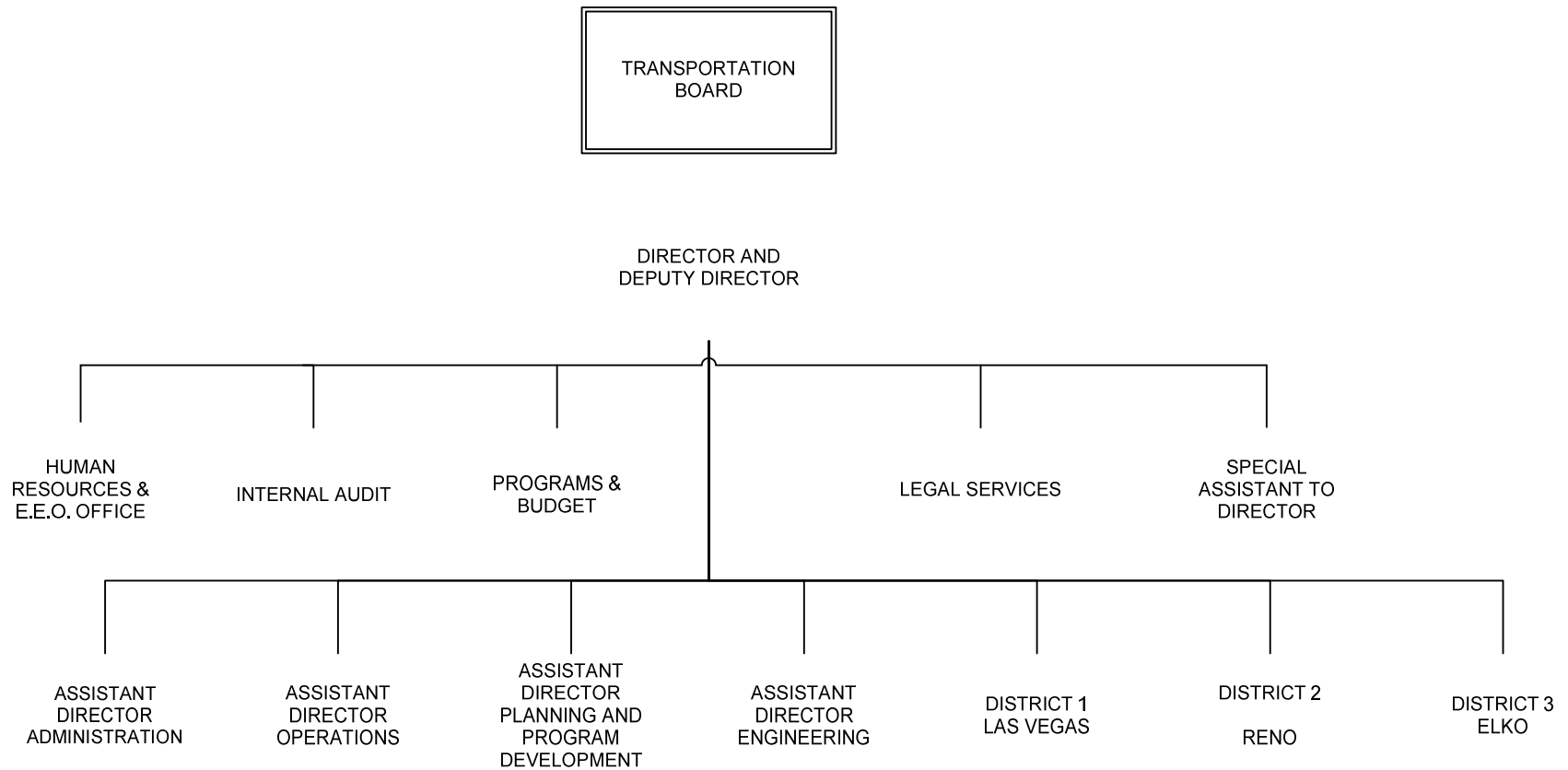
It is common to work with and around potentially dangerous materials. Knowledge about these materials, including their proper use and characteristics, assists employees to remain unharmed. The Department has developed an extensive program to help protect employees. This program is described in the manual, "Hazard Communication Program." Areas covered in this manual include the health and physical hazards of chemicals, product labeling, Material Safety Data Sheets (MSDS), and protective equipment.

8.3 Emergency Procedures

Detailed emergency procedures are provided in the "Emergency Procedures" booklet distributed to each new employee, and all employees when revised. These procedures cover situations such as fires, medical and first aid, bomb threats, earthquakes, and explosions. Evacuation maps are on the walls in each area of the Division.

9. FIGURES

2-1: Organizational Chart - NDOT



2-3: Entry Permit

Project
E.A.
Owner
Date

ENTRY PERMIT

Permission is hereby granted to the STATE OF NEVADA, acting by and through its Department of Transportation, and its employees, authorized agents and contractors to enter upon OWNER'S land, described as _____ for the purposes checked:

Appraisal Soil Sampling Materials Surveying Other _____

Environmental Survey - The property owner is advised that if hazardous wastes are found to exist on the property the Nevada Department of Transportation is required to notify the Nevada Department of Environmental Protection.

This permission is granted with the understanding that travel will, when practicable, be made on existing trails or roads; upon completion of said entry, the STATE will leave this tract of land in as neat and presentable condition as existed prior to said entry; all fences, structures and other property belonging to the OWNER which the STATE may find necessary to remove or relocate in order to conduct said entry, will be replaced in as nearly their original condition and position as is reasonably possible.

It is further understood that the STATE, as provided in Nevada Revised Statutes Section 408.493, will be responsible for the actual damages, if any, caused by the actions or nonactions of its officers, employees or agents in the entry of OWNER'S land for the purposes set forth in this permit.

This permission is effective from _____ through _____.

Vehicles will not enter into agricultural fields except on existing roads. Care will be exercised by employees or agents of the STATE to not disturb or damage crops, ditches, landscaping or other property of OWNER.

Property Owner *Date*

Property Owner *Date*

Phone number and best time to call

This property is *not* leased/rented

This property *is* leased/rented to:

Tenant's name

Address

Phone

DOT
030-523
rev. 01/01

Prepared by: _____

2-4: New Hire Processing Documents Checklist

| DOCUMENT DESCRIPTION |
|--|
| "Message from the Director," Memorandum, NDOT |
| "Supervisor's Report on Employee Orientation," NDOT (updated 2/4/99) |
| "Employment Eligibility Verification," U.S. Department of Justice, Immigration and Naturalization Service, OMB No. 1115-0316, Form I-9 (Rev. 11/21/91) |
| W-4 Form (2002) |
| "Group Insurance Benefits" Memorandum, NDOT, Accounting Division |
| "Request for Employee Benefits Orientation," State of Nevada (7/02) |
| "Photo ID Badge, State Personal Property and Equipment Request," NDOT, 076-052 (6/02) |
| Commercial Driver – "Alcohol and Drug Testing Policy," TP 1-6-21, NDOT (September 29, 1998) |
| "Employee Acknowledgement of Valid Driver's License Requirement," NDOT, 0076-001 (Rev. 4/96) |
| "Driving Record Card," NDOT, 078-003 (Rev. 8/99) |
| "Motor Vehicle Operating Policy," Memorandum, dated October 1, 1996, NDOT, Attachment, "Employee Responsibilities for Operating a Vehicle," TP 1-6-22, NDOT (Rev. 4/2/01). |
| "Acknowledgement," for Alcohol/Drug Free Workplace, TS-58 (7/98) |
| "Drug Free Workplace," Memorandum dated May 15, 1996, NDOT. |
| "About Substance Abuse at Work," Channing L. Bete Co. (1987) |
| "Nevada Workplace Safety," Division of Industrial Relations, Department of Business and Industry. |
| "Employee Responsibilities," State of Nevada. |
| "Work Place Violence," TP 1-6-30, NDOT (August 16, 2002). |
| "Hazard Communication Program – Employee's Chemical Guide," NDOT |
| "Computer Access Form" – See Chapter 3 of this Manual "Computer Software Tools" |

10. REFERENCES

FHWA, "Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications," Publication No. FHWA-PD-97-002, October 1985, Reprinted 1988

NDOT, "Bridge Design and Procedures Manual," Published August 1991

NDOT, "Materials Division Testing Manual," Revised December 28, 2000

NDOT, "Materials Division Pavement, Structural Design and Policy Manual," Published January 1996

NDOT, "Standard Specifications for Road and Bridge Construction," Published 2001

NDOT, "Transportation Policies"