

2-100 INTRODUCTION

Several divisions carry out NDOT's transportation construction program. The success of a construction project requires a clear understanding of each individual's role and responsibilities. The Chief Construction Engineer, District Engineer, and Resident Engineer have specific responsibilities in assuring that construction projects are completed successfully. This section provides detailed information about each of these areas of responsibility, so each division can accomplish its individual duties efficiently and effectively.

2-200 CHIEF CONSTRUCTION ENGINEER RESPONSIBILITIES

The Chief Construction Engineer manages the statewide construction program. Managing the program includes assigning personnel and resources, providing technical support and training, establishing policies and procedures for statewide uniformity, and making budget decisions. Additional responsibilities include:

- Establishing construction-related policies and directives
- Developing and maintaining various guidance manuals, such as the *Construction Manual*, *Documentation Manual*, and *Surveying and Stakeout Manual*
- Developing construction specifications
- Providing technical expertise to legislative and regulatory agencies
- Resolving construction claims and disputes
- Serving as NDOT liaison with the construction industry

Two Assistant Construction Engineers and technical staff support the Chief Construction Engineer. One Assistant Construction Engineer oversees the construction program in the southern portion of the state, and the other Assistant Construction Engineer oversees the construction program in the northern portion of the state. The technical staff provides support in four areas: Administration, Quality Assurance, Constructability, and Contract Compliance.

2-201 ADMINISTRATION

The Administration Section ensures statewide uniformity in construction project documentation. Responsibilities include the following:

- Reviewing project documentation for completeness and accuracy
- Serving as a resource to the project crew on administrative matters
- Auditing field office project records
- Reviewing and processing contractor pay estimates
- Reviewing and processing contract change orders, letters of authorization, and force account documentation
- Reviewing and processing requests for stockpile payment
- Providing assistance and guidance regarding funding eligibility and allocation
- Performing project final "close-out" procedures
- Administering and managing construction consultant services
- Developing and maintaining the NDOT *Construction Manual* and *Documentation Manual*

2-202 QUALITY ASSURANCE

The Quality Assurance Section establishes statewide uniformity in construction project materials testing and inspection. Responsibilities include the following:

- Reviewing project documentation for completeness and accuracy
- Managing the statewide Independent Assurance testing program
- Providing technical support regarding construction methods and techniques
- Training field personnel (informal on-the-job and formal)
- Researching construction practices and technologies
- Collaborating with the construction industry and other stakeholders to improve the quality of construction
- Developing construction specifications
- Participating in construction-related research

- Oversight of the field tester qualification program
- Develop field test methods and revise, as necessary
- Manage the nuclear testing program
- Provide independent on-site quality assurance reviews

2-203 CONSTRUCTABILITY

The Constructability Section provides advice and recommendations on constructability matters. Responsibilities include the following:

- Reviewing plans and specifications for constructability issues during the design phase
- Developing project schedules and limitations on construction operations
- Reviewing and providing recommendations on contractor schedules
- Providing guidance on proposed traffic control
- Reviewing claims and providing claims support and research
- Participating in NDOT bid review process
- Conducting post-construction reviews

2-204 CONTRACT COMPLIANCE

The Contract Compliance Section provides support relating to employment laws and regulations, such as labor, wages, and equal employment opportunities. Responsibilities include the following:

- Monitoring federal and state requirements to confirm NDOT contractor compliance
- Auditing contractor records to verify compliance with labor and wage regulations
- Administering Nevada's Disadvantaged Business Enterprise program
- Administering the requirements of Title VI of the Civil Rights Act, which prohibits discrimination on the basis of race, color, or national origin in programs or activities receiving federal financial assistance

2-300 DISTRICT ENGINEER RESPONSIBILITIES

The District Engineer directs the operations within the boundaries of a district. Assistant District Engineers support the District Engineer in accomplishing the NDOT transportation program. Typically, one Assistant District Engineer manages construction and another manages maintenance and related operations. In districts that cover large geographical areas, the District Engineer may assign additional Assistant District Engineers to outlying locations that manage construction and maintenance activities for that area. Each Assistant District Engineer reports directly to the District Engineer.

The District Engineer manages the overall administration of construction projects assigned to the district, from providing input regarding the scope of a project through completion of construction. The District Engineer also maintains a staff capable of carrying out the Department's policies and procedures efficiently and effectively.

District Engineers delegate authority to Resident Engineers to supervise personnel and maintain a field office and equipment needed for administration of construction projects. The District Engineers evaluate, process, and recommend approval of change orders, and resolve disputes and claims within the limits of their authority. In cases that exceed allowable authority—through cost, scope, or complexity—the District Engineer will recommend decisions, based on a Resident Engineer's recommendation, on project issues before forwarding them to the Chief Construction Engineer.

The District Engineer is responsible for apprising the Chief Construction Engineer on the status of work. Common status issues include problems or issues encountered on projects, decisions that have been made, and recommendations for improvements in construction practices. The District Engineer is also responsible for conforming to NDOT and Construction Division policies and directives, and coordinating construction activities with other district operations. The District Engineer also manages the project's final inspection and recommends final acceptance.

Because each district is unique in topography, climate, population, and industry, districts must be involved in the scoping, design, and construction phases of a project. The District Engineer's input is crucial in describing the impacts—such as traffic delay and business disruption—that the project may have on the local communities within the district.

2-400 RESIDENT ENGINEER RESPONSIBILITIES

The Resident Engineer is responsible for the management, administration, and successful completion of an NDOT construction project. The Resident Engineer is a direct representative of the Director and reports directly to the District Engineer.

The Director delegates authority to the Resident Engineer to administer construction projects. A project's successful completion depends on the Resident Engineer's positive leadership of the project crew and a professional relationship with the contractor.

By building and maintaining trust and teamwork on the project, the Resident Engineer creates a collaborative environment with the contractor, NDOT field crew, and other NDOT divisions. Additionally, being knowledgeable of project-related issues allows the Resident Engineer to respond quickly. To maintain a high level of involvement, the Resident Engineer must frequently visit the project site and review the work. Constant and accurate communication enhances the collaborative environment among team members.

In addition to establishing and maintaining a positive relationship with the contractor, the Resident Engineer provides leadership to the staff assigned by the District Engineer. The Resident Engineer builds an effective staff by emphasizing communication and learning. When the staff communicates well among themselves—sharing knowledge and experience—they can quickly and confidently address situations that arise on a project.

In addition to working with the contractor and supervising the field crew, the Resident Engineer has specific project-related responsibilities that include the following:

- Providing input on development of project plans and specifications
- Assessing the compatibility of the design with site conditions
- Administering the project in accordance with established policies and procedures
- Monitoring projects to confirm compliance with the plans and specifications
- Overseeing documentation, surveying, inspection, and testing
- Ensuring proper documentation
- Preparing contractor pay estimates
- Resolving issues and disputes with the contractor within the Resident Engineer's authority
- Negotiating and preparing contract change orders
- Minimizing construction impacts to the public
- Protecting the state from harm or damage during construction of the project

- Providing guidance and training to the field crew
- Communicating with the District Engineer and Chief Construction Engineer on major issues that have immediate and significant public impact
- Oversee implementation of NDOT's Work Zone Safety and Mobility Policy 07-02 plan, which addresses the flow of traffic and the safety of workers and the public in the construction project

When conflicts occur, a quick resolution is critical to maintaining project progress. The Resident Engineer is the first level of authority in resolving issues or conflicts. The Resident Engineer typically resolves issues, such as non-conforming materials, disputes, and plan errors. If the Resident Engineer desires guidance on resolving issues or conflicts, the Resident Engineer consults with the District Engineer or Construction Division. If guidance on resolving an issue or conflict is unavailable, the Resident Engineer should make a decision instead of allowing the project to be adversely affected.

NDOT may retain engineering consultants to administer construction projects. When a consultant performs the duties of a Resident Engineer, the responsibilities are identical, except a consultant cannot do the following:

- Obligate funds
- Authorize payment on behalf of NDOT

As NDOT's most visible representative on a project, the Resident Engineer frequently communicates with the public, government representatives, and motorists. The Resident Engineer's professionalism often establishes the public's image of NDOT. The Resident Engineer's conduct should be a credit to both the individual, to NDOT, and to all state employees.

2-401 OFFICE PERSONNEL RESPONSIBILITIES

Office personnel manage the administrative activities under the supervision of the Resident Engineer. Administrative responsibilities span project matters, as well as NDOT-related administrative matters. Principal responsibilities include the following:

- Maintaining project files, field books, general files, personnel files, and documents
- Preparing field books, measurement and payment books, calculation sheets, and forms
- Maintaining inventory of survey field books prepared by the survey crew chief
- Checking test reports and calculations
- Preparing contractor pay estimates
- Performing preliminary calculations for liquidated damages
- Reviewing prior approvals, change orders, and letters of authorization for completeness
- Reviewing force account computations for completeness and accuracy
- Ensuring conformance with Construction Division administrative policies and procedures

Office personnel are the primary resource in the Resident Engineer's office for implementing the requirements of the *Documentation Manual*.

2-402 SURVEY CREW CHIEF RESPONSIBILITIES

The survey crew chief, under the supervision of the Resident Engineer, is responsible for the accurate and prompt completion of all construction survey activities. The survey crew chief's primary responsibility is to confirm that project personnel complete the survey in conformance with the plans and specifications. To perform these responsibilities, all survey equipment and instruments must be in proper condition and accurately calibrated. The survey crew chief must be knowledgeable and understand current survey practices and technologies. Additionally, the survey crew chief maintains complete and accurate survey documentation.

After construction activities are complete, notations are added to the project plans, describing all revisions that were made to the original plans. These drawings are called record drawings, or as-built drawings. The survey crew chief is responsible for adding survey information to two sets of as-built drawings. If the contractor performed the survey, then the survey crew chief collects and reviews the contractor's survey data. The Resident Engineer reviews the survey data prior to archiving the data with the project records.

Section 4, Surveying, of this *Construction Manual* describes general surveying activities, procedures, and responsibilities.

2-403 INSPECTOR RESPONSIBILITIES

Under the supervision of the Resident Engineer, inspectors are authorized to inspect all work performed and materials furnished. Inspections may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the work materials. Inspectors are not authorized to alter or waive provisions of the plans and specifications, issue instructions contrary to the plans and specifications, or direct contractor operations. However, an inspector communicates with the contractor and other project personnel to reduce misunderstandings relating to the interpretation of the plans and specifications.

Inspectors have two important responsibilities. The first and primary responsibility is to confirm that the contractor's work and site activities conform to the plans and specifications. The second responsibility is to document the contractor's work.

Inspection duties include:

- Observing and documenting the contractor's workmanship, materials, and methods for conformance with the plans and specifications
- Communicating the project requirements to the contractor's field staff for work under construction or about to be constructed
- Interpreting the plans and specifications
- Documenting inspection operations in the daily construction report
- Measuring work and materials for payment in accordance with the *Documentation Manual*
- Observing construction operations for compliance with safety regulations, traffic control requirements, and construction-related government regulations

2-404 TESTER RESPONSIBILITIES

Under the supervision of the Resident Engineer, testers are authorized to inspect or test materials incorporated or to be incorporated into the work. Additionally, testers may test materials fabricated at commercial material sites or fabrication facilities.

Because test results are the deciding factor in accepting or rejecting work or material, accurate test results are important. Therefore, the tester must maintain testing equipment in good condition. When testing equipment requires repair, replacement, or calibration, the tester must inform the Resident Engineer. Additionally, testing procedures must conform to NDOT test methods, and documentation must be complete and accurate.

Section 5, Sampling and Testing, of this *Construction Manual* describes tester qualifications, testing requirements, procedures, activities, frequencies, and responsibilities.