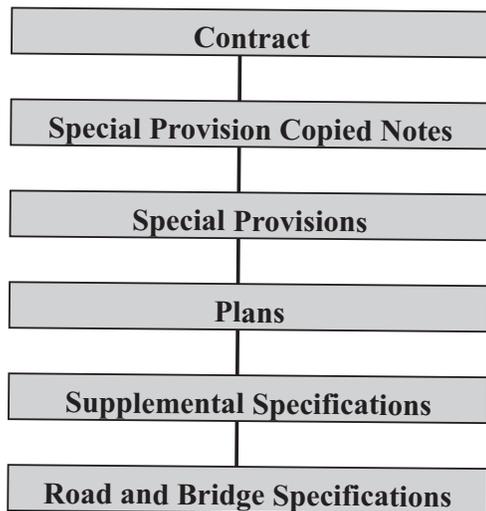


CHAPTER 8 RESPONSIBILITIES OF CONTRACTOR AND INSPECTOR

Contract and Specifications

Road and highway construction in Virginia is performed under contract. The contract is a written agreement between the Department and the contractor. It states the obligations of both parties, including labor, materials, performance and payment. The contractor agrees to do the work that meets the specifications and standards included in the contract and, in return for acceptable work, the contractor is paid by the Commonwealth of Virginia.

The plans are the physical layout and design of the job, location and dimensions. The specifications are the technical directions and required standards for the work to be done. Special Provisions can be combined with the specifications. They must all be followed during construction.



The contract includes the Signature sheet, Bid Item sheets (these sheets have the same status as the Special Provision Copied Notes), and a page that will make reference to the plans, books, or manuals that will govern construction. Normally the VDOT Road and Bridge Specification Book year dated, the Road and Bridge Standard Book year dated, and the Work Area Protection Manual year dated is specified on that sheet. The typical Contract will also include Special Provision Copied Notes, Special Provisions, and any needed Supplemental Specifications. These documents may differ as to how an operation should be performed. A hierarchy denoting which document

takes precedence over all other documents is located in Section 105.05 of the Road and Bridge Specification Book and is illustrated in the above graphic. Generally, the contract requirements take precedence over all other documents. VDOT Road and Bridge Specifications are at the bottom of the hierarchy and apply when a construction operation is not specifically addressed in any other document.

Contractor's Responsibility

The Contractor is responsible for having a Certified Concrete Field Technician present to provide quality control during placing operations. The candidate must satisfactorily complete an examination administered by the Department of Transportation and obtain ACI certification.

A **Certified Concrete Field Technician** is that person who is responsible for quality control of concrete work at the project site. The technician also provides the necessary liaison between field and plant operations. The Contractor shall have at least one Certified Concrete Field Technician on the project for single or multiple incidental concrete placements. The Contractor shall have at least one Certified Concrete Field Technician present at each site during the placement of pavements, bridge decks, bridge piers and abutments, box culverts and any placement of 50 or more cubic yards (40 or more cubic meters).

Certified Concrete Field Technicians shall provide control over methods used for discharging, conveying, spreading, consolidating, screeding, finishing, texturing, curing and protecting the concrete. Deficiencies in conformance to specification requirements and good concreting practices shall be corrected as soon as they begin to occur. Also, a Concrete Field Technician shall ensure that the contractor's construction operations conform to Sections 316, 404, 405, 410, 412, 415, 502, 505, 506, and 509 of the Road and Bridge Specification Book.

Inspector's Responsibility

The inspector's job is vital to every road construction project, ensuring a strong, durable, reliable pavement is produced based on the pavement design in accordance with the plans and specifications. An inspector should keep abreast of new developments which may effect the job and to refresh his/her knowledge periodically to brush up on infrequently used procedures.

To ensure specifications are being followed, the owner has an agent on hand throughout production and construction. That agent is the inspector. The inspector's duty is to see that construction produces the specified results. The inspector has the responsibility to identify deviations from project specifications and to alert the contractor. Inspectors do not have the authority to approve changes in specifications. The inspector is to keep the Engineer informed of the progress and quality of the work being done. The inspector inspects all work and materials. Upon visual inspection, the inspector can reject any material not in compliance with the specifications.

The inspector must know what is being inspected and be familiar with materials, equipment and construction procedures. They should recognize potential problems and know what could be causing them. Inspectors must read and interpret all contract documents and be able to perform accurate mathematical calculations. The more knowledgeable an inspector is, the better prepared they are to perform their duties.

A good inspector must use common sense. While common sense is no substitute for knowledge, it is a means of interpreting the specifications to enforce their intent. Common sense cannot be learned but grows out of knowledge and experience.

The inspector can act only on what is observed. What is not seen is missed. Thus it is important not only for an inspector to look carefully at everything going on, but also to see what is being observed. "Seeing" in this context means thinking carefully about what the eyes observe. Without seeing, an inspector can observe an incorrect condition and not even realize it. The inspector and contractor must work together so that the inspector is present at all critical phases of construction.

The inspector's job is to inform the contractor when unsatisfactory conditions exist or when the specifications are not being followed. Contractors expect valid criticism and objections from the inspector; however the inspector's manner of presenting comments can decide future relations between the Department and the contractor. Experience shows that it is not what is said, so much as the way it is said that is important. Both the inspector and the contractor should strive to cooperate, respect, and maintain a good working relationship. Once the relationship between the inspector and contractor starts to deteriorate the work suffers.

One of the primary duties of an inspector is to review construction operations for compliance with VDOT requirements, specifications and standards. Locating the requirements and specifications that cover a specific operation is a necessary skill. An inspector must be able to find and understand Road and Bridge Specifications in order to assess compliance with them. Appendix C contains most of the Road and Bridge Specifications that apply to hydraulic cement concrete operations; however, these specifications are for educational purposes only. A copy of the current Road and Bridge Specifications Book can be obtained by contacting VDOT's Construction Division.

To locate specifications applicable to a concrete operation, first determine the division to which the operation applies. For a hydraulic concrete operation, the applicable divisions include General Provisions, Materials, Roadway Construction, Bridges and Structures and Incidental Construction. After finding the division that applies, look for the specific item within that division. For example, if you are looking for the approved coating for tie wires with epoxy-coated reinforcing steel, reinforcing steel is covered in Section 406 of Division IV Bridges and Structures. This section discusses the procedures (Section 406.03) for placing and fastening of reinforcing steel. The procedure for coating of tie wires states: "Tie wires used with epoxy-coated steel shall be plastic coated or epoxy-coated."

Tools

Tools that the inspector needs consist of: Thermometer, pencils and markers, calculator, 100 foot (30 meter) steel tape measure, hammer and shovel, report forms and notebook, 6 foot (1.8 meter) ruler, string-line, flashlight, and anything else that is required. Another tool, which will aid in measuring and recording is on-the-job training. Things are happening on the job site that an inspector must know. It is the ideal place to observe, to ask questions, and to get answers. On the job, the novice inspector develops inspection skills first-hand and discovers what occurs during construction and why certain methods achieve certain results. The more experienced the inspector becomes, the better enabled he/she is to do the job effectively.

The inspector is only required to make a one-line entry into the Materials Notebook identifying the time over which the material was shipped (From - To), grading or type mix, total tonnage and source.

Safety

Safety on the job is everyone's business, but the inspector must be alert to ensure that safe working conditions and practices are maintained on the project. The inspector must see that safety requirements specified in the contract are being followed. This may involve monitoring equipment operation and the use of such items as barricades, warning lights, reflectors, road signs, flaggers, cones and Pilot Trucks.

The inspector should set an example by practicing personal safety. Equipment such as hard hats, steel-toed shoes, gloves, safety vest, protective clothing, safety glasses or anything else necessary to assure worker safety should be worn. Practicing good safety is the responsibility of everyone on the job.

Records

One of the most important functions of the inspector is to keep accurate records and reports. Records are necessary to determine contract and specification compliance, substantiate payments to the contractor, and ensure that all the materials are used on the roadway. Records and reports should be kept current, submitted on time and be neat and legible. The inspector is usually given standard forms for routine reporting. Reports may be required daily, weekly or monthly. Report forms normally include items such as date, location of the work, weather conditions, test results, equipment in use, equipment idle, source of materials and production rates.

Besides standard forms, the inspector should keep a diary of the principal activities that occur. It should contain all the information concerning work being inspected. This is very important for future reference if problems should arise. The diary should contain such information as work being inspected, important conversations, visitors on the job site, verbal orders received, unusual incidents, equipment breakdowns, length of work stoppages, number of men and equipment affected and changes in appearance of the material, and anything else that might be pertinent to the work being done.

Although many desired qualities for inspectors have been listed, the bottom line is this: *To do a professional job, the inspector must want to do a job, know how to do it, and then go about it in a way that contributes favorably to the project.*

Chapter 8

Study Questions

1. What are the duties of a Hydraulic Cement Concrete Field Inspector?
2. What daily records must the Hydraulic Cement Concrete Field Inspector keep?
3. What is a Certified Concrete Field Technician responsible for at the project site?
4. What is the purpose of inspection?
5. What are the qualifications of an inspector?
6. What is a good relationship of an Inspector with the Contractor?
7. Should an inspector know what testing is required at both the concrete plant and on the road?
8. What safety equipment should be used during road construction?
9. Between the following pairs of documents, which one has priority?
 - Special Provision Copied Notes or Plans
 - Plans or Special Provisions
 - Specifications or Plans

