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## **101.1 – GENERAL**

The New Hampshire Department of Transportation has been created to administer the transportation and public works needs for the people of New Hampshire.

All functions of the Department are under the direction of a Commissioner who is appointed by the Governor and Council. The Commissioner is directly responsible for the planning, design, construction, and maintenance of our State highway system. The Commissioner is assisted by an Assistant Commissioner and Directors of Administration, Project Development, Operations, Public Works & Transportation, and Aeronautics.

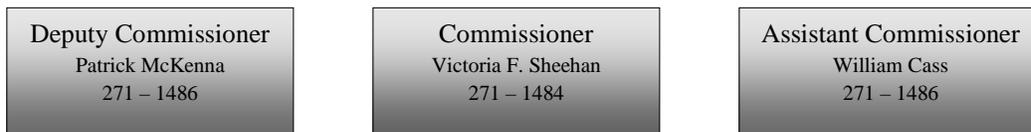
The Bureau of Construction functions directly under the Director of Project Development. It is administered by a Bureau Administrator and District Construction Engineers. The field force consists of engineers, technicians, and consultants who administer projects throughout the construction stage. Refer to the Construction Bureau Organization Chart for more information.

For the other bureaus and their relationships within the Department, refer to the Department of Transportation Organization Chart and the employee's handbook, *You and Your Job*.

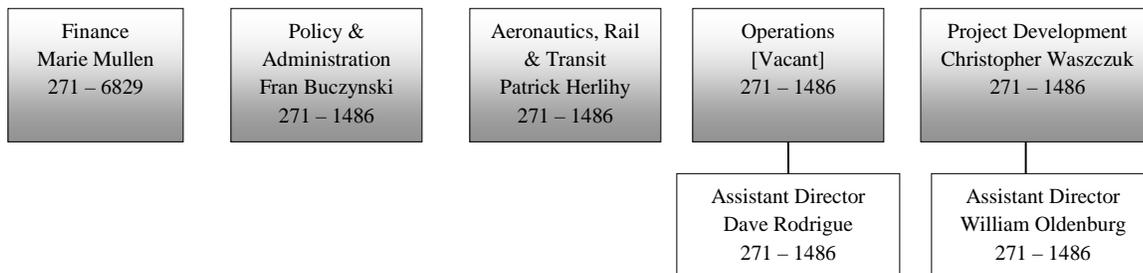
Funds for the Department are provided by a State gasoline tax, some motor vehicle revenue, town funds, and Federal funds. These are budgeted and approved by the State Legislature.

New Hampshire Department of Transportation

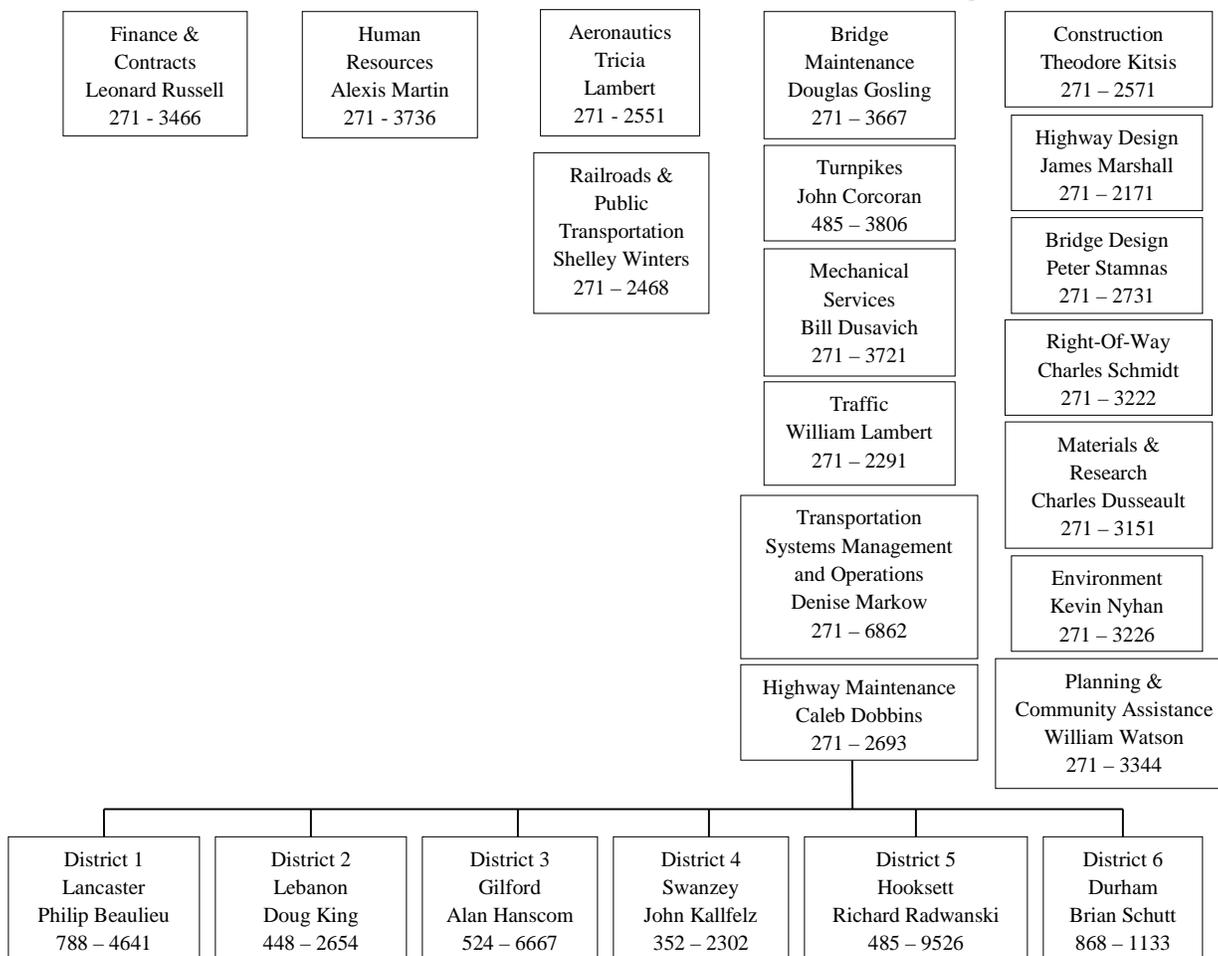
Organizational Chart



Directors



Bureau Administrators and District Engineers





## 101.2 – FEDERAL HIGHWAY ADMINISTRATION

In general, NHDOT is responsible for the construction of all Federal–aid projects and for ensuring that such projects receive adequate supervision and inspection to ensure that projects are completed in conformance with approved Plans and Specifications. The roles of both the Department and FHWA are memorialized in the Stewardship and Oversight Agreement, which is signed by the Commissioner of the DOT and the FHWA’s Division Administrator.

The primary objectives of the FHWA construction– monitoring program are:

- To evaluate NHDOT’s control of the projects, the quality, and progress of work.
- To maintain a close working relationship with NHDOT construction staff.
- To promote quality improvements.
- To promote work zone safety and mobility.
- To ensure that projects are completed in reasonable conformance with the approved plans, specifications, and approved changes.
- To ensure incorporation of environmental commitments.

To better address identified risk areas and leverage FHWA’s limited resources, the FHWA NH Division will implement an annual risk– based, statistical Construction Monitoring Plan (CMP) to assure that projects are completed in reasonably close conformance to the plans and specifications (PS&E), to evaluate the quality of construction, and to promote appropriate improvements in construction quality. The implementation will include: construction inspections, reviews, and training through visible monitoring, enhanced financial oversight, and communication and outreach. A key component of the CMP is also implementation of the new Compliance Assessment Program (CAP). The CAP replaces the current requirement to conduct reviews on 10% of “delegated” active construction projects. Annually, FHWA Headquarters will provide a random sample of projects for the Division’s review.

The FHWA Engineers’ presence should be recorded on the daily report along with any important items discussed or points of controversy.

## 101.3 – PROJECT ORGANIZATION

Each construction project is under the supervision of a Contract Administrator. The Contract Administrator is assigned to the project between the time bids are opened and the beginning of work. The Contract Administrator may handle the work alone on very small contracts, but normally will have assistant engineers, technicians, temporary staff, consultant inspectors and consultant material testers as required for the work load on the project. The Contract Administrator will assign, instruct, and supervise these assistants to provide the necessary project layout, inspection, materials control, record keeping, and documentation, thus assuring conformance with the contract.

The Contract Administrator, as the Department's representative on a project, will have frequent contact with the Contractor, property owners, municipal employees, utilities, and the traveling public. The Contract Administrator's intelligent, tactful, and sometimes firm handling of matters with these varied individuals and groups is indispensable to the work and, when properly administered, will result in respect for the Department and its employees.

## 101.4 – CONSULTANTS

### A. General

Consultant services may be utilized to supplement the construction program oversight. Both Material Testing and Construction Engineering and Inspection (CE&I) contracts are secured by the Department as a tool for the Contract Administrator's (CA) use. As there are limits to these contracts, utilizing Department forces should be the default when staffing a project, understanding that the consultant inspectors are there if and when needed. The CA should not hesitate to consult with their District Construction Engineer (DCE) to discuss project staffing.

### B. Construction Engineering and Inspection (CE&I)

In evaluating staffing needs, the DCE will evaluate every project in their area, identifying both CAs and the number of field staff required to adequately cover the project. Typically the CA will be a Department employee, supported by a staff of other Department employees as is available.

Inevitably, during the busiest months of the construction season there is a shortfall of Department employees necessary to cover all the work. It is during these times that CE&I services are sought. Once a consultant need is identified the DCE will contact one of the Consultants contracted through a statewide contract and request one or more individuals as appropriate.

Much like the Department, the Consultant's employees are categorized by different experience levels so the DCE will have to request the level of experience needed for the given project. Each individual will be assigned to a project by way of an assignment slip, which identifies not only their rate of pay but also the start date and anticipated end date. These individuals will be utilized as an extension of the Department's staff, carrying out the same duties as would be expected of a Department employee. They are usually assigned for an extended period of time (e.g., a full construction season) and only released when the work load diminishes to a point that their services are no longer needed or other Department employees are freed up from other projects elsewhere.

### C. Material Testers

Generally the Material Testing contracts are used in a similar way as the CE&I contract only they are usually short term assignments. More often the Material Testers are called in on an as-needed basis. They may be called in for as little as one day or to perform a specific test. It is obviously more desirable to give the Material Testing consultants as much notice as possible but due to the nature of road and bridge construction this is not always possible. There may be cases, depending on the project's needs where a material tester might be called in for an extended period of time.

## 101.5 – INTRA– DEPARTMENTAL RELATIONS

Harmonious working relations among all employees are essential to the efficient operation of the Department.

Each employee should become generally familiar with the operation, problems, and area of responsibility of other divisions. With this understanding, employees will be better prepared to perform their duties in a manner that meshes with that of others, and provides the cooperative effort necessary for an efficient organization. Each employee should cultivate good working relations with fellow employees. One of the basic elements of good employee relations is good communication among individuals.

A supervisor's instructions to employees should be complete and clearly given so that the employees can fully understand their duties and responsibilities. Conversely, the employees should brief their supervisor on the phases of the work that they have covered. This principle applies equally well between office and project personnel. Employees should carry out instructions as given by their supervisors. This should not, however, curb the initiative of employees to discuss methods and procedures with their superiors that will result in a better understanding of the employee's work and responsibilities.

## 101.6 – DEPARTMENT EQUIPMENT

### A. Engineering Equipment

Many items of engineering equipment are delicate precision instruments that require an understanding of their proper use and their limitations. The Contract Administrator should teach assistants the proper care, use, adjustment, and storage of this equipment so that it will be in proper working condition at all times, and operating with reliable accuracy.

### B. Supplies, Forms, and Equipment

The following articles, as needed, should be in the Contract Administrator's possession:

- Plans
- Record Plans
- Contracts
- Standard Specifications
- Standard Plans for Road & Bridge Construction
- Construction Manuals
- Utility Accommodation Manual
- Geotechnical Report
- Right– of– Way Agreement

- Public Hearing Transcript
- Utility Force Account Agreements
- Daily Report of Extra Work Forms
- Utility Daily Report Forms
- Contractor's Proposed Schedule of Operation and Progress Report
- Corrective Action Reports
- Field Test Report Forms
- Change Order Forms
- Straight Line Analysis Charts
- Concrete Plant Work Sheet
- Concrete Batch & Delivery Record
- Project Record Submission Check List
- Uniformed Officer and Flaggers Form
- Loose- Leaf Notebook and Fillers (Record Book)
- File Folders
- General Office Supplies
- 6 ft Rule
- 50 ft or 100 ft Cloth Tape
- Hand Level
- Plumb Bob and Sheath

These items should be available at the Construction Bureau Office, except as noted.

Refer to [Section 152 Reports and Forms](#) of this Division for a list of all the forms typically used by the Construction Bureau. These forms may be found on the Construction Bureau's network drive.

Miscellaneous field office supplies may also be purchased through the contract. Refer to *Section 698 Field Facilities* of the [Standard Specifications](#) for more information.

Supplies to be acquired from the Materials and Research Bureau are as follows:

- Sample Bags
- Sample Cans
- Sample Tags

- Security Tape

When necessary, and if available, the following articles may be obtained from the Construction Bureau Office:

- Steel Tapes
- Spring Scale and Clamps
- Transit and Level Rod
- Auto Level and Rod
- Planimeter

### C. Vehicular Equipment

State– owned vehicles are provided for use by field personnel on the basis of need, availability, and the best advantage of the State. Their use shall be governed by *Section 404* of the [New Hampshire Department of Transportation Policies and Procedures](#).

A state driver’s license is required to operate a state vehicle. Operators of state vehicles should understand that they are driving on their personal license and are solely responsible for any traffic violations.

Employees driving state vehicles are expected to use defensive driving techniques, to see that their car is kept clean and properly maintained, to be especially courteous, and to set a good example on the highway. Also, the [Department of Transportation Policy 108](#), states the following:

“A Department employee, operating a State–owned vehicle or operating a personal vehicle on State business, unless he/she is on an emergency mission, is encouraged to stop and offer reasonable assistance to a motorist in distress.”

In case of an accident with a state– owned vehicle, the first priority is to get the required medical assistance for any injuries. The employee should also notify the garage and the Construction Bureau Office by telephone as soon as possible. Law Enforcement shall be notified for any accident that results in property damage or injury. Full cooperation is required when dealing with law enforcement officials, but the subject of liability should not be discussed with others. A Motor Vehicle Accident Form, which may be found in the glove compartment of all state vehicles, should be completed and submitted to the Construction Bureau Office within 48 hours of the incident.

## 101.7 – PERSONAL EQUIPMENT

Field personnel are expected to have a personal vehicle available for daily use if they have not been assigned a State vehicle. Those who drive State vehicles may also need to drive a personal car when the State vehicle is in for repairs and a replacement is not available.

## 101.8 – DEFINITIONS AND TERMS

Important definitions and terms used in the Contract, Specifications, and this Manual are contained in *Division 100* of the [Standard Specifications](#).

# **SECTION 102 – BIDDING REQUIREMENTS AND CONDITIONS**

## 102.1 – GENERAL

This section of the [Standard Specifications](#) establishes the conditions under which bids are accepted by the Department.

The Contract Administrator should become familiar with the following subsections in the [Standard Specifications](#) that pertain directly to the work at the Project level:

1. Subsection 102.04 Interpretation of Quantities in the Bid Proposal
2. Subsection 102.05 Examination of Plans, Specifications, Special Provisions, Proposal and Site of Work
3. Subsection 102.06 Familiarity with Laws

# **SECTION 103 – AWARD AND EXECUTION OF CONTRACT**

## 103.1 – GENERAL

This section of the [Standard Specifications](#) outlines the procedures and obligations involved in the award of the Contract to the successful bidder. The Contract Administrator should make certain, through contact with the Construction Bureau Office, that the Governor and Council have approved the award of the Contract before Work is allowed to proceed.

# **SECTION 104 – SCOPE OF WORK**

*104.1 – REVISIONS TO THE CONTRACT*

*104.2 – MAINTENANCE OF TRAFFIC*

## 104.1 – REVISIONS TO THE CONTRACT

This section of the [Standard Specifications](#) establishes the Contractor's and the Department's obligations with respect to revisions to the contract including what constitutes a Revision, what notification is required of the Contractor, the response by the Department and Contractor's recourse.

Revisions to the contract, whether it relates to time, money, or quantities may ultimately lead to a Change Order. Refer to [Section 110 Change Orders \(Revisions to the Contract\), Extra Work, Alterations in Design and Per Specification Items](#) in this Division for more information regarding all aspects of Change Orders.

*Subsection 104.02 Revisions to the Contract* of the [Standard Specifications](#) carefully spells out the different circumstances that may warrant a revision. Refer to *Subsection 108.07 Determination of Contract Time Extension for Excusable, Nonexcusable, Noncompensable, and Compensable Delays* and *Subsection 109.04 Payment for Revisions to the Contract* of the [Standard Specifications](#) for information about time extensions and payment with regards to any revisions to *Subsection 104.02*.

The time notification associated with any revision or potential revision becomes extremely important. The sooner that a potential revision is noticed by either the Contractor or the Department, the more likely it will be resolved with minimum impact to the project. *Subsection 104.02(G) Contractor Notification* of the [Standard Specifications](#) spells out step– by– step the notification process. The Contract Administrator should document and gather all information with regards to any Revision to the Contract or potential of such. This supporting documentation could prove invaluable should the Contractor pursue a claim in accordance with *Subsection 105.18 Claims* of the [Standard Specifications](#).

## 104.2 – MAINTENANCE OF TRAFFIC

This section also establishes the obligation that the Contractor and the Department have with respect to Maintenance of Traffic. Open communication between the Contract Administrator and the Contractor shall be maintained at all times throughout the project as maintaining a safe worksite for the traveling public is imperative.

The Contract Administrator should meet with the local Maintenance Patrol Foreman to apprise them of the impacts of the construction and what they should expect.

## **SECTION 105 – CONTROL OF THE WORK**

### *105.1 – AUTHORITY OF THE ENGINEER*

- A. The Responsibilities of the Contract Administrator
- B. Relations with Contractors and Suppliers
- C. Public Relations
- D. Supervision

### *105.2 – INSPECTION DUTIES OF PROJECT PERSONNEL*

### *105.3 – PRE-CONSTRUCTION CONFERENCE*

- A. Setting up
- B. Invitees
- C. Preparing the Agenda and Providing a Written Report
- D. Discussion Topics as applicable to the Project
- E. Conducting the Meeting
- F. Labor Compliance

## **105.1 – AUTHORITY OF THE ENGINEER**

### **A. The Responsibilities of the Contract Administrator**

The person who assumes the responsibility for the supervision of a highway construction project is, without a doubt, the keystone of the whole organization of any highway department. Everything depends upon the Contract Administrator's diligence, know-how, and integrity. All the work of the planners and designers is brought into fruition through this person's efforts. The assignment is, at the same time, the most demanding and the most rewarding. It demands judgment, courage, ingenuity, foresight, and tact. Its rewards include priceless experience in the arts of supervision, organization, and public relations. It also furnishes a deep pride and satisfaction in the knowledge of a tough job well done.

The Contract Administrator in charge of a project is just that. They must assume control of the job and must be familiar with every detail of the Plans and know the Specifications for every item involved. The Contract Administrator must ensure that their assistants know and understand the Specifications for the particular work they are inspecting. The Contract Administrator and their assistants must also know exactly what to do when the project work is not being conducted in a satisfactory manner.

The Contract Administrator must be fully informed at all times of the Contractor's schedule of operations and the means by which its schedule is to be put into effect. The Contract Administrator must see that all Specifications applying to the project are fully and fairly enforced and must be sure that a full, daily record is kept of all activities on the project.

All engineering personnel should be familiar with the limits of their authority. Contract Administrators do not have the authority to change or relax any specification. Higher Department authority will spell out the conditions under which the Contract Administrators may make minor changes in the Plans. Certainly, Contract Administrators must seek higher authority for making any change that would materially affect the quantities of work or alter the Contract Completion Date. On

Federal– aid contracts, Major Changes require approval of the Federal Highway Administration (FHWA). Refer to [Section 151 Field Policies](#) in this Division for more information.

The phrases “or as directed by the Engineer” and “or as ordered by the Engineer” are found in many instances in the Plans, Specifications, and Special Provisions. The authority granted the Contract Administrator by this wording is recognized as being essential to permit practical adjustments in enforcing the Specifications to meet conditions that cannot be anticipated or completely covered by written orders. The Contract Administrator is responsible for substantiating any changes in the Plans “as directed” or “as ordered” by a written statement to the Contractor.

When possible, the Contract Administrator should discuss changes with the District Construction Engineer and the FHWA. The direction or the order should be made in triplicate, with the original furnished to the Contractor, one copy retained by the Contract Administrator, and the third copy forwarded to the Construction Bureau Office for the Project files. These written records of directions or orders should be made at the time they are given with copies made for inclusion in the final project records. These records are vital in determining the payment for labor and materials during the computation of the final costs of the project.



*Figure 100 – 1: Contract Administrator and District Construction Engineer Consultation*

The Daily Report is one of the most important documents kept by Contract Administrators. It is kept as a project diary with day–by–day documentation of the orders, explanations, and events that occur on the job.

The Daily Report is often used as evidence in court actions. Therefore, Contract Administrators or acting Contract Administrators must personally sign each Daily Report. Each day’s activities, including any pertinent discussion, should be clearly recorded so that they can be readily understood by all concerned. Should Contract Administrators ever be called upon to testify from the Daily

Reports, they will be thankful for the time and care they put into keeping them. There are instructions for keeping the Daily Report in [Division 800](#).

The proper measurement of material quantities and the records and computations based on the measurements is a major responsibility of Contract Administrators. The records and computations should be kept in a neat and business-like manner. Computations should be carefully checked and signed by the person doing the work and by the one who checks the work. All supporting data, such as weigh slips and invoices, should be preserved in a chronological order, and references should indicate where they can be found. Refer to [Division 800](#) for specific instructions on record keeping.

It is also the responsibility of Contract Administrators to verify that all materials being used on the project meet the Specifications (acceptance testing). Contract Administrators should also work with the Materials and Research Bureau and assist them in scheduling independent Assurance Sampling and Testing. For more specific instructions on materials control, refer to [Division 700](#).

Checking and rechecking dimensions is also a major responsibility of Contract Administrators and is a traditional safeguard against blunders. The same thing applies to elevations. This process of checking and rechecking is particularly important around structures. It is the duty of Contract Administrators to ensure that project assistants and inspectors acquire this habit.

Today, highway construction is a fast-moving operation. It takes alert, knowledgeable people to keep abreast of it. The Contract Administrator should ensure that all project personnel, including themselves, are mentally prepared to deal with the rapid pace of modern construction. Once that is done, the job will not be as difficult as it may first appear. With full knowledge of the Plans and Specifications, knowledge of rights and responsibilities, and an honest effort to properly supervise the job, there is nothing to fear from any inspection or investigation.

Since the Contractor depends on production for much of its profit, Contract Administrators should endeavor to schedule any inspection and materials testing so as to keep project delays to a minimum. Also, Contract Administrators should take the time needed to properly consider all decisions, but should not delay the Contractor unnecessarily. If Contract Administrators feel that a decision is beyond their authority or knowledge, they should seek timely advice from the District Construction Engineer, and pursue the issue until an answer is found.

When seeking decisions from a District Construction Engineer, Contract Administrators should have all information readily available for discussion.

Another important duty of Contract Administrators is to train the assigned project personnel. Often these are beginners with little or no experience in this field. The way these people are instructed and trained not only affects the efficiency of the job supervision, it also affects the future operation of the Department. It is vital that the proper mental attitude be instilled, free from cynicism and indifference. New employees must be told how to perform a particular assignment and why it has to be done. Employees must be given an understanding of how individual efforts fit into the whole Project and their importance to the final results.

Employees must fully understand the steps to be taken when things go wrong and must have complete confidence in their immediate superior. Efforts should be made to develop a professional attitude and a pride in the organization for which they all work. The first few weeks a new person is employed are vital to that person's future worth as an employee. No one can influence new employees more than Contract Administrators.

## **B. Relations with Contractors and Suppliers**

The first contact Contract Administrators have with the fast-moving, demanding duties of supervising a modern highway construction project can be a confusing and frightening experience unless they are given a clear idea of the mission and of the proper deportment required by their responsibilities and have a basic knowledge of how to handle themselves. Despite construction experience as an assistant or inspector under someone else, the full authority and responsibility entrusted to new Contract Administrators is a challenge.

The aim and mission of the person in charge of the inspection of a construction project is to ensure a wholly satisfactory job built in accordance with the Plans and Specifications under which the Contract was awarded. Contract Administrators are the representatives of the Department which entered into a contractual agreement with the Contractor for the Work to be performed. In carrying out this mission, Contract Administrators will be in constant contact with the Contractor and its representatives, and often suppliers of materials and services. These contacts can be business-like and dignified, or they can be sources of friction and hostility. For a successful operation, it is necessary that a business-like relationship based on mutual respect be developed.

With that in mind, the best approach is the establishment of a regular schedule of job conferences for discussion of problems and schedules. Notes should be kept of the developments that occur for future reference.

Conferences should then be held at regular and frequent intervals, usually weekly. Special conferences should be quickly arranged when emergencies, disagreements, or any indications of friction or trouble develop. To be effective, those participating must strive for an atmosphere of mutual respect. It must be kept in mind that respect is not a commodity that is for sale anywhere; it must be earned by the day-in, day-out practice of fair play and honesty.

It is important to understand that Contractors are business persons and that relations with them have to be on a business basis. They are in business to make money. Most of them intend to do their job properly. If they can develop a method of producing the desired result more economically, Contract Administrators should go along as far as the Specifications will allow. The Contractor should not be viewed as "the enemy," but as a business person with whom the State has entered into a contract.

Contractors risk their investment in machinery and payrolls with the hope of realizing a profit, and there is nothing wrong in that so long as the owner, the State, gets a full return for its money. With that in mind, one principle governing relations between the Contract Administrator and the Contractor

is that a Contractor should never be ordered to do any work unless the method of paying the Contractor for the work is indicated in the Contract or by subsequent Change Order.

Modern contracting depends on realizing the productivity of the highly efficient equipment now available. This productivity is also in the best interest of the traveling public, since their temporary inconvenience is ended more quickly, and they then enjoy the comfort, safety, and efficiency of the new facility. Therefore, every effort must be made by Contract Administrators and their staff to “stay on top” of the job and to keep it on or ahead of schedule.

Contract Administrators must think ahead to the next operation and be prepared for it. The Contract Administrator should insist, in the periodic conferences, that the Contractor plan its work and keep the Contract Administrator fully informed of the Contractor’s plans. In that way, delays can be avoided, cooperation improved, and intelligent deployment of available inspection manpower can be achieved.

Contract Administrators should be sure of their rights, duties, and prerogatives under the rules and laws of the State. Contract Administrators should know exactly where they stand when any corrective action becomes necessary. If a Contractor or its superintendent should refuse a legitimate order, Contract Administrators must know the steps that will legally impose the proper restraints. These will be found in the Contract documents. Seriously contested orders should be presented to the Contractor in writing, with copies to the Project File and Construction Bureau Office. All such incidents should be recorded in the Daily Report in full detail, including witnesses present.

Communication of instructions to the Contractor, its superintendent, or foreman should be done in a business-like, courteous manner. Contract Administrators should be firm without being abusive. When Contract Administrators are sure of their grounds, their authority, and their means of enforcing it, there is no need for abuse, recriminations, or undignified arguments. On the other hand, no Contract Administrator or inspector can be expected to take abuse from a Contractor or its representatives. Here, it is up to the administrators of the Department to deal promptly and decisively with any instances of improper language or threats used against a Contract Administrator or inspector.

Contract Administrators should avoid dealing directly with laborers and equipment operators. Contract Administrators must avoid trying to actually “run the job” or to boss the Contractor’s people or run a gang. The job of Contract Administrators is to see that the desired results are achieved. The method of achieving them is up to the Contractor, except where the method is specified. Contract Administrators should tell the superintendent or foreman what is wanted, and then see that it is performed.

It must be realized that those who represent the public’s interest on highway construction contracts are overseeing the spending of large sums of tax-collected money. That being so, it must be expected that the public, their elected and appointed representatives, and the press will all display a lively interest in how that money is spent. That scrutiny is constant, often critical, and sometimes unfair or hostile. The engineering and inspection people charged with safeguarding the public’s interest must, therefore, not only be efficient and incorruptible; they must also scrupulously avoid any action that might be misinterpreted or misrepresented.

There is no substitute for plain honesty. The solicitation or acceptance a bribe or a gift from a Contractor is an act that places the individual doing so in jeopardy of summary dismissal and possibly criminal prosecution. There are, of course, Contractors and suppliers who may offer unsolicited presents, favors, entertainment, and bribes to Contract Administrators and inspectors, hoping to obtain favored treatment or relaxed control. A person's personal integrity and self-respect require that such offers be rejected.

Personnel who accept gifts of entertainment have placed themselves under obligation to the giver. Both giver and receiver of such favors have demeaned their personal self-respect and destroyed any mutual respect that might have existed. Almost inevitably, such transactions are discovered by someone or some agency, with resulting disgrace to both parties. Widespread and even isolated transgressions undermine the public's confidence in the whole industry. No matter how lavish the gift, it is not worth the destruction of a career and the loss of the respect of friends, associates, and family.

It is not necessary to carry this situation to such unreasonable lengths as to refuse the offer of a soft drink or other such insignificant things. An unfriendly demeanor only succeeds in making a person look ridiculous. Such favors as frequent lunches or dinners should be declined with thanks. Often the intent is cordial, and the one who makes the offer does so out of simple friendliness. If one's judgment indicates that acceptance of the offered hospitality might be indiscreet, might be misconstrued, or that one would feel under the least obligation, one should decline it graciously.

Contract Administrators or inspectors must treasure their personal integrity and jealously guard their reputation. Summing up, in dealing with Contractors and suppliers, relations must be kept on a business-like basis, and any favor, no matter how small, which engenders any feeling whatsoever of obligation to that individual or company, should be declined.

### C. Public Relations

Contract Administrators are one of the most important elements in the Department's public relations. In this position, Contract Administrators are continually in contact with the people who live alongside the road that is under construction and with the traveling public. To them, Contract Administrators represent the State. With all these people, Contract Administrators must be patient and courteous at all times.

At times, Contract Administrators will be subjected to tirades and abuse from bordering residents and passing motorists. Because Contract Administrators are not just individuals, but actual representatives of the State who is their employer, they will meet such attacks with patience and dignity. They should explain the situation and if possible address any mistake or oversight that has been made.

Examination of the operation of maintaining traffic carefully is vital. Contract Administrators must put themselves into the frame of mind of a driver who is unfamiliar with the job, and see what such a person would need for guidance. Remember, in the last analysis, they are the people who are paying the salary of the Contract Administrators, as well as paying for the construction project.

Good relations with the people with whom one is in daily contact are not the result of an occasional effort. They require constant thought and a sincere desire to anticipate people's needs and wants. Road building operations impinge upon vital and sensitive parts of many people's daily routine of living. It represents a major change in the pattern of daily travel of residents and business people whose homes and properties abut the highway under construction.

Their most prized possessions, their home, their personal car, as well as their comfort and convenience, are involved. Most of them have no concept of the problems of the road builder and may care less. They feel that they were there first and that they are entitled to the conveniences to which they have become accustomed. Their viewpoint must be understood in order to deal patiently with their demands and criticisms.

There are many services for which special provisions must be made. The Contractor has as much of an interest in promoting local goodwill as do the Contract Administrators. The Contractor's cooperation must be sought in providing for these necessities. Roadside merchants whose livelihood depends on doing business with the travelers have special problems which, to them, are all-important. It is good practice to make their acquaintance, ascertain any especially vital needs they may have, and arrange to accommodate them if it is possible. The Contractor must arrange to maintain reasonable and safe access to homes and businesses at all times during construction.

Oftentimes, construction schedules can be arranged at mutually convenient times, or other gestures of goodwill can be made that take a lot of the annoyance and hardship out of the period of construction. Just the fact that people have a chance to state their problems and get sincere and courteous consideration goes a long way toward avoiding the bitterness and anger that could otherwise develop. Contract Administrators must always be willing to confer with these people and to give their problems careful thought.

The stranger or tourist who must make his or her way through a construction job has many fears and worries that may not occur to people familiar with construction and construction equipment. The heavy, fast moving haul rigs in use today are a frightening sight to a person not used to their noisy proximity. Thus, they are in a tense and uncomfortable frame of mind as they traverse a construction job. Also, their familiar guides, the white and yellow lines, the standard signs, and the guard rails, may no longer be there. Multiply these unavoidable annoyances by impaired vision due to clouds of dust, poor traction due to mud or sand, a poorly maintained riding surface, lack of clear and legible guide signs, or insufficient, surly, or untrained flaggers, and the driver feels that they have been subjected to a dangerous and unnecessary ordeal.

Most Contracts provide a method of compensating the Contractor for properly maintaining a safe and reasonably comfortable roadway for passing traffic through the construction areas. It is the duty of Contract Administrators to see that the Contractor does it. Highways today are financed out of user taxation. The passing tourist and the local commuter or shopper are highway users. Their taxes pay for the road being built and the salaries of the people doing the building. They are entitled to careful and courteous consideration, and their friendship and goodwill are all-important to the highway industry.

Another group with which Contract Administrators have frequent contact is the elected or appointed officials of the locality through which the project traverses. Local residents turn to them with their complaints and problems. As their representative, the official must relay their complaints and seek relief for them. It is wise to make the acquaintance of these officials at an early date and to inform them as fully as possible about the details of the plans and the schedule of operations. Thus they will not appear ignorant of the situation when called upon by their constituents.



*Figure 100 – 2: Project Personnel Confering with the Governor*

The officials should be informed as quickly as possible of any change in plans or scheduling for the same reason. These government officials invariably appreciate the courtesy of being kept informed. Their friendship and cooperation are of vital importance.

The local press will also take a lively interest in any road construction in its area of coverage. Often the first interview with an inquiring reporter from a local paper is the first experience Contract Administrators obtain in press relations, and the knowledge that their answers will appear in print may upset their poise. It is wise to remember that, while reporters may have very little knowledge of road construction, they probably are well acquainted with residents of the locality. Their questions may be based on comments from these residents, and such inquiries should be answered frankly and factually with as full an explanation as possible. Contract Administrators represent a public agency spending public money. As such, they are not entitled to withhold this information from the public press.

Contract Administrators should try to present the information in as favorable and factual a form as possible. Contract Administrators should, however, confine their remarks to those areas over which they have personal control. It is not their prerogative to comment on the policies of the Department which employs them. Contract Administrators are not entitled to offer public criticism of their superiors. Any questions directed toward the latter two subjects should be politely turned aside.

Contract Administrators will not offer criticism of local political figures under any provocation. Good reporters will spot an evasive answer at once, so one should be frank and open about the project details and conditions. A friendly and open attitude will incline reporters to believe the answers they have received. The development of an atmosphere of mutual confidence with the local press is a giant step toward good public relations.

For good public relations, the most important things Contract Administrators can do are keep the project in good traveling condition and minimize inconvenience to the tourist, the commuter, and the people who live along the construction site. It is a good idea to check the project for both day and night driving. Familiarity with the site often dulls the Contract Administrator's realization of some of the hazards or inconveniences. To overcome this, Contract Administrators should ask friends or acquaintances not familiar with the project to drive over the job – both during the day and at night – and point out what they find confusing, troublesome, or inconvenient.

The Contract Administrator has many ways to keep all the people involved informed. The Department's Public Information Officer is dedicated to providing important, relevant information to the public. This person has direct contacts with local news organizations, both on-air and in print, and is able to quickly disseminate information to large groups of people. The Contract Administrator shall provide the necessary information in a timely manner.

The Department also has a [Transportation Management Center](#) (TMC). The TMC's mission is to detect, verify and respond to incidents that affect the state transportation network. The Contract Administrator can provide information to the TMC, which in turn can quickly alert the traveling public through various means, such as the state's Traveler Information System 511NH, Dynamic Message Boards, and through Social Media.

#### D. Supervision

The art of supervising and directing the efforts of other workers is one for which some people are fortunate enough to have a natural ability. Most people, though, have to develop this skill. Contract Administrators, because of their precise, mathematical, and scientific approach to situations, are generally among the latter. Their supervisory skills usually are developed in the school of actual experience.

There is no better training in the art of supervision than the day-to-day work and responsibilities of Contract Administrators. Contract Administrators soon learn that those who control others must first learn to control themselves. There is no room for temper outbursts. There is no place for indecision or evasion of responsibility.

To gain the respect of subordinates, Contract Administrators must obviously merit respect. Contract Administrators earn respect by knowing the job, knowing the organization, showing consideration for the problems of those they supervise, and by firmness and level-headedness in emergencies and disagreements. In handling a construction project, Contract Administrators are preparing themselves

for greater responsibilities. By being aware of that fact and observing intelligently the results of one's actions, one cannot help but derive great benefits from one's job.

The staff assigned to help Contract Administrators on the job is under their full control. Contract Administrators are responsible for the quality and quantity of the work of their staff. Discipline and control are up to the Contract Administrators. There is no need for them to be overbearing on the one hand, nor fawning and wheedling on the other. It is possible and desirable to be firm yet pleasant. Defiance of their authority must not be permitted.

At the same time, Contract Administrators should never discipline subordinates in a manner that will humiliate them in the eyes of their colleagues or the staff they, in turn, must supervise. Such a subordinate should be taken aside to be corrected. It is also important that Contract Administrators be as free with praise for a good job as they are with the criticism for a poor one.

One of the great problems of supervision is that of maintaining the personal relationship between the supervisor and the supervised. Being a supervisor is sometimes a lonely job. A supervisor may be friendly but not familiar, and certainly must avoid even a hint of partiality or favoritism.

Good supervisors will make sure that their helpers understand exactly what is required of them. Supervisors will indicate clearly to whom they are to report, from whom they are to receive instructions, and the extent of each individual's responsibility. By the same token, such supervisors must fully understand the extent of their own authority and responsibility, and to whom they are responsible. Confusion in the field of authority and responsibility can only result in poor supervision.

One of the proven methods of obtaining the voluntary cooperation of subordinates is to build their self-esteem. This is not done by transparent or effusive flattery. It is achieved by impressing on them the importance of their particular task, and making them understand its part in the production of a good end product. It is nourished by a quiet word of praise for a job well done. It is encouraged by listening carefully to their ideas and suggestions, and by using these suggestions whenever they are sound. When the ideas or suggestions of subordinates are implemented, be sure that they receive full credit for it.

When employees, especially new ones, exhibit the wrong attitude, it is wise to offer a helping hand. This should be done quietly and privately in order to avoid embarrassing them in front of their fellow workers. That kind of consideration can pay excellent dividends. If the employee does not respond to courteous corrective measures, then and only then, is it time to employ firmer measures. This, too, should be done in private and without humiliation, to preserve and protect the dignity of both employee and supervisor, and the morale of the organization.

It is good policy to keep subordinates informed of changes in plan or policy unless such changes are of a highly confidential character. This imparting of information should be accompanied by a careful explanation of the motivations and reasoning behind the changes. Frequent conferences with subordinates to discuss job problems are a good idea. While not relinquishing in the least the power of final decision, supervisors can impart tremendous team spirit by consulting with their subordinates

before making the final decision. They feel that they “belong” and that their thoughts are respected. Employees who feel this way have self-respect, and their loyalty to the organization will never be in doubt.

The field of supervision has been covered by many books and written by students of the art. These are a few basic points that seem to apply with special emphasis to highway work and the special problems associated with it. Good supervision is good business and, expressed in its simplest form, is nothing more than the application of the “Golden Rule” to the work at hand.

## 105.2 – INSPECTION DUTIES OF PROJECT PERSONNEL

Competent inspection is one of the most important elements of project control provided by the project personnel. The Contract Administrator will handle inspection duties without assistance when working on very small projects, but normally there will be one or more assistants to aid with these duties.

Plans and Specifications are carefully prepared; but if, through lack of inspection, faulty material or poor workmanship is incorporated into the Work, then the purpose of these Plans and Specifications has been defeated. Proper inspection requires good judgment, diplomacy, common sense, and a thorough knowledge of the work.

Project personnel will check all phases of the work and materials for conformance with the Plans and Specifications. They will have the authority to reject materials and suspend any work which does not conform to the Plans and Specifications. Contract Administrators will be kept closely informed when these problems arise.

When the procedure in any operation is designated in the Specifications, it shall be rigidly enforced. Project personnel shall always bear in mind that the management of the work is the Contractor’s business. However, if any methods are employed which will impair the quality of the finished work, the Contractor should be instructed to correct the deficiency and advise the Contract Administrator of the action taken. The project personnel, including the Contract Administrator, will in no way attempt to supervise work for the Contractor.

Project personnel will not be authorized to revoke, alter, enlarge, relax, or release any requirements of the Specifications, nor to approve or accept any portion of the work or to issue any instructions contrary to the Specifications. If conditions arise which seem to render it impractical to enforce the Specifications, project personnel should discuss this condition with the Contract Administrator.

A set of Plans and a copy of the Specifications will always be available for reference. It will be the duty of all project personnel to study the Plans and Specifications and become thoroughly familiar with all the details of the work to be done. If anything is found which is not fully understood, they will consult with the Contract Administrator.

## 105.3 – PRE–CONSTRUCTION CONFERENCE

### A. Setting up

As soon as possible after the project has been officially awarded, the Contract Administrator will arrange a conference with the Contractor and interested parties for the purpose of reviewing construction details, proposed schedules, utility work, and special requirements of the project. Prior to this meeting, the Contract Administrator should have studied the Plans and Special Provisions and made a field inspection of the project to be well-informed as to the requirements and existing conditions.

### B. Invitees

The following parties and individuals should be invited to attend the pre–construction conference:

- The District Construction Engineer
- The Contract Administrator and principal project assistants
- The Contractor and its principal personnel
- Representatives of involved utilities invited through the Highway Design Utility Coordinator
- Municipal officials, if involved
- A representative of the Maintenance District Office, and/or Turnpikes
- For all Federally funded projects:
  - FHWA (only for non–exempt projects)
  - Department’s Office of Federal Compliance (See Section F below)
  - Any other interested parties and/or Department Bureaus involved
- Project Manager and/or Lead Person (NHDOT)
- Bureau of Environment and NHDES as appropriate

### C. Preparing the Agenda and Providing a Written Report

The Contract Administrator is responsible for the pre–construction conference agenda, for conducting the discussions, and for making a written record of the conference discussions. The [Pre–Construction Minutes](#) template serves well as both the agenda and ultimately the written record.

### D. Discussion Topics as applicable to the Project

The following topics should be discussed in the pre–construction conference:

- The Contractor's proposed operating schedules, and completion date requirements

- The work to be sublet, stipulations to be included in the subcontract agreements, Contract Administrator–Contractor relations and responsibility towards Subcontractors and authorized representatives
- Legal relations and responsibilities; cooperation with utility owners, the public, and other Contractors; licenses and permits in connection with execution of the work, and local ordinances
- Special requirements and unusual conditions, conflicts and problems anticipated, clarification of construction details and Specification requirements, and procedures for assessment of time
- Inspection procedures, furnishing samples and the time and place of testing and accepting materials, locating and equipping the field laboratories, storage and use of materials
- Responsibilities with regard to traffic control operations and public safety
- Importance of maintaining the public’s trust
- Delegation of authority by the Contractor and the Contract Administrator, lines of communication, equipment and personnel

#### **E. Conducting the Meeting**

The pre–construction conference, if properly conducted, can be of material aid in getting the project properly started. Participants should come prepared to make worthwhile contributions to the conference and the improvement of general relations. As moderator, the Contract Administrator should keep the conference discussions within the scheduled agenda and discourage any extraneous or digressive commentary.

#### **F. Labor Compliance**

The Office of Federal Compliance should that ensure a representative attends each pre–construction meeting for a Federal–aid funded project. The Federal Compliance Officer (FCO) should discuss Equal Employment Opportunity (EEO) requirements of the contract as well as the following items:

- On–the–Job Training (OJT) programs
- Disadvantaged Business Enterprise (DBE) programs
- Davis–Bacon wage requirements (payrolls)
- Additional work classification requests
- Prompt Pay program
- Subcontractor approval process
- Bulletin board requirements.

## **SECTION 106 – CONTROL OF MATERIALS**

### 106.1 – GENERAL

#### 106.2 – CERTIFICATES OF COMPLIANCE

A. Certificate of Compliance

B. Buy America Certification

#### 106.3 – DISPOSAL AGREEMENTS

#### 106.4 – PIT AGREEMENTS

### **106.1 – GENERAL**

The requirements for control of materials are well covered in the [Standard Specifications](#). However, there are a few sections including [Certificates of Compliance](#) and [Pit and Disposal Agreements](#) that need further attention and are discussed in more detail in the following sections.

The Contract Administrator should be aware that any temporary breaks in the limits of controlled access ROW for pits, disposal areas, and Contractor–related uses will require prior FHWA approval.

For specific duties of project personnel and methods of sampling and testing, refer to [Division 700](#) of this Manual.

### **106.2 – CERTIFICATES OF COMPLIANCE**

#### **A. Certificate of Compliance**

*Subsection 106.04 Certification of Compliance* of the [Standard Specifications](#) explains what types of items require a [Certificate of Compliance](#) (COC). The COC is confirmation, from the Contractor, assuring the Department that the product supplied is indeed the product specified and does meet all the requirements. If the Contract Administrator suspects that the COC does not accurately represent the product supplied, this should be immediately brought to the Contractor’s attention. The District Construction Engineer shall also be notified, as this could be part of a more widespread problem. Although rare, these problems have occurred before and shall be taken seriously as fraudulent behavior will not be tolerated.

#### **B. Buy America Certification**

On all Federally–funded projects, an additional certification is needed for all steel products permanently incorporated into the project. There is a separate [Buy America](#) form that the Contractor will fill out and submit at the conclusion of the project. This form is a statement of how much foreign steel, if any was incorporated into the project. As the form indicates, the total foreign steel allowed per project shall be the greater of 0.1% of the total Contract price or \$2,500.00.

The Contractor is also required to provide all the backup documentation supporting the Buy America Provision. This means proof from every supplier, distributor, fabricator, or manufacturer that has

handled the steel or iron product affirming that every process, including the application of a coating to the steel or iron product, was carried out in the United States.

Products that are subject to Buy America provisions include, but are not limited to, the following:

- Steel and iron products used in bridges, including structural steel, reinforcing steel, piles, high strength bolts, anchor bolts, bearings, etc.
- Guardrail, guardrail posts, end sections, terminals, and cable
- Steel fencing and fence posts
- Steel or iron pipe, conduit, grates, manhole covers, and risers
- Mast arms, poles, trusses, supporting structural members for signs, and luminaires
- Steel or iron components of precast concrete products, including reinforcing steel, wire mesh and pre-stressing or post-tensioning strands or cables

**Note:** The Buy America provisions are strongly emphasized in all FHWA project reviews.

### 106.3 – DISPOSAL AGREEMENTS

A [Disposal Agreement](#) form should to be completed by the Contractor anytime that surplus material, ready for recycling or disposal, leaves the site. This protects both the Department and the Contractor from future litigation due to improper disposal of material. Sample Disposal Agreement forms may be found [Section 807](#) *Sample Field Book* of this Manual.

Disposal Agreements need to be submitted even if the surplus material is going to a commercial pit. In these cases, much of the information required for the form has been already addressed by the owner of the pit, leaving only a portion of the form to be completed by the Contractor.

### 106.4 – PIT AGREEMENTS

A [Pit Agreement](#) form shall be completed by the Contractor for all non-commercial excavation sites where the material to be removed is intended for use on the project. The Contract Proposal may include rights to material at a specific source and if so, the Contract will clearly define the acquisitions or rights provided. Sample Pit Agreement forms may be found [Section 807](#) *Sample Field Book* of this Manual.

Along with the Pit Agreement, the Contractor must provide the Department with a copy of the permit for excavation. The Contractor will pay all related costs associated with the excavation and/or removal of material. The Contractor also needs to comply with all regulations spelled out in the signed agreements/permits. New Hampshire Statute [Chapter 72-B: Excavation Tax](#) requires that a *Notice of Intent to Excavate* (obtained from either the local tax assessor's office or the NH Department of Administration) be completed prior to excavating any material. A separate [Notice of Intent to Excavate](#) must be filled out for each municipality as applicable.

The [Pit Agreement](#), like the [Disposal Agreement](#), protects both the State and Contractor from possible future litigation. It is also protection for the property owner, ensuring that conditions of the agreement are met. It is important for the Contract Administrator to obtain written release from the property owner indicating that all the conditions indeed have been met.

## **SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC**

### 107.1 – GENERAL

- A. [Job Site Bulletin Board Requirements](#)
- B. [Safety and Health Regulation for Construction Projects](#)
- C. [Labor Regulations](#)
- D. [Waterways and Wetlands](#)
- E. [Federal Laws and Regulations](#)
- F. [State Laws \(RSA\)](#)

### **107.1 – GENERAL**

This section is well covered in the [Standard Specifications](#) with the exception of the following items:

#### **A. Job Site Bulletin Board Requirements**

The Contractor shall erect and maintain a bulletin board on which to post the notices, rates, and related items that are required to be posted. In order to not crowd the space and overlap posted information, the board shall be a minimum of 4 ft by 8 ft in area. Bulletin boards shall be an enclosure and the posted documents shall be protected from the elements by glass or Plexiglas. The boards shall be erected on site in an area that is accessible and can be easily seen by all workers. If there is not a safe place on site to erect the board, the Contractor may recommend an alternate location subject to the Department's approval. If an alternate location cannot be agreed upon, then the Contractor may be required to provide each employee a bulletin board handout in accordance with FHWA policy.

The Contractor may use one of two options for posters:

- Option 1: Using an “all-in-one” Federal and State Poster
- Option 2: Arranging posters in a predetermined manner as provided by the Department

Many of the bulletin board posters will be provided to the Contractor by the Office of Federal Compliance at the pre-construction conference, but it is ultimately the Contractor's responsibility to make sure all the proper material is posted.

A handy “NH DOT On-Site Bulletin Board Inspection Checklist” may be found at the following URL:

<https://www.nh.gov/dot/org/administration/ofc/documents/BulletinBoardChecklist.pdf>

## B. Safety and Health Regulation for Construction Projects

The Contractor is generally responsible for providing a safe environment for their employees to work in. The Contractor falls under OSHA's jurisdiction, whereas Department employees fall under the Department of Labor's jurisdiction. Although project personnel must be primarily concerned with other phases of project administration, they should at all times assess the project operations for compliance with pertinent safety regulations.

[Division 900](#) of this Manual has a list of common safety concerns and hazards associated with construction sites. There are also selected sections from the OSHA regulations that are pertinent to construction activities. The intent of these lists is not to make one an expert in the field, but they do highlight the more obvious hazards.

OSHA Regulations may be found at the following URL: <https://www.osha.gov/>

If an apparent violation is found, it should be brought to the attention of the Contractor immediately. Should the Contractor refuse to correct the situation, the Contract Administrator should give the Contractor written notice of the apparent violation, forward a copy to the Bureau of Construction, and place a copy in the project file. Where serious safety and health violations are observed that require immediate attention, refer to *Subsection 105.01 Authority of the Engineer* of the [Standard Specifications](#) for the action to be taken.

## C. Labor Regulations

Contract Administrators share responsibility for the enforcement of State and Federal Labor Regulations. Aiding the Contract Administrator with enforcement of these regulations are field representatives of the [Office of Federal Compliance](#) (OFC). Federal Compliance Officers (FCOs) will visit each Federal-aid project approximately once each month to ensure that the Prime Contractor has submitted all certified payroll reports, including those of their Subcontractors and lower-tier Subcontractors, within 14 calendar days from the end of the week (Saturday) in which work was performed.

Contract Administrators will continually assess the timeliness of payrolls and notify the FCO anytime the Prime is not in compliance with payroll submission requirements. Contract Administrators and FCOs will, on a case-by-case basis, determine whether or not withholding estimate payments is appropriate in order to gain compliance by the Prime Contractor.

When Subcontractors are in noncompliance with payroll submission requirements, FCOs will conduct a Good Faith Effort Determination (GFED) on the Prime Contractor to ensure the Prime Contractor has fulfilled their responsibilities under the contract (FHWA [Form 1273](#)). When the GFED finds that the Prime Contractor has fulfilled their obligations, and has provided documentation thereof, withholding just on the Subcontractor's item of work may be deemed most appropriate. In the absence of Good Faith Efforts on the part of the Prime Contractor, overall withholding will be performed on a case-by-case basis as determined by the respective Contract Administrator and FCO for the project.

The FCO will ensure that Contractors are classifying and paying workers in accordance with the Davis–Bacon wage schedule included in the contract. Contract Administrators will assist FCOs in determining whether or not those classifications utilized on payrolls reflect the actual work that is taking place on site.

Any errors in payroll reporting should be noted on the FCO’s Field Audit Report. The FCO should also note or verify the following:

- Any use of unapproved work classifications on payrolls
- Inclusion of fringe benefit paperwork, as is appropriate
- Compliance with the Federal regulations
- No unauthorized deductions have been taken from workers

FCOs should conduct employee interviews to validate the information appearing on the certified payroll reports and to ensure compliance with applicable EEO requirements. Contract Administrators should keep the respective FCO informed as to Contractor and Subcontractor schedules in order to help facilitate the FCO’s visit and interviews. Contract Administrators should brief FCOs about any specific safety concerns while visiting the worksite, prior to doing any interviews.

As appropriate, the Contract Administrator should accompany the OFC Field Rep on the project site, if at all possible. Contract Administrators should also assist the FCO by putting them in touch with the Project Superintendent, prior to performing interviews, as a courtesy to the Contractor.

Contract Administrators are responsible for tracking the work of the Contractors on site and then recording when the companies work on the daily report and on the Payroll Log Sheet in the CMS data base. As payrolls are received, they should be immediately logged into CMS with the week ending date (Saturday) and the actual date the payroll was received. FCOs will notify Contract Administrators in advance when field audits will take place so the Contract Administrators can print out the Payroll Log Sheets from the CMS data base to have ready for the audit.

Effective January 5, 2015, Contractors are now required to submit certified payrolls to Contract Administrators electronically (email) as a *.pdf* document. Each payroll should be a separate attachment. Contract Administrators shall save each payroll document on the Construction Bureau’s “S:” drive in the project folder in the respective Contractor’s folder.

Contract Administrators may be the first to become aware of Labor Compliance issues. They should note any issues/discrepancies and contact the respective FCO to inquire as to the proper procedure.

Contract Administrators should work with the Prime Contractor’s Superintendent to ensure the project bulletin board is:

- Erected when the job begins
- Is properly mounted and located on the work site

- Is located in an accessible location where it can be viewed by all workers

A Commercial Useful Function (CUF) Review shall be performed on each DBE Contractor performing work on NHDOT projects in accordance with FHWA requirements. Contract Administrators shall inform their respective FCO in advance when DBEs are working so the FCO can perform the CUF Review.

Contract Administrators should complete the CUF Review themselves in situations where the FCO is not informed when DBEs are working, or when the DBEs are performing only a minimal amount of work on the project.

**Note:** There will be many cases when DBE work cannot be accurately forecasted.

Contract Administrators should create a file folder and ensure a copy of each CUF Review is maintained on file for the life of the project. Additional CUF Reviews should be performed, as needed, on those projects that are multi-year. As a minimum, DBE Subcontractors performing work on multi-year projects shall have a minimum of one CUF Review performed every 12 months.

#### D. Waterways and Wetlands

Common concern for preserving our environment has complicated the road building process. In the design phase of a project, the Department has considered all environmental impacts that new construction might have on local areas. Prior to construction, the Department should have obtained all permits required by Federal and State law for work in or near waterways and wetlands of the State. These permits apply only to work shown on Wetland Impact Plans, Shoreland Plans, etc., as provided in the Contract.

The [Standard Specifications](#) state that the Contractor is responsible for obtaining and supplying sand, gravel, and embankment for fill. The Contractor must be aware of all Federal, State, and local laws and regulations regarding pit operation. The Contractor must secure necessary permits prior to Department approval of Standard Pit Agreement forms if required.

In addition to any pit operation, a Contractor may propose on-project work not shown on the Plans as a means of obtaining an end result. That work, if it involves waterways or wet areas and disturbs one acre or more of land, also requires Federal and State permits. The Contractor must apply for and receive the necessary permits before commencing work.

The purpose of these guidelines is to inform the Contract Administrator of what Federal and State laws must be noted and observed by the Contractor for work in or near the waterways and wetlands of this State and what permits may be required prior to the start of work.

#### E. Federal Laws and Regulations

- *Section 9 of the River and Harbor Act of 1899* requires a U.S. Department of Transportation (U.S. Coast Guard) permit to construct any bridge, dam, dike, or causeway in a “navigable

- water of the U.S.” In New Hampshire, a “navigable water of the U.S.” is “all tidal water and tributaries to the head of tide; the Merrimack River from the Massachusetts–New Hampshire line to Concord, NH; Lake Umbagog within NH; the Connecticut River to Pittsburgh, NH.”
- *Section 10 of the River and Harbor Act of 1899* requires authorization from the Army Corps of Engineers for construction of any structure in or over any “navigable water of the U.S.”, the excavation from or deposition of material in such waters, or any obstruction or alteration of such waters. Structures or work outside the limits defined as “navigable waters of the U.S.” require *Section 10* authorization if the structure or work affects the course, location, or condition of the water body. If any such work is proposed, be aware that a permit may be necessary.
  - *Section 404 of the Clean Water Act* requires Army Corps of Engineers’ authorization for the discharge of fill material into all “waters of the U.S.” including wetlands (both adjacent and isolated) at specific disposal sites. “Wetlands” are defined as “areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support and normally do support a prevalence of vegetation typically adapted for life in saturated soil conditions”. A permit is required whether the work is permanent or temporary.
  - Pursuant to the *Federal Clean Water Act*, effective July 1, 2003 (*68FR 39087*) construction activities which disturb one acre or more are required to apply to the U.S. Environmental Protection Agency (EPA) for coverage under the National Pollutant Discharge Elimination System (NPDES) general permit for storm water discharges from construction activities.

For further information, see the publication by The New England Division of U.S. Army Corps of Engineers entitled *Are you Planning Work in a Waterway or Wetland?*

#### F. [State Laws \(RSA\)](#)

- *RSA 482:A, Fill and Dredge in Wetlands*. This State law requires that Plans for any project involving work in the waters of the State or its immediate adjacent areas be submitted to the NH Wetlands Bureau for review and approval. Generally, such application results in concurrent notification to the Water Division of the NH Department of Environmental Services.
- *RSA 483:B, Shoreland Water Quality Protection Act*. This law states that a permit is required for any impacts within 250 feet of a water body, or surface water covered under this act. The plans and application are submitted to the DES Wetland Bureau’s Shoreland Program.
- *RSA 149:8a, Water Quality Permit Program*. This State law requires that any person proposing to dredge, excavate, or place fill in or on the border of surface waters of the State, or any person proposing to impede natural run-off into surface waters of the State, submit detailed plans covering the proposal to the NH Water Supply and Pollution Control Commission 30 days before the undertaking. Written permission is required.

- The Department's Standard Pit Agreement Form Mentions *RSA 155–E:4, I–VIII*. The *RSA Chapter 155–E* grants local government the authority to regulate excavation. Specifically, paragraph 4, subparagraphs I through VIII state where the regulator may not grant permission for excavation.
- The excavation shall comply with the operational and reclamation standards of *RSA 155–E:4–a, RSA 155–E:5, and RSA–E:5–a*.
- The excavation shall not be within 50 ft of the boundary of a disapproving abutter or within 10 ft of the boundary of an approving abutter unless approval is requested by said abutter.
- The excavation shall not be unduly hazardous or injurious to the public welfare.
- Existing visual barriers in the areas specified in *RSA 155–E:3, III* shall not be removed, except to provide access to the excavation.
- The excavation shall not substantially damage a known aquifer, so designated by the United States Geological Survey.
- All required permits for the excavation shall be obtained from state or federal agencies.

This information is intended to alert the Contract Administrator to possible situations that may arise when a Contractor has failed his responsibilities to comply with State Laws as defined in the [Standard Specifications](#).

## **SECTION 108 – PROSECUTION AND PROGRESS**

### 108.1 – GENERAL

- A. [Subletting of Contracts](#)
- B. [Preconstruction Activities – Schedules](#)
- C. [Time Extensions and Delays](#)
- D. [Liquidated Damages](#)

### **108.1 – GENERAL**

This section is covered in the [Standard Specifications](#). However, the Contract Administrator, in addition to being thoroughly familiar with this subsection, should pay particular attention to the section in the Contract entitled “Prosecution of the Work”. The information in that section is of extreme importance in the scheduling and execution of the work for each particular project, and usually contains dates and conditions which the Contractor must meet.

#### **A. Subletting of Contracts**

The Bureau of Construction co-manages the department’s Subcontractor Approval Program and assures only those Contractors who are eligible and otherwise compliant with Federal and State laws are approved to work on NH DOT Federal-aid construction contracts. Every effort must be made to ensure only those Contractors approved by the NHDOT are performing work on site.

If an unapproved Subcontractor is found performing work, the CA shall immediately bring the issue to the Superintendent's attention who in turn shall stop their work. The CA shall also call the Bureau of Construction's Administrative Office or the Office of Federal Compliance to determine the most current status of the Contractor's approval.

If approval is in progress, the CA shall inform the Contractor that approval is forthcoming and they will be advised when the Subcontractor or lower-tier Subcontractor can resume work. If approval is not in progress, the CA shall direct, in writing, the Superintendent to remove the unapproved Contractor from the worksite and inform both the Bureau of Construction Admin Office and the Office of Federal Compliance.

In every case an unapproved Subcontractor or lower-tier Subcontractor is found to be working, said Contractor is in violation of [RSA 228:4-b](#), [FHWA Form 1273](#) (Required Contract Provisions), and [Subsection 108.01 Subletting the Contract](#) of the [Standard Specifications](#). The OFC is required to notify the New Hampshire Department of Labor anytime a violation of [RSA 228:4-b](#) occurs, as civil penalties may apply.

## B. Preconstruction Activities – Schedules

Critical Path Method (CPM) scheduling is an extremely effective scheduling tool for both Contractors as well as Contract Administrators. In a very competitive bidding environment, Contractors use every possible advantage they can over their competition and critical deadlines become extremely important to both the Contractor and the Department. The CPM schedule will become the Contract Administrator's baseline for evaluating any revisions to the Contract involving potential time extensions.

Prior to beginning construction activities, the Contractor shall submit a progress schedule to the Engineer for documentation. This schedule will be either a Gantt (Bar) Chart or a more comprehensive CPM schedule. The determination of which method to use will be decided based on several factors including complexity and duration of the project, number of phases, level of risk, etc. Typically this determination is made by both the Designer and the District Construction Engineer prior to the project bidding and will be clearly identified in the "Prosecution of Work."

The Contract Administrator reserves the right to reject the schedule based on both form and compliance with the Contract. Once the schedule has been accepted for documentation, it shall then be considered the base-line to which all future schedules will be compared to. This schedule should be used when considering proposed time extensions and is a living document that should be updated monthly or as directed by the Engineer.

If a CPM schedule is called for, Item 697.41 Critical Path Method (CPM) Electronic Schedule will be included in the contract. The item is included in recognition of the work effort involved with producing and updating this type of schedule.

## C. Time Extensions and Delays

*Subsection 108.07 Determination of Contract Time Extension for Excusable, Nonexcusable, Noncompensable, and Compensable Delays* of the [Standard Specifications](#) goes into detail with regards to delays; when they are excusable, nonexcusable, compensable, and noncompensable. As is with any change to the Contract, the Contractor needs to notify the Contract Administrator per *Subsection 104.02(G) Contractor Notification* of the [Standard Specifications](#). It will be up to the Contract Administrator to evaluate the merit of such notice and determine, if any, the time extension due.

The following issues must be addressed regarding project delays:

- Is it truly a delay to the Contract?
- Who/what is the cause of the delay?
- How does it affect the CPM Schedule?
- Is the delay concurrent with another delay on the Critical Path?
- If there is a delay, what are the impacts to the project?
- If the delay is the Contractor's fault, how are they going to adjust their schedule?
- If it is the Department's fault, will there be costs associated with accelerating?

Another common cause for a delay in the Contract is inclement weather or "Weather Days," as they are commonly referred to in the Department. Although weather days are indirectly defined under the "Working Day" definition in *Subsection 101.114 Working Day* of the [Standard Specifications](#), it is not as clear in reality.

The following issues must be addressed regarding weather days:

- Did the Contractor request an extension due to weather?
- Was the Contractor forced to alter their schedule?
- Did a crew have to stop what they were doing to work on weather related issues?

Both the Contractor and the Contract Administrator should be in agreement on whether or not an extension is granted and if so, it should be included in the Daily Report as a non-work day so it is counted properly and the completion date is revised accordingly. The Contractor should also update their schedule accordingly so all parties know when the actual completion date will be.

## D. Liquidated Damages

When a Contractor fails to complete a project on time, liquidated damages will be assessed in accordance with the schedule shown in section 108.09 of the [Standard Specifications](#) or as amended. Should this situation arise, the Contract Administrator will need to create an item in order to hold back the money.

The following format shall be followed:

Item #	Description	Units	Price	Days
108.09	Liquidated Damages	Days	\$ (+)	# of days (-)

It is important to ensure that the correct dollar value is used depending on the size of the Contract and whether or not the project is a Calendar Day or Working Day Contract. Typically most of the Contracts use Calendar Days but Working Days would be handled the same way.

As is stated in *Subsection 108.09 Failure to Complete on Time* of the [Standard Specifications](#), liquidated damages are not considered a penalty. Liquidated Damages are assessed to compensate the Department for added costs due to Engineering, supervision, inconvenience to the public and other expenditures of public funds due to the Contractor's failure to complete the work on time.

The values shown in the tables are calculated based on a combination of real employee expenditures, expected staffing levels based on Contract amount, vehicle costs and field office costs. Generally, these costs are evaluated every two years by the Construction Bureau Administrator and put before the Specification Committee for approval.

## **SECTION 109 – MEASUREMENT AND PAYMENT**

### 109.1 – GENERAL

- A. [Contract Pay Items \(Bid Items\)](#)
- B. [Negotiated Prices \(Supplementary Agreement\)](#)
- C. [Force Account](#)

### **109.1 – GENERAL**

This section is extremely important in everything that Contract Administrators and field inspectors do in their positions. Both the Contractor and the tax payers of the State rely on the project staff to maintain good records, which includes proper measurement and appropriate payment of items. Payment on projects can be made in one of three methods as described below. For examples of these methods and more detailed information on this subject, see [Division 800](#) of this Manual.

### A. Contract Pay Items (Bid Items)

Paying for a change using Contract Pay Items is just how it sounds. This method is typically used when you are simply running over on an item that is already in the Contract. There are other times when added work may include items that are in the Contract.

### B. Negotiated Prices (Supplementary Agreement)

Agreed Price or Supplementary Agreement as it is sometimes referred to, is one way of paying when you do not have the items in the Contract. Though this sounds simple on the surface it does require an Engineer's Independent Estimate or Independent Government Estimate as FHWA refers to it. In general, it is not good practice to accept a price from a Contractor without being able to support it. The Engineer's Estimate is your chance to independently evaluate the work effort required and the materials and equipment needed. There are different tools available to make this evaluation including looking at past historical data, check with other Bureaus, check the internet or maybe doing your Time and Material estimate. Either way, agreement between the Contractor and department must be made in order to execute the Change Order.

### C. Force Account

Paying by Force Account, also referred to as Time and Material or T&M, is just as it sounds. This is where you keep track of the time worked, materials and equipment used. This method is described in detail in *Subsection 109.04.4 Force Account* of the [Standard Specifications](#). This method also requires an Engineer's Estimate prior to the work taking place. Once the work is underway, the Contract Administrator should carefully track the work being done on a Daily Report of Extra Work–Force Account form. Several sample Daily Report of Extra Work–Force Account forms may be found in [Section 807 Sample Record Book](#) of this manual.

This form is also used to pay for materials used on “Per Specification” items such as calcium chloride called for under *Subsection 619.5.1.3* or extra construction signs under *Subsection 619.5.1.4*. In these instances, the material invoices would be listed under the materials section and would not include labor and equipment.

## **SECTION 110 – CHANGE ORDERS (REVISIONS TO THE CONTRACT), EXTRA WORK, ALTERATIONS IN DESIGN AND PER SPECIFICATION ITEMS**

### 110.1 – GENERAL

- A. [Change Orders](#)
- B. [Change Order Payment Methods](#)
- C. [Adding Items to the Contract](#)

### **110.1 – GENERAL**

There are a number of reasons and situations that arise where a Contract Administrator will need to create a Change Order, add items to the Contract, pay for some extra work, or simply pay for certain items that are in the Specification but there is no contract item for, what is called, “Per Specification.”

It does not matter whether there is an Alteration in Design, an addition of a “Per Specification” item, or extra work done; these are all changes to the Contract and require a Change Order.

#### **A. Change Orders**

A Change Order as defined in the [Standard Specifications](#) is a revision to the Contract issued after the Contract is awarded. The Change Order establishes the increase or decrease to the Contract Quantities, Contract Amount or Contract Time. Typically, a Change Order is generated as soon a change in scope or item overrun is anticipated. Change Orders shall be executed before the actual work takes place. They not only memorialize the change to the Contract, but they also provide necessary backup in order to authorize funds when the project total exceeds 100%.

There has been a misconception that if a project has a contingency, it is simply additional money to spend over and above the Contract amount. The contract contingency only allows the Department to spend money above 100% without going back to the Governor and Council, and is not recognized by either FHWA or the Department as far as funding authorization is concerned.

The Change Order form is a two–part form with a front page that includes, but is not limited to, the description, reason, number, method of payment, total amount, and extension days if appropriate and a second page or pages that comprise the Engineer’s independent estimate. This is where the Contract Administrator, independent of the Contractor, estimates the cost of the change. Cost information may be obtained from Blue Book rates or previous estimates including weighted average prices. This estimate is used as a comparison and starting point for negotiations in establishing an agreed upon price.

The following figure shows the Change Order Process:

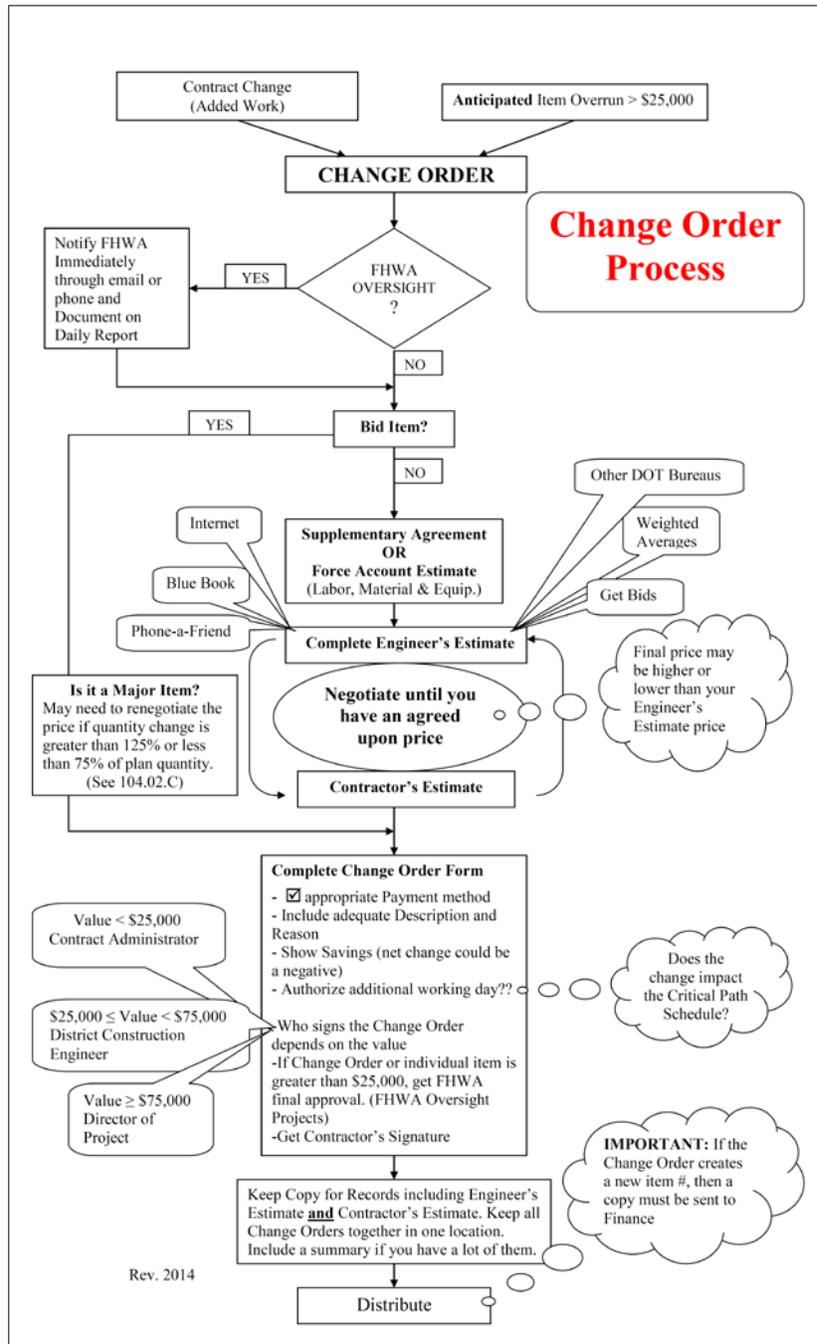


Figure 100 – 3: Change Order Process

## B. Change Order Payment Methods

There are three payment methods used for Change Orders:

1. Bid Items
2. Supplementary Agreement
3. Force Account

When filling out the Change Order, specify the planned method of payment. There may be instances where more than one payment method may be employed. Refer to [Section 109 Measurement and Payment](#) in this Manual for more information regarding the three payment methods.

## C. Adding Items to the Contract

Once the requirements for a Change Order have been established, items are ready to be added to the Contract, unless they are being paid through bid items. The numbering convention used in adding items depends on whether Extra Work, Per Specification, or Agreed Prices is specified, and the CMS assists with this process by prompting users for the type of item being added.

The following list specifies the numbers to use for the various types of Change Orders:

Extra Work: For extra work paid for by Force Account, use numbers in the 0.01 to 0.79 range or 7000 to 9999.99999 (Design Build projects) range. Typically this is done sequentially starting with 0.01, followed by 0.02, 0.03, etc. There may be more than one report associated which would be indicated on the Daily Report of Extra Work form.

Per Specification: There are two types of Per Specification items:

- Per Specification #1: Per Specification is used when only materials are being paid for. For example, this is used when the Specifications call for calcium chloride under *Subsection 619.5.1.3* or extra construction signs under *Subsection 619.5.1.6*. In these instances the item should fall in the 0.80 to 0.99 or 100.00000 to 109.99999 range.
- Per Specification #2: There are nine specific cases that fall in this category where the Specification allows for the creation of an item and specifies the basis of payment. For example, *Subsection 203.5.6* states that “When common excavation is the only class included in the Contract, any rock encountered will be paid for at a price equal to five times the unit price for Common Excavation under newly created Item 203.2.” In the absence of the Common Excavation item, the 203.2 item would be created and a price negotiated with the Contractor.

- 

The remaining eight items in the Per Specification category are all handled similarly and they include the following:

- 201.5.2.1
- 201.5.2.3
- 203.4
- 206.19
- 206.2
- 206.29
- 207.2
- 504.2.

Refer to the [Standard Specifications](#) for information regarding these items.

Agreed prices (Supplementary Agreement): These added items fall in the 200 to 1099.9999 range. Often times these are items that are in the [Standard Specifications](#) and not included in the Contract. These are straight forward, because the item description, method of measurement, and basis of payment are already established, and only the price needs to be negotiated.

There are situations, however, when a new item needs to be created that is not in the [Standard Specifications](#) but is similar to other items that are. In this case, check with Engineering Audit or the District Construction Engineer, because it may be an item that has been created and used before. It is always best to maintain consistency whenever possible.

For projects with FHWA oversight, the following conditions apply for approval in addition to the above:

- A change order or agreement that exceeds an estimated value of \$25,000 must receive prior approval by FHWA.
- Any change order or agreement, regardless of the estimated value, that could potentially impact commitments made in the approved NEPA document must receive prior approval by FHWA.

Lastly, when an item is added to the Contract, a copy of the Change Order must be forwarded to the Bureau of Finance. Payments for items will not be made without approval from the Bureau of Finance.

## **SECTION 150 – FIELD WORK AND STAKING**

### 150.1 – GENERAL

### 150.2 – PLAN CHECK

### 150.3 – ALIGNMENT

### 150.4 – HORIZONTAL & VERTICAL CONTROL OF WORK

- A. Signs
- B. Clearing
- C. Utilities
- D. Slopes
- E. Minor Structures
- F. Major Structures (Bridges, Box Culverts, Retaining Walls)
- G. Curbing, Sidewalks, and Guardrail
- H. Bounds
- I. Preservation of Monuments and Markers

### 150.5 – SECTIONING

- A. Topsoil Excavation
- B. Muck Excavation
- C. Rock Excavation
- D. Structure Excavation

### 150.6 – FINE GRADING

## **150.1 – GENERAL**

This section describes some of the principal methods of field work and staking that Contract Administrators will require for construction projects. Some aspects of field work and staking are well covered in other sections of this Manual and will therefore be omitted to eliminate duplication. The Contract Administrator should bear in mind that conditions vary considerably between projects as well as Contractors, so the following discussion presents guidelines rather than hard and fast rules.

Generally, Department survey crews set the reference points and it is from these points that the Contractor will perform all the layout work needed to fully construct the project. Over the years the construction layout responsibility has been delegated to the Contractor and as such, they have responded by obtaining much more sophisticated, automated equipment. This has enabled the Contractors to provide the necessary layout in an accurate and efficient manner. The use of this modern equipment has changed the way the Contract Administrator checks the work for both accuracy and compliance with the Plans and Specifications.

The Contract Administrator should not automatically assume that the Contractor's layout is correct because of the technology used. The Contractor shall provide the Contract Administrator with the necessary means of checking their work. This may include, but not be limited to, being provided with the necessary equipment that is compatible with the equipment being used to produce the layout or providing survey stakes that may not otherwise be needed by the Contractor. Being able to check the Contractor's work is imperative for compliance with the plans and specifications and to accurately quantify the work for measurement and payment.

Many Contractors appreciate this check and typically will help with the process because they realize mistakes are both costly and timely. If for any reason the Contract Administrator questions the accuracy of the Contractor's work or layout, they should contact a Department survey crew to take whatever steps necessary to check and verify the accuracy. The Contractor should be notified immediately as to any discrepancies or errors that may be found so that they can make any necessary corrections or adjustments as applicable.

At the start of the Project, the Contract Administrator and Contractor should meet and discuss what method of layout will be used on the project and make sure that the proper supplies and equipment are provided to adequately check the work for accuracy and compliance.

The Contract Administrator should notify the Construction office if any tools or equipment are needed such as transits, levels, and steel tapes. Any equipment used should be checked and calibrated as necessary to make sure they are accurate and in good condition. All stakes to be used will be supplied by the Contractor except for the triangular "hub" stakes, which are available through survey parties assigned to the project.

### **150.2 – PLAN CHECK**

As soon as construction plans are available and before any staking is started, a preliminary field check of the plans should be made for any apparent omissions and errors. Carefully check for proper location of drainage structures. All major structures should be verified as to plan elevations from finished grade to bottom of footings. A thorough check of the plans may prevent costly errors and delays in the work.

### **150.3 – ALIGNMENT**

A pre-survey meeting should be held with the Contractors' survey crew, the NHDOT Survey crew, the Prime Contractor, and the Contract Administrator to discuss project survey needs and to exchange project survey notes.

The Department is responsible for providing the initial survey for the following items:

- Layout of overhead sign structures
- Layout and cross sections for retaining walls
- Offset line for pre-split when necessary
- Original centerline (or an offset line)
- Radius points (as determined at a pre-survey meeting)
- Original side stakes with elevations
- Control points on recycling or reclamation projects
- Centerline control point ties
- Wetland original & final sections
- Original bridge layout and ties

- Channel & Bridge Excavation originals and finals
- Bounds
- Fence line locations
- Final cross-sections (when needed)
- Setting of original bench marks
- Utility pole locations
- The Contract Administrator will also do spot checks on the following:
  - Line and Grade run by Contractor on subgrade and select materials
  - Line and Grade checks for blue tops
  - All working points on footing and bridge seats

The Department is not responsible for correcting any Contractors' errors. It is the responsibility of the Contract Administrator to ensure that the Contractor corrects their own work. The Contract Administrator must use their judgment to ensure the Contractor is using qualified people to perform all the survey work.

The Contractor is responsible for the following layout:

- Curbs
- Mast arm, pull box layout and elevations, and light poles
- Sign base layout (except for full span overhead structures)
- All reproductions of original bridge layout
- Any centerline offsets
- Any line or grade for resurfacing
- Any elevation needed for construction
- Line and grade for subgrade, select material, blue tops
- Any and all layout for Contractor's use
- Drainage pipes including structures (Catch basins, drop inlets, and manholes)
- Pavement Markings

The Contractor is responsible for replacing any survey points, bench marks, stakes, or reference points they disturb or render inaccessible. Such replacement shall be performed under the direction of a Licensed Land Surveyor with the exception of side stakes or drainage reference stakes.

## 150.4 – HORIZONTAL & VERTICAL CONTROL OF WORK

### A. Signs

Signs will be staked at locations indicated on the Plans or in the applicable standards. A hub indicating the location and identification of the sign is usually adequate. Construction signing should be laid out and erected prior to the commencement of any work on the project. However, care should be exercised when the Contractor is erecting the signs to ensure the protection of underground utilities from damage. Permanent signing should not be started until the work near the sign location has been satisfactorily completed, with the exception of overhead sign bases that are often started before grading of slopes is complete.

### B. Clearing

Clearing limits are normally 10 ft beyond the top of slope excavation areas and 5 ft beyond the toe of slope in embankment areas; however, the plans should be checked for possible changes in this rule. These distances right and left of centerline can be determined by use of the cross-sections. The Contractor can then mark the clearing limits with fluorescent orange flagging. Any changes in tree lines shown on the plans or field changes in clearing limits should be documented on the as-built plans.

### C. Utilities

It is extremely important that utility structures or lines be located before operations begin in the project area. The Contract Administrator should make sure that the Contractor calls DIG-SAFE before any work is performed and make sure that the Contractors DIG-SAFE numbers are kept up to date.

The Contract Administrator and/or the Contractor should also contact any utilities that may be located in the work area, which are not located by DIG-SAFE (e.g., municipal water and sewer facilities). Locations for utility relocation will have been previously approved by the utilities engineer and should be in the hands of the Contract Administrator.

At the pre-construction conference, after the Contractor has presented its proposed schedule, the utility companies will establish dates specifying when their work will be accomplished. From that time on, the project will progress with this schedule and commitments taking precedent.

A careful check of the Plans should show the location of all known utilities. If there is any doubt as to the location of any underground structure, the Contract Administrator should warn the Contractor and contact the utility involved. The utility should send someone to locate its lines.

When applicable, the Contract Administrator should document the utility locations on the as-built plans. The Contractor should be encouraged to make its own separate record of these locations as insurance against damage in its later excavation operations. The staking and color coding involved is covered in more detail in [Section 180 Utility Relocation and Adjustment](#).

## D. Slopes

Checks should be made to ensure that slopes are being constructed in accordance with Plan cross-sections, as no allowance will be given if a fill slope is “fat” or a cut slope is under- or over-excavated. If either situation occurs, the Contractor should be notified to correct the situation in order to maintain uniformity in the slopes. Approved slope changes should be documented on the as-built plans.

## E. Minor Structures

Pipe Culverts: Pipe culvert locations should be located and reviewed for functionality. The culvert should be located with respect to the existing channel in order to provide the most direct and unimpeded flow. Pipe culverts may be altered from Plan location to better fit existing flow conditions. Careful review of environmental permits and impact limits is essential when contemplating changes to culvert locations. No major change in location and no change in size should be made without the approval of the District Construction Engineer and/or the Design Engineer.

The plan lengths and flow line elevations should first be checked in the field and adjusted to fit the conditions. If there is a possibility of pay excavation and the culvert is skewed or on an odd station, an original section must be taken along the centerline of the culvert before any work disturbs the old ground.

Manholes, Catch Basins, and Drop Inlets: These structures require extra care in layout, particularly in curb areas. Lines should be accurately run with the curb location established, including radii where necessary. It is essential that the center of the basins be located 1 ft from the face of the curb to ensure their proper fit. Also, with the curb line staked, manholes can be located so their cover locations will fall completely outside of the curb area.

Whenever possible, the radius points should be saved. They will be found generally useful as the work progresses as well as for the eventual setting of the curb. Grate grades for catch basins and drop inlets in pavement should be given 1 to 1 ½ in lower than the finished pavement grade at curb line, and manhole covers should be graded flush with the finished pavement.

Where a basin or a pair of basins are designed in a low spot to take water from two directions, check the design location carefully to ensure the basins are properly positioned at the very lowest point. If blue tops have been computed at this time, plot a short profile to a distorted scale along the curb line from the blue top elevations to check the actual low spot.

## F. Major Structures (Bridges, Box Culverts, Retaining Walls)

Prior to commencing the actual field layout of a major structure, considerable preliminary work is necessary. The first step should be a complete check of all distances and elevations on the Plans. Measurements will be made during all stages of layout to the nearest ⅛ in. Specific structure element locations such as piles, edge of footing, end of wall, or other details which can be located from the staked lines and Plan dimensions are to be staked by the Contractor and then checked by the project

personnel. After concrete has been placed, it is helpful to scribe working lines on the concrete surface. These working lines can be transferred to the new concrete surfaces as the work progresses.

Several different methods of structure layout are shown in the following figures. These are some of many possible solutions that might be used, depending on the terrain around the structure and the complexity of the bridge or structure.

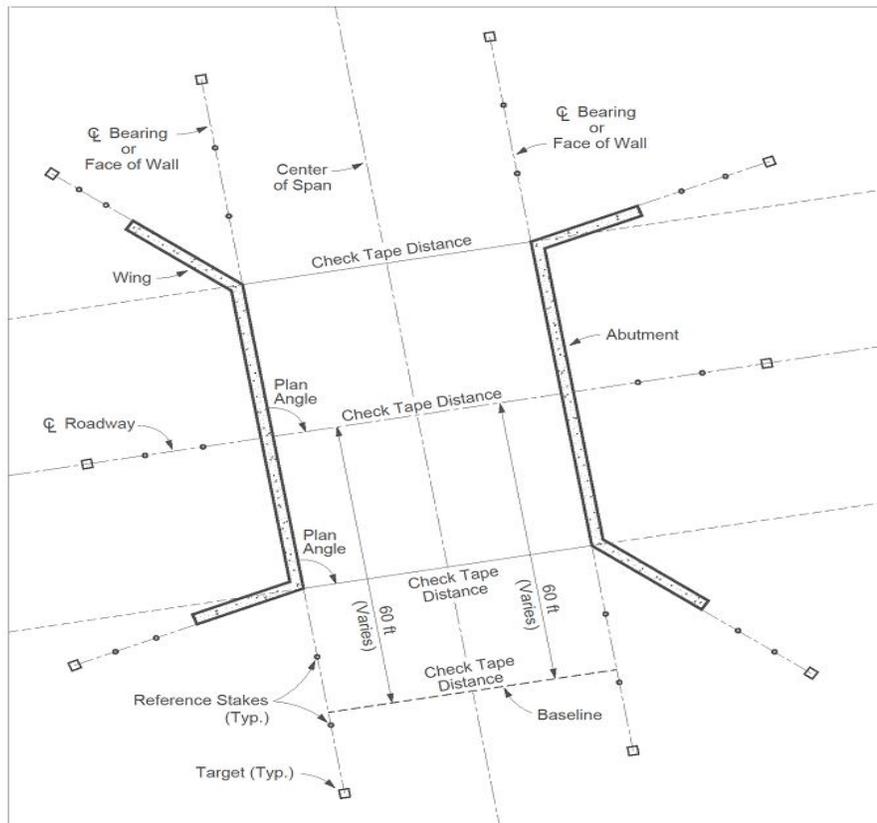


Figure 100 – 4: Typical Single Span Bridge Layout

The above figure shows one of several methods used to lay out a single-span structure. Targets and reference stakes shown are ideal but irregular terrain and the complexity of the structure may limit the choice of layout staking and require other methods.

In any case, distance checks between centerlines and bearings should be made at various points to ensure proper span length control.

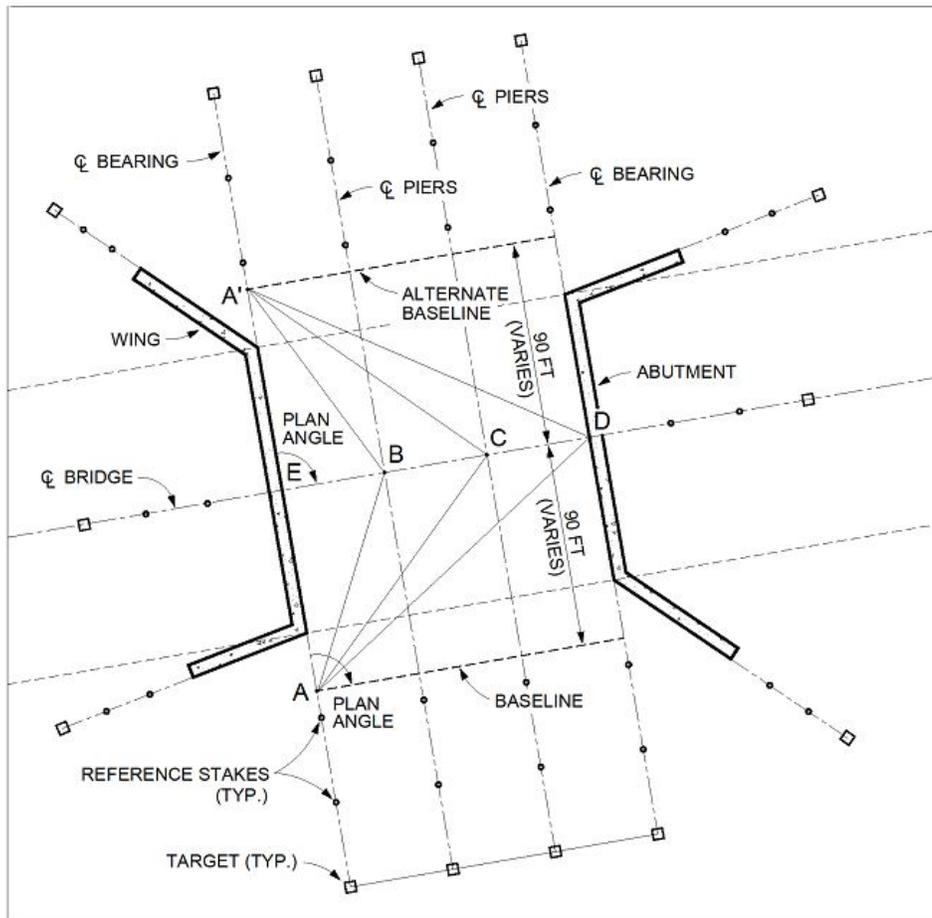


Figure 100 – 5: Typical Multi-Span Bridge Layout (Dry)

The above layout using two base lines for checking span lengths would be ideal as long as targets and reference stakes could be set at the locations shown.

With the base lines set as shown, angles such as  $EAB$ ,  $EA'B$ ,  $EA'C$ , etc. can be predetermined and used periodically as a check to substantiate center of pier points that have been measured and set. These check angles are used only as a back-up check of actual taping of spans at centerline of bearings and piers.

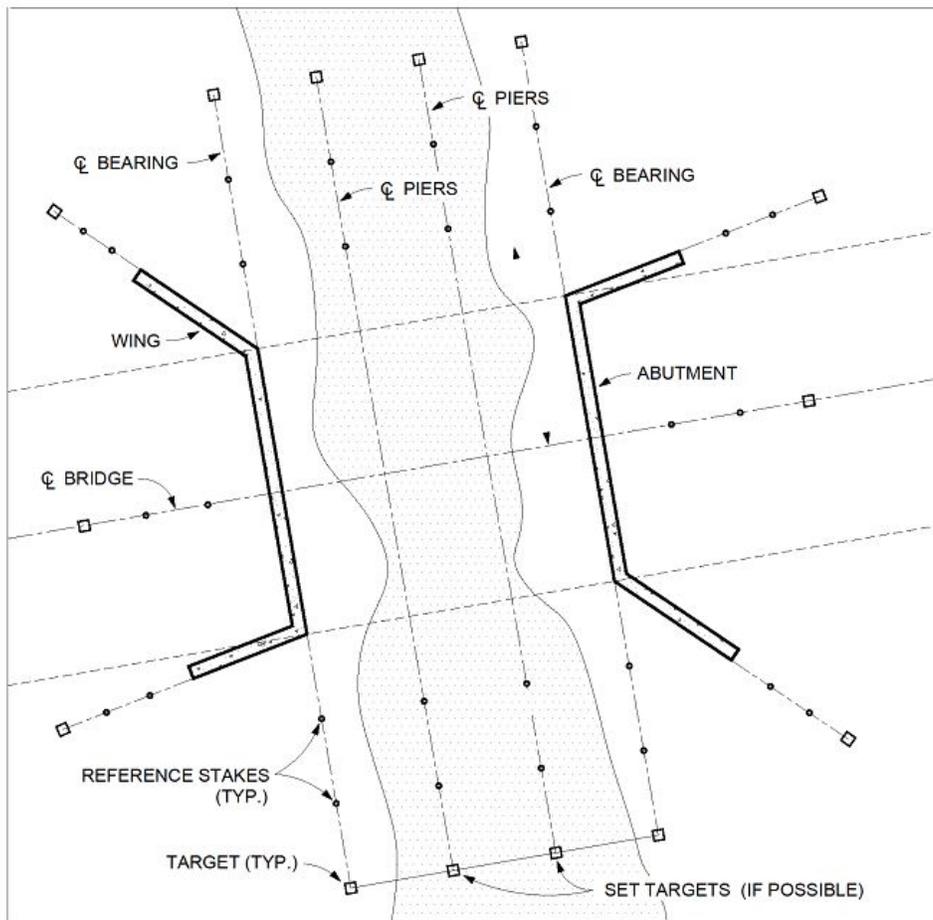


Figure 100 – 6: Typical Multi-Span Bridge Layout (River Crossing)

In a river crossing layout, pier centerlines may be inaccessible for targets or stakes in which case both abutments would have to be laid out with a geodimeter and checked by triangulation. Then, as construction progresses to the pier, reference points on forms or causeway areas could be established for use during construction of the pier. Angle and tape checking may then be employed as previously discussed.

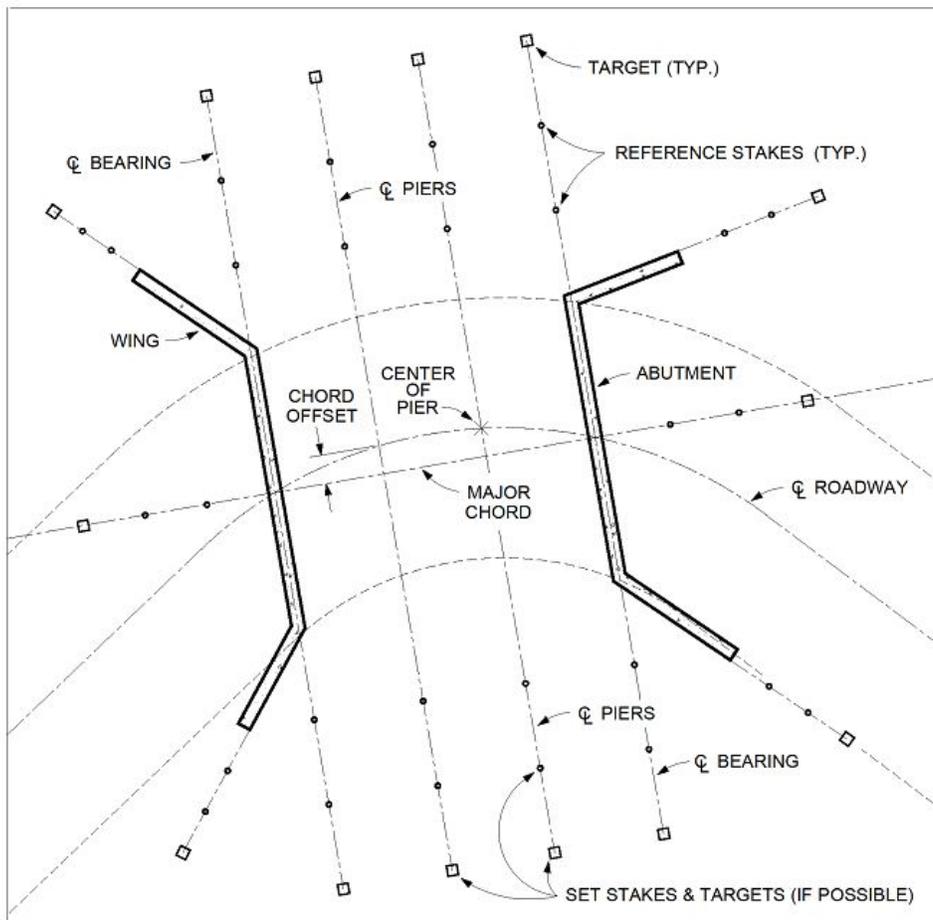


Figure 100 – 7: Typical Bridge Layout on Curve

Bridges on curves should have bearing lines and centerlines of piers referenced with targets and stakes as shown, if possible. It may be that only abutment centerlines of bearing can be tied, in which case it becomes imperative that both ends of the major chord be referenced so that it can be accurately reproduced. The points may be the only control the Contract Administrator will establish until site work is complete and control can be maintained on all parts of the structure.

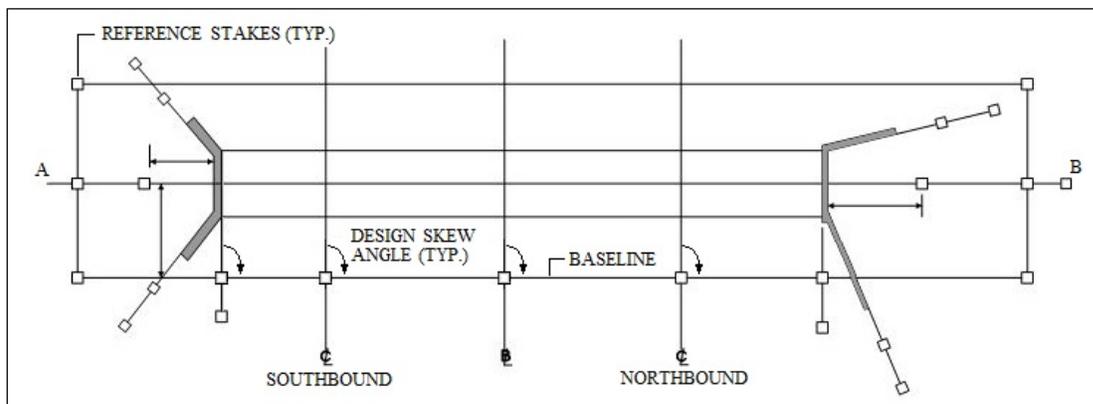


Figure 100 – 8: Typical Box Culvert Layout

Follow these guidelines to lay out a box culvert:

1. Establish the roadway centerline station or the line by which the structure is controlled.
4. Occupy and establish Line A–B and other points along this line. Indicate the beginning and the end of the culvert box with offsets from lane centerlines or baseline.
5. Establish a line parallel to the line of the box (parallel offset line) and use this line as working control once excavation is complete.
6. Along the parallel offset line, establish control points opposite the ones that are to be control for future layout work, such as expansion and construction joint locations.
7. Useful and accurate control must be easily reproduced to be of any real value to the Contract Administrator. All control must be established with this in mind.
8. Any grades given must be to flow line elevation only.
9. Offsets should be to centerline of structure and inlet and outlet only.
10. All control points should be protected by a bullpen of hip stakes with flagging.

**Note:** This layout is normally done by a survey party under the direction of the Contract Administrator *and the Contractor*.

### **G. Curbing, Sidewalks, and Guardrail**

Curbs and sidewalks should be set to the alignment and grade shown on the Plans. Curb and sidewalk radii require special attention to ensure that tangents and curves meet properly. If any of the above items are to be installed after the completion of surface treatment and there are centerline tacks in the pavement, they will provide line and grade for layout and checking.

### **H. Bounds**

Right-of-Way bounds are staked by a survey party at the initial construction layout stage at the locations indicated on the Plans. Bounds will not be set in loose fill slopes, slides, or streams or other locations where it is apparent that their position would soon become inaccurate. Reference bounds as shown in the standard sheets may be used in these situations.

Typically Survey uses straddle stakes to the nearest 1/8 in for the Contractor's use in setting the bound.

The Contractor should be cautioned not to disturb the straddle stakes to enable the bounds to be checked after being set. State survey crews should be contacted to verify final bound locations. A record of bound locations should be kept in a survey notebook by the survey party, denoting the location and date for each bound set.

## I. Preservation of Monuments and Markers

U.S. Government Monuments: It is important that all U.S. Government monuments within the limits of the Right-of-Way be preserved. Every effort should be made to recover, protect, and preserve all such monuments.

The following figure shows examples of Coast and Geodetic Survey Government monuments:

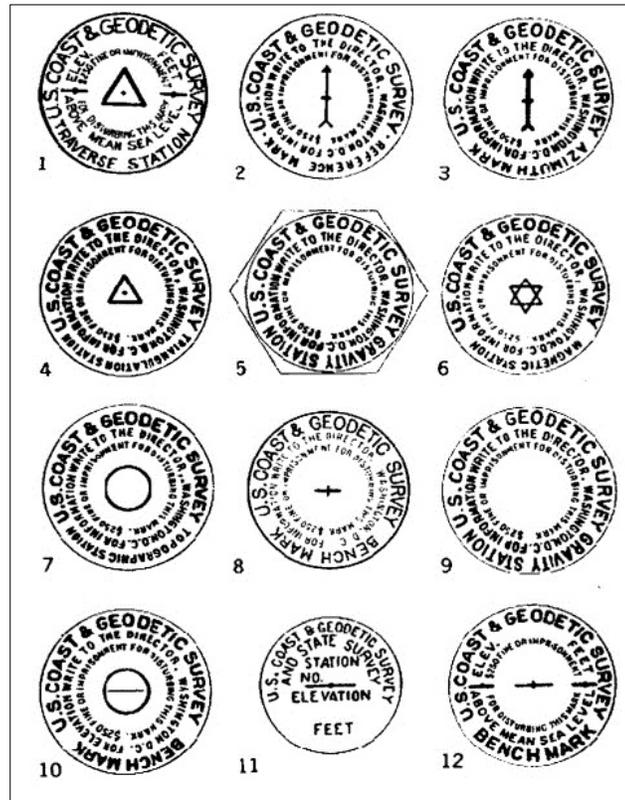


Figure 100 – 9: U.S. Coast and Geodetic Survey Government Monuments

1. Traverse Station Marker
2. Reference Marker
3. Azimuth Marker
4. Triangulation Station Marker
5. Gravity Station Marker
6. Magnetic Station Marker
7. Topographic Station Marker
8. Benchmark (New type)

9. Gravity Station Marker (New type)
10. Tidal Bench Marker
11. State Survey Marker
12. Geodetic Benchmark (Old type)

Location survey crews will have located and made ties to all monuments which they are able to find in the vicinity of the proposed work and will have made arrangements for their relocation if necessary.



Figure 100 – 10: Benchmark (New type)

In the event the construction crews find an additional monument within the highway Right-of-Way or in the work area, necessary action must be taken to preserve the monument and immediately notify the Chief of Design Services, giving a detailed description of the marker. The Chief of Design Services will provide the information as to the action which must be taken.

Property Lines: Property lines and corner monuments are normally located by a survey party as part of the preliminary survey. Stone walls, tree lines, lines of blazed trees, and the like are located by station and offset with a cloth tape and are measured to the nearest 1 ft. Iron pins and other corner monuments are located by swing ties, transit angle, and distance from the centerline using steel tape measured to the nearest 1/8 in or by a total station.

The Contract Administrator should observe the apparent property lines and monuments to determine that they are already recorded. Where omissions are found or a property owner points out monuments not readily apparent, the Contract Administrator should make arrangements to have a survey party locate these points prior to their being disturbed by construction operations.

If requested, property points that have been removed by construction operations can be reproduced for the information of abutting owners. Contact the Chief of Design Services for a survey party to lay out the point. If this is not possible and project personnel have to furnish the point, be sure no other layout work other than the point itself is given.

The intent is to reproduce a property point that was removed during construction, not to establish property lines for the property owner. The property owner should secure a private survey party to establish boundary lines outside of the State Right-of-Way. [Section 107 Legal Relations and Responsibility to the Public](#) of the [Standard Specifications](#) addresses the Contractor's role with regards to protection and restoration of property.

## 150.5 – SECTIONING

### A. Topsoil Excavation

Material found suitable for use as humus or loam in the excavation areas should be removed and stockpiled for use under the humus and loam items. In fill sections it should not be a given that the topsoil be removed. If it is greater than 3 ft in depth from the existing topsoil to the proposed subgrade, then removal may not be necessary and should only be done as directed by the Contract Administrator.

**Note:** Designers typically account for all of the topsoil being removed in both the cut and fill areas so the Contract Administrator should make sure that the quantities are accurately accounted. The depth of the topsoil and the structural integrity may be a factor in determining whether or not to remove the topsoil.

In the event that the topsoil is removed from the fill areas, measurement must be made for payment as excavation. This quantity should in turn be added to the embankment quantity. The Contractor may want to consider whether there will be enough topsoil removed from the cut sections to complete the project. If there is not enough, the Contractor may request to remove or “mine” the topsoil from beneath the fill sections.

If approved, this material should not be measured for payment and any embankment required to replace the excavated material should be done at the Contractor's expense. Communication between the Contract Administrator and the Contractor is imperative so that both parties understand the expectation and pay limits.

There is more than one method for calculating topsoil removal. It may be measured from numerous random depth checks recorded during excavation and computed by average-end area method. Stockpiles of topsoil can be measured after excavating, but this method is satisfactory only if the Contractor separates the piles so that only those from embankment areas are measured and recorded for payment of excavation.

### B. Muck Excavation

Muck excavation limits will normally be designated on the cross sections. These limits are based on a 1:1 slope from the shoulder break to the bottom of muck. The Contract Administrator must bear in mind that these limits will vary if the muck depths vary from the Plan depth.

Initially, the Plan limits should be staked and will be subject to change as the muck depth is determined during excavation by either “sounding” or probing to hard bottom. After the muck has been

satisfactorily excavated, final sections should be taken immediately and backfill material placed to prevent surrounding muck from sliding into the excavation. These final sections should be recorded in a bound field notebook and plotted on the record cross-sections.

### C. Rock Excavation

When rock is encountered, a survey party should be on site as soon as the earth overburden has been satisfactorily removed so that cross-sections may be taken before drilling operations begin. The interval between sections will vary with substantial change in the rock outcropping, but normally will be 25 ft. Intermittent sections should be taken during rock excavation, to ensure that the rock is being removed to the correct depth as shown on the template and to make the Contract Administrator aware of any over breakage issues. Final rock sections should be taken at the stations where original cross-sections were taken.

On projects where excavation is unclassified or has been unclassified by the Contractor so that regular ledge sections are not required, the Contract Administrator will provide elevations of the ledge on 50 ft sections where the ledge template line intersects the top of the ledge. Two shots that span the intersection are sufficient. This information should be recorded in a bound field notebook and plotted on the record sections to aid Engineering Audit in determining excavation limits.

### D. Structure Excavation

Sectioning of all structures is covered in the respective sections of the Construction Manual. For instance, bridge excavation procedures are found in [Section 504 Bridge Excavation](#). Sectioning for pipes and other drainage items is found in [Section 603 Culverts and Storm Drains](#).

## 150.6 – FINE GRADING

Fine grading is somewhat of a catch-all term used to describe the grading of subgrade, the different levels of select materials up to the bottom of the surface courses, and the roadway outside the surface courses, ensuring that in all cases, conformity with the plans is achieved. The Contractor is responsible for establishing the line and grade necessary to achieve this and the Contract Administrator needs to check the work as it progresses. Depending on the project and the Contractor, different methods of achieving the desired results may be employed.

As soon as possible, the Contract Administrator should communicate with the Contractor to determine what method they will be using to establish both line and grade. The level of information provided in the plans may also play a part in what method the Contractor uses. The Contract Administrator needs to determine how verification can be achieved. Good communication between the Contract Administrator, Contractor, and Department survey crews is essential. The Department survey crew will typically provide enough information to be able to make the necessary checks if the Contract Administrator lets them know what their needs are.

When the plans or contract have alignments, profiles, and possibly cross sections, and if the Contractor will be employing GPS technology, the Department survey crew should set benchmarks and side-stake the project as usual. This way, measurements from side stakes may be made to check the alignment and to spot check grades using the benchmarks. Depending on the nature of the work and the site conditions, it may be useful to have the Department survey crew level the side stakes.

When the plans or contract do not have an alignment, profile, or cross sections (as in a District “resurfacing” project), the Contract should specify the Contractor’s minimum survey requirements prior to starting and work on the project. NHDOT personnel should spot check the Contractor’s offsets and review the existing centerline profile and cross slope information to verify their correctness. The layout and grades should also be spot checked by NHDOT personnel during construction.

In the case of a crushed gravel “sandwich” application, NHDOT personnel should also monitor the quantity of crushed gravel being used to make sure that it is not significantly over- or under-running. Similar to paving on a rough road, the yield may not be consistent, but unless there is a quantity calculation error in the design, it usually averages out in the long run.

When it is time for the Contractor to fine grade, the Contractor should re-run the centerline and use this centerline to offset its working stakes. It is the Contractor’s responsibility to check the location, alignment, and elevations to ensure that they are correct.

The following steps outline the usual fine grading procedure:

1. The Contractor reestablishes the centerline
2. The Contractor may set out working stakes and mark the station and offset on the stake
3. The Contract Administrator spot checks the Contractor’s control for conformity to typical cross sections
4. The Contractor establishes finish grades using the elevations as taken from the plans
5. Although GPS technology is becoming widely used by Contractors, it is still extremely important for the Contract Administrator to verify the Contractors work for both line and grade, using an independent method

If the actual finish grade cannot be placed on the stake, then the procedure is to make a reference of cut or fill to the actual finish grade. Care should be taken to balance foresights and backsights, and shots should be kept within 150 ft of the transit. Before grades are run from each change of HI, the calculations should be checked to ensure that the proper grades are matched to the proper stake.

When used, stakes should be firmly set and generally offset 1 to 2 ft beyond the computed edge of work. In this way, the stakes will remain in position with a minimum of replacement throughout the placing of base materials.

Refer to [Section 214 Fine Grading](#) for details of fine grading controls.



## **SECTION 151 – FIELD POLICIES**

### [151.1 – GENERAL](#)

### [151.2 – PARTIAL ESTIMATES](#)

### [151.3 – ENGINEER’S ESTIMATE OF BALANCES AND EXCESSES](#)

### [151.4 – ENGINEERING BULLETINS](#)

### [151.5 – RIGHT-OF-WAY](#)

### [151.6 – WINTER CONSTRUCTION](#)

## **151.1 – GENERAL**

This section covers the established policy of the Department and Construction Bureau as well as instructions on implementing rules, regulations, and laws from other governmental agencies that pertain to construction projects.

## **151.2 – PARTIAL ESTIMATES**

*Subsection 109.06 Progress Payments* of the [Standard Specifications](#) states that progress payments or “partial estimates” as they are commonly referred to in the field, will be paid at least once a month. However, the standard practice has been to process two partial estimates a month, one on the 15<sup>th</sup> and one on the last day of the month.

The estimate is generated directly from entries made in the quantity book. It is important that the entries made in the quantity book accurately reflect the work performed during the given estimate period. There is a common misconception that because they are called “estimates”, they don’t necessarily need the same accuracy level that a record book would necessitate. This is not the case.

All construction projects are subject to random audits from either FHWA or the Department’s Finance Bureau. These audits review quantity book entries to verify that they are properly supported by actual measurements and calculations.

Care shall be taken not to overpay or double pay on items, which usually happens when proper documentation procedures are ignored. Confusion regarding partial payments and payments for material on hand is often the cause of overpayments. Refer to *Subsection 109.07 Payment for Material on Hand* of the [Standard Specifications](#) for more information.

## **151.3 – ENGINEER’S ESTIMATE OF BALANCES AND EXCESSES**

Balance and Excess (B&E) reports are compiled to reflect the best estimate the Contract Administrator can make as to the final cost of a project. B&E reports should be compiled, as a minimum, when the project estimates approach 25%, 50%, 75%, and 90% of the Contract Estimate, but the recommended practice is for Contract Administrators to update their B&E reports more often than this.

The B&E reports should be reviewed quarterly to facilitate the Construction Office’s processing of the Contingency Use Report for the Governor and Council. The Engineering Audit Section will be responsible for submitting the final B&E report.

## 151.4 – ENGINEERING BULLETINS

Construction Bureau Administrator issues periodic Engineering Bulletins, which are directives that cover a variety of subjects of current interest and instructions for Contract Administrators.

## 151.5 – RIGHT-OF-WAY

The Department negotiates with the owners of any property abutting the Project on the basis of the Plans agreements. Any changes made in the field such as culvert locations and additions, grade changes, elimination or moving of drives, fattening of slopes, and the addition or relocation of drainage ditches may be cause for a new assessment of damages. For this reason, such contemplated changes should be noted on the Daily Report and brought to the attention of the District Construction Engineer prior to beginning the work.

Any work outside the Right-of-Way other than shown on the Plans constitutes a trespass on private property unless prior approval from the property owner has been granted. The Contract Administrator will receive copies of any Right-of-Way Special Agreements and forward them to the Contractor.

In the case of properties that were acquired by the Department through condemnation, no agreements with the property owner shall be made without consultation and approval from the Bureau of Right-of-Way.

When dealing with any adverse property impacts that occur in the course of a project, Contract Administrators must follow certain procedures when a settlement with the property owner has not been obtained. Listings of property owners who have “not indicated acceptance of their awards” are included in the Right of Way Bureau’s letter on Special Agreements. The Department’s “Declaration of Taking” is normally made about three months prior to the start of construction and the owner has up to three months in which to file preliminary objections. Therefore, at this time, it is not known what damage cases will be settled in court.

Attorneys representing a property owner in a condemnation case may approach the Department to obtain information about the case as well as copies of Department project documentation. This information may have important bearing on the State’s preparation for defense of the case in question.

The information in question consists of two categories as follows:

- Category No. 1: Includes the Transportation Department’s [Standard Specifications](#), Project Plans, and Special Provisions, including such information as alignments and grade slopes, and other types of “Bidder Information”
- Category No. 2: Includes State Documents, worksheets, photographs, special materials, soils reports, etc.

When approached by an attorney representing a property owner in a land damage case, a determination must be made as to which category applies to the situation. As a general policy, there is no objection to the Department providing the basic engineering features of the project, classified as Category No. 1 material, to the attorney, as it relates to the acquisition of privately owned property. Category No. 1 material may be released at any time.

However, for information classified as Category No. 2 material, approval from the Attorney General's Office, through District Construction Engineer and the Right-of-Way Bureau, is required before providing an attorney with those materials. This applies to cases that have not been settled.

The adoption of this policy is not for the purpose of attempting to withhold any information that the Department may have. Rather, the policy is established as a means of developing coordination between the Department and the Attorney General's Office concerning the release of information regarding a case that may be in litigation.

In all condemnation cases, it is essential in preparing the State's case that the Attorney General's Office is fully aware of the material that the Department has supplied to an outside attorney. Project personnel must maintain a detailed diary or log regarding all information connected with such cases, including before and after photos, conversations, relevant dates, and any other information that may be in the State's interest.

### **151.6 – WINTER CONSTRUCTION**

When the Contractor intends to work some items during the winter months, December 1<sup>st</sup> to April 1<sup>st</sup>, they will be required to adhere strictly to the Specifications. Adverse working conditions should be expected during this period, but will not justify any relaxation of standards.

This period may be a satisfactory time to perform clearing and ledge and muck excavation. Areas to receive ledge fill shall be cleared of snow and frost. The Contractor should be advised to keep within the working area when removing snow to eliminate excessive cleanup along the slope lines later. Any damage done due to winter operations shall be corrected at the Contractor's expense.

Where concrete work is expected during the winter months, the Contract Administrator should refer to *Subsection 520.3.7 Concreting in Cold Weather* of the Specifications and the Special Provisions for the latest requirements for placing concrete in cold weather. The Contract Administrator should request a written schedule of operations for this work that includes a description of insulating methods or procedures for heating. This schedule should be requested well in advance of the cold weather work to allow sufficient time for review and changes if necessary before any operations commence.

Work performed during the winter must be confined to specific areas so that snow removal on traveled ways can be carried out without interruptions.

## **SECTION 152 – REPORTS AND FORMS**

[\*152.1 – BUREAU OF CONSTRUCTION FORMS AND REPORTS\*](#)

[\*152.2 – ENGINEERING AUDIT PROCESS MANUAL\*](#)

### **152.1 – BUREAU OF CONSTRUCTION FORMS AND REPORTS**

This section provides a list of forms used by office administration staff, Contract Administrators, and Field and Audit personnel. These forms are all available on the Construction Bureau network drive and are

categorized in separate folders. These forms tend to change through updates and revisions, so it is important that project personnel are always working with the most up-to-date forms.

Some forms are self-explanatory while others may need specific directions to complete. The District Construction Engineer for should be consulted for additional information regarding the proper use of the various forms. When using these forms you should always save it to another location.

The following is a list of current Department of Transportation forms folders found on the network drive (currently "S:\Construction\Admin\Forms"):

:

- Audit
- Bid Documents
- Change Order Forms
- Claims
- Completion Forms
- Crash Reports
- Disposal and Pit Agreements
- Evaluations
- Finance
- G&C Increase Letters
- General
- Lab Forms
- Letters/Cover Sheets
- Meeting Forms
- Memorandum Forms
- Meeting Minutes
- Motor Vehicle Accident Forms
- Piles
- Project Forms
- QA/QC
- Record Book Forms
- Right-to-Know Response Letter
- Status
- Time Detail Forms
- Transmittal

## **152.2 – ENGINEERING AUDIT PROCESS MANUAL**

The Engineering Audit Process Manual contains the instructions and forms used by the Engineering Audit Section in its audit of a project and preparation of the final estimate. These instructions and forms are provided for informational purposes only, to give the Contract Administrator an idea of what the Engineering Audit Section is looking for when working on a project.

## **SECTION 180 – UTILITY RELOCATION AND ADJUSTMENT**

### 180.1 – GENERAL

- A. Background
- B. Delineation of Underground Utilities
- C. Utility Work
- D. Contract Administrator’s Instructions and Responsibility

### 180.2 – POLE LOCATIONS

### 180.3 – TELEPHONE, CABLE TELEVISION, AND COMMUNICATION UNDERGROUND PLANT

### 180.4 – ELECTRIC UNDERGROUND PLANT

### 180.5 – MUNICIPAL UTILITIES

### 180.6 – UTILITY REPORT

### 180.7 – UTILITY AND RAILROAD BILL APPROVAL PROCESS

## **180.1 – GENERAL**

### **A. Background**

The Utilities Engineer makes contact with the utility companies long before work begins on a project. The Utilities Engineer will have forwarded to the utility preliminary project plans showing the proposed alignment, profile, grade, right-of-way, and cross-sections.

The utility will have reviewed the existing facility locations shown on the Plans, made such corrections as were necessary, and returned one set showing proposed relocations for approval of the Utilities Engineer. All utility work will show on the final Plans. Utility Agreements and estimates for utility work will have been negotiated by the Utilities Engineer and copies of these agreements supplied to the Construction Bureau.

### **B. Delineation of Underground Utilities**

With the increase of gas facilities and construction of underground facilities for electric, telephone, cable television, communication companies and intelligent transportation systems, there is an increasing need to emphasize the importance of making all participants involved in highway and bridge construction cognizant of the location of these utilities. To ensure that all involved parties will be aware and recognize the type of utilities that exist underground, a coding system has been established as shown in the following table.

Underground Utility Warning Color Codes	
Utility	Color Code
Electric Power, Lighting	Red

Gas, Oil, Steam, Petroleum, or Gaseous Materials	Yellow
Communication Lines, Telephone, Telegraph, Cable Television, Alarm, or Signal	Orange
Potable Water	Blue
Sewer, or Drainage	Green
Reclaimed Water, Irrigation, or Slurry	Purple

It is the Contractor’s responsibility to notify the utilities through DIG–SAFE or to contact municipal utilities to properly delineate their underground facilities prior to any excavation operations. It should be emphasized at the pre–construction conference that the delineation of utilities will be maintained throughout the life of the contract by the combined efforts of the Contractor, Department personnel, and the pertinent utility.

### C. Utility Work

Anticipated utility relocation plans and utility work by the State’s contractor will be shown on the plans and relocation schedules described in the contract documents.

At the pre–construction conference, the utility company’s schedules will be coordinated and updated at that time to reflect the Contractor’s schedule. Utility companies and the Contract Administrator will work together to prepare a list of utility relocations to be kept in the Project Field Office. A determination will then be made as to where utilities need to be uncovered to determine their exact locations, including elevation and horizontal offsets to project centerline.

**Important:** Minutes of the pre–construction meeting shall be sent to all participants to verify commitments and completion dates.

During construction, the Contract Administrator will maintain on the record Plans the actual elevation and offset of existing utility locations that have been uncovered and verified and will record any revised locations on the Plans with appropriate revisions to the locations list.

The Contract Administrator will also notify utility officials to correct improper compaction or construction of utility work within the confines of *the* Project.

During the installation of any new utilities, including gas, water, electric power, etc., every effort should be made to ensure that these installations will not be in conflict with guardrail, delineators, or other roadside installations, and that upon completion of the utility installations, sufficient data will be available to locate these utilities, preventing future damage by the installation of other appurtenances to the highway.

The Contract Administrator must coordinate and communicate with the utility during the construction of the utility's facilities by the State's contractor. Any changes necessary during construction are to be coordinated with the Utility and Utilities Engineer.

#### D. Contract Administrator's Instructions and Responsibility

The Department provides staked locations for prior approved pole relocations and the utilities are aware that modifications to their staked locations must be checked by the Contract Administrator before actual relocation work proceeds. However, the Highway Maintenance District or Turnpikes Engineer who licenses the above ground utility plants is the only approving authority for pole locations.

The Contract Administrator can assist utility personnel by orienting them to highway features (i.e., centerline, stations, curb lines, ROW, sidewalks, etc.), but the actual pole location must be chosen by the utility for future approval of the Highway Maintenance District or Turnpikes Engineer.

The Contract Administrator should discourage any proposed utility location that will interfere with the construction of a roadway item. Utilities are allowed within the right-of-way by law and should not locate to inconvenience the State in the execution of its construction contract. Where the utilities' locations must be varied from those designated on the Plans, notify the Utility Engineer through the District Construction Engineer for approval of the change.

### 180.2 – POLE LOCATIONS

The location of aerial facilities on all projects must be approved by the Utilities Engineer. Any changes necessary after construction commences should be done through the Utilities Engineer. The Contract Administrator should check the latest standards in the [Utility Accommodation Manual](#) for required pole locations.

The following standards shall be followed when checking pole locations for all projects, except for interstates, unless superseded by the plans:

1. Overhead utility lines running parallel with the road or crossing same, may be approved provided all poles, push braces, and guy wires (at point of entry into ground) are at the minimum distance as specified in Table C1 of the [Utility Accommodation Manual](#).
6. Facilities crossing over the road shall have a minimum under-clearance of 18 ft above the high point of the traveled way.

7. The following exceptions to the minimum distance as specified in Table C1 of the [Utility Accommodation Manual](#) may be approved by the Department and are to be considered minimum standards:
- If the pole is located at least 8 ft beyond the face of beam guardrail.
  - If the pole is located at least 12 ft beyond the face of cable guardrail.
  - If the pole is located back of curbing and sidewalks when ample right-of-way exists.
  - Where curbing is constructed for delineation or drainage purposes only and no sidewalk is constructed, facilities shall be located according to normal side clearance standards.
  - If the pole is located 1.5 ft back of curb face in the sidewalk where sidewalks are constructed bordering the right-of-way line.
  - If the pole is located one-half cross-arm width inside the right-of-way line, where insufficient width of the right-of-way precludes attainment of above minimums.

**Note:** In no case shall the installation of utilities closer than 8 ft from the edge of pavement or the edge of shoulder be approved if they exist or are to be constructed.

### 180.3 – TELEPHONE, CABLE TELEVISION, AND COMMUNICATION UNDERGROUND PLANT

Telephone, cable television, and communication companies use two general types of underground construction: conduit systems and cables buried directly in the ground.

Conduit systems are now the preferred method of installation. They consist of manholes connected by multiple clay, transite, wood, plastic, steel or concrete-reinforced fiber ducts. Cables are pulled into the ducts as required. Laterals extend from the manholes to buildings, or to poles where aerial construction commences.

Older telephone, cable television, and communication cables are also buried directly in the ground, and may include anything from a one-pair cable serving rural subscribers to large toll cables carrying hundreds of important messages.

Underground conduit and cables or direct-buried cables may be found in many places –crossing highways, paralleling roadways either in the shoulder or the backslope, crossing waterways, or on private property outside the highway limits.

Conduit systems are generally used when the number of aerial cables and wires needed to provide today's communications would be physically prohibitive to install on a pole.

The main issue with underground cables is damage by excavation operations. Preventing damage to conduit systems in urban areas generally is not a problem, as city and state agencies that do work in these areas for the most part are aware of their presence. However, the same is not true for buried plant outside urban areas.

The location of buried plant is shown by markers, but unfortunately, many people are not aware of their meaning or do not notice them. Consequently, cables are lost through various digging operations. The large and noisy equipment in use today is such that the operator does not always know when a cable has been struck and, as a result, sections may be ripped out of the ground, or splices many feet from the point of contact may be torn apart.

In most instances, workers are aware when they damage buried cable. They can therefore notify the utility company that, in turn, will initiate repair work. There are times, however, when plant is damaged without the workers' knowledge. The problem therefore becomes compounded – communication services are lost and nobody knows where or why.

Recognizing the Presence of Buried Plant: There are different types of above-ground markers that may indicate buried communication plant in a particular location. The most obvious would be the buried cable markers, which are either wood or concrete posts, generally 4 to 12 ft high. They are located at irregular intervals along the length of the buried communication cable, and are equipped with signs that advise of the presence of the cable.

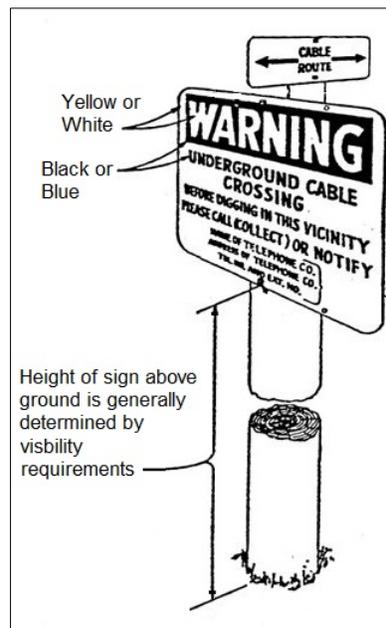


Figure 100 – 11: Underground Cable Crossing Warning Sign

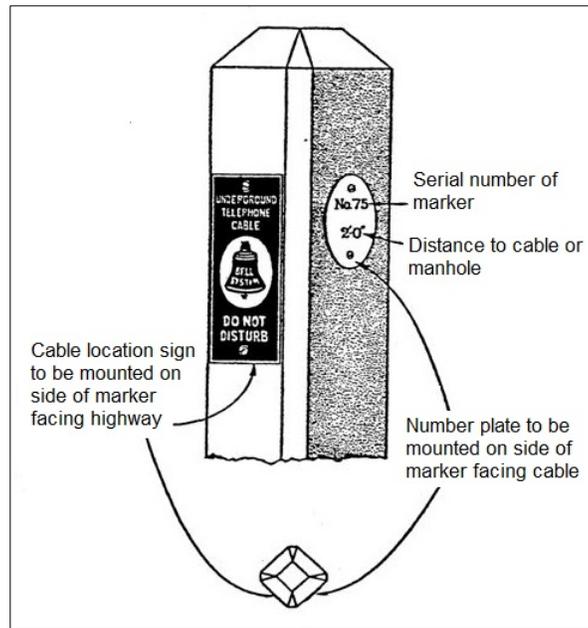


Figure 100 – 12: Underground Telephone Line Warning Post

Another indication of buried cables is the abrupt disappearance of aerial cables. For example, an aerial cable may appear to stop at one pole and start at another some distance away. The poles may or may not be connected by a strand. Closer observation reveals that the cable runs down the poles and is then buried between them. The course of the buried cable may be directly from pole to pole, but not necessarily. The roadway shoulder is the usual path to direct buried cable runs so as to avoid subsurface obstructions. Buried cable runs such as these vary in length, and it may be such that only one dead-end pole is observed. Even though the general direction may be determined, the exact location of the buried cable is unknown.

The foregoing has assumed that the workers do not have communication cable layouts or highway plans available that designate the location of the buried plant. The utility company expects that buried plant will be recognized and incorporated in the Plans, especially on highway jobs where field surveys are required and Plans are drawn. Utility layouts and locations should be known to all project personnel. Some jobs, however, do not require Plans, and these jobs in particular depend upon project personnel doing the work to spot the presence of communication plant.

When buried plant is noted, its exact location may be determined by directly contacting the When buried plant is noted, its exact location may be determined by calling the DIG-SAFE center. The DIG-SAFE center will contact the utility who will arrange to have the cable located during normal working hours at no cost to the Department. Be assured that the telephone, cable television, and communication utility will cooperate on these matters. Providing communication is its sole business, and maintaining its continuity is essential.

Where there is any doubt as to the presence of telephone plant, call the telephone, cable television, or communication utility's contact within the Prosecution of Work.

**Important:** The "DIG-SAFE" Program phone number, 1-800-225-4977, may be called at anytime, anywhere in the State.

#### **180.4 – ELECTRIC UNDERGROUND PLANT**

The electric power companies also have underground lines, but most of these lines are not identified on the surface. Those that are usually have a metal tag or sign attached to a metal post. If they are not identified on the surface, most will be identified by a strip of yellow tape which was placed over the power lines, but there are many underground power lines that have no specific identification.

#### **180.5 – MUNICIPAL UTILITIES**

Municipalities are not required to be members of DIG-SAFE, so they may require individual notification to obtain the marking out of their underground facilities prior to excavation operations.

Municipal facilities such as fire alarm or intelligent transportation system cable can be either aerial or underground. Most municipalities maintain and relocate their fire alarm or intelligent transportation system cables themselves or their contractor. Any such necessary relocation will be described in the Prosecution of Work.

Water and sewer facilities that require relocation may be relocated by the municipality, their contractor, or the State's contractor. Those responsible for any necessary relocation work will be identified in the Prosecution of Work.

#### **180.6 – UTILITY REPORT**

When the utility is to be reimbursed, approval of utility reports submitted by the utility to the Contract Administrator must be indicated by the Contract Administrator's signature. Utility reports should have all of the information regarding the following items:

- Project name
- Project dates
- Project personnel
- Class
- Types of equipment used, and the hours
- Types of vehicles used, and the hours
- Descriptions and quantities of materials

- General description of the work performed that week.

The report should indicate whether the labor, equipment and materials, used are for permanent or temporary installations. The Contract Administrator is reminded that these reports substantiate the work by the utility, and the accuracy and detail aid in checking final bills submitted by the utility. Even though the utility foreman completes the written portion of the report, the Contract Administrator is expected to check all items of work performed in the field, the labor and equipment hours, and if unable to recommend payment, as a minimum note the items in question and advise as to the reasons payment should not be made.

The Contract Administrator must spot check and note the daily performance of each utility in order to approve the weekly reports. On projects involving railroad expenditures, the Contract Administrator should keep an accurate spot check account of the hours and expenses of the Railroad Inspector and work crews. The Contract Administrator will indicate on the Daily Report the presence of utility work as well as labor, equipment, and related traffic control. Any additional information needed by the Contract Administrator to verify the weekly utility reports may be kept in a bound field notebook. Refer to the following sample Utility Report form (currently located at "S:\Construction\Admin\Forms") for more information regarding utility reports.

New Hampshire  
Department of Transportation

**UTILITY REPORT**

Highway Project: \_\_\_\_\_ Utility Work Order No. \_\_\_\_\_  
 Utility Company: \_\_\_\_\_  
 Subcontractor (Utility): \_\_\_\_\_  
 Location of Work: \_\_\_\_\_  
 Beginning Date of this Report: \_\_\_\_\_ Ending Date: \_\_\_\_\_

PERSONNEL (Classification/Hrs)	Day	Sun	Mon	Tue	Wed	Thur	Fri	Sat
	Date							

EQUIPMENT (Type and Hours)	Sun	Mon	Tue	Wed	Thur	Fri	Sat

Material Installed During Week  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Material removed during week:  
 (When determination cannot be made in field regarding final disposition, so indicate by appropriate explanation such as: "Subject to further tests," "Subject to determination based on engineering or accounting records," or other brief descriptive phraseology.)

Material Removed During Week	Reuse	Sale As Junk	Abandon

Inspection of Removed Materials By State and/or Federal Highway Administration Personnel  
 Date: \_\_\_\_\_ Location: \_\_\_\_\_  
 Accepted By: \_\_\_\_\_

Submitted By: \_\_\_\_\_ (Agree/Disagree) By: \_\_\_\_\_  
 (Utility Supervisor) (Project Engineer)

Remarks: \_\_\_\_\_  
 \_\_\_\_\_

(Form to be completed daily and delivered to Project Engineer at end of each calendar week.) White and Canary-Project Engineer; Pink-Utility Acc't Dept.; Goldenrod-Preparer

Form -HD-UR-3/88

## 180.7 – UTILITY AND RAILROAD BILL APPROVAL PROCESS

The method for processing utility and railroad bills is as follows:

- The Bureau of Highway Design – Design Services will submit invoices from the Utility to the Bureau of Construction with a Memo requesting concurrence or comment as to whether the work was completed and the hours are as documented or observed.
- The Bureau of Construction will forward the invoices to the Contract Administrator.
- The Contract Administrator will compare the invoiced hours, materials and equipment with the previously completed Utility Reports and indicate whether the work billed is complete. The Utility Reports will not be the basis for payment for field work (labor, equipment, and materials) but are required for verification that the work has been performed. If all items cannot be verified, the Contract Administrator will write a note stating what is not verifiable or is believed to be incorrect. The invoice (with the note) must be returned to the Utilities Engineer within two weeks after being received by the Bureau of Construction.
- The Utilities Engineer will give the invoice to either a Utility Coordinator or the Rail Crossing Coordinator for final review and resolution of all outstanding issues prior to approving the invoice for payment.