QUALITY ASSURANCE

The concept of quality assurance refers to the combined efforts of the contractor through quality control and the department through inspection and acceptance to produce a project that will provide the public with a durable product exhibiting a high level of performance. To this end, a system of inspection by qualified personnel (both department and contractor) and statistically based sampling and testing has been established. To ensure that the quality assurance concept functions properly, it is critical that the contractor's quality control and the department's inspection and acceptance process be a cooperative coordinated effort. **When any part of the process fails, the contractor's risk for payment adjustments and the department's risk of accepting substandard work increase. The increase of these risks caused by a failure on the part of either the contractor or the department is unacceptable.**

The obvious concept behind statistically based testing practiced by the department is the determination of project quality in terms of a specific parameter by a randomly distributed number of tests. Some element of risk exists for both the department and the contractor; however, historical data has established that this risk is minimal and evenly distributed. **Additional tests are not to be performed unless it is clear that the initial, statistically-based test is in a location that is not representative of the zone, but is obviously deficient and must be replaced.**

The performance of random quality control and acceptance testing in no way relieves the contractor of the duty to produce a consistently uniform project meeting all specification criteria, nor does the performance of random acceptance testing relieve the department from requiring the correction of any deficiencies identified during the inspection process which fall outside a test location.

Quality assurance specifications are not "end result." It is not the intent of quality assurance specifications to allow the contractor to use construction practices or materials that may lead to a less than optimum product. If the contractor attempts to achieve only the minimum criteria for which the department will allow 100% payment, the risk of the discontinuance of operations and/or payment adjustments will be significantly increased due to the nature of statistically based acceptance parameters. The department will not allow continued operations when tests result in less than 100% payment or show less than minimum specification requirements when no payment adjustment is applicable.

The department and the contractor use the same test methods and identical or equivalent equipment; however, the responsibilities of each entity are clearly separate and significantly different. For this reason, it is important for all parties to understand the concept and commit themselves to the process. The contractor’s role is clearly to construct quality into each phase of a project. At the end of a construction phase, through the statistical sampling, testing and visual inspection program, the department can only establish the level of quality already constructed. The department has no part in the construction of quality, only quantifying the results. Because of these different responsibilities and the contractor trying to build quality and to avoid payment adjustments, it is obvious that the QC program will be more intense, at times, necessitating many samples and/or tests beyond the normal situation. The department’s

program is rigid, based on historical data with specified inspection requirements. At the completion of a project, in most cases, the contractor will have taken more samples, conducted more tests, and made more inspections than the department. Contractors w ith specification materials, proper equipment, qualified personnel, knowledge of materials and construction

processes, and a commitment to their QC program will generally construct the highest quality with the least demand for sampling and testing.

FIELD CURVE

One of the most important innovations in the 2000 specifications is the development, validation, and implementation of what is commonly referred to as the “field curve” (TR 415 and, by reference, TR 418) for determining the maximum dry density and optimum moisture of a specific material under field conditions. This test provides, for the first time, a method to accurately and quickly, determine these values by conducting the analysis on material that is actually being processed. No sample has to be submitted to the lab, no time delays are involved beyond actual testing, and there are no correlation problems between the material being processed and the material tested at the lab. The reliability level placed on the results of this test is higher than for a lab curve or other test methods, since the test is conducted on the project during construction activities using samples of the material being placed. processed, spread, and compacted The field curve enhances the entire quality assurance process and is especially effective in the quality control activities of the contractor. This method provides the contractor with a tool to quickly obtain reliable results to control the work effort and identify solutions to compaction problems. The timely results can yield quick solutions saving significant time and resources while reducing the potential for payment adjustments and conflict.

With the implementation of the field curve, **the department no longer allows the averaging two one-point proctors to calculate the maximum dry density (target density)** for determining percent compaction and subsequent percent pay for soil cement. Averaging two one-point proctors yielded only a dry density at the moisture content in the soil or soil aggregate at the time of test. If this moisture content was not exactly at or very close to the true optimum moisture of the material being tested, the dry density determined was not relevant to the actual maximum density (true target density) of the material. The accuracy of the dry density was dependent on the extent of the difference between true optimum moisture content and the moisture content of test. This situation could cause payment adjustments or substandard compaction leading to premature failure.

CONTRACTOR'S RESPONSIBILITIES - QUALITY CONTROL (QC)

The contractor is responsible for meeting all specification requirements. The contractor shall employ competent trained personnel and provide equipment that is in good condition and appropriate for the tasks for which it is used.

The *Materials Sampling Manual* publishes the official department sampling and testing schedules for construction materials. In addition to formal sampling, these requirements include Qualified Products Lists (QPL'S), certifications, and visual inspections. The contractor or material provider is to refer the *Materials Sampling Manual* for the minimum acceptable QC Sampling and Testing requirements.

The department may require additional sampling and testing when needed to ensure the quality of the product. The contractor may elect to perform additional sampling and testing to ensure the quality of the product prior to department acceptance testing and inspection.

Sampling and testing requirements for materials or processes specified in Supplemental Specifications or Special Provisions are not included in the *Materials Sampling Manual.* If no sampling or testing requirements are published, sampling and testing will be as directed by the DOTD Materials Engineer Administrator.

The contractor shall locate, select, place and process uniform materials meeting specification requirements. The contractor shall sample and test the materials and final product to ensure that no failures will be identified by the department during inspection or acceptance testing. Prior to the preconstruction conference the contractor is to provide the project engineer with a list of quality control personnel, their assigned responsibilities and their prior experience in their areas of responsibility, the types of equipment proposed for the various construction activities, and a proposed quality control program including a basic schedule of sampling and testing and the testing equipment to be used. If the contractor is unable to provide details at the preconstruction conference, these topics are to be thoroughly discussed. The contractor will not be permitted to begin construction until the project engineer approves this information. If changes to personnel or any other aspect of the QC program must be made, the contractor shall notify the project engineer immediately.

The contractor shall obtain copies of appropriate department manuals needed for the work. Such documents may include specifications, plans, contract, *Materials Sampling Manual*, *Testing Procedures Manual*, "*Quality Assurance Manual*," etc. for the field representatives on the project.
The contractor is to ask the project engineer for information on how to obtain these documents.

PERSONNEL

The successful completion of all prerequisite training materials is required whenever DOTD certification is required by the specifications. It is imperative that QC technicians be thoroughly familiar with department specifications, policy and procedural documents, and sampling and testing procedures. The project engineer or the district laboratory engineer will approve QC technicians.

Each equipment operator shall be fully knowledgeable of the safety features, limitations, and uses of the machine. The contractor shall require that personal safety equipment be used as appropriate, including the wearing of film badges by nuclear device operators.

Personnel employed by the contractor to operate equipment shall be properly trained in its operation and be capable of using the equipment to ensure compliance with specification requirements. For example, motor patrol operators shall know how to maneuver the machine and position the blade to obtain a cut that uniformly conforms to grade for the full width and length of the area being shaped. Each operator of compaction equipment shall understand the relationship between the compactive effort of the machine in terms of speed, weight, vibratory impact, number of passes and the material being compacted. It is critical to the proper compaction of soils that compaction equipment be properly operated. Failure to operate compaction equipment properly may cause earthwork not to meet specification density requirements, resulting in additional work and expense for the contractor and the department.

DIMENSIONAL CONTROL

The contractor shall routinely check alignment and grade, thickness and cross section to ensure that layout matches the plans. These checks shall be in accordance with standard survey practices or published DOTD procedures. Such checks shall be made at intervals of adequate frequency to ensure that alignment, thickness, or grade do not deviate between marked station locations. Irregularly shaped grades are not acceptable and shall be corrected by the contractor. There are no tolerances allowed by the specifications for QC grade or alignment. Therefore, it is the contractor's responsibility to ensure that the project is completed to the dimensions shown on the plans.

MATERIAL QUALITY

It is the contractor's responsibility to locate and furnish materials which meet specifications. It is also the responsibility of the contractor to ensure that those materials, after being placed and processed, will meet department acceptance criteria. Once the contractor feels certain that the proposed material sources will meet specifications, it shall be the contractor's responsibility to request testing of those sources by the district laboratory. The contractor is responsible for coordinating the arrangements for materials acceptance testing and approval and the planned work schedule with the project engineer and the district laboratory engineer. **The contractor is to schedule work so that the laboratory or project engineer can arrange the sampling and testing of materials prior to their planned incorporation into the project.** Failure to do so will result in a delay of the contractor's proposed schedule, since no material can be placed on a project without approval. When scheduling work, the contractor must consider the additional time required for the approval of materials that must be tested by the Materials and Testing Section in Baton Rouge.

The contractor shall obtain uniform materials. For example, the method of excavating soils and/or processing materials can impact uniformity. Soils vary both laterally and vertically within a source. Therefore, the method of excavation can contribute to the variability of material on the project. Soils are to be excavated and processed to minimize variance on the project. If the contractor's methods of obtaining soils contribute to their nonuniformity, the engineer will direct that these methods be altered to ensure the placement of uniform material on the project. Placing nonuniform soil on the project can cause test data to be invalid and increases the risk of premature failure.

SAMPLING AND TESTING

The contractor shall conduct tests during the progress of the work to ensure continuous compliance with specifications. The contractor is to take as many samples and perform as many tests as necessary to ensure that materials and processes are producing a uniform product within the specification limits. When test results are near the borderline of specifications, the contractor may be advised to adjust operations and/or materials sources to ensure that no failure to meet specifications occurs and that borderline conditions do not continue. Materials and operations at the borderline of specification requirements often result in failing acceptance tests, which can result in payment adjustments, loss of production time, and significant alterations to the QC program. When borderline materials or operations result in failing acceptance tests, immediate adjustments will be required. The contractor shall use test procedures and methods which correspond with the department's quality assurance program. These procedures are designated in the specifications, *Testing Procedures Manual*, and *Materials Sampling Manual*. When department procedures are published in an engineering directive (*EDSM*), the contractor shall conform to these guidelines. The project engineer will provide the contractor with appropriate *EDSM* or other directives. Testing equipment shall be appropriately calibrated and in good working condition. The contractor shall contact the district laboratory engineer for policies and procedures to be followed for each piece of testing equipment.

The contractor is not to wait until a change in materials or a test result from DOTD indicates a deficiency, but is to stay continually abreast of construction progress and activity. When the contractor identifies failing materials or processes, the contractor shall take whatever measures are necessary to correct the deficiency and prevent its recurrence. These measures shall include, but not be limited to the following:

- removal of personnel or equipment not performing in an acceptable manner
- removing and replacing materials
- locating and selecting other material sources
- reprocessing the deficient area
- additional testing both to establish the total limits of the deficient area and to ensure that corrective action has been successful

The contractor is to complete QC testing and make any needed corrections prior to requesting acceptance testing by the department. The contractor is not to rely on the department's acceptance program and acceptance test results to prevent the application of payment adjustments or delays caused by suspensions of operations due to failures or deficiencies.

The contractor is to document all QC testing and provide copies to the project engineer as directed. The contractor shall stamp all QC documents "QC" with red ink, in minimum one-inch high letters.

CONSTRUCTION LAYOUT

Unless otherwise stipulated in the contract, the department will be responsible for construction layout. When any construction stakes or marks are carelessly or willfully destroyed or disturbed by the contractor, the cost of replacement will be deducted from payments to the contractor. Such deductions will be coordinated through the Chief, Construction Division.

When the contract requires the contractor to provide layout, the engineer may inspect the contractor's staking, elevations, station numbers, etc. The Project engineer shall approve the location, placement, and number of stakes. The project engineer has the authority to require additional stakes. The contractor shall correct any deficiencies prior to continuing operations. The project engineer's inspection of construction layout by the contractor in no way implies that the department accepts liability for layout errors by the contractor. In accordance with Specification Subsection 105.08, the contractor shall be responsible for the preservation of all stakes and marks.

TRAFFIC CONTROL

It is the responsibility of the contractor to control traffic, to install signs and other warnings and traffic control devices that meet *MUTCD,* DOTD, and other applicable requirements, in accordance with the plans. The project engineer is authorized to require additional traffic control, as needed, in accordance with the *MUTCD*. It is also the responsibility of the contractor to maintain all control devices in good condition. If traffic control is not adequate or if signs or devices lean, become damaged, misplaced, dirty, or lose reflectivity, the contractor shall correct the deficiency immediately. **Operations will not be allowed to proceed if traffic control is not effective. Corrections are not to be delayed, since the safety of the traveling public is of prime importance**.

RESPONSIBILITIES OF THE PROJECT ENGINEER

The project engineer is the legal representative of DOTD for the administration of the contract and represents the department directly as well as through the inspection staff. The department is responsible for inspecting, sampling, and testing for acceptance. The process of acceptance is on-going. The department evaluates the contractor's construction process, materials, personnel, equipment, and quality control program to determine if specifications are being uniformly met. Additionally, the department takes samples and conducts tests to ensure that the contractor's QC test results are accurate and reflect the actual quality of the product. **The department's results are used to determine the acceptability of the product and take precedence over any other test results.** The contractor shall correct any deficiency identified by the department through inspection, sampling or testing at no direct pay. **Consistent or repeated failures identified by test results or repeated deficiencies identified by inspection will result in the suspension of operations until the cause is identified and corrected and the QC program is reviewed and modified to eliminate such repeated or consistent failures.**

MONITORING QUALITY CONTROL (QC)

At the preconstruction conference, the project engineer is to review the contractor's proposed QC program and provide a copy to the district laboratory engineer. The project engineer may require the contractor to modify the proposed program either at the preconstruction conference, before construction begins, or during construction. During construction, based on good construction processes and no failing acceptance test results, at the request of the contractor, the project engineer may allow a reduction in the number of tests required in the approved QC program, but not less than the minimum required by specifications. When acceptance inspection or tests indicate that the contractor's QC program is not effective, modifications to the program will be required. The project engineer has the right to require changes in personnel, equipment, construction methods, testing methods or frequency. **The contractor will not be allowed to proceed with construction operations without an effective, approved QC program.**

The project engineer will be certain that the contractor's representative on the project has the appropriate department documents, such as the specifications, plans, contract, *Materials Sampling Manual*, *Testing Procedures Manual*, *"Quality Assurance Manual*." Any required document can be obtained from the department at a published price through General Files. The project engineer will provide information on the appropriate procedure for obtaining published documents. When department policies or procedures applicable to the contractor in the performance of contractual responsibilities are published in engineering directives (*EDSM*) or other construction memoranda, the project engineer will provide the contractor with a copy of the document at the preconstruction conference or when it becomes apparent that a directive must be applied.

Evaluations of the QC effort to ensure that additional failing acceptance tests do not occur may include, but not be limited to, the following:

- Observation of the contractor's sampling and testing procedures for conformance to department procedures and proper testing techniques
- Evaluation of the contractor's testing equipment for proper working condition and conformance to the requirements of the appropriate test procedure
- Observation of construction procedures for uniformity of effort and results

INSPECTION

PERSONNEL

The project engineer is responsible for providing qualified inspectors on the project. Each inspector will successfully complete the department's training materials for the level of responsibility assigned. The chief inspector will be certified in Embankment and Base Course Inspection. The operators of nuclear devices will be Authorized Nuclear

Device operators and will wear their film badges at all times when handling or operating nuclear equipment.

CONSTRUCTION LAYOUT

Unless otherwise stipulated in the contract, the engineer will be responsible for construction layout. In accordance with Specification Subsection 105.08, the contractor shall be responsible for the preservation of all stakes and marks. When any construction stakes or marks are carelessly or willfully destroyed or disturbed by the contractor, the cost of replacement will be deducted from payments to the contractor. Such deduction will be coordinated through the Chief, Construction Division.

If the contract requires the contractor to provide layout, the engineer will inspect the contractor's staking, elevations, station numbers, etc. The project engineer's inspection of the contractor's construction layout in no way implies that the department accepts liability for layout errors by the contractor. EQUIPMENT

Prior to construction, the project engineer will inspect the equipment to be used on the project to ensure that it is in good condition and appropriate for the activity for which it is to be used. The project engineer will require that equipment that leaks or is damaged be repaired or replaced before it operates on the project. The project engineer will require the replacement of equipment that is not appropriate for the project prior to its being used.

During the progress of construction, construction personnel are to inspect equipment daily to ensure that it has been maintained in good condition and that no damage which would affect its operation has occurred. Damaged equipment shall be repaired prior to its continued use. Project personnel will evaluate the effectiveness of equipment. Equipment which does not perform properly or which does not produce a quality product meeting specifications is to be replaced with acceptable equipment.

ACCEPTANCE

VISUAL INSPECTION

Although the random, statistically-based sampling and testing performed by the department represents the entire area being tested, this methodology does not replace visual inspection. Department personnel will observe the contractor's operations and inspect the project throughout its construction. When nonuniform materials or nonuniform processes result in areas which do not appear to be acceptable or which are obviously not in conformance with the quality of construction expected, the department will require the contractor to correct these deficient areas. Such deficiencies for earthwork and base course construction may include soft spots, nonuniform gradation or pulverization, nonuniform blending of materials, failure to stabilize, laminations, waves or undulations in the surface, varying width or depths, etc. **It has never been the intent of the department to accept a project solely on the basis of the statistically-based sampling and testing program.** It is always necessary for the project engineer and inspector to be aware of the quality of construction and performance of the project during construction and acceptance phases before final acceptance.

SAMPLING AND TESTING

Sampling and testing is a support for visual inspection. Project personnel will sample and test material for acceptance in accordance with the *Project Sampling Plan*, based on the schedule published in the *Materials Sampling Manual*. It is to be noted that the *Materials Sampling Manual* establishes the minimum required level of sampling and testing. The engineer has the authority to require additional tests to ensure uniformity, acceptability, and quality of the work. When samples or tests yield failing results, the department will require the contractor to correct the area represented by the sample or test, unless the specifications allow the application of payment adjustments. **Materials are to be sampled, tested and approved prior to incorporation into the project. Materials that do not meet specifications are not to be placed.**

Acceptance sampling and testing is to be performed by department personnel independently of the contractor's QC program. Under no circumstances is the inspector to use the results of the contractor's QC tests for independent acceptance results.

TRAFFIC CONTROL

Project personnel will inspect traffic control daily and will monitor its effectiveness continually. Nighttime effectiveness of traffic control arrangements and their continued reflectivity will be regularly inspected after dark. Inspections will be documented on the Project Diary (DOTD Form 03-40-3093). Any deficiencies noted during inspections or during operations are to be documented along with instructions to the contractor regarding corrections. Follow-up inspections of the contractor's corrections are also to be documented. If the deficiency creates a dangerous traffic situation or is detrimental to the course being constructed, the engineer will require immediate correction or the discontinuance of operations until the deficiency is corrected. The contractor shall repair traffic damage.

RESPONSIBILITIES OF THE DISTRICT LABORATORY

The district laboratory engineer is the coordinating authority of the district's quality assurance program and is the legal representative of the department in the area of materials quality. The district laboratory is responsible for assuring that the quality assurance program is applied uniformly. This coordination of the QA program is performed in conjunction with the DOTD Materials Engineer Administrator. The district laboratory has specific and implied responsibilities, including but not limited to the following:

- Administer the district Quality Assurance Program
- Certification of and inspection of central mix plants
- Certification or approval of testing equipment
- Training, testing and evaluation of the qualifications of DOTD employees and personnel associated with the DOTD construction industry

- Assisting and providing expertise for construction processes and problem solving
- Establishing the *Project Sampling Plan*
- Identifying the appropriate test to be performed
- Identification of proper sampling and testing techniques
- Interpretation of test results
- Sampling and approving project material sources
- Acceptance testing for selected parameters
- Coordination of application of *Project Sampling Plan*
- Project Materials Certification (2059 Review)
- FHWA mandated Independent Assurance Sampling and Testing
- Mix Design Approval

RESPONSIBILITIES OF THE MATERIALS AND TESTING SECTION

The Materials and Testing Section is responsible for updating sampling and testing procedures, providing lists of approved materials sources, performing acceptance testing on materials not tested by the district laboratories or project engineers, testing materials for inclusion on approved source lists, and distributing the *Materials Sampling Manual, Testing Procedures Manual*, *Qualified Products List*, and MATT System documentation. **When no specific sampling or testing is referenced, the Materials Engineer Administrator will determine the appropriate sampling frequency, methods, and tests to be used.** The Materials and Testing Section also provides technical support to district construction and materials forces.

DEDICATED STOCKPILES

A dedicated stockpile is defined as a stockpile built for a specific project. It is sampled, tested and approved during its construction. Dedicated stockpiles are to be constructed in final position. If the engineer allows the contractor to move material from a dedicated stockpile, except for placement in the project, such disturbance shall be at the contractor's risk. The disturbed material will be subject to additional approval sampling and testing. If the disturbed material has become contaminated, segregated or fails specification requirements when retested, it shall not be placed in the project. The contractor may attempt to correct any deficiency in a disturbed stockpile which has failed subsequent approval testing at no direct pay. If the contractor is unable to correct the deficiency, the material will not be used on the project.

Material in dedicated stockpiles may be used only on the project for which it has been dedicated, unless otherwise approved in writing by the project engineer. Once the department has approved a dedicated stockpile, no material can be removed or added without the approval of the project engineer. **The project engineer will not approve the addition of material to a dedicated stockpile until such material has been sampled, tested and approved for placement in the stockpile.** Material approved for addition to a dedicated stockpile will be sampled and tested under the same conditions as the dedicated stockpile. To avoid the risk of the department rejecting a disturbed dedicated stockpile, in lieu of requesting that material be added to an existing dedicated stockpile, the contractor is expected to make every effort to create a new stockpile.

During the construction of a dedicated stockpile, the engineer will sample the stockpile in accordance with the *Materials Sampling Manual* and submit the samples to the district laboratory for testing. It shall be the responsibility of the contractor to notify the project engineer and request sampling and testing during stockpile construction and to keep the project engineer and district laboratory engineer apprised of the building schedule of stockpiles to be dedicated. Failure to do so can result in the rejection of the stockpile, disallowance of or substantial delay in advance payment for the materials, or substantial delay in the construction process.

NONDEDICATED STOCKPILES

Stockpiles which are not dedicated for use on a specific project are nondedicated. Advance payment will not be made for materials in nondedicated stockpiles. In general, nondedicated stockpiles are those to which material is randomly added or removed, or which will subsequently be moved to another location. Nondedicated stockpiles remain in the control of the contractor. Material from nondedicated stockpiles is sampled and tested as it is used in accordance with the *Materials Sampling Manual*.

ENVIRONMENTAL PROTECTION

During the construction of roads and bridges, the contractor utilizes myriad construction techniques, operates many different types of equipment, and incorporates a significant number of different liquids, powders, and solids. These activities carry with them the potential for polluting the environment. Storm water runoff is a primary source of pollutants from constructions sites, material producing plants, and equipment staging areas. The goal to protect the environment from storm water extends beyond the concern of soil particles in waterways (erosion control). Storm water contains residues from asphalts, oils, fuels, fertilizers, stabilizing chemicals such as cement, chemicals from the natural breakdown of certain aggregates, and has the potential for transporting many other materials hazardous to the environment.

Air, in addition to water, can be an efficient carrier of pollutants. Dusting is a major concern in the construction industry. Construction and public traffic traversing lime and cement spreads on construction sites cause particles to become airborne and subsequently, pollutants. Material manufacturing plants use dry materials in the production of their products. Escaping particles, when not controlled properly, become airborne pollutants. Liquids, such as fuels and oils, vaporize and add gaseous material to the air. Open burning of vegetation after clearing and grubbing operations can be detrimental to air quality. In addition, smoke is a safety issue since a heavy smoke accumulating over roadways creates sight distance problems increasing the potential for accidents.

Vibration and noise can be significant in impacting the environment. Vibration from construction activity, such as pile driving and compaction efforts can be environmentally detrimental. Vibration can cause the reorientation of soil layers resulting in subsidence. Impact waves can cause structural damage and result in water table changes. Noise from construction sites can reach decibel ranges that impact the hearing of individuals. Therefore, vibration and noise are considered pollutants and environmental threats.

Activities that negatively impact the environment potentially exist on every construction project. There are local, state, and federal guidelines that control these activities to minimize environmental harm. The contractor shall abide by these regulations and is to take every step necessary to prevent damage to the environment.

EROSION CONTROL

Erosion control is critical on almost every project. The goal of erosion control is to ensure that no soil leaves the right-of-way or moves into any existing ditch, stream, pond or other body of water. Pursuant to the clean Water Act and the Louisiana Environmental Quality Act, a Louisiana Pollution Discharge Elimination System (LPDES) General Permit is required from the Louisiana Department of Environmental Quality (LADEQ) for any construction activity that disturbs five or more acres. A Storm Water Pollution Prevention Plan (SWPPP) is required for these projects. The SWPPP normally consist of (a) the plan sheets indicating the locations of erosion control items, (b) Standard Plan EC-01 and (c) Standard Specification Section 204. If there is no erosion control plan in the project plans, the project engineer is to contact the Headquarters Construction Section to ascertain if there is a reason for its not being included. The SWPPP will be discussed at the Plan-in-Hand.

To conform to the LADEQ's mandate, the department and the contractor are regarded as coapplicants for the permit to discharge storm water from construction activities. A Notice of Intent (NOI) form is submitted to LADEQ by the designer prior to the letting of the contract and the approved permit must be posted on the project. Fines can be assessed by LADEQ for failure to comply to these regulations. The contractor shall be required to obtain a separate permit for pits, plant sites or storage areas beyond the limits of the right-of-way. It is not the Department's intent to pay for erosion control measures for pits, plant sites, or storage areas. Upon completion and final acceptance of the project, a Notice of Termination (NOT) form must be completed by the Project Engineer and submitted to LADEQ.

In accordance with Specification Subsection 107.14, the contractor shall protect the project and adjoining properties from soil erosion and siltation by effective and continuous erosion control methods. The area of bare soil exposed by construction operations shall be kept to a minimum. The contractor is also required to adhere to the requirements of Specification Subsection 107.15 for all projects.

Erosion control, including the sequence of operations, is to be discussed at the preconstruction conference. The project engineer will evaluate and approve the contractor's proposed erosion control and evaluate the erosion control plan sheet in terms of the proposed sequence of operations and topography. The SWPPP is to be adhered to as closely as possible. The contractor is to consider erosion control problems when determining the proposed sequence of operations. The project engineer has the authority by specifications to limit the quantity of exposed earth and to order erosion control in addition to that originally stipulated in the plans or contract. If the project engineer or inspector recognizes a potential erosion problem, the contractor will be directed to install erosion control measures to prevent erosion from occurring. It may be necessary to adjust initial erosion control plans to prevent erosion as the project progresses.

Standard Plan EC-01 provides details for the proper installation of specific erosion control measures commonly used on DOTD projects. When such measures are used, project personnel shall be installed in accordance with EC-01 or other contract documents, as applicable.

In addition to installing erosion control measures, the contractor shall maintain erosion control so that it will not fail. The contractor is to provide qualified personnel to monitor erosion control on the project. To conform to LADEQ requirements, erosion control

measures are to be inspected at least once every seven calendar days and within 24 hours following the end of storm that deposits 0.5 inch or more of precipitation. Seeded areas are to be checked regularly to ensure that a good stand of cover is maintained. Seeded areas are to be fertilized and reseeded as needed. Sediment basins are to be cleaned at 50% capacity minimum. Should erosion control fail and soil be deposited outside the right-of-way, in accordance with Specification Section 204, it shall be immediately removed and the surface repaired at no direct pay. Operations shall be discontinued until erosion deposits have been cleared and the area restored.

Construction personnel will inspect erosion control measures regularly and after storms. When maintenance is needed on erosion control measures, they will direct the contractor to take action immediately. If erosion control measures are not placed or maintained in a timely manner to the satisfaction of the engineer, the engineer is to discontinue all operations until appropriate erosion control measures are installed or maintenance is completed. **Weather conditions will not be considered an acceptable reason for not immediately maintaining erosion control.**

The cost of maintenance, clean out, or removal of siltation for temporary erosion control features, such as but not limited to silt fencing and sediment basins will be included in the unit price of the respective item and shall be performed at no direct pay. The accumulation of silt in the temporary erosion control feature is not to exceed 50% of the capacity of the feature prior to the beginning of soil removal and clean out.