North Carolina Department of Transportation

Program Manual

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INTRODUCTION

The Federal Highway Administration (FHWA), as directed by the United States Code of Federal Regulations (CFR) Title 23, requires all state highway agencies to establish and utilize On-the-Job Training (OJT) on federally-funded highway construction projects. The primary reasons supporting the Federal requirements are to:

- Train and upgrade minorities, women and disadvantaged persons to journeyman level status in the highway construction industry;
- Establish a plentiful and well diverse pool of skilled workers for the highway construction industry; and
- Demonstrate that equal opportunity exists in the highway construction industry.

In the State of North Carolina, implementation and administration of the On-the-Job Training Program is the responsibility of the North Carolina Department of Transportation (NCDOT). The OJT Program works with the North Carolina (FHWA) Division Office to ensure guidance of policies, rules and regulations concerning the program's success.

This OJT Program Manual's primary objective is to inform and educate highway construction contractors about The NCDOT's OJT Program.

FEDERAL GUIDANCE

THE UNITED STATES CODE OF FEDERAL REGULATIONS, TITLE 23, PART 230.107(B) reads as follows:

> *(b) Federal-aid highway construction projects. It is the policy of the FHWA to require full utilization of all available training and skill-improvement opportunities to assure the increased participation of minority groups and disadvantaged persons and women in all phases of the highway construction industry….*

To accomplish and fulfill this policy, the FHWA has established a Training Special Provision. Historically, the NCDOT has been responsible for determining which projects will include the Training Special Provision; however, it is generally applied to all federal-aid projects over $10,000. The Federal Training Special Provision generally includes such wording as:

- Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women to the extent that such persons are available within a reasonable area of recruitment.

- This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

- The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved.

- The contractor may allow trainees to be trained by a subcontractor provided that the contractor retains primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also ensure that this training special provision is made applicable to such subcontractor. However, only the contractor will receive credit towards the annual goal for the trainee.

- Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

- The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeyman in the various classifications within a reasonable area of recruitment.

- The contractor shall submit to the State for approval the number of trainees to be trained in each selected classification.

FEDERAL GUIDANCE *CONT...*

- No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman status or in which they have been employed as a journeyman.

- It is the intention of these provisions that training be conducted in the construction crafts or operators rather than clerk-typists or secretarial-type positions.

- Training is permissible in lower-level management positions such as office engineers, estimators, etc., where the training is oriented toward construction applications.

- It is normally expected that a trainee will begin training on the construction project as soon as possible after beginning work in the craft skill involved. The trainee will remain on the project as long as training opportunities exist in the craft skill or until the training program is completed.

- The contractor shall explain the OJT program goals and objectives to the trainee and furnish a copy of the training classification outline to be followed.

- The contractor will provide for the maintenance of records and furnish monthly reports documenting company compliance under this Training Special Provision to the On-the-Job Training (OJT) Program Manager or department representative.

- Upon completion and graduation of the OJT program, the contractor shall provide each trainee a company certificate showing the classification and length of training satisfactorily completed.

- If a trainee quits or is terminated prior to completing at least **50%** of the program, the contractor will not be credited for that trainee. The contractor must replace the terminated trainee. The contractor will only receive credit for trainees that have completed at least **50%** of the scheduled training program.

PROGRAM ADMINISTRATION IN NORTH CAROLINA

Alternate Program Defined

The North Carolina Department of Transportation administers a custom version of the Federal OJT Program, commonly referred to as the **Alternate OJT Program**. As of 2007, contractors performing work in North Carolina no longer have a choice between the "Traditional" Federal Program and the "Alternate" NCDOT Program. All contractors (existing and newcomers) are automatically placed in the Alternate Program.

The flexibility of the Alternate OJT Program allows a contractor to train employees on all types of projects. These projects can be Federal, State, and/or privately funded. However, **the projects must be located in North Carolina**, and the training must meet the requirements outlined in this "On-the-Job Training Program" Manual. Also, first priority must be given to training trainees on all NCDOT Federal-aid and State funded projects.

Assignment of Training Goals

At the beginning of each calendar year, all contractors will be contacted by the OJT Program Manager to determine the number of trainees for that calendar year. At that time, the contractors enter into an agreement with the Department to provide a self-imposed on-the-job training program throughout the year. This agreement includes a specific number of annual training slots. There are no set number of trainees that assigned to a contractor per year. As such, the historically standard OJT Special Provision requirements typically associated with an individual project are no longer applied at the project level. Instead, these requirements are applicable on an annual basis for each contractor. In all cases, the NCDOT's mission is to adhere to the primary objectives behind the Federal initiative.

If a contractor fails to attain their training assignments for the calendar year, they may be removed from the NCDOT's Bidders List or become ineligible to bid.

OVERALL MANAGEMENT OF THE OJT PROGRAM

Development of Statewide Training Goals

According to federal regulations, the overall statewide training goals are to be developed by the FHWA based on federal-aid apportioned amounts and minority populations. However, in actual practice, the FHWA requests that the states submit recommended calendar year goals for approval. The NCDOT has developed a method for determining yearly goals, which are based on the following standards:

- Contractors' goals will be determined by:
  1. Federally and state funded projects.
  2. One to Two trainee per 1-3 million dollars.
  3. Three to four trainees per 4-6 million dollars.
  4. Five to Six trainees per 7-8 million dollars.
  5. Mega and design build projects will have trainees assigned based on the length of the projects and the number of classifications needed to finish the project. (Ex: a mega project of over hundred million dollars and is a 3year project could be assigned 20 trainees for the life of the project).
  6. Types of projects and the needs to complete the project in sure that all trainees make it to journeyman levels successfully.
  7. Three year dollar amount average.

Assignment of Training Goals to Contracts

The NCDOT no longer assigns individual training slots directly to individual highway construction contracts, **due to the implementation of the 2007 OJT program in North Carolina**.

Assignment of Training Goals to Contractors

The NCDOT assigns goals for a calendar year based on recent past activity (three years) and anticipated upcoming year's activity with the NCDOT. The contractor signs an agreement to fulfill their goal for the year. Contractors receive credit for training their workforce on any type of project, regardless of the funding source, as long as the trainee remains in the same job classification as originally enrolled. Trainees may be transferred between projects if required by the contractor's workload scheduling.

Approved Training Classifications and Associated Requirements

The NCDOT has established common training classifications and their respective training requirements, which shall be used by NCDOT contractors. The classifications established by NCDOT are not all-inclusive. Contractors may submit new classifications for specific job functions their employees are performing. The NCDOT reviews and recommends for acceptance to FHWA the new classifications proposed by contractors. Contractors shall notify the NCDOT regarding any changes to their approved classifications. New classifications must meet the following requirements:

- proposed training programs are reasonable and realistic based on the job skill classification needs, and
- the number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

Proficiency Standards

The NCDOT does not scrutinize individual worker proficiency as a measure for compliance with the OJT Program. The NCDOT and FHWA do advocate that the goal of the program is to generate effective highway construction trade workers and that it is in the contractor's interest to retain proficient workers.

Reimbursement for Training

The NCDOT no longer has a "trainee" pay item and does not reimburse for training.

Highway Trades Academies

Companies are encouraged to recruit from the academies throughout the state to help meet training goals.

NCDOT & NCDOL COLLABORATIVE EFFORTS

Approved OJT Program Standards - The *North Carolina Apprenticeship Training Bureau (NCATB)* is the State Approving Agency for apprenticeship programs and On-the-Job Training Programs. On April 1, 2002, the NCDOT OJT Program submitted and received approval from the *NC Apprenticeship Training and Bureau for Approved Occupations of its OJT Program*. The NCATB is the accrediting State Agency for OJT Program Standards. The OJT Program is registered under program number 24011. Training provided by contractors under the NCDOT's OJT Program is approved by the NCDOL provided:

- the training curriculum contains a minimum of 1000 hours training time, including some classroom time, AND;
- the trainee has either a high school diploma or a GED.
- be at least 18 years of age,
- not be fully trained or qualified in the occupation for which they are being trained,
- Last 4 digits of Social Security Number

If these conditions are met, veterans *may* receive *Veterans Benefits (as determined by the Veterans Administration)* during their full time employment, provided they are not fully trained and are not receiving the fully trained wage rate.

More information regarding NCDOL can be obtained from the NC State Apprenticeship Bureau.

Wage Rates During the Training Period – Contractors are generally permitted to compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). According to the FHWA, minimum pay shall be as follows:

- 60 percent of the journeyman wage for the first half of the training period,
- 75 percent of the journeyman wage for the third quarter of the training period,
- 90 percent of the journeyman wage for the last quarter of the training period.

In no instance shall a trainee be paid less than the local minimum wage. In cases involving State Approved OJT Programs, there may be other factors affecting the minimum wage rates. It is the contractor's responsibility to adhere to whichever minimum rate will satisfy both the NCATB and the NCDOT. More information regarding the Davis-Bacon can be obtained from the NCATB.

ADMINISTRATIVE REQUIREMENTS

Trainee Enrollment

The contractor shall use the most current version of the NCDOT's OJT Trainee Enrollment Form found in this manual. A copy of the requirements for the job classification, in which the trainee will be enrolled, shall accompany the Trainee Enrollment Form. The completed form shall be submitted via EMAIL to the OJT Program Manager. Once submitted and approved, the trainee will receive a welcome letter and an *OJT Trainee Orientation Guide*.

Trainee Monitoring

The contractor shall use the most current version of the NCDOT's OJT Monthly Trainee Report found in this manual or from the OJT Program Manager. The completed report shall be submitted to the OJT Program Manager or designee via EMAIL *(by the 10th day of each month for the previous month)* until the trainee has completed or terminated the program. The completed Monthly Trainee Report form shall be submitted for all OJT Program trainees regardless of whether any hours were worked in the *enrolled* classification or not. ***Monthly training reports are required each month until the trainee graduates or terminates.***

Trainee Completion

There are several ways for a trainee to exit the OJT program, including graduation, termination, layoff, personal reasons, etc. The contractor shall use the most current version of the NCDOT's OJT Trainee Completion Form found in this manual. A completed Trainee Completion Form and a copy of the Company Certificate shall be submitted to the OJT Program Manager no later than fifteen (15) Working days after the trainee is no longer in the program. In order to receive credit for completion, the contractor must submit a company issued Certificate of Completion. Once the completion form and certificate are received, the NCDOT OJT Manager will issue an NCDOT Certificate of Completion and a Mini Pocket Card for the trainee.

Responsibility of the Resident NCDOT Engineer

The Resident Engineer no longer has any official responsibilities with regard to the OJT Program. Even so, the Resident Engineer should be generally aware of any training that is occurring and should inform the OJT Program Manager if any concerns or problems arise while trainees are working on their projects.

ADMINISTRATIVE REQUIREMENTS *CONT*...

Responsibilities of the Contractor

The contractor is to assign the trainee to a skilled craftsman, foreman, supervisor or mentor who will be responsible for the day-to-day training and mentoring of the trainee and who will share the appropriate skills associated with the classification for which the trainee is enrolled.

The contractor shall only count hours training within the classification for which the trainee is enrolled. If such classification is not necessary for a period of time or on a particular project, the contractor should attempt to continue to employ the trainee by assigning them other duties. No hours shall be counted for work performed while a trainee is assigned to other duties that are not i n their OJT classification.

The contractor shall onlyy count the hours earned while the trainee is performing work in North Carolina.

The contractor shall provide a program orientation to the training foreman, superintendent, and OJT trainee. The orientation shall include at a minimum, review of individual responsibilities during the training program and copies of the training syllabus for the job classification.

The Contractor shall instruct the trainee in safe and healthful work practices and shall ensure that the trainee is trained in facilities and other environments that are in compliance with all applicable safety and health laws and regulations of the United States and the State of North Carolina.

Responsibilities of the Trainees

The trainee shall diligently perform work assigned by the employer.

The trainee shall learn all duties as outlined in their enrolled classification.

The trainee shall immediately notify their employer should something happen that would adversely affect the company or employment status.

The trainee shall be aware of the on-going progress toward completing the OJT Program and notify a supervisor of circumstances for which their progress is halted or delayed. *This may involve notifying someone above an immediate supervisor.*

The trainee shall be aware of their employer's rules and regulations and what steps to take should any issues arise while enrolled in the OJT Program.

OJT PROGRAM SUPPORT AND MONITORING

Annual Report

The OJT Program Unit prepares an annual report for submittal to the FHWA. The report contains such information as accomplishments, enrollments, graduations, and demographics of trainees.

Trainee Feedbacks/Interviews

In order to determine the continued effectiveness of the OJT Program in North Carolina, OJT program employees regularly conduct personal Feedbacks with current trainees and recent graduates of the program. This enables the OJT program to modify and improve the program as necessary. Trainee Feedbacks are generally conducted at the job site to ensure trainees are working and that training is consistent with the approved training program.

Contractor Coordinator Feedbacks/Interviews

The OJT Program Unit periodically conducts personal interviews with administrative personnel within the contractor's organizations. The information gathered is used to help determine whether current practices within the OJT Program are helpful or where possible improvements can be made. Contractors are on the "front-line" and typically are very helpful with comments and suggestions.

OJT Program Schedule of Yearly Events

Late December - The OJT Program calculates and assigns the yearly training goals for the upcoming calendar year.

Late January - Contractors will receive an agreement letter from the OJT Program that contains the required number of trainees the contractor is required to train. This agreement is to be signed and returned no later than **January 31st.**

June 30the - The OJT Program highly recommends that the contractors enroll trainees prior to this date to allow adequate time for training and graduating the assigned classification

Throughout the year- The OJT Program conducts Feedbacks/Interviews with Trainees who are enrolled or recently have graduated the program. Feedbacks/Interviews are also held with the OJT coordinators to ensure that all goals are being reached.

CONTACT INFORMATION

North Carolina Department of Transportation
On-The-Job Training Program
1511 Mail Service Center
Raleigh, NC 27699-1511
Phone: (919) 508-1791
Phone: (919) 508-1954
Fax :(919) 508-1814

Location:
Raney Building
104 Fayetteville Street
Raleigh, NC 27601

OJT CLASSIFICATIONS

ASPHALT DISTRIBUTOR

Drives asphalt distributor. Sets spray bar on manual, automatic, or semi-automatic distributors for applying liquid asphalt. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety Procedures;	5
B. Observation (as passenger) of a machine in operation; and	35
C. Starting and manipulating valves and levers to distribute material and move equipment	30
CARE AND MAINTAINENCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing	35
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Regulates valves and levers to distribute oil or bituminous liquid for highway resurfacing;	120
C. Operation of equipment	805
TOTAL	**1040**

ASPHALT LABORATORY TECHNICIAN (LEVEL 1)

The Asphalt Laboratory Technician is familiar with asphalt controls, operation, and repairs. Pulls samples of asphalt for testing as necessary. Capable of testing asphalt mixtures for process control, prepare paper work and submit to proper agencies. Attend introduction to asphalt class and level 1 tech class presented by N.C. Department of Transportation personnel and pass the written test on both. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1015 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	20
B. Observation of plant controls and operations;	40
C. Starting and manipulating levers for moving Equipment and attachments; and	15
D. Care and maintenance of equipment.	100
ACTUAL SAMPLE PROCESSING	
A. Assist in taking samples, processing samples of different types of asphalt mix and processing paper work.	820
REQUIREMENTS	
A. Attend introduction to asphalt class and pass written test; and	15
B. Attend level 1 technician class and pass written test for certification by NCDOT.	30
TOTAL	**1040**

ASPHALT PAVING MACHINE/SCREED OPERATOR

Manipulates hand or foot levers to control movement of paving machine which spreads and levels asphaltic concrete; regulates height and width of screed. Observes distribution of paving material along screed and controls direction of screed to eliminate voids at curbs and joints. Regulates temperature of asphalt; sets and maintains electronic controls for longitudinal and transverse grades. Regulates system to allow fully-automatic paving; familiar with various manufactures' paving equipment. Performs routine fueling, lubrication and adjustment as needed. Performs other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures; and	20
B. Observe machine in operation and become familiar with various manufactures' equipment.	40
CARE AND MAINTENANCE	
A. Safety procedures; and	20
B. Routine fueling, lubrication, and servicing.	145
ACTUAL OPERATION OF EQUIPMENT	
A. Safety procedures;	10
B. Screed regulation indoctrination and operation; and	120
C. On-The-Job operation.	685
TOTAL	**1040**

ASPHALT PLANT OPERATOR

Operates asphalt plant controls to weigh and deliver specified quantities of asphalt cement to dryer for heating, and to mixer for mixing and dumping into trucks. Maintains proper heat in dryer by adjusting thermostatic controls and maintains proper flow of materials. Assists in maintenance and repair of plant equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	10
B. Observation of controls in operation; and	40
C. Starting and manipulating levers for moving equipment and attachments.	40
CARE AND MAINTENANCE	
A. Safety procedures;	10
B. Routine fueling, lubrication, and servicing; and	160
C. Assists in maintenance and repair of plant equipment.	200
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	10
B. Operation of plant	570
TOTAL	**1040**

ASPHALT ROADWAY TECHNICIAN

Is familiar with roadway operations, equipment, inspections and calibrations. Capable of performing the necessary calculations (i.e. rate of spread, tons required, and test sections for density). Prepare paper work and submit to proper agencies. Attend introduction to asphalt class and QMS Roadway class presented by NCDOT and pass the written test on both. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety Procedures;	20
B. Ethical Policy;	20
C. Observations of paving operations;	40
D. Equipment and attachments; and	20
E. Care and maintenance of equipment	100
ACTUAL INSPECTION AND DENSITY TESTING	
A. Assist in visual inspections (preparation of existing roadway for overlay, equipment, mat texture and temperature) (establish a roller pattern to achieve required density, calculate the amount of test sections, and conduct the density testing for such).	800
REQUIREMENTS	
A. Attend introduction to asphalt class and pass written test; and	10
B. Attend NCDOT QMS Roadway class and pass written test	30
TOTAL	**1040**

ASSISTANT PROJECT MANAGER

Assists in the supervision and coordination of the activities of subcontractors and workers of a given project. Both produces and studies production schedules, analyzes and evaluates costs, maintains and requires a safe working environment and helps in the overall management of a given project as to ensure its profitability and quality.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 52 WEEKS OR 2080 HOURS

REQUIREMENTS	HOURS
ADMINISTRATION	
A. Interpreting company policy to subcontractors and workers, enforcing safety regulations, producing and maintaining production records, coordinating work schedules of subcontractors and company personnel, recruiting and inspection of materials.	280
PRODUCTION	
A. Receives instructions and specifications from Project Manager and transmits it to subcontractors and company personnel. Interprets blueprints, specifications and job orders. Assists Project Manager in solving job-site problems. Regularly performs all tasks assigned to him/her.	1500
PERSONNEL	
A. Supervises project in the absence of Project Manual recommends personnel actions, such as promotions, transfers, discharges, and disciplinary action. Trains and orients new employees and/or trainees	300
TOTAL	**2080**

SUGGESTED RELATED TRAINING

Red Cross First Aid Certification, Industry Safety Publications, Blueprint Reading, Industrial Relations, Personnel Management, Contracting Laws, EEO, etc.

The trainee shall be given instruction and training in all branches of the occupation listed in the REQUIREMENTS as necessary to become skilled in the occupation. The work experience need not be in the precise order as listed, nor do the scheduled of any operation production schedule.

BACKHOE OPERATOR

Operates backhoe, such as on the rear of utility tractor and on other equipment, for the purpose of digging and excavating. May oil, grease and make normal operating adjustment to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 18 WEEKS OR 720 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation of machine and operation; and	20
C. Starting, manipulating levers for moving equipment and attachments.	20
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing	70
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Trenching operations;	275
C. Excavation for footing, structures, etc.; and	280
D. Special application and functions.	40
TOTAL	**720**

BRIDGE CARPENTER

Lays out work plans or sketch. Builds wooden structures; such as concrete form, falsework, pouring, chute, scaffold, etc. Builds in place to line and grade or prefabricates in units to be erected later, forms for bridge, drainage structure, wall, etc. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 52 WEEKS OR 2080 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND SAFE USE OF TOOLS OF THE TRADE	
A. Safety Procedures;	120
B. Use of Power and Hand Tools; and	160
C. Materials Section.	40
APPLIED TECHNIQUES OF BRIDGE CONSTRUCTION CARPENTRY	
A. Safety Procedures;	80
B. Pier, pile and cap formwork;	520
C. Decking formwork;	520
D. Parapet and hand railing formwork;	80
E. End wall formwork;	80
F. Reading and Application for Blueprint or Construction Plans;	60
G. Basic Form Design Familiarity; and	20
H. Stripping and Salvage of Forms for Reuse.	400
TOTAL	**2080**

BRIDGE WORKER

Builds formwork, false work, pouring of concrete, erects scaffolding, installation of reinforcing steel, installation of anchor bolts, the erection of support members and bridge superstructure construction, and construction of bridge approaches.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 22 WEEKS OR 880 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Bridge construction safety;	20
B. Power and hand tools; and	20
C. Observation of operations.	20
APPLIED TECHNIQUES OF BRIDGE CONSTRUCTION	
A. Construction of concrete substructures including basic formwork, pouring of concrete pour preparations, stripping of forms, and salvage for reuse and cleaning;	280
B. Installation of reinforcing steel;	100
C. Construction of bridge superstructure including decking, overhangs, parapets, approach slabs, pouring and finishing of concrete;	200
D. Rigging and Erection including installation of bridge beams and all precast concrete items; and	120
E. Construction of Bridge Approaches including power tool operations such as jack hammers, vibrators, tampers, pavement breaker and chainsaws. Also develop a basic understanding of highway grading.	120
TOTAL	**880**

BULLDOZER OPERATOR

Operates tractor with blade attached across front to excavate, level and distribute earth and to push trees and rocks. Fastens attachments to tractor, connects hydraulic hoses, belts, mechanical linkage or power takeoff shaft to tractor to provide power to raise, lower or tilt attachment. Operates controls to manipulate tool bars, carriers, and disks. Operates controls to maneuver tractor and raise, lower and tilt attachments to clear right-of-way. Listen for stalling action of engine to estimate depth of cut. Operates bulldozer in successive passes to raise or lower terrain to specified grade following markings on grade stakes or hand signals. May service and make normal operating adjustments to equipment.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 21 WEEKS OR 840 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation (as a passenger) of machine in operation; and	35
C. Starting and manipulating levers for moving equipment and attachments.	30
ENVIRONMENTAL CONSIDERATIONS	10
SAFETY ASSOCIATED WITH THIS OPERATION	25
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing.	35
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	10
B. Movement and stockpiling of material;	160
C. Pushing and rough grading;	135
D. Clearing and grubbing;	135
E. Finish grading; and	185
F. Special application.	70
TOTAL	**840**

BULLDOZER (UTILITY)

Operates rubber tired or crawler type bulldozer performing work not requiring skill of regular bulldozer operator. Performs work such as, but not limited to, moving materials in stockpile, rough work on grade, pusher for loading scrapers and earthmovers, etc. Operates tractor with other attachments such as, but not limited to, clearing rake, ripper, stumper, push block, etc. May oil, grease, service and make normal operating adjustment to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 18 WEEKS OR 720 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation (as a passenger) of machine in operation; and	35
C. Starting, manipulating levers for moving	
D. Equipment and attachments.	30
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing.	35
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Movement and stockpiling of material;	150
C. Pushing and rough grading;	125
D. Clearing and grubbing;	125
E. Finish grading; and	175
F. Special application.	30
TOTAL	**720**

CARPENTER (LEAD)

A Lead Carpenter will supervise the crew to include recruitment, training, and direct supervision. They will be responsible for coordinating work with regard to inspection, material supply, and equipment required as well as keeping personnel records to include payroll time and administering company personnel policy.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME 52 WEEKS OR 2080 HOURS

REQUIREMENTS		*HOURS*
ORIENTATION AND OBSERVATION		
A.	Understanding the function of the job	200
B.	Understanding Company timekeeping and payroll procedures	15
C.	Understanding Company EEO policy	15
D.	Understanding Company Safety Policy	50
E.	Supervisory instruction200	200
ADVANCED BLUEPRINT OR CONSTRUCTION PLAN READING		100
APPLIED TECHNIQUES OF BRIDGE CONSTRUCTION		
A.	Equipment supervision and maintenance	200
B.	Care of materials and job site security	150
C.	Operational planning and cost control	200
D.	Familiar with standard specs	350
E.	Able to communicate effectively and to be able to get along with employees, inspectors, and the DOT200	200
F.	Understanding of grades, super elevations, vertical curves, Etc.	400
TOTAL		**2080**

CARPENTER

Lays out work plans or sketch. Builds wooden structures; such as concrete form, falsework, pouring, chute, scaffold, etc. Builds in place to line and grade or prefabricates in units to be erected later, forms for bridge, drainage structure, wall, etc. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND SAFE USE OF TOOLS OF THE TRADE	
A. Power and hand tools; and	20
B. Materials selection.	20
APPLIED TECHNIQUES OF HIGHWAY CONSTRUCTION CARPENTRY	
A. Safety procedures;	5
B. Pier, pile and cap formwork;	145
C. Decking formwork;	150
D. Parapet and hand railing formwork;	150
E. End wall formwork; and	150
F. Box culverts, inlets and headwall formwork.	150
BLUEPRINT OR CONSTRUCTION PLANS READING AND APPLICATIONS	50
BASIC FORMS DESIGN FAMILIARITY	95
A. Safety procedures.	5
STRIPPING AND SALVAGE OF FORMS FOR REUSE	95
A. Safety procedures.	5
TOTAL	**1040**

CONCRETE FINISHER

Finishes wet concrete surfaces to grade with hand tools, float, trowel, screed, template and straight edge on all types of concrete work requiring a fine finish. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation of use of straight edges, floats and steel trowels;	25
C. Observation of forming a finishing of edges and joints; and	25
D. Observation of use of concrete finishing machine.	15
CARE AND MAINTENANCE	
A. Safety procedures;	5
B. Routine cleaning work area and materials holding materials, tools, and handling canvas belting or burlap strips; and	195
C. Routine fueling, lubricating and servicing.	50
ACTUAL OPERATION OF EQUIPMENT	
A. Safety operating procedures;	10
B. Basic operation of tools;	200
C. Forming and finishing edges, joints, curbs, gutters, paving and structures; and	310
D. Operation of trowels, straight edges, floats or finishing machine.	200
TOTAL	**1040**

CONCRETE PAVING MACHINE OPERATOR

Operates a self-propelled machine which levels fresh concrete to exact grade contour. Starts and operates machine, engages clutch and shifts gears to control machine's movement. Moves levers and adjusts paver to raise or lower attachment that spreads concrete. Observes surface of concrete to point out low spots for workers to add concrete. Operates machine with attachment to successively vibrate, screed, strike-off (remove excess), float surface of concrete, to spray curing compound and cut expansion joints. When cutting expansion joints, places strips of expansion- joint material on machine that automatically inserts material into joints. May oil, grease, or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties. When operating machine to screed and float surface, is designated CONCRETE FINISHING MACHINE OPERATOR. May be designated according to specific function of machine attachment as CURING MACHINE OPERATOR, PAVING SAW OPERATOR, LONGITUDINAL FLOAT OPERATOR, SCREED OPERATOR, SPREADER OPERATOR, STRIKE OFF MACHINE OPERATOR, and other applicable attachments.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	20
B. Observe machine in operation; and	30
C. Starting and manipulating levers for moving equipment and attachments.	80
CARE AND MAINTENANCE	
A. Safety procedures; and	20
B. Routine fueling, lubrication and servicing.	145
ACTUAL OPERATION OF EQUIPMENT	
A. Safety procedures;	20
B. On-The-Job operation; and	685
C. Daily cleaning and preventive maintenance.	40
TOTAL	**1040**

CONCRETE PAVING PLACER OPERATOR

Operates a self-propelled machine which levels fresh concrete to exact grade contour. Starts and operates machine, engages clutch and shifts gears to control machine's movement. Moves levers and adjusts paver to raise or lower attachment that spreads concrete. Operates machine with attachment to a conveyor belt. May oil, grease, or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties. Operator raises and lowers belt to receive or place concrete depending on which machine the operator is using.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Observe machine in operation; and all others in area	20
B. Starting and manipulating levers for moving Equipment and attachments	30
C. Starting and manipulating levers for moving equipment and attachments.	80
CARE AND MAINTENANCE	
A. Safety procedures; and	20
B. Routine fueling, lubrication and servicing.	
C. Removing excess concrete after each shift	145
ACTUAL OPERATION OF EQUIPMENT	
A. Safety procedures;	20
B. On-The-Job operation; and	685
C. Daily cleaning and preventive maintenance.	40
TOTAL	**1040**

CONCRETE PAVING TINER OPERATOR

Operates a self-propelled machine which rolls over the fresh concrete. Starts and operates machine, engages clutch and shifts gears to control machine's movement. Moves levers and adjusts paver to raise or lower attachment that spreads concrete curing compound. Operates machine with attachment to successively spray curing compound. May oil, grease, or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	130
A. Safety procedures; and	
B. Observe machine in operation; and	
C. Starting and manipulating levers for moving Equipment and attachments	
D. Knowing the right time to start curing	
CARE AND MAINTENANCE	
A. Safety procedures; and	20
B. Routine re-filling of cure tank, lubrication and servicing	145
EQUIPMENT OPERATION	
A. Safety procedures	20
B. On-the-Job operation	685
C. Daily cleaning and preventive maintenance	40
TOTAL	**1040**

CONCRETE PLANT FOREMAN

Operates under the concrete plant operator, controls the operations of Aggregates, Portland Cement, Fly Ash, Add Mixtures, and all deliveries. While the Concrete Plant operator is making concrete the Concrete Forman is the person keeping everything moving. The delivery of cement and fly ash to the Pigs. The delivery of aggregates of sand, 57 stone, and 89 stone. Keeping the dump trucks washed out. And moving to the right direction to get loaded. Helps concrete plant operator trouble shoot any problems and is also in charge of maintenance of all plant facilities. Assists in dismantling the plant

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	90
A. Safety procedures; and	
B. Observe machine in operation; and	
CARE AND MAINTENANCE	370
A. Safety procedures; and	
B. Routine plant maintenance, study plant Manuals and know concrete schedule	
EQUIPMENT OPERATION	580
A. Safe operating procedures for all plant operations	
B. Knowing all vendors and contractors involved, keeping soil erosion checked daily, and making sure trucks have safe access.	
TOTAL	**1040**

CONCRETE PLANT OPERATOR

Operates controls to deliver and weigh specified qualities of aggregate Portland cement, fly ash, air intraining agent, and water to mix and dump into trucks. Adjust water and mixing time as permitted by the owner to assure a consistent concrete. Assist in maintenance and repair of all plant equipment. May assist in erecting and dismantling plant. Requires knowledge of process and controls, as well as skill in operating controls to maintain quality concrete at maximum production. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	90
A. Safety procedures; and	
B. Observation of controls in operation.	
CARE AND MAINTENANCE	370
A. Safety procedures;	
B. Routine fueling, lubrication, and servicing; and Assists in maintenance and repair of plant equipment.	
EQUIPMENT OPERATION	580
A. Safe operating procedures; and	
B. Operation of plant.	
TOTAL	**1040**

CONCRETE PLANT OPERATOR (HELPER)

Operates controls to deliver and weigh specified quantities of aggregate, Portland cement, fly ash, air entraining agent, and water to mix and sump into trucks. Adjust water and mixing time as permitted by the owner to assure a consistent concrete. Assist in maintenance and repair of all plant equipment. May assist in erecting and dismantling plant. Requires knowledge of process and controls, as well as skill in operating controls to maintain quality concrete at maximum production. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 18 WEEKS OR720 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	20
B. Observation of controls in operation; and	40
C. Starting and manipulating levers for moving equipment and attachments.	100
CARE AND MAINTENANCE	
A. Safety procedures;	20
B. Routine fueling, lubricating and servicing; and	200
C. Assist in maintenance and repair of plant equipment.	340
TOTAL	**720**

CONCRETE TECHNICIAN

Works with mix designs and tests concrete to determine strength. More specifically, takes sand and stone samples for gradation compliance. Runs gradation test, tests air in concrete, takes cores for depth check, tests slump of concrete, makes beams for strength determination. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
Safety procedures;	5
Observation of gradation testing of sand and stone; and	40
Observation of testing samples of concrete.	50
CARE AND MAINTENANCE	
Safety procedures;	5
Observation of and maintenance of laboratory equipment; and	15
Learning to analyze tests and preparing test results reports.	100
ACTUAL OPERATION OF EQUIPMENT	
Safe operating procedures;	5
Testing sand and stone samples for gradation;	15
Testing samples of concrete for Air in, depth, and slump; and Make Beams.	285
TOTAL	**520**

CONSTRUCTION FIELD OFFICE ASSISTANT

Works with job superintendent in coordinating and monitoring purchases, as well as scheduling their arrival. Work as project timekeeper and orchestrator of the labor force including interviewing, hiring and indoctrination with NCDOT. Performs other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 18 WEEKS OR 720 HOURS

REQUIREMENTS	HOURS
ORIENTATION	
A. Requirements of purchasing;	20
B. Payroll procedures and labor analysis; and	40
C. Corporate policy review (personnel).	15
APPLICATION	
A. Purchasing and scheduling;	120
B. Keeping time, monitoring worker's activities;	150
C. Prepare documentation for claims processing; and	70
D. Overview of all job activities.	120
OFFICE COORDINATION	
A. Assisting job superintendent; and	40
B. Main office and field office coordination.	145
TOTAL	**720**

CONSTRUCTION OFFICE MANAGER

Develop all skills required of Office Manager. To support the Project Manager to include but not limited to: Orientation and Observation of Contractors Safety and Emergency Procedures for filing safety and accident reports. Trainee will be introduced to the Contractors reports which will include EEO reporting requirements. Actual office procedures will include time reports, cost reports, quantity and purchasing reports, materials and supply orders, accounts payable, and petty cash procedures.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION & SAFETY	20

A. Company overview safety and EEO policy; B. Job bulletin board; and
C. Introduction to job superintendent.
D. Project Managers expectations of trainee:
E. Complete explanation of trainee's assignment with an overview of project.

INTRODUCTION & OBSERVATION	160

A. Assist Contractors office and/or Project Manager;
B. Receive instruction, observe and assist office staff in all aspects of the office needs;
C. Receive instructions from Office Manager or Project Manager in the following: filing regular corporate reports cost and revenue rentals, safety and accident reports; and
D. Receive instruction in maintaining office expenses, payroll, purchasing and material and supply orders, accounts payable, as well as filing accident reports, workmen's compensation and OSHA reports.

DEMONSTRATION & OFFICE COORDINATION	360

A. Demonstrate proficiency in filing contract reports;
B. Demonstrate knowledge and proficiency of doing cost and revenue reports, as well as, safety and accident reports;
C. Demonstrate knowledge and proficiency of maintaining payroll;
D. Demonstrate knowledge and proficiency in account payable, and purchasing materials and supply orders;
E. Demonstrates ability to maintain petty cash expenses for office; F.
G. Demonstrates ability to file workman's compensation and OSHA reports; and
H. Receive additional comments and instruction from Project Manager and Corporate Manager.

APPLICATION & ADMINISTRATION	500

A. To use and apply all training aspects of the Office Manager training.

TOTAL	**1040**

CRANE OPERATOR (1 YARD AND UNDER)

Operates crane, dragline and shovel. Grades to line and grades from reference points. Operates crane to hoist and move materials, raise and lower heavy weights, charge cold feed bins, etc.
Uses dragline, clamshell, grad all, orange peel, and other related attachments. May oil, grease, service and make normal operating adjustment to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation (as a passenger) of machine in operation; and	50
C. Starting, manipulating levers for moving equipment and attachment.	45
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing.	295
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Trenching operations (for pipe laying, etc.);	300
C. Excavation (for structures, footings, etc.); and	300
D. Special applications and functions.	35
TOTAL	**1040**

CRANE OPERATOR (OVER 1 YARD)

Operates crane, dragline and shovel. Grades to line and g4rades from reference points. Operates crane to hoist and move materials, raise and lower heavy weights, charge cold feed bins, etc. Uses dragline, clamshell, gradall, orange peel, and other related attachments. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 52 WEEKS OR 2080 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures:	10
B. Observation (as a passenger) of machine in operation; and	50
C. Starting, manipulating levers for moving equipment and attachments.	50
CARE AND MAINTENANCE	
A. Safety procedures; and	10
B. Routine fueling, lubricating, and servicing.	300
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	10
B. Excavation of footings and removal of unsuitable materials;	300
C. Loading and unloading materials;	350
D. Trenching for pipe, etc.;	250
E. Hoisting materials;	400
F. Placement of beams, pipe, girders piles, etc.; and	300
G. Charge hoppers with materials on asphalt and concrete plants.	50
TOTAL	**2080**

DISTRIBUTOR OPERATOR

Operates crane, dragline and shovel. Grades to line and grades from reference points. Operates crane to hoist and move materials, raise and lower heavy weights, charge cold feed bins, etc. Uses dragline, clamshell, grad all, orange peel, and other related attachments. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 52 WEEKS OR 2080 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	10
B. Observation (as a passenger) of machine in operation; and	50
C. Starting, manipulating levers for moving equipment and attachments.	50
CARE AND MAINTENANCE	
A. Safety procedures; and	10
B. Routine fueling, lubricating, and servicing.	300
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	10
B. Excavation of footings and removal of unsuitable materials;	300
C. Loading and unloading materials;	350
D. Trenching for pipe, etc.;	250
E. Hoisting materials;	400
F. Placement of beams, pipe, girders piles, etc.; and	300
G. Charge hoppers with materials on asphalt and concrete plants.	50
TOTAL	**2080**

DISTRIBUTOR OPERATOR (ASPHALT)

Distributor Operator

Operates an asphalt distributor spraying liquid asphalt on various surfaces in preparation for asphalt paving. Will be responsible for knowledge of heating and filling tanks to warm and distribute materials. Will be responsible for the computer settings and controls as required to complete the daily job functions:

Training Outline

Approximate Training Time: 20 Weeks or 800 hours

REQUIREMENTS

	Hours
ORIENTATION AND OBSERVATION	
A. Safety Procedures	20
B. Start up and Shut Down Process	35
CARE AND MAINTENANCE	
A. Safety Procedures	20
B. Routine fueling, lubrication and servicing	100
ACTUAL OPERATION OF EQUIPMENT	
A. Safe Operating Procedures	25
B. Coordination and operation of truck and controls, monitoring	600
Total	800

DRILL OPERATOR/AIR-TRACK DRILL OPERATOR

Operates drilling machine, such as wagon drill, air track, well driller, etc., for the purpose of drilling rock, shale, or other material according to specifications. Starts, stops and services portable air compressor. Places block of stone on machine bed and secure it in position for drilling, using electric hoist, wedges and wooden blocks. Measures and marks block for drilling using rule or template and marking pencil. Selects and installs specified bit in drill. Pulls levers and turns wheels to regulate speed of machine, flow of water (coolant) and drilling speed. May drill bits using grindstone. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation (as a passenger) of machine in operation; and	50
C. Starting, manipulating levers for moving equipment and attachment.	45
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing.	295
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Trenching operations (for pipe laying, etc.);	300
C. Excavation (for structures, footings, etc.); and	300
D. Special applications and functions.	35
TOTAL	**1040**

EQUIPMENT MAINTENANCE/REPAIR COORDINATOR

Operates under the Equipment Manager, and performs daily tasks associated with the repair and maintenance of the onsite equipment. This position makes sure that each piece of equipment is up to date on its preventative maintenance and handles all repair requests. Works with scheduling local vendors for repairs as well as coordinating repair times/durations with superintendents and foreman.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	90
A. Safety procedures; and	
B. Perform weekly visual equipment inspections with mechanics/management.	
REPAIRS	475
A. Review daily equipment inspections; add any issues to the repair log.	
B. Order parts for mechanics	
C. Track/update/maintain equipment repairs log	
D. Work with mechanics on finding wiring diagrams, parts break downs	
E. Track/submit weekly equipment hours	
F. Pickup/deliver parts to field	
SERVICES	475
A. Review weekly preventative maintenance status reports	
B. Order filters and supplies for upcoming service	
C. Schedule service with Foreman and Superintendents	
D. Create service sheets for each piece of equipment, including required filters and oils.	
E. Label and send off oil samples for each specific machine	
F. Schedule Monthly Crane inspections	
TOTAL	**1040**

ESTIMATING ASSISTANT

Individual will be trained to assist in the estimating of projects. The individual will be trained to prepare bid documents and proposals, do take-offs, and estimate bids. This person will learn company policies/procedures and job/personnel functions to gain knowledge of all phases of the estimating of projects. They will also become familiar with all types of equipment, tools and processes, plans, maps and surveys, scheduling, rules and regulations, and those agencies which govern.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
FAMILIARIZATION/ORIENTATION	
A. Safe operation procedures and company policies	50
B. Review and interpret plans and specifications	50
C. Introduction to software and bidding procedures and record keeping	100
JOB KNOWLEDGE	
A. Material specification and quality control procedures	50
B. Types of equipment on hand and uses for each	50
C. Various tools used on projects	50
D. Plans, maps, and surveys	75
E. Standard rules and regulations for various agencies	75
ESTIMATING	
A. Estimation formulas and material knowledge	80
B. Preparation of bid documents and proposals	80
C. Analyzing job quality and profitability results	80
D. Preparation of take-offs	100
E. Preparation of schedules for active projects	100
F. Maintain Good Faith Efforts for use of DBE Subcontractors	100
TOTAL	**1040**

ESTIMATOR-PROJECT MANAGER

Individual will be trained in highway construction project work beginning with estimating of bids, coordination and management throughout the duration of a project, and steps for completion of the project. The Estimator-Project manager will learn how to complete any associated project paperwork (daily forms, cost management, billing reports, etc.), assist with management of crew work activities, communicate between the different divisions involved to maintain appropriate coordination so the project runs smoothly, and help address any customer service issues. The trainee will also become familiar with sales and marketing of construction materials as well as general customer relationships. This person will learn company policies/procedures and job/personnel functions to gain knowledge of all phases of highway construction. Individual will also become familiar with all types of heavy equipment, construction tools, and processes, blueprints and layouts, topographical maps and surveying, scheduling, contractor rules and regulations, and those agencies which govern construction activities.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 55 WEEKS OR 2200 HOURS

REQUIREMENTS	HOURS
FAMILIARIZATION	150
A. Safe operation procedures and company policies;	
B. Review and interpret project plans and specifications; and	
C. Record Keeping	
JOB KNOWLEDGE	400
A. Blue print and layout reading, bid book interpretation;	
B. Project specifications/contract documents understanding	
C. Material specifications and quality control;	
D. Asphalt lay-down procedures;	
E. Planning and layout;	
F. Excavation, grading, drainages, erosion control;	
G. Traffic control and sign packages; and	
H. Job site clean-up.	
ESTIMATING, MARKETING, SALES	650
A. Product pricing knowledge and cost factors;	
B. Estimation formulas and material knowledge;	
C. Accurate and timely estimate sheet, contracts, credit approval, billing reports, etc.	
D. Familiarity with materials cost and bid markers in various areas;	
E. Analyzing job quality and profitability results;	
F. Value engineering and negotiating change orders; and	
G. Customer and public relations.	

ESTIMATOR-PROJECT MANAGER (CONTINUED)

PROJECT MANAGEMENT	1000

A. Coordinate on-site personnel and equipment operation;

B. Ensure project sites are operating in a safe and efficient manner;

C. Assist with coordination and supervision of employees and subcontractors, including various disciplines such as earthwork, pipe, grad, paving, traffic;

D. Accurate and timely preparation of weekly schedules and other operation as needed;

E. Maintain proper job record such as schedules, personal diary, etc.

F. Consistent communication with Coordinator/Construction Manager project status for crew needs;

G. Assist with preparation of weekly schedules and other operation as needed; and

H. Customer relations with on-site personnel.

TOTAL	**2200**

EXCAVATOR OPERATOR (TRACKHOE OPERATOR)

Operates power shovel on which digger is pulled toward machine to excavate. All machines will be over ½ cubic yard. Can be on track or rubber tired and also included under this title will be grad all or wrist-o-twist type equipment. Grades to line and grade. May service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	55
A. Safety procedures;	
B. Observation (as a passenger) of machine in operation; and	
C. Starting and manipulation of levels for moving equipment and attachments.	
CARE AND MAINTENANCE	100
A. Safety procedures; and	
B. Routine fueling, lubricating, and servicing.	
EQUIPMENT OPERATION	885
A. Safety procedures;	
B. Trenching operations (for pipe laying, etc.);	
C. Excavation (for structures, footings, etc.); and	
D. Special applications and functions.	
TOTAL	**1040**

FLEET TRACKING TECHNICIAN

Set up, adjust and operates tracking devices. Accurately, maintains log books and tracks quantities of materials, loads and of fleet daily, using fleet scanner and handwritten notes. Ensures the accuracy of the tracking information loaded into the fleet scanner. Coordinates with Foreman or Supervisor to ensure the fleet arrives and departs in a timely manner. Technician is responsible for collecting and transferring the data, at the end of shift, into the database and creating tracking labels for fleet. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures	20
B. Observe Operation	50
C. Orientation on written and tracking devices	30
CARE AND MAINTENANCE	
A. Care and maintenance of fleet tracking device	20
ACTUAL OPERATION	
A. Safe Operating Procedures	25
B. Coordinating with Foreman and/or Supervisor of Fleet	25
C. Accurately recording handwritten data in log books	100
D. Accurately recording data using Scanning device	125
E. Ensuring the accuracy of tracking device information	50
F. Collecting and transferring the data into the database	50
G. Creating scanning device tracking labels for fleet	25
TOTAL	**520**

FOREMAN

Supervises crew to include recruitment, training, and direct supervision. Responsible for coordinating work with regard to inspection, material supply, and equipment required. Keeps personnel records to include payroll time and administer company personnel.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 52 WEEKS OR 2080 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	480
A. Understanding the function of the job;	
B. Company timekeeping and payroll procedures;	
C. Company EEO policy;	
D. Company safety policy; and	
E. Supervisory instruction.	
ADVANCED BLUEPRINT OR CONSTRUCTION PLAN READING	100
APPLIED TECHNIQUES OF BRIDGE CONSTRUCTION	1500
A. Equipment supervision and maintenance;	
B. Care of materials and job-site security;	
C. Operational planning and cost control;	
D. Familiar with standard specs;	
E. Communicate effectively and be able to get along with employees, other personnel, the general public, engineers, inspectors, and the DOT; and	
F. Grades, super elevations, vertical curves, etc.	
TOTAL	**2080**

FOREMAN (HIGHWAY CONSTRUCTION)

Supervises and coordinates the activities of workers under him engaged in one or more occupations. Studies production schedules and estimates man hour requirements for the completion of the job.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 50 WEEKS OR 2000 HOURS

REQUIREMENTS	HOURS
ADMINISTRATION	200
Interpreting company policy to workers, enforcing safety regulations, Maintaining time and production records, coordinating work schedules with other foremen, recruiting, and inspection of materials.	
PRODUCTION	1500
Receives instructions and specifications from superintendents and transmits them to other members of the crew. Interprets blueprints, specifications and job orders. Assists workers in solving jobsite problems. Operates power equipment and other machinery as needed. Regularly performs all tasks of workers in the crew.	
PERSONNEL	300
Supervises crew in absence of superintendent, recommends personnel actions such as promotions, transfers, discharges, and disciplinary action. Trains/orients new employees and/or trainees.	
TOTAL	**2000**

SUGGESTED RELATED TRAINING

Red Cross First Aid Certification, Industry Safety Publications, Blueprint Reading, Industrial Relations, Personnel Management, Contracting Laws, EEO, etc.

The trainee shall be given instruction and training in all branches of the occupation listed in the REQUIREMENTS as necessary to become skilled in the occupation. The work experience need not be in the precise order as listed, nor do the scheduled of any operation production schedule.

FOREMAN (GRADING)

Supervises crew to include recruitment, training, and direct supervision. Responsible for coordinating work with regard to inspection, material supply and equipment required. Keeps personnel records to include payroll time and administer company personnel policy.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 52 WEEKS OR 2080 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Understanding the function of the job;	200
B. Understanding company time keeping and payroll procedures;	15
C. Understanding company EEO policy;	15
D. Understanding company safety policy; and	50
E. Supervisory instruction.	200
ADVANCED BLUEPRINT OR CONSTRUCTION PLAN READING	
APPLIED TECHNIQUES OF BRIDGE CONSTRUCTION	
A. Equipment supervision and maintenance;	400
B. Care of materials and job site security;	200
C. Operational planning;	400
D. Staking and grading accuracy; and	400
E. Able to communicate effectively and to be able to get along with employees, other personnel,	
F. the general public, engineers, inspectors, and the DOT.	200
TOTAL	**2080**

FOREMAN (PIPE)

Supervises and coordinates the activities of workers under him engaged in one or more occupations. This includes but not limited to the laying of (sanitary/storm sewer pipelines). Lays glazed or unglazed clay, concrete, steel, or cast iron pipe to form water, sewer, or storm sewer pipelines. Duties require the study of utility and utility conflict plans, setting up laser and other engineering instruments to install pipelines at proposed elevations. Must be able to interpret production schedules and comply with all federal, state, and public utility regulations including Erosion Control Laws and Regulations. Must complete the required trenching and excavation training requirements set forth by The Occupational Safety and Health Administration (OSHA).

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 50 WEEKS OR 2000 HOURS

REQUIREMENTS	HOURS
ADMINISTRATION	200
A. Interprets company policy to workers, enforces safety regulations, maintains time and production records, and coordinates work schedules with other foreman recruiting and inspection of materials.	
SAFETY	300
A. Attend required trenching and excavation courses to become familiar with regulations of NCDOT and OSHA. Interprets these regulations to personnel along with all other safety rules and regulations. Properly conducts on site safety meetings as well as job inspections and train/instruct heavy equipment safety.	
PRODUCTION	1200
A. Receives instructions and specifications from superintendents and transmits them to other members of the crew. Interprets blueprints, specifications and job orders. Assists workers in solving jobsite problems. Operates power equipment and other machinery as needed. Regularly performs all tasks of workers in the crew.	
PERSONNEL	300
A. Supervises crew in absence if superintendent recommends personnel actions, such as promotions, transfers, discharges, and disciplinary action. Trains/orients new employees and/or trainees.	
TOTAL	**2000**

SUGGESTED RELATED TRAINING

Red Cross, First Aid Certification, Industry Safety Publications, Blueprint Reading, Industrial Relations, Personnel Management, Controlling Laws, EEO, etc.

FRONT END LOADER OPERATOR

Operates a rubber-tired or other crawler-type tractor with an attached scoop-type bucket on the front end. Starts engines, shifts gears, presses pedals and steers loader. Moves levers to raise and lower bucket and dump contents. Machine is used to load and unload materials, perform excavation, charge batch plants, and load trucks. May oil, grease, or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	10
B. Observe machine in operation; and	25
C. Starting and manipulating levers for moving equipment and attachments.	20
CARE AND MAINTENANCE	
A. Safety procedures; and	10
B. Routine fueling, lubrication and servicing.	40
ACTUAL OPERATION OF EQUIPMENT	
A. Safety procedures;	10
B. Loading and unloading materials;	195
C. Excavation;	150
D. Grading; and	30
E. Miscellaneous applications.	30
TOTAL	**520**

FUEL, GREASER, & LUBRICANT SERVICE TRUCK DRIVER

Drive truck to deliver gasoline, fuel oil, or liquefied petroleum gas to work site. Drives truck into position to load or distribute products. Connects hoses to tank and opens valves. May start pump to fill tanks, read gauges or meters and record quality loaded. May attach ground wire to truck. May lubricate parts and wearing surfaces of equipment as assigned. May operate pressure greasing equipment and clean equipment. May require a commercial driver's license with proper endorsements depending on size/weight of truck or type of material transported. May service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	Hour Required
ORIENTATION AND OBSERVATION	80
A. Overview of Industry;	
B. Company Policies and Procedures;	
C. Instruction and Observation; and	
D. Practical Experience/Applied Techniques.	
ENVIRONMENTAL CONSIDERATIONS	25
SAFETY ASSOCIATED WITH THIS OPERATION	35
CARE AND MAINTENANCE	80
A. Routine Fueling, Lubrication and Servicing;	
B. Minor Repairs;	
C. Operation Adjustments; and	
D. Cleaning of Equipment/Vehicle and Work Area.	
EQUIPMENT OPERATION	820
A. Drives Vehicle On/Off Highway;	
B. Loads Fuel and Lubricant onto Truck;	
C. Connects Hoses and Opens Valves;	
D. Starts Pump;	
E. Reads Gauges or Meters and Records Quality Loaded;	
F. Keeps Inventory Records;	
G. Lubricates Parts and Wearing Surfaces;	
H. Changes Filters; and	
I. Makes Normal Operating Adjustments.	
TOTAL	**1040**

GRADE CHECKER

Positions batter boards or pins to indicate direction of cut. Hammers batter board pins into ground at designated intervals. Test contour of road subgrade to determine uniformity of contour. Shovels dirt from high areas and tamps it into low areas to obtain uniform contour. May signal operator of grading machine to correct discrepancies.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	10
B. Observation of placing grade pins and line; and	20
C. Observation of setting and checking grade.	20
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Helping set grade pins and lines.	25
ACTUAL OPERATION OF SETTING AND CHECKING GRADE	
A. Safe operating procedures;	5
B. Setting and driving pins and braces in-place;	100
C. Observe and assist in setting grade; and	200
D. Check grade and lines before and after.	135
TOTAL	**520**

INSTRUMENT ENGINEER

Set up, adjust, and operates surveying instruments. Works from engineering plans to establish lines, points, and grades for construction purposes; keep engineering notes and records of data secured. Computes cross sections of work performed for cost or payment purposes. Has full supervision over and directs Rod person. Is responsible for accuracy of this field engineering work. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	10
B. Work as Rod person; and	40
C. Observation of instrument engineer.	20
APPLIED TECHNIQUES OF THE TRADE	
A. Using the rod;	20
B. Using the chain;	20
C. Using surveying instrument;	30
Reading plans to establish lines, points, and grades;	30
A. Computing cross section; and	30
B. Making engineering notes and recording data.	20
ACTUAL OPERATION	
A. Use surveying instrument to establish lines, points, and grades;	260
B. Direct Placement of stakes; and	20
C. Supervise Rod person	20
TOTAL	**520**

IRONWORKER, REINFORCING

Positions and secures steel bars to placement of reinforced concrete. Determines number, sizes, shapes and locations of reinforcing rods from plans, specifications, sketches and/or oral instructions. Places and ties reinforcing steel using wire and pliers. Sets rods in place, spaces and secures reinforcing rods. May bend steel rods with hand tools or rod bending machine. May reinforce concrete with wire mesh. May weld reinforcing bars together. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 18 WEEKS OR 720 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	20
B. Observation of operation; and	15
C. Care and repair of specially-coated bars.	10
CARE AND MAINTENANCE	
A. Safety procedures; and	20
B. Care and maintenance of tools and equipment.	30
ACTUAL OPERATION OF REINFORCING	
A. Construction plan reading and application;	30
B. Identification and selection of materials;	30
C. Places reinforcing steel and support devices; and	465
D. Spaces and secures reinforcing materials.	100
TOTAL	**720**

IRONWORKER, STRUCTURAL

Performs any combination of the following duties to raise, place and unite girders, columns and other structural steel members to form completed structures or structure frameworks, working as a member of a crew. Sets up hoisting equipment for raising and placing structural steel members. Fastens steel members to cable of hoist using chain, cable or rope. Signals worker operating hoisting equipment to lift and place steel members. Guides member using tab line (rope) or rides on member to guide it into position. Reads plans; rigs, assembles and erects structural members requiring riveting or welding. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	20
B. Observe operation; and	35
C. Plan reading.	35
CARE AND MAINTENANCE	
A. Safety procedures; and	20
B. Care and maintenance of tools and equipment.	70
ACTUAL OPERATION	
Safety procedures;	20
A. Rigging structural members requiring riveting or welding;	140
B. Assembling structural members requiring riveting or welding; and	300
C. Erection of structural members requiring riveting or welding.	400
TOTAL	**1040**

LAB TECHNICIAN (NUCLEAR GAUGE TECHNICIAN)

Quality Control functions on a daily basis including preliminary training on QMS specifications. Lab testing of aggregate moisture and gradations. Properly trained in use of a straight edge. Use straight edge on projects and have a clear understanding of results. Ability to read printouts in reader box with continued training in QMS specifications. Complete QMS nuclear density certification. Completion of QMS roadway technician by end of training period. Prepare proper documentation per QMS specifications to appropriate QC personnel. Help develop rolling patterns and when problems arise, assist in adjusting patterns to achieve required density. Report density results to paving foreman.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	80
B. Learns and fully understands the basic functions and requirements of the position; and	100
C. Becomes familiar with applicable regulations and/or policies.	60
APPLIED TECHNIQUES	
A. Develop and maintain ways and means of lab testing, use of straight edge and QMS specs. on a daily basis;	280
B. Develop system to help develop rolling patterns, and when problems arise, assist in adjusting patterns to achieve required density;	200
C. Become proficient in regards to communication of testing results to all personnel involved;	100
D. Become proficient in regards to preparing and submitting proper documentation per QMS specs; and	100
E. Stays abreast of any changes which come about during the day and takes necessary steps to make necessary changes.	120
TOTAL	**1040**

LABORER

Performs duties on construction project by transferring from one task to another where demands require worker to understand, follow instructions, and have varied experience and ability to work without close supervision. Measures distances from grade stakes, drives stakes, and stretches tight line. Level earth to grade specifications, mixes concrete, sprays materials, applies caulking compounds, and performs other related duties/operations as required and assigned. May signal operators of construction equipment to facilitate alignment, movement and adjustment of machinery to conform to grade specifications. Mops, brushes or spreads paints or bituminous compounds over surfaces for protection. Sprays materials such as water, sand steam, vinyl paint or stucco through hose to clean, coat or seal surface. Grinds, sands or polishes surfaces such as concrete, marble, terrazzo or wood flooring. Demolishes buildings, saws lumber, dismantles forms, removes projections from concrete, mounts pipe hangers, cuts and attaches insulating material.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS

	Hours
ORIENTATION AND OBSERVATION	
A. Safety Procedures	20
B. Start up and shut down process	35
CARE AND MAINTENACE	
A. Safety Procedures	20
B. Routine laborer concepts and instructions	100
ACTUAL OPERATION OF EQUIPMENT	
A. Safety Operating Procedures	25
B. Coordination and operation of tools and equipment	320

LOADER OPERATOR

Operates rubber-tired or crawler-type tractor with attached scoop-type bucket on front end. Excavates and loads excavated material, loads material from stockpiles, charges batch plants, and loads trucks. May oil, grease, service and make normal operating adjustment to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation (as a passenger) of machine and operation; and	20
C. Starting and manipulating levers for moving equipment and attachments.	15
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating and servicing.	35
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Loading materials;	250
C. Excavation; and	150
D. Special applications.	35
TOTAL	**520**

LUTEMAN

Distributes asphaltic materials by raking. Matches and finishes freshly made asphalt paving points evenly. Smoothes and adjusts surface irregularities. Restores surface finish before compaction. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	30
A. Safety procedures; and	
B. Observation of operation.	
CARE AND MAINTENANCE	30
A. Safety procedures; and	
B. Hand tools.	
EQUIPMENT OPERATION	980
A. Matches and finishes freshly made asphalt paving joint evenly;	
B. Smoothes and adjusts surface irregularities;	
C. Restores surface finish after hand raking; and	
D. Spreads asphalt to proper grade and finishes before compaction.	
TOTAL	**1040**

MASON (STRUCTURAL)

Lays out work from plans. Sets up templates and guidelines. Shapes stone or brick preparatory to setting using chisels, hammers, and other shaping tools. Spreads mortar over stone and foundation with trowel and sets stone in place by hand or with the aid of a crane. Sets stone, brick, concrete, tile or other materials in the construction of manholes, catch basins, drop inlets, sidewalks, retaining walls, and hand finishes these. Hand finishes Portland Cement Concrete structures such as slabs, decks, piers, abutments, etc. Molds expansion joints and edges using edging tools, jointers and straight edges. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	15
B. Setting up templates and guidelines;	10
C. Use of hand trowels, straight edges, and hand levels; and	60
D. Use of materials (including Portland Cement Concrete, brick, tile and concrete block).	40
ACTUAL OPERATION	
A. Safety procedures;	10
B. Excavation;	40
C. Manholes, catch basins, drop inlets;	360
D. Sidewalks, retaining walls, etc.; and	180
E. Miscellaneous structures.	180
CHECKING AND INSPECTION	
A. Safety procedures;	5
B. Blueprint or construction plans reading; and	40
C. Conformity with plans and specifications.	100
TOTAL	**1040**

MATERIAL TRANSFER DEVICE OPERATOR

Operates Material Transfer Device machine which keeps the hopper continuously working smoothly with enough material between the dump truck and the paver; rubber tired or track type. May oil, grease, service and make normal operating adjustments to the equipment. May perform other duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 20 WEEKS OR 800 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures	20
B. Observation of machine in operation starting and manipulating levers for moving machine and conveyors	35
CARE AND MAINTENANCE	
A. Safety procedures	20
B. Routine fueling, lubrication and servicing	100
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures	25
B. Coordination and operation of machine between truck and paver	120
C. Operation of machine	480
TOTAL	**800**

MECHANIC

Assembles, sets up, adjusts, maintains, repairs and welds equipment. Operates any equipment unit on a temporary basis for operating adjustments. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 52 WEEKS OR 2080 HOURS

REQUIREMENTS	HOURS
LUBRICATION	
A. Oil, air, and fuel filtration, grease points, and capacities, inspection techniques to detect abnormal.	40
PAINT AND BODY	
A. Body work and painting procedures.	40
MACHINE SHOP FAMILIARIZATION	
A. Welding and burning equipment and operations of lathes, saws, shapers, girder and presses.	160
INJECTOR-GOVERNOR	
A. The operation and service of fuel injector pumps and nozzles, and engine governors.	200
WATER-COOLED ENGINE REBUILD	
A. Assist in the complete overhaul and testing of gas and diesel engines.	120
TRANSMISSION AND REAR-ENDS	
A. Assist in the complete overhaul of the various mechanisms used to transfer engineer horsepower to tractive effort.	240
AIR COOLED ENGINES	
A. Assist in the complete overhaul of the various air cooled engines and their applications.	200
HEAVY EQUIPMENT PARTS FAMILIARIZATION	
A. The Parts Catalogs, procurement, handling, storage, and cost of heavy equipment parts.	80
B. Assist in the complete overhaul of the various starters, generators, and voltage regulators.	160
HEAVY EQUIPMENT SHOP	
A. Assist in the repair and overhaul of the various heavy equipment which will include in so far as is practical, crawler and wheel tractors, crawler and portable cranes, booms, front end loaders, rollers, subgrade mixers, motor graders, compactors, pumps, and air compressors-their power plants, transmissions controls and accessories.	600
HEAVY EQUIPMENT FIELD	
A. The role of the field mechanic is to make the repairs necessary in the field and perform preventive maintenance practices necessary to increase service life of the equipment.	240
TOTAL	**2080**

MECHANIC HELPER

Assist in the necessary set-up, adjustments, maintenance, repair and welding of equipment. Operates any equipment unity on a temporary basis for operating adjustments. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
MACHINE SHOP FAMILIARIZATION	80
A. Welding and burning equipment; and Operation of lathes, saws, shapers, girders, and presses.	
SPECIFIC SKILLS	
A. Lubrication - Oil, air, and fuel filtration; Grease points and capacities; and Inspection techniques to detect abnormal conditions.	20
B. Paint and body - Assist in bodywork and painting procedures.	20
C. *Injector-Governor*- Operation and service of fuel injector pumps and nozzles and engine governors	60
D. Water-cooled engine rebuild- Assist in the complete overhaul and testing of gas and diesel engines	100
E. *Transmissions and rear-ends*- Assist in the complete overhaul of the various mechanisms used to transfer engineer horsepower to tractive effort	120
F. *Air-cooled engines* - Assist in the complete overhaul of the various air-cooled engines and their applications	100
G. *Starters, generators, and voltage regulars* - Assist in the complete overhaul of the various starters, generators, and voltage regulators	80
HEAVY EQUIPMENT PARTS FAMILIARIZATION	340
A. The parts catalogs; Procurement and cost of heavy equipment parts; and Handling And storage of heavy equipment parts.	
B. In the shop -Assist in the repair and overhaul of the various heavy equipment, including, in so far as is practical, crawler and portable cranes, crawler and wheel tractors, booms, front-end loaders, rollers, subgrade mixers, motor graders, compactors, pumps, and air compressor, their power plants transmissions, controls	
ON THE FIELD	120
A. Make the repairs necessary in the field and perform preventive maintenance practices necessary to increase service life of the equipment	
TOTAL	1040

MILLING MACHINE OPERATOR

Operates Milling Machine on rough work, such as finishing rough grade on highway, including highway shoulders, slopes, and ditches. Milling old or existing asphalt to grade to facilitate replacement of asphalt to original curb line or to final lift smoothness. May oil, grease, service, and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 40 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures	5
B. Observation of machine in operation	35
C. Begin operation and moving equipment	30
CARE AND MAINTENANCE	
A. Safety procedures	5
B. Routine maintenance and cleaning	150
ACTUAL OPERATION OF EQUIPMENT	
A. Safety Procedures	5
B. Milling head operation and maintenance	100
C. General operation of machine	650
D. Milling to grade / profiling	60
TOTAL	**1040**

MOTOR GRADER OPERATOR (FINE GRADE)

Operates self-propelled motor grader and, from stakes and lines, cuts sub-grade and performs other fine grade operations, requiring considerable experience and a high degree of skill. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 39 WEEKS OR 1560 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation (as a passenger) of machine in operation; and	100
C. Starting and manipulating levers for moving equipment and attachments.	95
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing.	35
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Scraping and leveling dirt on roadway;	180
C. Spreading and mixing materials on roadway;	170
D. Shaping and blading subgrades;	150
E. Balancing and rough shaping base course materials; and	375
F. Fine grading and dressing of shoulders and Slopes.	440
TOTAL	**1560**

MOTOR GRADER OPERATOR (ROUGH GRADE)

Operates self-propelled motor grader on rough grade work, such as finishing rough grade on highway including highway shoulders, slopes and ditches. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation (as a passenger) of machine in operation; and	100
C. Starting and manipulating levers for moving equipment and attachments.	95
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing.	35
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Scraping and leveling dirt on roadway;	180
C. Spreading and mixing materials on roadway;	170
D. Shaping and blading subgrades;	150
E. Balancing and rough shaping base course materials; and	150
F. Grading and dressing of shoulders and Slopes.	145
TOTAL	**1040**

OFFICE ENGINEER

This position applies knowledge of Costing Program to include daily operations such as data entry, report printing and reviewing items related to Costing Program which encompasses scheduling quantities, tracking quantities, purchasing materials and payments to suppliers and subcontractors. The position is responsible for the application of Project Budgeting to include job cost adjustments, budget change orders and contract change orders. Office Engineer is able to read and understand Construction plans and specifications including quantity take offs. This position has in-depth understanding of job-site safety, works to enforce safety procedures, assists with the development of job hazard analysis and coaches employees on all aspects regarding job- site safety.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND INTRODUCTION OF COSTING PROGRAM	240
A. Understanding and Basic Data Entry; and	
B. Report printing and reviewing.	
APPLIED KNOWLEDGE OF COSTING	400
A. Time care review and approval;	
B. Schedule of quantities and quantity tracking;	
C. Material Purchasing;	
D. Agency invoicing; and	
E. Subcontractor and supplier payments.	
PROJECT BUDGETING	120
A. Job cost adjustments;	
B. Budget change orders; and	
C. Contract change orders.	
CONSTRUCTION PLANS AND SPECIFICATIONS	120
A. Reading and understanding plans and specifications; and	
B. Quantity take-offs.	
SAFETY	160
A. Understanding construction and job-site safety;	
B. Coaching and counseling of safety procedures;	
C. Involvement and enforcement of safety procedures; and	
D. Assisting and development of job hazard analysis.	
TOTAL	1040

OILER/GREASER/FIRER

A service worker who lubricates the moving parts of wearing surfaces of mechanical equipment, changes oil, greases and filters and refuels equipment. Uses grease gun to force grease into bearings. Packs grease cups by hand. Makes minor adjustments on miscellaneous drive chains and clutches. Keeps machines and equipment clean. Often drives a truck which carries the various fuels, oils and greases.

Hand stokes or fires by gas or oil, a portable or semi-portable steam boiler such as is used on steam shovels, pile drivers, cranes, dredges, hoisting equipment and asphalt plants. May be responsible for safe operation of an oil-fired steam boiler aboard a floating whirly; may be called upon to operate stationary and skid-mounted boilers on land. Must be familiar with operating pressures and adjustments of pipe, valves and fittings. Responsible for minor adjustments, routine maintenance and proper lubrication of equipment. Performs other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 18 WEEKS OR 720 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND SAFE USE OF TOOLS OF THE TRADE	
A. Lubrication requirements of mechanical Equipment; and	20
B. Materials selection.	20
APPLIED TECHNIQUES OF THE OILER/GREASER/FIRER	
1. Safety procedures;	10
2. Equipment characteristics/lubrication points;	140
3. Oil changes, filter changes, grease guns, hard packing of grease, greasing bearings;	230
4. Minor adjustments to drive chains and clutches; and	150
5. Shop and field practices.	50
EQUIPMENT OPERATION AND OPERATION OF OIL, GREASE AND FUEL TRUCK	85
A. Safety procedures	15
TOTAL	**720**

PILE HAMMER OPERATOR

Operates Pile-driving machine or Pile Hammer, with crane or skid-mounted, with leads or jets for driving pile as foundations for piers, bridges, etc. Moves levers to control hoisting equipment used to position leads. Assists other workers in setting up pile hammer leads. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	40
B. Observe machine in operation; and	145
C. Starting and manipulating levers for moving equipment and attachments.	145
CARE AND MAINTENANCE	
A. Safety procedures; and	20
B. Fueling, lubrication and servicing.	40
ACTUAL OPERATION OF EQUIPMENT	
A. Safety procedures;	20
B. Basic operation of crane or pile-driving rig in hoisting and moving;	225
C. Preparation of pile for driving;	100
D. Seating of pile hammer on pile in preparation for driving; and	140
E. Driving of pile.	165
TOTAL	**1040**

PIPELAYER (STORM/SANITARY/WATER)

Lays glazed or unglazed clay, concrete, steel or cast-iron pipe to form water lines, gas lines, sanitary or storm sewers and drains; lays underground telephone and electrical duct. May smooth bottom of trench to proper elevation by scooping with a shovel; receives pipe lowered from top of trench; inserts spigot end of pipe into bell end of last laid pipe. Adjusts pipe to line and grade, caulks joints with oakum or yarn and seals joints with cement or other sealing compound; may connect threaded or flanged joint pipe, may assemble and place corrugated metal pipe. Must be able to physically set elevations with laser or other engineering equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 18 WEEKS OR 720 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures, MOSHA & OSHA Regulations;	40
B. Observe spade operation and laying of pipe;	15
C. Study of various forms of pipe and related materials; and	5
D. Familiarity with local codes and testing procedures.	70
CARE AND MAINTENANCE	
A. Safety procedures; and	10
B. Ditch preparation, handles materials and tools.	15
ACTUAL HANDLING OF PIPE AND SPADE	
A. Ditch grading with compressed-air-driven or hand spade;	50
B. Handle materials, assist in lowering pipe;	50
C. Work with pipe layer in laying all types of pipe and duct, adjust pipe to elevation, insert spigot end of pipe into bell end of last laid pipe; and	365
D. Performing testing procedures.	100
TOTAL	**720**

PROJECT SAFETY ENGINEER (HIGHWAY)

The Safety Engineer is primarily responsible for managing a comprehensive technical safety strategy. This person reviews, interprets and applies various safety and health codes and standards, including OSHA, NFPA, NEC and ANSI. The Safety Engineer will manage toolbox discussions, train on-site employees in proper safety strategies and monitor on-site safety related items. The Safety Engineer will interface with equipment vendors, subcontractors and manufactures and conduct on-site safety reviews of operations, identifying deficiencies and remedies. This Safety Engineer will report to the on-site assigned Safety Manager and Project Manager.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 52 WEEKS OR 2080 HOURS

REQUIREMENTS	**HOURS**
INTRODUCTION, ORIENTATION AND OBSERVATION	
A. Interpreting company safety policies to field personnel and subcontractors, enforcing safety regulations, policies and procedures, collecting data for analysis, orientating and initiating safety related training and forwarding findings and remediation's to assigned Project Superintendent and Project Manager.	160
ADMINISTRATION / APPLIED SAFETY ANALYSIS TECHNIQUES	
A. Corporate Safety Procedures	100
B. Job Hazard Analysis / Task Hazard Analysis	100
C. Fall Protection Analysis and Methods of Prevention	210
D. Competent Person Trenching and Excavation Strategies	210
E. Competent Person Confined Space Monitoring Procedures	80
F. Orientation and Training of Assigned Field Staff	360
G. Interpret Hazards to Field Staff	300
H. Provide Feedback to Management on Control Measures	300
OFFICE COORDINATION, DOCUMENTATION AND REPORTING	
A. Completes assigned projects in a timely manner, understands required incident investigation documentation to be completed, coordinates return back to work programs of injured staff, communicates findings, conducts audits and promotes corporate safety culture of assigned field project.	260
TOTAL	**2080**

SUGGESTED RELATED TRAINING

NC State OTI 500 Course in OSHA Standards for Construction, OSHA 30 HR, CPR/First Aid, Confined Space, Lock Out / Tag Out, Excavation, Scaffolding, Concrete Forming, Rigging, Crane Signal, Crane Safety, Measuring Safety Performance Training, EEO Compliance

ROAD WIDENER OPERATOR

Manipulates hand and foot levers to control movement of road widener machine which spreads and levels asphalt concrete and base stone materials; regulates depth and width of widener gate. Observes distribution of materials along widener gate and controls direction of gate to eliminate voids at edge of existing pavement. Familiar with various manufacturers' equipment. Performs routine fueling, lubrication and adjustment as needed. Performs other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	**HOURS**
Approximate Training Time: 13 weeks or 520 hours	
ORIENTATION AND OBSERVATION	
Safety procedures; and	20
Observe machine in operation and become familiar Various manufacturers' equipment	40
CARE AND MAINTENANCE	
Safety procedures; and	20
Routine fueling, lubrication and servicing	80
ACTUAL OPERATION OF EQUIPMENT	
Safety procedures;	10
Gate regulation indoctrination and operation;	50
On-the-Job Operation	300
TOTAL	**520**

RODPERSON

Uses surveyor's chain to measure distances as directed by Instrument Engineer. May mark reference points. May hold engineering rod at points designed by Instrument Engineer to establish or obtain elevation of those points. May set stakes. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures; and	10
B. Observation of rod person.	30
APPLIED TECHNIQUES OF THE TRADE	
A. Use of the chain;	60
B. Use of the road; and	70
C. Placing stakes.	50
ACTUAL OPERATIONS	
A. Measuring distances with chain; and	150
B. Establishing elevation with rod.	150
TOTAL	**520**

RODPERSON GPS OPERATOR

Uses surveyor's chain to measure distance as directed by instrument Engineer. Mark reference points, hold engineering rod at points designed by Instrument Engineer to establish or obtain elevation of those points. Set stakes. Sets up, adjusts, and operates surveying instruments. Works from engineering plans to establish lines, points and grades for construction purposes; keeps engineering notes and records of data secured. Computes cross sections of work performed for cost or payment purposes. Responsible for accuracy of this field engineering work. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION	2
A. Safety procedures; and	3
B. Observation of rod person.	20
APPLIED TECHNIQUES OF THE TRADE OF RODPERSON	
A. Use of the chain;	45
B. Use of the rod; and	45
C. Placing stakes.	45
GPS OPERATOR'S INSTRUCTION	200
A. Toolbox safety procedures;	
B. Observe proper operation of the GPS equipment;	
C. Receive instruction on basic function and preparation of daily functions; and	
D. Learn proper method of transporting GPS equipment (sequence of usage for various procedures).	
GPS OPERATION AND SETUP	200
A. Toolbox safety meeting;	
B. Establish standard procedure and scheduling for preventative maintenance on GPS equipment;	
C. Develop plan for corrective maintenance;	
D. Sets and assembles GPS for use on the project; and	
E. Receives instruction on company policy and observes methods to receive and store GPS for use on the project.	
ACTUAL RODPERSON OPERATIONS	
A. Measuring distances with chain; and	140
B. Establishing elevation with rod.	140

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RODPERSON GPS OPERATOR (CONTINUED)

ACTUAL GPS OPERATOR APPLICATION	200
A. Toolbox safety meeting;	
B. Demonstrate, under supervision, ability to receive and store GPS equipment needed for job;	
C. Plans, arranges and transports GPS equipment to project site;	
D. Assists in the planning and implementation of preventative and corrective maintenance of equipment; and	
E. Work with tools of trade to maintain equipment in good working order	
TOTAL	**1040**

ROLLER OPERATOR

Operates self-propelled steel-wheeled, rubber-tired, sheep foot, vibratory, segmented, or other type roller to compact earth, subgrade, subbase, shoulder materials, or stone cover on surface treatment. May also operate rubber-tired roller on asphalt concrete. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures; and	5
B. Observation (as a passenger) of machine in operation.	35
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing.	35
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Rolls base course to desired compaction; and	455
C. Rolls asphalt surfaces to desired compaction and smoothness and assures proper sealing of joints	500
TOTAL	**1040**

ROLLER OPERATOR (FINISH W/ DENSITY DUTIES)

Operates tandem roller, static or vibrator for finishing of bases and asphalt surfaces. May also operate rubber tied roller on bases and asphalt surfaces, including final rolling in asphalt concrete. May oil, grease, service and make normal operating adjustments to equipment. Operate Electric Density on all asphalt surfaces following roller patterns to establish and/or confirm proper compaction effort for all rollers. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 29WKS OR 1160

REQUIREMENTS	HOURS
ORIENTATION AND OSEERVATION	
A. Safety Procedures;	5
B. Observation (as a passenger) of machine in operation (Static, Pneumatic, Vibratory);	35
C. Review Operating Manual (Electric Density Gauge); and	8
D. Observation of actual use of Electric Density Gauge.	24
CARE AND MAINTENANCE	
A. Safety Procedures;	5
B. Routine fueling, lubrication and servicing;	35
C. Proper storage, handling, cleaning of Electric Density Gauge; and Understand all adjustments on all rollers (tire pressure, frequency, amplitude, water system, scrapers, fuse locations)	48
ACTUAL OPERATION OF EQUIPMENT	
A. Safety Procedures;	5
B. Rolls base course to desired compaction;	455
C. Rolls asphalt surfaces to desired compaction and smoothness and assures proper sealing of joints; and	500
D. Determination of density in breakdown, intermittent and Finish phases, with and without assistance from QC tech.	40
TOTAL:	**1160**

ROLLER OPERATOR A (ASPHALT, BITUMINOUS MATERIALS)

Operates self-propelled steel-wheeled, rubber-tired, sheep foot, vibrator, segmented, or other type roller to compact binder course, base course, surface course, shoulder materials, or stone cover on surface treatment. May also operate rubber-tired roller on base and asphalt surfaces, including final rolling on asphalt concrete. Drives machine in successive overlapping passes over surfaces to be compacted. Determines speed and direction of machine based on knowledge of compressibility of material under changing temperatures, so that ridges are not formed by excessive pressure. May oil, grease or otherwise service and make necessary adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures; and	10
B. Observe machine in operation.	30
CARE AND MAINTENANCE	
A. Safety procedures; and	10
B. Routine fueling, lubrication and servicing.	30
ACTUAL OPERATION OF EQUIPMENT	
A. Safety procedures;	10
B. Starting and manipulating levers for moving equipment;	30
C. Rolls asphalt base course to desired compaction; and	450
D. Rolls asphalt surfaces to desired compaction and smoothness and assures proper sealing of joints.	470
TOTAL	**1040**

ROLLER OPERATOR B (EARTHWORKS, UP TO SUBGRADE)

Operates self-propelled steel-wheeled, rubber-tired, sheep foot, vibrator, segmented, or other type roller to compact earth, subgrade, sub-base, shoulder materials, or stone cover on surface treatment. May also operate rubber-tired roller on base and asphalt surfaces, including final rolling on asphalt concrete. Drives machine in successive overlapping passes over surfaces to be compacted. Determines speed and direction of machine based on knowledge of compressibility of material under changing temperatures, so that ridges are not formed by excessive pressure. May oil, grease or otherwise service and make necessary adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures; and	10
B. Observe machine in operation.	30
CARE AND MAINTENANCE	
A. Safety procedures; and	30
B. Routine fueling, lubrication and servicing.	10
ACTUAL OPERATION OF EQUIPMENT	
A. Safety procedures;	10
B. Starting and manipulating levers for moving equipment and attachments, including blades;	30
C. Rolls embankments to desired compaction; and	450
D. Rolls subgrade to desired compaction and Smoothness.	470
TOTAL	**1040**

SCALEHOUSE TECHNICIAN

Operates computerized Scale house controls to weigh for delivery of specified quantities of aggregate construction materials to various job locations. Generates load tickets using computerized load-out system; Ensures that loaded trucks do not exceed maximum legal load roadway limits; Familiar with various types and sizes of aggregate materials to be loaded. Maintains and requires a clean and safe working environment; Familiar with various manufacturers' equipment. Performs other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

	REQUIREMENTS	HOURS
	ORIENTATION AND OBSERVATION	
A.	Safety procedures	20
B.	Observe scale systems in operation and become familiar with various manufacturers equipment	20
C.	Become familiar with various aggregate sizes	20
D.	Ethics training	20
	CARE AND MAINTENANCE	
A.	Safety procedures	20
B.	Routine cleaning, maintenance, and servicing	80
	EQUIPMENT OPERATION	
A.	Safety procedures	10
B.	Demonstrates proficiency in computer operations, load-out systems and generating load tickets	50
C.	Demonstrates knowledge of various types of aggregate sizes, descriptions and uses	100
D.	Demonstrates knowledge of legal load limits	100
E.	Demonstrates and understands the ethical importance of never falsifying any weighing certification information or otherwise failing to comply with the requirements of NCDOT contracts	80
	TOTAL	**520**

SCRAPER

Operates self-propelled rubber-tired or tractor-drawn unit known as scraper, pan, etc., to excavate, transport and deposit materials moved in normal grading operations. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation (as a passenger) of machine in operation; and	20
C. Starting and manipulating levers for moving equipment and attachments.	15
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating and servicing.	35
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Loading;	150
C. Spreading material;	150
D. Rough roadway grading; and	70
E. Compaction of embankment.	65
TOTAL	**520**

SCREED OPERATOR

Requires knowledge of grade levels and slopes. Requires knowledge of how to prep the screed prior to paving. Will be responsible for the computer settings and controls as required to complete the daily job functions:

TRAINING OUTLINE
APPROXIMATE TRAINING TIME: 20 WEEKS OR 800 HOURS

REQUIREMENTS

	Hours
ORIENTATION AND OBSERVATION	
A. Safety Procedures	20
B. Start up and Shut Down Process	35
CARE AND MAINTENANCE	
A. Safety Procedures	20
B. Routine fueling, lubrication and servicing	100
ACTUAL OPERATION OF EQUIPMENT	
A. Safe Operating Procedures	25
B. Coordination and operation/monitoring of screed controls and grades	600
Total	800

SHUTTLE BUGGY OPERATOR

Operates Material Transfer Device machine which keeps the hopper continuously working smoothly with enough material between the dump truck and the paver: rubber tired or track type.
May require general maintenance and normal adjustments to the equipment. May perform other duties.

TRAINING OUTLINE
APPROXIMATE TRAINING TIME: 20 WEEKS OR 800 HOURS

REQUIREMENTS

	Hours
ORIENTATION AND OBSERVATION	
A. Safety Procedures	20
B. Operation of machine in operation starting and manipulating levers for moving the machine and conveyors	35
CARE AND MAINTENANCE	
A. Safety Procedures	20
B. Routine fueling, lubrication and servicing	100
ACTUAL OPERATION OF EQUIPMENT	
A. Safe Operating Procedures	25
B. Coordination and operation of machine between truck and paver	120
C. Operation of Machine	480
Total	800

SIGN ERECTOR

Erects reassembled signs according to plans, sketches and blueprints. Measures location for sign and marks points where holes for expansion shields are to be drilled. Drills holes using star drill. Makes layout for erection of signs, cuts ties and sets reinforcing steel. Sets forms for concrete, pours concrete, sets anchor bolts, erects wooden or metal structures, places clamps, brackets or other required hardware on structures. May use welding equipment for installation. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND SAFE USE OF TOOLS OF THE TRADE	
A. Power and hand tools;	20
B. Special fittings and hardware; and	10
C. Specifications or design for concrete mixer.	20
APPLIED TECHNIQUES OF SIGN ERECTION	
A. Preparation of layout for signs;	30
B. Cuts, ties, and sets reinforcing steel for footings;	25
C. Sets forms, places concrete, sets anchor bolts;	300
D. Erects wooden or metal structures;	250
E. Places clamps, brackets or other required hardware on structures; and	240
F. Safety procedures.	10
BLUEPRINT OR CONSTRUCTION PLAN READING AND FAMILIARITY WITH MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES	50
A. BASIC DESIGN FAMILIARITY	
B. Safety procedures.	10
STRIPPING AND SALVAGING OF FORMS FOR RE-USE	65
A. Safety procedures.	10
TOTAL	**1040**

SUPERINTENDANT (GRADING/BRIDGE)

Supervises and coordinates the activities of highway grading/bridge crew. Studies production schedules and estimated man-hour requirements for the completion of the job.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 50 WEEKS OR 2000 HOURS

REQUIREMENTS	HOURS
ADMINISTRATION	200
A. Interpreting company policy to workers;	
B. Enforcing safety regulations;	
C. Maintaining time and production records;	
D. Coordinating work schedules with other superintendents;	
E. Recruiting; and	
F. Inspection of materials.	
PRODUCTION	1500
A. Transmits instructions and specifications to the foreman and other members of the crew;	
B. Interprets construction drawings and specifications and applies them in building the project;	
C. Assist workers in solving job-site problems; and	
D. Coordinates with project manager and general superintendent (grading/bridge) on short term schedule of work to be performed.	
E. PERSONNEL	300
F. Supervises crew;	
G. Recommends personnel actions such as promotions, transfers, discharges, and disciplinary action; and	
H. Trains/orients new employees and/or trainees.	
TOTAL	**2000**

SUGGESTED RELATED TRAINING

Red Cross First Aid Certification, Industry Safety Publications, Blue-Print Reading, Industrial Relations, Personnel Management, Contracting Laws, EEO, etc.

TRAFFIC CONTROL SPECIALIST

Communicates and maintains suitable liaison with Project Superintendent, Project Manager and Project Engineer. Develops and maintains ways and means of controlling traffic on a daily basis. Ensures that adequate supplies are available to meet required needs. Responsible for proper placement, erection and removal of traffic control materials. Ensures that flag persons are properly trained and placed effectively.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 18 WEEKS OR 720 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	10
B. Learns and fully understands the basic functions and requirements of the position; and	20
C. Becomes familiar with applicable regulations and/or policies.	20
APPLIED TECHNIQUES	
A. Development and maintenance of ways and means of controlling traffic on a daily basis;	150
B. Sees that adequate supplies are on hand to meet required needs;	20
C. Erects and places required traffic control materials on a daily basis. Also responsible for removal of such material at end of work day; and	300
D. Stays abreast of any changes which come about during the day and takes necessary steps to effect suitable control procedures.	200
TOTAL	**720**

TRAFFIC SIGNAL INSTALLER

Has a well-rounded background in traffic signal technology from coursework and experience. The Level II IMSA certification indicates the technician has additional training on traffic signal control system troubleshooting, on-site repairs, and maintenance methods and equipment. Areas of training include worksite safety, maintenance of traffic, traffic signal system equipment standards and operation, installation inspection, troubleshooting, equipment repair, replacement and programming, test equipment, signal phasing and timing, detection, system communications, preventive maintenance, and documentation. This position works under the general supervision of the Supervisor or General Foreman.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety Procedures	10
B. Observation in erecting and wiring of poles, span wire control cables, signal heads, loops, conduit, services, and controllers and all related parts.	40
C. Observation of operating all necessary tools and equipment to accomplish the above	10
D. Observation of plans, layout of traffic signal system	40
CARE AND MAINTENANCE	
A. Safety Operating Procedures	10
B. Cleaning and caring for hand tools and routine fueling, lubricating, servicing equipment	40
APPLIED TECHNIQUES	
A. Safety Procedures	10
B. Erection of Poles	10
C. Blueprint or construction plans reading and applications	80
D. Erection and wiring of span wires, control cables, signal heads, loops and controller cabinet wiring.	130
E. Installation of conduit, pull boxes and pulling cable	100
F. Coursework IMSA Certification Level II	40
TOTAL	**520**

TRAFFIC SIGNAL MECHANIC

Operates as Crew leader having a well-rounded background in traffic signal technology from coursework and experience. Substantial training on traffic signal control system troubleshooting, on-site repairs, and maintenance methods and equipment. Proficiencies include worksite safety, maintenance of traffic, traffic signal system equipment standards and operation, installation inspection, troubleshooting, equipment repair, replacement and programming, test equipment, signal phasing and timing, detection, system communications, preventive maintenance, and documentation.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety Procedures	10
B. Observation in erecting and wiring of poles, span wire control cables, signal heads, loops, conduit, services, and controllers and all related parts.	40
C. Observation of operating all necessary tools and equipment to accomplish the above	10
D. Observation of plans, layout of traffic signal system	40
CARE AND MAINTENANCE	
A. Safety Operating Procedures	10
B. Cleaning and caring for hand tools and routine fueling, lubricating, servicing equipment	40
APPLIED TECHNIQUES	
A. Safety Procedures	10
B. Erection of Poles	10
C. Blueprint or construction plans reading and applications	80
D. Erection and wiring of span wires, control cables, signal heads, loops and controller cabinet wiring.	130
E. Installation of conduit, pull boxes and pulling cable	140
TOTAL	**520**

TRUCK DRIVER (MULTI-REAR AXLE)

Drives multi-rear axle truck for transporting construction material. May have various kinds of beds attached, such as dump, flatbed, water tank, etc. Includes water wagon, service truck, hoist truck, etc. May pull semi-trailer or trailer. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	10
B. Observation (as a passenger) of vehicle in operation; and	50
C. Starting and manipulating vehicle.	40
CARE AND MAINTENANCE	
A. Safety procedures; and	10
B. Routine fueling, lubricating, and servicing.	340
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures; and	10
B. Loading and unloading materials and operation of vehicle.	580
TOTAL	**1040**

TRUCK DRIVER (MULTI-REAR AXLE) – *PRIOR EXPERIENCE*

This "Modified Program" is for OJT Trainees possessing a valid CDL and demonstrated experience as determined by Contractor.

Drives multi-rear axle truck for transporting construction material. May have various kinds of beds attached, such as dump, flatbed, water tank, etc. Includes water wagon, service truck, hoist truck, etc. May pull semi-trailer or trailer. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 18 WEEKS OR 720 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
a. Safety procedures;	10
b. Observation (as a passenger) of vehicle in operation; and	50
c. Starting and manipulating vehicle.	40
CARE AND MAINTENANCE	
A. Safety procedures; and	10
B. Routine fueling, lubricating, and servicing.	170
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures; and	10
B. Loading and unloading materials and operation of vehicle.	430
TOTAL	**720**

TRUCK DRIVER – *OFF ROAD**

This Program is for OJT Trainees who will ONLY be operating vehicle(s) on a construction site.

Drives single-rear axle truck for transporting construction material. May have various kinds of beds attached, such as dump, flatbed, water tank, etc. Includes water wagon, service truck, hoist truck, etc. May pull semi-trailer or trailer. May oil, grease, service and make normal operating adjustments to equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 13 WEEKS OR 520 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	10
B. Observation (as a passenger) of vehicle in operation; and	20
C. Starting and manipulating vehicle.	15
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine fueling, lubricating, and servicing.	35
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures; and	5
B. Loading and unloading materials and operation of vehicle.	430
TOTAL	**520**

* Replaces "Truck Driver (Single-Rear)"

TRUSS PILE HAMMER OPERATOR (SPECIALIZED)

Truss pile driving foreman for Launching Gantry # 1. The pile driving foreman is responsible for placement and driving of 30" precast concrete pile. During driving operations the foreman stays in constant communication with the truss operator, surveyor, and QC inspector to ensure all piles are driven in the right location and meet bearing specifications. The pile driving foreman follows detailed procedures before each movement of LG1's lead system to ensure safety of all workers involved.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation and instruction of machine in operation; and	50
C. Starting, manipulating levers for moving equipment and attachment.	45
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine lubricating and servicing of machine	295
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Hammer Lead Operation to place and strike piles; and	600
C. Special applications and functions	35
TOTAL	**1040**

TRUSS OPERATOR (SPECIALIZED)

Truss trolley operator foreman for Launching Gantry # 1, the trolley operator is responsible for the movement and critical lifts of the LG1 system. Activities include positioning 30" concrete pile, setting 45 ton precast cap segments, and placement of 70 ton girders into position for the success of the bridge building operation. The trolley operator stays in constant communication with supervision, spotters, and other foreman to ensure safety of all involved with day to day operations.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Observation and instruction of machine in operation; and	50
C. Starting, manipulating levers for moving equipment and attachment	45
CARE AND MAINTENANCE	
A. Safety procedures; and	5
B. Routine lubricating and servicing of machine.	295
ACTUAL OPERATION OF EQUIPMENT	
A. Safe operating procedures;	5
B. Trolley Operation to place materials into position; and	600
C. Special applications and functions	35
TOTAL	**1040**

WELDER

Operates both electric welding apparatus and acetylene cutting apparatus. Fuses metal parts together using either arc welding process or oxy-acetylene method. Cuts, lies out, fits and welds sheet metal and other metal or alloyed metal parts to fabricate or repair equipment. May perform other related duties.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 26 WEEKS OR 1040 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	5
B. Welding equipment;	20
C. Materials selection; and	20
D. Observation of welder.	20
APPLIED TECHNIQUES OF WELDING	
A. Safety procedures;	5
B. Acetylene cutting; and	300
C. Electric welding.	300
ACTUAL WELDING OPERATIONS	
A. Safety procedures;	5
B. Cut, layout, fit and weld sheet metal and other metal parts; and	185
C. Fabricate and repair equipment.	180
TOTAL	**1040**

WELDER/STEEL FABRICATOR

Operates both electric welding apparatus and acetylene welding apparatus. Fuses metal parts together using either arc welding process or oxy-acetylene method. Cuts, lays out, fits and welds sheet metal, cast iron, and other metal or alloyed metal parts to fabricate or repair equipment. The job will require skill in performing rebuilds as well as design fabrications that will meet certification quality.

The job requires the following motions: climbing, stooping, bending, squatting, lifting, stretching, driving/sitting, pushing, gripping, pulling, twisting, kneeling, standing, reaching and hammering. Must lift varying weights regularly, up to 100 pounds. Uses other hand tools such as wrenches, files, rasps, etc. May be exposed to extremes of hot or cold weather. Overtime is required as needed. Should job require operating company vehicle, employee maybe required to meet Driver Qualification Standards. In some instances, may require following Commercial Drivers' License and necessary endorsements in accordance with 49 CFR 383.91: heavy straight vehicle (Group B).

Job requires skills in certain type of blueprint reading, as well as planning and building from instruction.

TRAINING OUTLINE

APPROXIMATE TRAINING TIME: 47 WEEKS OR 1880 HOURS

REQUIREMENTS	HOURS
ORIENTATION AND OBSERVATION	
A. Safety procedures;	15
B. Welding equipment;	40
C. Material selection; and	40
D. Observation of welder.	60
APPLIED TECHNIQUES OF WELDING	
A. Safety procedures;	15
B. Acetylene cutting; and	350
C. Electric welding.	350
ACTUAL WELDING OPERATIONS	
A. Safety procedures;	15
B. Cut, layout and weld metal and other metal parts;	400
C. Fabricate and repair equipment; and	400
D. Design, record keeping, inventory and other miscellaneous items such as forklift, OSHA, and defensive driver training.	195
TOTAL	**1880**