

INVITATION TO BID
CITY OF NAPLES
PURCHASING DIVISION
CITY HALL, 735 8TH STREET SOUTH
NAPLES, FL 34102
PH: 239-213-7100 FX: 239-213-7105

Cover Sheet

NOTIFICATION DATE: 5/02/2017	TITLE Third Avenue South Improvements - Construction	SOLICITATION NUMBER: 17-023	OPENING DATE & TIME: 5/26/2017 2:00 PM
PRE-BID CONFERENCE DATE, TIME AND LOCATION: Non-mandatory Pre-Bid Meeting held May 11, 2017; 10:00 AM local time; Streets & Stormwater Conference Room - 295 Riverside Circle - Naples FL 34102			

LEGAL NAME OF PARTNERSHIP, CORPORATION OR INDIVIDUAL:	
MAILING ADDRESS:	
CITY-STATE-ZIP:	
PH:	EMAIL:
FX:	WEB ADDRESS:
AUTHORIZED SIGNATURE	DATE
PRINTED NAME/TITLE	

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a bid for the same materials, supplies, or equipment and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this bid and certify that I am authorized to sign this bid for the bidder. In submitting a bid to the City of Naples the bidder offers and agrees that if the bid is accepted, the bidder will convey, sell, assign or transfer to the City of Naples all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the Anti-trust laws of the United States and the State of FL for price fixing relating to the particular commodities or services purchased or acquired by the City of Naples. At the City's discretion, such assignment shall be made and become effective at the time the City tenders final payment to the bidder.

FEI/EIN Number _____

Please initial by all that apply
 I acknowledge receipt/ review of the following addendum

_____ Addendum #1
 _____ Addendum #2
 _____ Addendum #3
 _____ Addendum #4

PLEASE NOTE THE FOLLOWING

- > **This page must be completed and returned with your bid.**
- > **Bids must be submitted in a sealed envelope, marked with solicitation number & opening date.**
- > **All submissions must be received and date stamped by Purchasing staff prior to the above "OPENING DATE & TIME".**
- > **Submission received after the above opening date and time will not be accepted.**
- > **Evaluation scores will be available on the City of Naples web site www.naplesgov.com . If you do not have computer access and want a copy of the evaluation scores, please enclose a stamped, self-addressed envelope with your bid.**

GENERAL CONDITIONS

TO INSURE ACCEPTANCE OF THE PROPOSAL, PLEASE FOLLOW THESE INSTRUCTIONS. ANY AND ALL SPECIAL CONDITIONS, ATTACHED HERETO, HAVE PRECEDENCE.

1. SEALED PROPOSAL: All proposals must be submitted in a sealed envelope. The face of the envelope shall contain the proposal name and proposal number. Proposals not submitted on attached proposal form shall be rejected. All proposals are subject to the conditions specified herein. Those which do not comply with these conditions are subject to rejection.

2. EXECUTION OF PROPOSAL: Proposal must contain a manual signature of authorized representative in the proposal section. Proposal must be typed or printed in ink. Use of erasable ink is not permitted. All corrections made by proposer to his proposal must be initialed.

3. NO PROPOSAL: If not submitting a proposal, respond by returning the Statement of No Proposal and explain the reason in the spaces provided. Failure to respond 3 times in succession without justification shall be cause for removal of the supplier's name from the proposal mailing list. NOTE: To qualify as a respondent, proposer must submit a "NO PROPOSAL," and it must be received no later than the stated proposal opening date and hour.

4. PROPOSAL OPENING: Shall be public, on the date and at the time specified on the proposal form. It is the proposer's responsibility to assure that his proposal is delivered at the proper time and place of the proposal opening. Proposals which for any reason are not so delivered will not be considered. Offers by telegram; telephone; or fax are not acceptable. Proposal files may be examined during normal working hours.

5. WITHDRAWAL OF PROPOSALS: Withdrawal of a proposal within sixty (60) days after the opening of proposals is subject to suspension or debarment in accordance with Policy 7-4 for up to three years.

6. PRICES, TERMS and PAYMENT: Firm Prices shall be proposal and include all packing, handling, shipping charges and delivery to the destination shown herein. Proposer is encouraged to offer cash discount for prompt invoice payment. Terms of less than 20 days will not be considered.

A. TAXES: The City of Naples does not pay Federal Excise and Sales taxes on direct purchases of tangible personal property. See exemption number on face of purchase order. This exemption does not apply to purchases of tangible personal property made by contractors who use the tangible personal property in the performance of contracts for the improvement of City-owned real property.

B. MISTAKES: Proposers are expected to examine the specifications, delivery schedule, proposal prices, extensions, and all instructions pertaining to supplies and services. Failure to do so will be at proposer's risk. In case of mistake in extension, the unit price will govern.

C. CONDITION AND PACKAGING: It is understood and agreed that any item offered or shipped as a result of this proposal shall be a new, current standard production model available at the time of this proposal. All containers shall be suitable for storage or shipment, and all prices shall include standard commercial packaging.

D. SAFETY STANDARDS: Unless otherwise stipulated in the proposal, all manufactured items and fabricated assemblies shall comply with applicable requirements of Occupational Safety and Health Act and any standards there under.

E. UNDERWRITERS' LABORATORIES: Unless otherwise stipulated in the proposal, all manufactured items and fabricated assemblies shall carry U.L. approval and re-examination listing where such has been established.

F. PAYMENT: Payment will be made by the buyer after the items awarded to a vendor have been received, inspected, and found to comply with award specifications, free of damage or defect and properly invoiced. All invoices shall bear the purchase order number. Payment for partial shipments shall not be made unless specified in the proposal. Failure to follow these instructions may result in delay in processing

invoices for payment. In addition, the purchase order number must appear on bills of lading, packages, cases, delivery lists and correspondence.

7. DELIVERY: Unless actual date of delivery is specified (or if specified delivery cannot be met), show number of days required to make delivery after receipt of purchase order in space provided. Delivery time may become a basis for making an award (see Special Conditions). Delivery shall be within the normal working hours of the user, Monday through Friday, unless otherwise specified.

8. MANUFACTURERS' NAMES AND APPROVED EQUIVALENTS: Any manufacturers' names, trade names, brand names, information and/or catalog numbers listed in a specification are for information and not intended to limit competition. The proposer may offer any brand for which he is an authorized representative, which meets or exceeds the specification for any item(s). If proposals are based on equivalent products, indicate on the proposal form the manufacturer's name and number. Proposer shall submit with his proposal, cuts, sketches, and descriptive literature, and/or complete specifications. Reference to literature submitted with a previous proposal will not satisfy this provision. The proposer shall also explain in detail the reason(s) why the proposed equivalent will meet the specifications and not be considered an exception thereto. Proposals which do not comply with these requirements are subject to rejection. Proposals lacking any written indication of intent to quote an alternate brand will be received and considered in complete compliance with the specifications as listed on the proposal form.

9. INTERPRETATIONS: Any questions concerning conditions and specifications shall be directed in writing to this office for receipt no later than ten (10) days prior to the proposal opening. Inquiries must reference the date of proposal opening and proposal number. Failure to comply with this condition will result in proposer waiving his right to dispute the proposal.

10. CONFLICT OF INTEREST: All proposal awards are subject to Section 2-973 Conflict of Interest, City of Naples Code of Ordinances, which states: *"No public officer or employee shall have or hold any employment or contractual relationship with any business entity or any agency which is subject to the regulation of or is doing business with the city; nor shall an officer or employee have or hold any employment or contractual relationship that will create a continuing or frequently recurring conflict between his private interests and the performance of his public duties or that would impede the full and faithful discharge of his public duties. Any member of the city council or any city officer or employee who willfully violates this section shall be guilty of malfeasance in office or position and shall forfeit his office or position. Violation of this section with the knowledge, express or implied, of the person or corporation contracting with or making a sale to the city shall render the contract or sale voidable by the city manager or the city council."*

11. AWARDS: As the best interest of the City may require, the right is reserved to make award(s) by individual item, group of items, all or none, or a combination thereof; to reject any and all proposals or waive any minor irregularity or technicality in proposals received.

12. ADDITIONAL QUANTITIES: For a period not exceeding ninety (90) days from the date of acceptance of this offer by the buyer, the right is reserved to acquire additional quantities up to but not exceeding those shown on proposal at the prices proposal in this invitation. If additional quantities are not acceptable, the proposal sheets must be noted "PROPOSAL IS FOR SPECIFIED QUANTITY ONLY." (THIS PARAGRAPH DOES NOT APPLY FOR A TERM CONTRACT.)

13. SERVICE AND WARRANTY: Unless otherwise specified, the proposer shall define any warranty service and replacements that will be provided during and subsequent to this contract. Proposers must explain on an attached sheet to what extent warranty and service facilities are provided.

14. SAMPLES: Samples of items, when called for, must be furnished free of expense, on or before proposal opening time and date, and if not destroyed may, upon request, be returned at the proposer's expense. Each individual sample must be labeled with proposer's name, manufacturer's brand name and number, proposal number and item reference. Request for return of samples shall be accompanied by instructions which include shipping authorization and name of carrier and must be received with your

proposal. If instructions are not received within this time, the commodities shall be disposed of by the City of Naples.

15. PROPOSAL PROTEST: The city has formal proposal protest procedures that are available on request.

16. INSPECTION, ACCEPTANCE AND TITLE: Inspection and acceptance will be at destination unless otherwise provided. Title and risk of loss or damage to all items shall be the responsibility of the contract supplier until accepted by the ordering agency, unless loss or damage results from negligence by the ordering

17. DISPUTES: In case of any doubt or difference of opinion as to the items to be furnished hereunder, the decision of the buyer shall be final and binding on both parties.

18. GOVERNMENTAL RESTRICTIONS: In the event any governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship or performance of the items offered on this proposal prior to their delivery, it shall be the responsibility of the successful proposer to notify the buyer at once, indicating in his letter the specific regulation which required an alteration. The City reserves the right to accept any such alteration, including any price adjustments occasioned thereby, or to cancel the contract at no expense to the City.

19. LEGAL REQUIREMENTS: Applicable provision of all Federal, State, county and local laws, and of all ordinances, rules, and regulations shall govern development submittal and evaluation of all proposals received in response hereto and shall govern any and all claims and disputes which may arise between person(s) submitting a proposal response hereto and the City of Naples by and through its officers, employees and authorized representatives, or any other person, natural or otherwise; and lack of knowledge by any proposer shall not constitute a cognizable defense against the legal effect thereof.

20. PATENTS AND ROYALTIES: The proposer, without exception, shall indemnify and save harmless the City of Naples and its employees from liability of any nature or kind, including cost and expenses for or on account of any copyrighted, patented, or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the City of Naples. If the proposer uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the proposal prices shall include all royalties or cost arising from the use of such design, device, or materials in any way involved in the work.

21. ADVERTISING: In submitting a proposal, proposer agrees not to use the results there from as a part of any commercial advertising.

22. ASSIGNMENT: Any Purchase Order issued pursuant to this proposal invitation and the monies which may become due hereunder are not assignable except with the prior written approval of the buyer.

23. LIABILITY: The supplier shall hold and save the City of Naples, its officers, agents, and employees harmless from liability of any kind in the performance of this contract.

24. PUBLIC ENTITY CRIMES: A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a proposal on a contract to provide any goods or services to a public entity, may not submit a proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit proposals on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

25. DISCRIMINATION: An entity or affiliate who has been placed on the discriminatory vendor list may not submit a proposal on a contract to provide goods or services to a public entity, may not submit a

proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit proposals on leases of real property to a public entity, may not award or perform work as a contractor, supplier, subcontractor, or consultant under contract with any public entity, and may not transact business with any public entity.

26. COUNTY TAXES: No proposal shall be accepted from and no contract will be awarded to any person, firm or corporation that is in arrears to the government of Collier County, Florida.

27. OFFER EXTENDED TO OTHER GOVERNMENTAL ENTITIES: The City of Naples encourages and agrees to the successful proposer extending the pricing, terms and conditions of this solicitation or resultant contract to other governmental entities at the discretion of the successful proposer.

IF THIS PROPOSAL IS FOR A TERM CONTRACT, THE FOLLOWING CONDITIONS SHALL ALSO APPLY

28. ELIGIBLE USERS: All departments of the City of Naples are eligible to use this term contract. Such purchases shall be exempt from the competitive proposal requirements otherwise applying to their purchases.

29. PRICE ADJUSTMENTS: Any price decrease effectuated during the contract period by reason of market change shall be passed on to City of Naples. Price increases are not acceptable.

30. CANCELLATION: All contract obligations shall prevail for at least one hundred eighty (180) days after effective date of contract. After that period, for the protection of both parties, this contract may be cancelled in whole or in part by either party by giving thirty (30) days prior written notice to the other party.

31. RENEWAL: The City of Naples reserves the option to renew the period of this contract, or any portion thereof for up to two (2) additional periods. Renewal of the contract period shall be by mutual agreement in writing.

32. ABNORMAL QUANTITIES: While it is not anticipated, should any unusual or abnormal requirements arise, the City reserves the right to solicit separate proposals thereon.

33. FISCAL NON-FUNDING CLAUSE: In the event sufficient funds are not budgeted for a new fiscal period, the City shall notify the contractor of such occurrence and the contract shall terminate on the last day of the current fiscal year without penalty or expense to the City.

IF THIS PROPOSAL IS FOR PERFORMING A SERVICE, THE FOLLOWING CONDITIONS SHALL ALSO APPLY

34. ALTERNATIVE PROPOSALS: Proposers offering service delivery methods other than those permitted by the scope of work may submit a separate envelope clearly marked "ALTERNATIVE PROPOSAL". Alternative proposals will be deemed non-responsive and will not be considered for award. All such responses will, however, be examined prior to award. Such examination may result in cancellation of all proposals received to permit rewriting the scope of work to include the alternative method, or the alternative method may be considered for future requirements of the City of Naples.

35. ANTITRUST: By entering into a contract, the contractor conveys, sells, assigns and transfers to the City of Naples all rights, titles and interest it may now have or hereafter acquire under the antitrust laws of the United States and the State of Florida that relate to the particular goods or services purchased or acquired by the City of Naples under said contract.

36. PROPOSER INVESTIGATIONS: Before submitting a proposal, each proposer shall make all investigations and examinations necessary to ascertain all site conditions and requirements affecting the full performance of the contract and to verify any representations made by the City of Naples upon which the proposer will rely. If the proposer receives an award as a result of its proposal submission, failure to have made such investigations and examinations will in no way relieve the proposer from its obligation to comply in every detail with all provisions and requirements of the contract documents, nor will a plea of ignorance of such conditions and requirements be accepted as a basis for any claim whatsoever by the contractor for additional compensation.

37. CERTIFICATES AND LICENSES: The Contractor, at time of proposal, shall possess the correct occupational licenses, all professional licenses or other authorizations necessary to carry out and perform the work required by the City of Naples and Collier County for this project pursuant to all applicable Federal, State and Local Laws, Statutes, Ordinances, and rules and regulations of any kind.

38. CHANGE IN SCOPE OF WORK: The City of Naples may order changes in the work consisting of additions, deletions or other revisions within the general scope of the contract. No claims may be made by the contractor that the scope of the project or of the contractor's services has been changed, requiring changes to the amount of compensation to the contractor or other adjustments to the contract unless such changes or adjustments have been made by written amendment to the contract signed by the City of Naples and the contractor. If the contractor believes that any particular work is not within the scope of the project, is a material change, or will otherwise require more compensation to the contractor, the contractor must immediately notify the City in writing of this belief. If the City believes that the particular work is within the scope of the contract as written, the contractor will be ordered to and shall continue with the work as changed and at the cost stated for the work within the scope.

39. CONTRACTOR PERSONNEL: The City of Naples shall, throughout the life of the contract, have the right of reasonable rejection and approval of staff or subcontractors assigned to the work by the contractor. If the City reasonably rejects staff or subcontractors, the contractor must provide replacement staff or subcontractors satisfactory to the City in a timely manner and at no additional cost to the City. The day-to-day supervision and control of the contractor's employees and sub-contractors is the responsibility solely of the contractor.

40. COST REIMBURSEMENT: The contractor agrees that all incidental costs, including allowances for profit and tools of the trade, must be included in the proposal rates. If an arrangement is made between the contractor and the City to reimburse the contractor for the cost of materials provided in the performance of the work, the contractor shall be reimbursed in the following manner: The City shall reimburse the contractor on completion and acceptance of each assigned job, only for those materials actually used in the performance of the work that is supported by invoices issued by the suppliers of the contractor describing the quantity and cost of the materials purchased. No surcharge shall be added to the supplier's invoices or included in the contractor's invoice submitted to the City that would increase the dollar amount indicated on the supplier's invoice for the materials purchased for the assigned job.

41. EXCEPTIONS: Proposers taking exception to any part or section of the solicitation shall indicate such exceptions on the proposal form. Failure to indicate any exception will be interpreted as the proposer's intent to comply fully with the requirements as written. Conditional or qualified proposals, unless specifically allowed, shall be subject to rejection in whole or in part.

42. FAILURE TO DELIVER: In the event of the contractor to fail to deliver services in accordance with the contract terms and conditions, the City, after due oral or written notice, may procure the services from other sources and hold the contractor responsible for any resulting purchase and administrative costs. This remedy shall be in addition to any other remedies that the City may have.

43. FAILURE TO ENFORCE: Failure by the City at any time to enforce the provisions of the contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the contract or any part thereof or the right of the City to enforce any provision at any time in accordance with its terms.

44. FORCE MAJEURE: The contractor shall not be held responsible for failure to perform the duties and responsibilities imposed by the contract due to legal strikes, fires, riots, rebellions and acts of God beyond the control of the contractor, unless otherwise specified in the contract.

45. INDEPENDENT CONTRACTOR: The contractor shall be legally considered an independent contractor and neither the contractor nor its employees shall, under any circumstances, be considered servants or agents of the City of Naples and the City of Naples shall be at no time legally responsible for any negligence or any wrongdoing by the contractor, its servants or agents. The City of Naples shall not withhold from the contract payments to the contractor any federal income taxes, Social Security tax, or any other amounts for benefits to the contractor. Further, the City shall not provide to the contractor any insurance coverage or other benefits, including Workers' Compensation normally provided by the City for its employees.

46. ORAL STATEMENTS: No oral statement of any person shall modify or otherwise affect the terms, conditions or specifications stated in this contract. All modifications to the contract must be made in writing by the City of Naples.

47. QUALIFICATIONS OF PROPOSERS: The proposer may be required, before the award of any contract, to show to the complete satisfaction of the City of Naples that it has the necessary facilities, ability, and financial resources to provide the service specified therein in a satisfactory manner. The proposer may also be required to give a past history and references in order to satisfy the City in regard to the proposer's qualifications. The City may make reasonable investigations deemed necessary and proper to determine the ability of the proposer to perform the work, and the proposer shall furnish to the City all information for this purpose that may be requested. The City reserves the right to reject any proposal if the evidence submitted by, or investigation of, the proposer fails to satisfy the City that the proposer is properly qualified to carry out the obligations of the contract and to complete the work described therein. Evaluation of the proposer's qualifications shall include:

- > The ability, capacity, skill and financial resources to perform the work or service.
- > The ability to perform the work service promptly or within the time specified, without delay.
- > The character, integrity, reputation, judgment, experience, and efficiency of the proposer.
- > The quality of performance of previous contracts or services.

48. QUALITY CONTROL: The contractor shall institute and maintain throughout the contract period a properly documented quality control program designed to ensure that the services are provided at all times and in all respects in accordance with the contract. The program shall include providing daily supervision and conducting frequent inspections of the contractor's staff and ensuring that accurate records are maintained describing the disposition of all complaints. The records so created shall be open to inspection by the City.

49. RECOVERY OF MONEY: Whenever, under the contract, any sum of money shall be recoverable from or payable by the contractor to the City, the same amount may be deducted from any sum due to the contractor under the contract or under any other contract between the contractor and the City. The rights of the City are in addition and without prejudice to any other right the City may have to claim the amount of any loss or damage suffered by the City on account of the acts or omissions of the contractor.

50. REQUIREMENTS CONTRACT: During the period of the contract, the contractor shall provide all the services described in the contract. The contractor understands and agrees that this is a requirements contract and that the City shall have no obligation to the contractor if no services are required. Any quantities that are included in the scope of work reflect the current expectations of the City for the period of the contract. The amount is only an estimate and the contractor understands and agrees that the City is under no obligation to the contractor to buy any amount of services as a result of having provided this estimate or of having any typical or measurable requirement in the past. The contractor further understands and agrees that the City may require services in excess of the estimated annual contract amount and that the quantity actually used whether in excess of, or less than, the estimated annual contract amount and that the quantity actually used

shall not give rise to any claim for compensation other than the total of the unit prices in the contract for the quantity actually used.

51. TERMINATION FOR CONVENIENCE: The performance of work under the contract may be terminated by the City in whole or in part whenever the City determines that termination is in the City's best interest. Any such termination shall be effected by the delivery to the contractor of a written notice of termination of at least seven (7) days before the date of termination, specifying the extent to which performance of the work under the contract is terminated and the date upon which such termination becomes effective. After receipt of a notice of termination, except as otherwise directed, the contractor shall stop work on the date of the receipt of the notice or other date specified in the notice; place no further orders or subcontracts for materials, services or facilities except as necessary for completion of such portion of the work not terminated; terminate all vendors and subcontracts; and settle all outstanding liabilities and claims.

52. TERMINATION FOR DEFAULT: The City of Naples reserves the right to terminate the contract if the City determines that the contractor has failed to perform satisfactorily the work required, as determined by the City. In the event the City decides to terminate the contract for failure to perform satisfactorily, the City shall give to the contractor at least seven (7) days written notice before the termination takes effect. The seven-day period will begin upon the mailing of notice by the City. If the contractor fails to cure the default within the seven (7) days specified in the notice and the contract is terminated for failure to perform satisfactorily, the contractor shall be entitled to receive compensation for all reasonable, allocable and allowable contract services satisfactorily performed by the contractor up to the date of termination that were accepted by the City prior to the termination. In the event the City terminates the contract because of the default of the contractor, the contractor shall be liable for all excess costs that the City is required to expend to complete the work under contract.

53. STATE AND FEDERAL EMPLOYMENT LAWS: Contractors providing service to the City are required to comply with all state and federal employment laws. This includes, but is not limited to, laws resulting from the Immigration and Reform and Control Act of 1986, wherein all employers are required to verify the identity and employment eligibility of all employees. The Department of Homeland Security, U.S. Citizenship and Immigration Services require employees and employers to complete Form I-9 and the employer must examine evidence of identity and employment eligibility within three business days of the date employment begins. Non compliant contractors will be subject to contract sanctions, up to and including contract termination.

54. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION: The contractor agrees to comply with Executive Order 12549 "Debarment and Suspension" and 2 CFR 180 "OMB Guidelines to Agencies on Government wide Debarment and Suspension." These rules require all contractors using federal funds not be debarred or suspended from doing business with the Federal Government. This includes sub-recipients and lower tier participant for covered transactions. Signing and submitting this document certified the organization and its principals are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency, and further have not within the preceding three-year period been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction.

THE CITY OF NAPLES IS AN EQUAL OPPORTUNITY EMPLOYER

GENERAL INSURANCE REQUIREMENTS

The Contractor shall not commence work until he has obtained all the insurance required under this heading, and until such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work until all similar insurance required of the subcontractor has also been obtained and approved by the Owner.

Certificates of insurance must be issued by an authorized representative of the insurance company at the request and direction of the policyholder and must include sufficient information so as to identify the coverage and the contract for Owner's improvements for which they are issued. Certificates of insurance must be issued by a nationally recognized insurance company with a Best's Rating of no less than B+VII, satisfactory to the Owner, and duly licensed to do business in the state of said Contract.

The Contractor shall procure and maintain, during the life of this Contract, Workmen's Compensation Insurance for all of his employees to be engaged in work under this Contract, and he shall require any subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees to be engaged in such work, unless such employees are covered by the protection afforded by the Contractor's insurance. In case any employees are to be engaged in hazardous work under this Contract, and are not protected under this Workmen's Compensation statute, the Contractor shall provide, and shall cause each subcontractor to provide, adequate coverage for the protection of such employees. It is acceptable to use a State-approved Workmen's Compensation Self-Insurance fund.

The Contractor shall take out and maintain during the life of this Contract, Public Liability and Property Damage and shall include Contractual Liability, Personal Injury, Libel, Slander, False Arrest, Malicious Prosecution, Wrongful Entry or Eviction, Broad Form Property Damage, Products, Completed Operations and XCU Coverage to be included on an occurrence basis, and to the full extent of the Contract to protect him, the Owner, and any subcontractor performing work covered by this Contract from damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from operations under this contract, whether such operations be by himself or by a subcontractor, or by anyone directly or indirectly employed by either of them. The Contractor shall also maintain automobile liability insurance including "non-owned and hired" coverage. The entire cost of this insurance shall be borne by the Contractor.

The amount of such insurance shall be no less than \$1,000,000 annual aggregate for bodily injury and property damage combined per occurrence.

The City of Naples must be named as Additional Insured on the insurance certificate and the following must also be stated on the certificate. "These coverage's are primary to all other coverage's the City possesses for this contract only." The City of Naples shall be named as the Certificate Holder. The Certificate Holder shall read as follows:

The City of Naples
735 Eighth Street South
Naples, Florida 34102

No City Division, Department, or individual name should appear on the Certificate.
No other format will be acceptable.

The Certificate must state the solicitation number and title.

When using the ACORD 25 – Certificate of Insurance only the most current version will be accepted.

The City of Naples requires a copy of a cancellation notice in the event the policy is cancelled. The City of Naples shall be expressly endorsed onto the policy as a cancellation notice recipient.

STATEMENT OF NO BID

If you will not be bidding on this product/service, please help us by completing and returning only this page to:

City of Naples, Purchasing Division
City Hall, 735 8th Street South
Naples, FL 34102
Fax 239-213-7105

Bid # _____ and Description: _____

We, the undersigned, decline to bid on the above project for the following reason(s):

- ___ We are not able to respond to the Invitation to Bid by the specified deadline.
- ___ Our Company does not offer this product or service.
- ___ Our current work schedule will not permit us to perform the required services.
- ___ Specifications are incomplete or information is unclear (Please explain below).

___ Other (Please specify below)

Company Name _____

PH _____ Email _____

Name and Title of individual completing this form:

(Printed Name) (Title)

(Signature) (Date)

REFERENCES

THIS SHEET MUST BE COMPLETED AND RETURNED WITH BID

PROVIDE AT LEAST THREE REFERENCES FOR WHOM YOUR COMPANY HAS PROVIDED SAME OR SIMILAR SERVICES WITHIN THE LAST 2 YEARS.

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE: _____

CONTACT PERSON: _____

CONTACT E-MAIL ADDRESS: _____

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE: _____

CONTACT PERSON: _____

CONTACT E-MAIL ADDRESS: _____

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE: _____

CONTACT PERSON: _____

CONTACT E-MAIL ADDRESS: _____

Submitting Vendor Name: _____

CONSTRUCTION
SPECIAL CONDITIONS

A. TERMS OF CONTRACT

The resulting contract will commence on award and be in effect until completion of the project. All work will be substantially completed within one hundred and eighty (180) days and finally completed in two hundred and ten (210) days.

Services to be rendered by the contractor shall be commenced subsequent to the execution of this Agreement upon written Notice to Proceed from the City for all or any designated portion of the Project must be completed by the contract dates specified within the Notice to Proceed for construction. Should contractor fail to complete the project within this timeframe, daily liquidated damages in an amount of consistent with the current Sec. 8-10.2 Florida Department of Transportation Standard Specifications per day.

RETAINAGE: As a method to assure completion of the total project, retainage (in the amount of ten percent (10%) of all work completed) will be withheld from the payment.

B. WARRANTY

Contractor shall obtain and assign to the City all express warranties given to Contractor or any subcontractors by any materialmen supplying materials, equipment or fixtures to be incorporated into the project. Contractor warrants to the City that any materials and equipment furnished under the Contract Documents shall be new unless otherwise specified, and that all Work shall be of good quality, free from all defects and in conformance with the Contract Documents. Contractor further warrants to the City that all materials and equipment furnished under the Contract Documents shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturers, fabricators, suppliers or processors except as otherwise provided for in the Contract Documents. If, within one (1) year after final completion, any Work is found to be defective or not in conformance with the Contract Documents, Contractor shall correct it promptly after receipt of written notice from the City. Contractor shall also be responsible for and pay for replacement or repair of adjacent materials or Work which may be damaged as a result of such replacement or repair. These warranties are in addition to those implied warranties to which the City is entitled as a matter of law.

C. PROHIBITION OF CONTACT

Under no circumstances should any prospective organization or individual, or anyone acting for or on behalf of a prospective organization or individual, seek to influence or gain the support of any member of the City Council, public official or City staff favorable to the interest of any prospective organization or individual. Likewise, contact with City Council, any public official or city staff against the interests of other prospective organization (s) and or individual(s) is prohibited. Any such activities will result in the exclusion of the prospective organization or individual from consideration by the City.

D. REFERENCES

Bidder must submit a minimum of three references on the form provided. Additionally, a signed and dated IRS W-9 form with EIN is required from all vendors. Proof of insurance from the successful proposer is required at the time of issuance and award of a contract.

E. STATEMENT OF NO BID

If you will not be bidding on this producer/service, please help us by completing and returning the Statement of No Bid.

F. BID FORMAT

The Contract, if awarded, will be awarded on the basis of material and equipment illustrated and described on the Drawings or specified in the Specification. If a substitution or an "or equal": item is proposed, Proposer must submit this information to the City of Naples Purchasing Department ten (10) days prior to the Proposal Date for evaluation as an acceptable substitution or an "or equal" item. If the substitution or the "or equal" item is accepted, the City of Naples will issue an Addendum to all Proposers listing the allowable substitution or the "or equal" item. The cost of changes in related work, additional drawings which may be required to illustrate or define the substitute or "or equal" equipment and its relationship to the other parts or portions of the Work shall be paid by the Contractor. No change will be made in the amount of time in which to complete the Work or in the liquidated damages.

G. BID SECURITY / BID BOND

It is the policy of the City of Naples to require a Bid Bond for all construction-related sealed bids estimated to be in excess of \$100,000. A bid bond or equivalent financial security in the amount of five (5) percent of the bid price shall be required and must accompany all bids. The Bid Bond is to be provided by a surety company authorized to do business in the State of Florida or otherwise supplied in a form satisfactory to the City. The bid bond must be submitted with the bid. When the invitation for bids requires a bid bond, noncompliance will result in rejection of the bid. Note that failure or refusal of the awarded bidder to enter into a contract within

twenty (20) calendar days after receipt of said contract will result in damages to the City and bid bond will be forfeited to the City as liquidated damages

H. PROPOSAL CONSTRUCTION PERFORMANCE & PAYMENT BONDS

A Performance and Payment Bond will be required of the Awarded Proposer for any contract that is in excess of \$100,000.00 dollars and will be in an amount equal to 100 (%) percent of the price specified in the Contract. The bond(s) shall be executed by a surety company authorized to do business in the State of Florida, or otherwise secured in a manner satisfactory to the City for the protection of all persons supplying labor and material to the contractor or its subcontractors for the performance of the work provided for in the contract. Proof of insurance from the successful proposer is required at the time of issuance and award of a contract.

G. QUESTIONS

Questions regarding this proposer packet must be received in writing in the Purchasing Division **NO LATER THAN TEN CALENDAR DAYS PRIOR TO THE BID OPENING DATE TO ENSURE AN ANSWER IS PROVIDED PRIOR TO CLOSING.**

Direct all questions to:
Gerald "Jed" Secory, MBA / CPPO / CPM
Purchasing and Contracts Manager
City of Naples, Purchasing Division
735 8th Street South
Naples, Florida 34102
PH: (239) 213-7102 FX: (239) 213-7105
Jsecory@naplesgov.com

SUBMISSION CHECKLIST

Bidder should check off each of the following items as completed and submit with bid response:

CHECKLIST ELEMENTS	INCLUDED
<ul style="list-style-type: none"> Submit one (1) original signature and one (1) copy of your original bid / document AND a Windows© compatible PDF of the original document on a CD or Flash / Thumb Drive that is clearly labeled. 	
<ul style="list-style-type: none"> Include any required drawings; descriptive literature; qualifications; schedules; product compliance / exceptions; alternatives; questionnaire; references, forms, tabs, pricing/cost; and any information required of the proposer identified in the text of the bid including information for bid evaluation. 	
<ul style="list-style-type: none"> Include any delivery information. 	NA
<ul style="list-style-type: none"> Mandatory FORMS from this document to be included are: <u>Cover Sheet</u>, <u>References Sheet</u>, <u>Submission Checklist Sheet</u>, <u>IRS W-9 (Dec 2014)</u> and <u>Cost / Bid Form</u>. 	
<ul style="list-style-type: none"> Have an authorized individual sign the appropriate pages including the <u>Cover Sheet</u> with any bid addenda initialed. Also, examples of vendor contracts used by the City can be found on the Naples Purchasing web site and should be reviewed by the vendor. 	
<ul style="list-style-type: none"> Bid document needs to be received by the OPENING DATE & TIME indicated on the Cover Sheet. The mailing envelope must be addressed to: <div style="text-align: center;"> City of Naples Purchasing Division 735 8th Street South Naples, Florida 34102 </div> 	
<p style="text-align: center;">The mailing envelope should be sealed and marked with:</p> <p>Number: 17-023 Title: Third Avenue South Improvements - Construction Opening Date: 5/26/2017</p>	

ALL COURIER DELIVERED BIDS MUST HAVE THE BID NUMBER AND TITLE ON THE OUTSIDE OF THE COURIER PACKET.

Submitting Vendor Name: _____

At the discretion of the Purchasing Manager, bids or proposals with minor irregularities may be accepted and allowed to be corrected when in the best interest of the City.

W-9 FORM MUST BE COMPLETED AND RETURNED WITH BID

Fillable Form can also be downloaded at
https://www.irs.gov/pub/irs-pdf/fw9.pdf

Form W-9
(Rov. December 2014)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer
Identification Number and Certification

Give Form to the
requester. Do not
send to the IRS.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
2 Business name/disregarded entity name, if different from above
3 Check appropriate box for federal tax classification; check only one of the following seven boxes:
4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):
5 Address (number, street, and apt. or suite no.)
6 City, state, and ZIP code
7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see How to get a TIN on page 3.

Social security number
[] [] [] - [] [] - [] [] [] [] [] []

or
Employer identification number
[] [] [] [] - [] [] [] [] [] [] [] [] [] [] [] []

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Part II Certification

Under penalties of perjury, I certify that:

- 1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here
Signature of U.S. person
Date

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
Form 1099-DIV (dividends, including those from stocks or mutual funds)
Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
Form 1099-S (proceeds from real estate transactions)
Form 1099-K (merchant card and third party network transactions)

- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
Form 1099-C (canceled debt)
Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding? on page 2.

By signing the filled-out form, you:

- 1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See What is FATCA reporting? on page 2 for further information.

Note. If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States:

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

What is FATCA reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account, list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9.

a. Individual. Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note. ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. Sole proprietor or single-member LLC. Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. Partnership, LLC that is not a single-member LLC, C Corporation, or S Corporation. Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. Other entities. Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. Disregarded entity. For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box in line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box in line 3.

Limited Liability Company (LLC). If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space in line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

- A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)
- B—The United States or any of its agencies or instrumentalities
- C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)
- E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)
- F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state
- G—A real estate investment trust
- H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940
- I—A common trust fund as defined in section 584(a)
- J—A bank as defined in section 581
- K—A broker
- L—A trust exempt from tax under section 664 or described in section 4947(a)(1)
- M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note. You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on this page), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.ssa.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/businesses and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, or 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. **Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.** You must give your correct TIN, but you do not have to sign the certification.
2. **Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.** You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.
3. **Real estate transactions.** You must sign the certification. You may cross out item 2 of the certification.
4. **Other payments.** You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).
5. **Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions.** You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor ²
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee ¹ The actual owner ¹
5. Sole proprietorship or disregarded entity owned by an individual	The owner ³
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor ⁴
For this type of account:	Give name and EIN of:
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity ⁴
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 2.

***Note.** Grantor also must provide a Form W-9 to trustee of trust.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: spam@uce.gov or contact them at www.ftc.gov/idtheft or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

City of Naples FL
Invitation to Bid
Third Avenue Improvements – Construction
BID No. 17-023

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*Contact Naples Purchasing Division for EXCEL format

GENERAL REQUIREMENTS
Third Avenue Improvements – Construction
BID No. 17-023

Purpose

This Invitation to Bid has been developed to solicit costs from firms proven to be qualified and experienced to complete construction improvement in a timely and proficient manner.

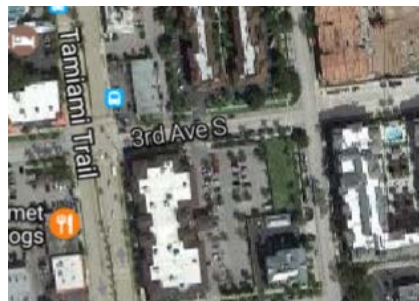
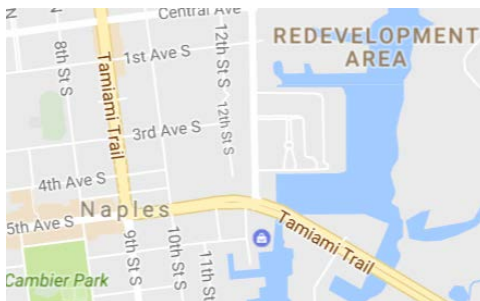
Overview

The transportations improvements associated with the 3rd Avenue South Improvements will be constructed in accordance with the Florida Department of Transportation, 2016 Design Standards and revised Index Drawings as appended with the July 2016 Florida Department of Transportation Standard Specifications. The utility improvements associated with the 3rd Avenue South Improvements will be constructed in accordance the City of Naples Utilities Specifications and Standards Manual dated May 2014.

Scope of Services

The scope of work includes all labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with the project. The contract document shall consist of specifications and general conditions. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

Location



Award of Bid

The City reserves the right to award the bid in a manner that best serves the interests of the City of Naples.

Project Management

of the Naples Community Services Department and/or his authorized representative will serve as the City's project manager.

Pre-Construction Conference

Schedule a pre-construction meeting with the city staff at least 14 days before beginning

work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

Changes in The Work

The Owner's Representative may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved. All changes in the work, notifications and contractor's request for information shall conform to the contract general condition requirements.

Correction of Work

The Contractor, at their own cost, shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative. The Contractor shall correct all defective work within three (3) working days of written notice. If the Contractor fails within three (3) working days after written notice to correct the defective work, or if the Contractor fails to perform the work in accordance with the Contract Documents, the Owner's Representative may correct and remedy any such deficiency, with the Contractor to bear all costs to correct the defective work.

Observation of the Work

The city staff may observe the work at any time. They may remove samples of materials for conformity to specifications. The city staff shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The city staff will be afforded sufficient time to schedule visit to the site. Failure of the city staff to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

Pre-Construction Conference

Schedule a pre-construction meeting with the city staff at least 14 days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

Licenses

Licenses may be required by the State of Florida, Collier County, or the City of Naples to perform all or part of this work. Contractors should investigate and determine if they hold the necessary License(s) prior to bid submittal.

Permits and Regulations

Permitting may be required for all or part of the requested work. The contractor will be responsible for investigating and determining if permitting is necessary. The contractor will also be responsible for obtaining permits.

The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

Insurance

Successful contractor(s) shall furnish proof of insurance as per specifications. Contractors should investigate and determine if they hold the necessary insurance prior to bid submittal.

Protection of Work, Property and Person

The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

Conduct

The contractor and his employees will conduct themselves in such a manner as to avoid embarrassment to the City of Naples, and shall at all times be courteous to the public. Although uniforms are not required, proper clothing shall be worn at all times to include shirts, necessary safety equipment, pants, short or long, and proper footwear. Proper safety equipment shall be worn at all times.

Contractor's Equipment

All vehicles and equipment must be maintained in good repair, appearance and sanitary condition at all times. Vehicles must be clearly identified with the name of the company and phone number clearly visible. In addition, the contractor will be responsible for using the necessary safety equipment according to State standards while working on City, County, or State roads as a sub-contractor of the City.

Disposal of Debris

The contractor shall dispose of all debris and other materials gathered from the described work in compliance with City and County Laws.

Payment Requests, Invoices and Work Reports

Invoices shall be submitted after work is completed with a detailed description of the work performed. The successful bidder(s) will meet with Contract Manager and set up procedures prior to the start of work.

Non-Performance

The City reserves the right to cancel the contract with a seven (7) day notice should the Contractor fail to perform up to the requirements and standards identified in the specifications. The City may withhold part or all payments due to the Contractor until correction is made.

Qualifications

The Contractor shall be licensed with a minimum of three (3) years' experience the work being performed. All bidders shall provide, with their bid proposal, a list of at least three (3) commercial references. The City reserves the right to contact these as references, in order to determine the competency of the Contractor. In addition, the licenses and

experience of the designated contact person shall be supplied at bid opening.

Inspection

The Contract Manager will make visits to the site at intervals appropriate to the various stages to observe the progress and quality of the executed work and determine if the work is proceeding in accordance with the Contract Documents. Contract Manager may authorize minor variations from the requirements of the Contract Documents.

Rejecting Defective Work

The Project Manager will have the authority to disapprove or reject work, which he believes to be unacceptable work and not in accordance with Contract Documents. The City's Project Manager will be the final interpreter of the requirements of the Contract Documents and judge of the acceptability of the work performed. City will notify the contractor immediately of unacceptable work. If work has been rejected, contractor shall correct all defective work within 3 days of notification. The contractor will bear all costs to correct the defective work. If the contractor fails to correct the defective work, or if the contractor fails to perform the work in accordance with the Contract Documents, the City may correct and remedy any such deficiency, with the contractor to bear all costs to correct the defective work.

Protection of Public and Private Property

Contractor shall assume full responsibility for any damage to any property including but not limited to walls, floors, tables, chairs, trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and underground facilities, resulting from the performance of the work.

The contractor upon receipt of either written or oral notice to discontinue such practice shall immediately discontinue any practice obviously hazardous in the opinion of the Contract Manager. The contractor shall comply with all OSHA and other Federal and State safety standards. Blocking of the public street, except under extreme emergency conditions, shall not be permitted unless prior arrangements have been made with the Contract Manager and the City Police and Fire Departments and other agencies having jurisdiction over the street to be closed.

Protection of Overhead Utilities

The operations will be conducted in many areas where overhead electric, telephone, and cable television facilities exist. The contractor shall protect all utilities from damage, shall immediately contact the appropriate utility if damage has occurred, and shall be responsible for all claims for damage due to his operations. The contractor shall make arrangements with the utility for the removal of necessary limbs and branches, which may conflict with, or create a personal injury hazard in the removal of the tree. Delays encountered by the contractor in waiting for the utility to complete its work shall not be the responsibility of the contractor.

Protection of Underground Utilities

The Contractor will be responsible for following the Florida Underground Facility Damage Prevention & Safety Act (556), OSHA Standard 1926.651, Florida Trench and Safety Act (Chapter 90-96) and obtaining utility locations by calling Sunshine State One-Call of Florida Inc. at 1-800-432-4700. Contractor shall have full responsibility for reviewing and checking all information and data for locating all underground facilities.

Traffic Control

Contractor will be responsible for adequate barricades, warning devices, and the necessary safety equipment according to State DOT standards while working on City, County or State roads as a sub-Contractor of the City.

BID FORM

**City of Naples
3rd Avenue South Improvements Bid Tab**

ROADWAY					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
101-1	MOBILIZATION	LS	1		
102-1	MAINTENANCE OF TRAFFIC	LS	1		
104-18	INLET PROTECTION SYSTEM	EA	13		
110-1-1	CLEARING AND GRUBBING	LS/AC	1/1.55		
120-1	REGULAR EXCAVATION	CY	476		
120-6	EMBANKMENT	CY	144		
121-70	FLOWABLE FILL	CY	2		
160-4	TYPE B STABILIZATION	SY	3,125		
285-701	OPTIONAL BASE, BASE GROUP 1	SY	2,550		
285-704	OPTIONAL BASE, BASE GROUP 4	SY	65		
285-709	OPTIONAL BASE, BASE GROUP 9	SY	2,475		
327-70-1	MILLING EXIST. ASPH. PAVT, 1" AVG. DEPTH	SY	400		
327-70-4	MILLING EXIST. ASPH. PAVT, 3" AVG. DEPTH	SY	940		
327-70-11	MILLING EXIST. ASPH. PAVT, 2 1/4" AVG. DEPTH	SY	290		
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	TN	396		
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B (ALLEY)	TN	22		
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B (OVERBUILD)	TN	113		
337-7-80	ASPH CONC FC, TRAFFIC B, FC-9.5, PG 76-22	TN	205		
339-1	MISC. ASPHALT PAVEMENT	TN	3		
425-1201	INLETS, CURB, TYPE 9, <10'	EA	8		
425-1521	INLETS, DT BOT, TYPE C, <10'	EA	1		
DS-VALLEYGUTTER	INLETS, VALLEY GUTTER	EA	1		
425-2-61	MANHOLES, P-8, <10'	EA	1		
425-2-71	MANHOLES, J-7, <10'	EA	1		
425-5	INLETS, ADJUST	EA	1		
425-6	MANHOLE, ADJUST	EA	1		
430-175-112	PIPE CULVERT,OPTIONAL MATERIAL,ROUND, 12"S/CD	LF	24		
430-175-115	PIPE CULVERT,OPTIONAL MATERIAL,ROUND, 15"S/CD	LF	577		
430-175-118	PIPE CULVERT,OPTIONAL MATERIAL,ROUND, 18"S/CD	LF	32		
430-175-215	PIPE CULVERT, OPT MATERIAL, OTHER SHAPE - ELIP/ARCH, 15" S/CD	LF	211		
520-1-10	CONCRETE CURB AND GUTTER, TYPE F	LF	1,108		
520-2-2	CONCRETE CURB, TYPE B	LF	286		
520-2-4	CONCRETE CURB, TYPE D	LF	1,349		
520-2-8	CONCRETE CURB, TYPE RA	LF	151		
520-3	VALLEY GUTTER-CONCRETE	LF	556		
522-1	CONC SIDEWALK AND DRIVEWAYS, 4" THICK	SY	1,112		
522-2	CONC SIDEWALK AND DRIVEWAYS, 6" THICK	SY	214		
526-1-1A	PAVERS, ARCHITECTURAL, TRUCK APRON	SY	130		
526-1-1B	PAVERS, ARCHITECTURAL, SPLITTER ISLANDS	SY	98		
526-1-1C	PAVERS, ARCHITECTURAL, CROSSWALKS	SY	139		
526-1-1D	PAVERS, ARCHITECTURAL, SIDEWALK	SY	316		
526-1-1E	PAVERS, ARCHITECTURAL, ROADWAY	SY	65		
527-2A	DETECTABLE WARNINGS	SF	240		
527-2B	DETECTABLE WARNINGS, CONTRASTING TRUNCATED DOME PAVER	SF	168		

SIGNALIZATION					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
630-2-11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	LF	60		
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	1		
646-1-12	ALUMINUM SIGNALS POLE, FURNISH & INSTALL PEDESTRIAN DETECTOR POST	EA	1		
646-1-40	ALUMINUM SIGNALS POLE, RELOCATE	EA	1		
653-1-40	PEDESTRIAN SIGNAL, RELOCATE	AS	1		
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	AS	1		
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	1		
665-1-60	PEDESTRIAN DETECTOR, REMOVE- POLE/PEDESTAL TO REMAIN	EA	1		
SIGNING AND PAVEMENT MARKING					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
523-1-3	PATTERNED PAVEMENT, VEHICULAR AREAS, GREEN BIKE LANE	SY	52		
700-1-11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS	18		
700-1-50	SINGLE POST SIGN, RELOCATE	AS	4		
700-1-60	SINGLE POST SIGN, REMOVE	AS	4		
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS (RPMS)	EA	98		
711-11123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	LF	210		
711-11125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE AND CROSSWALK	LF	28		
711-11141	THERMOPLASTIC, STANDARD, WHITE, 2-4 DOTTED GUIDELINE/ 6-10 GAP EXTENSION, 6"	GM	0.058		
711-11160	THERMOPLASTIC, STANDARD, WHITE, MESSAGE OR SYMBOL	EA	4		
711-11170	THERMOPLASTIC, STANDARD, WHITE, ARROW	EA	4		
711-11180	THERMOPLASTIC, STANDARD, WHITE, YIELD LINE	LF	61		
711-11224	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF	72		
711-14160	THERMOPLASTIC, PREFORMED, WHITE, MESSAGE	EA	4		
711-14170	THERMOPLASTIC, PREFORMED, WHITE, ARROW	EA	4		
711-16101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	GM	0.266		
711-16201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM	0.375		
711-11224-PAVER	YELLOW PAVER, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF	93		
711-11141-PAVER	WHITE PAVER, 2-4 DOTTED GUIDELINE/ 6-10 GAP EXTENSION, 6"	LF	64		
711-14160-PAVER	WHITE PAVER, MESSAGE	EA	2		
711-14170-PAVER	WHITE PAVER, ARROW	EA	2		
711-16101-PAVER	WHITE PAVER, SOLID, 6"	LF	64		
711-16201-PAVER	YELLOW PAVER, SOLID, 6"	LF	337		
UTILITIES					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1050-11222	UTILITY PIPE, F&I, PVC, WATER / SEWER, 2 - 4.9"	LF	68		
1050-11224	UTILITY PIPE, F&I, PVC, WATER / SEWER, 8 -19.9"	LF	6		
1050-15	UTILITY FIXTURES, ADJUST & MODIFY	EA	3		
1050-18002	UTILITY PIPE, PLUG & PLACE OUT OF SERVICE, 2- 4.9"	LF	491		
1050-41202	UTILITY PIPE- HIGH DENSITY POLYETHYLENE, FURNISH & INSTALL, WATER/SEWER, 2"	LF	594		
106025	UTILITY STRUCTURE, ABOVE GROUND, ADJUST & MODIFY	EA	5		
1080-11203 (2")	UTILITY FIXTURES, F&I, 2-4.9", TAPPING SADDLE/SLEEVE (2")	EA	4		
1080-11203 (4")	UTILITY FIXTURES, F&I, 2-4.9", TAPPING SADDLE/SLEEVE (4")	EA	1		
1080-24500	UTILITY FIXTURE, VALVE ASSEMBLY, ADJUST/MODIFY	EA	4		
1644800	FIRE HYDRANT, RELOCATE	EA	1		

LANDSCAPING					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
LANDSCAPE COMPLETE - SMALL PLANTS (INCLUDES INCIDENTAL WORK)					
580-1-1	CARISSA MACROCARPA (EMERALD BLANKET NATAL PLUM)	EA	639		
580-1-1	CHRYSOBALANUS ICACO 'RT' (RED TIP COCOPLUM)	EA	19		
580-1-1	DIANELLA TASMANICA 'BLUSHY' (VARIEGATED FLAX LILY)	EA	974		
580-1-1	DURANTA REPENS 'GM' (SKY FLOWER / GOLD MOUND)	EA	46		
580-1-1	FICUS MICROCARPA 'GI' (GREEN ISLAND FICUS)	EA	291		
580-1-1	SCHEFFLERA ARBORICOLA TRINETTE (VARIEGATED ARBORICOLA)	EA	218		
580-1-1	TRIPSACUM FLORIDANUM (DWARF FAKAHATCHEE GRASS)	EA	67		
580-1-1	BEGONIA ODORATA 'ALBA' (GIANT WHITE ANGEL BEGONIA)	EA	77		
580-1-1	BEGONIA X HYBRIDA 'DW' (DRAGON RED WING BEGONIA)	EA	69		
580-1-1	MULCH (PRO-EUC MULCH)	SF	5493		
LANDSCAPE COMPLETE -LARGE PLANTS (INCLUDES INCIDENTAL WORK)					
580-1-2	BULNESIA ARBORIA (VERAWOOD)	EA	5		
580-1-2	PTYCHOSPERMA ELEGANS (ALEXANDER PALM)	EA	14		
580-1-2	ROYSTONEA ELATA (ROYAL PALM)	EA	2		
580-1-2	WODYETIA BIFURCATA (FOXTAIL PALM)	EA	19		
580-1-2	CRINUM ASIATICUM (SPIDER LILY)	EA	40		
580-2-2	LANDSCAPE- RELOCATE TREE, PALMS >14' OF CLEAR TRUNK	EA	10		
IRRIGATION SYSTEM					
0590 70	IRRIGATION SYSTEM	LS	1		
LIGHTING					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
630-2-11	CONDUIT, F&I, OPEN TRENCH	LF	737		
635-2-11	PULL & SPLICE BOX, F&I, 13"X24" COVER SIZE	EA	2		
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, NO. 8-6	LF	2625		
715-1-60	LIGHTING CONDUCTORS, REMOVE & DISPOSE, CONTRACTOR OWNS	LF	40		
715-516-115	LIGHT POLE COMPLETE, SPECIAL DESIGN, F&I, POLE TOP MOUNT, ALUMINUM, CUSTOM HEIGHT	EA	10		
715-540-000	LIGHT POLE COMPLETE, SPECIAL DESIGN, RELOCATE	EA	4		
715-550-000	LIGHT POLE COMPLETE, SPECIAL DESIGN, REMOVE	EA	2		
				SUBTOTAL	
				2.5 % ALLOWANCE	
				PROJECT TOTAL	
ROADWAY (BID ALTERNATE 1 PAVER PARKING AREAS IN LIEU OF ASPHALT)					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
526-1-1F	PAVERS, ARCHITECTURAL, PARKING AREA	SY	355		
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	TN	-40		
337-7-80	ASPH CONC FC, TRAFFIC B, RC-9.5, PG 76-22	TN	-20		
				BID ALTERNATE 1 TOTAL	
ROADWAY (BID ALTERNATE 2 DECORATIVE SIGNS WITHIN NAPLES SQUARE)					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
700-1-11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS	-7		
700-1-12-ALT	DECORATIVE SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS	7		
				BID ALTERNATE 2 TOTAL	

TECHNICAL SPECIFICATIONS



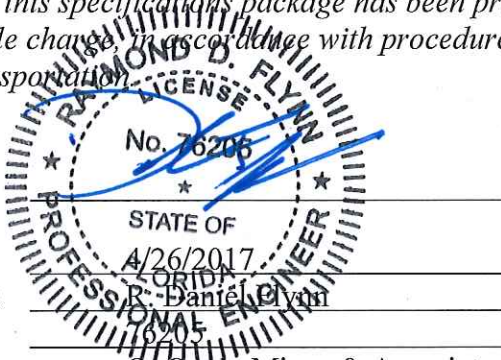
TRANSPORTATION TECHNICAL SPECIFICATIONS PACKAGE

3RD AVENUE SOUTH IMPROVEMENTS
CITY OF NAPLES
COLLIER COUNTY

The July 2016 edition of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction are revised as follows:

I hereby certify that this specifications package has been properly prepared by me, or under my responsible charge, in accordance with procedures adopted by the Florida Department of Transportation.

Signature and Seal:



Date: 4/26/2017
Engineer of Record: R. Daniel Flynn
Fla. License No.: 16205
Firm Name: Q. Grady Minor & Associates, P.A.
Firm Address: 3800 Via Del Rey
City, State, Zipcode: Bonita Springs, FL 33908
Certificate of Authorization Number: 0005151
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The transportation improvements associated with the 3rd Avenue South Improvements will be constructed in accordance with the Florida Department of Transportation, 2016 Design Standards and revised Index Drawings as appended with the July 2016 Florida Department of Transportation Standard Specifications.

The utility improvements associated with the 3rd Avenue South Improvements will be constructed in accordance with the City of Naples Utilities Specifications and Standards Manual dated May 2014.

The term “Department” with the plans and specifications shall be understood to mean City of Naples.

APPENDICES

EARTHWORK AND RELATED OPERATIONS

(REV 1-23-12) (FA 2-27-12)

SECTION 120 EARTHWORK AND RELATED OPERATIONS

120-1 Description.

120-1.1 General: Perform earthwork and related operations based on the type of work specified in the Contract and the Earthwork Categories as defined below. Meet the applicable requirements for materials, equipment and construction as specified.

Earthwork and related operations consists of excavation for the construction of the roadway, excavation for structures and pipe, constructing backfill around structures and pipe, and constructing embankments as required for the roadway, ditches, and channel changes.

120-1.2 Earthwork Categories: Performance of Earthwork Operations will fall into one of the following Earthwork Categories:

120-1.2.1 Earthwork Category 1: Includes the earthwork and related operations associated with the construction of sidewalks and bike paths along with any drainage structures associated with these facilities.

120-1.2.2 Earthwork Category 2: Includes the earthwork and related operations associated with the construction of turn lanes and other non-mainline traffic lanes, widening, roadway shoulders, concrete box culverts, retaining walls, and other drainage structures on the non-mainline pavement.

120-1.2.3 Earthwork Category 3: Includes the earthwork and related operations associated with the construction of new mainline pavement, along with concrete box culverts, retaining walls, and other drainage structures on the mainline pavement.

120-2 Classes of Excavation.

120-2.1 Excavation of Unsuitable Material: Excavation of unsuitable material consists of the removal of muck, clay, rock or any other material that is unsuitable in its original position and that is excavated below the finished grading template. For stabilized bases and sand bituminous road mixes, the finished grading template is the top of the finished base, shoulders and slopes. For all other bases and rigid pavement, the finished grading template is the finished shoulder and slope lines and bottom of completed base or rigid pavement.

120-2.2 Lateral Ditch Excavation: Lateral ditch excavation consists of all excavation of inlet and outlet ditches to structures and roadway, changes in channels of streams, and ditches parallel to the roadway right-of-way. Dress lateral ditches to the grade and cross-section shown in the plans.

120-2.3 Channel Excavation: Channel excavation consists of the excavation and satisfactory disposal of all materials from the limits of the channel as shown in the plans.

120-2.4 Excavation for Structures and Pipe: Excavation for structures consists of the excavation for bridge foundations, box culverts, pipe culverts, storm sewers and all

other pipe lines, retaining walls, headwalls for pipe culverts and drains, catch basins, drop inlets, manholes, and similar structures.

120-3 Excavation Requirements.

120-3.1 Excavation and Replacement of Unsuitable Materials: Where rock, muck, clay, or other material within the limits of the roadway is unsuitable in its original position, excavate such material to the cross-sections shown in the plans or indicated by the Engineer, and backfill with suitable material. Shape backfill materials to the required cross-sections. Where the removal of plastic soils below the finished earthwork grade is required, meet a construction tolerance of plus or minus 0.2 foot in depth and plus or minus 6 inches (each side) in width.

120-3.2 Lateral Ditch Excavation: Excavate inlet and outlet ditches to structures and roadway, changes in channels of streams and ditches parallel to the roadway. Dress lateral ditches to the grade and cross-section shown in the plans.

120-3.3 Channel Excavation: Excavate and dispose of all materials from the limits of the channel as shown in the plans. Excavate for bridge foundations, box culverts, pipe culverts, storm sewers and all other pipe lines, retaining walls, headwalls for pipe culverts and drains, catch basins, drop inlets, manholes, and similar structures.

120-3.4 Excavation for Structures and Pipe.

120-3.4.1 Requirements for all Excavation: Excavate foundation pits to permit the placing of the full widths and lengths of footings shown in the plans, with full horizontal beds. Do not round or undercut corners or edges of footings. Perform all excavation to foundation materials, satisfactory to the Engineer, regardless of the elevation shown on the plans. Perform all excavation in stream beds to a depth at least 4 feet below the permanent bed of the stream, unless a firm footing can be established on solid rock before such depth is reached, and excavate to such additional depth as may be necessary to eliminate any danger of undermining. Wherever rock bottom is secured, excavate in such manner as to allow the solid rock to be exposed and prepared in horizontal beds for receiving the masonry. Remove all loose and disintegrated rock or thin strata. Have the Engineer inspect and approve all foundation excavations prior to placing masonry.

120-3.4.2 Earth Excavation:

120-3.4.2.1 Foundation Material other than the Rock: When masonry is to rest on an excavated surface other than rock, take special care to avoid disturbing the bottom of the excavation, and do not remove the final foundation material to grade until just before placing the masonry. In case the foundation material is soft or mucky, the Engineer may require excavation to a greater depth and to backfill to grade with approved material.

120-3.4.2.2 Foundation Piles: Where foundation piles are used, complete the excavation of each pit before driving the piles. After the driving is completed, remove all loose and displaced material, leaving a smooth, solid, and level bed to receive the masonry.

120-3.4.2.3 Removal of Obstructions: Remove boulders, logs, or any unforeseen obstacles encountered in excavating.

120-3.4.3 Rock Excavation: Clean all rock and other hard foundation material, remove all loose material, and cut all rock to a firm surface. Either level, step

vertically and horizontally, or serrate the rock, as may be directed by the Engineer. Clean out all seams, and fill them with concrete or mortar.

120-3.4.4 Pipe Trench Excavation: Excavate trenches for pipe culverts and storm sewers to the elevation of the bottom of the pipe and to a width sufficient to provide adequate working room. Remove soil not meeting the classification specified as suitable backfill material in 120-8.3.2.2 to a depth of 4 inches below the bottom of the pipe elevation. Remove rock, boulders or other hard lumpy or unyielding material to a depth of 12 inches below the bottom of the pipe elevation. Remove muck or other soft material to a depth necessary to establish a firm foundation. Where the soils permit, ensure that the trench sides are vertical up to at least the mid-point of the pipe.

For pipe lines placed above the natural ground line, place and compact the embankment, prior to excavation of the trench, to an elevation at least 2 feet above the top of the pipe and to a width equal to four pipe diameters, and then excavate the trench to the required grade.

120-4 Disposal of Surplus and Unsuitable Material.

120-4.1 Ownership of Excavated Materials: Dispose of surplus and excavated materials as shown in the plans or, if the plans do not indicate the method of disposal, take ownership of the materials and dispose of them outside the right-of-way.

120-4.2 Disposal of Muck on Side Slopes: As an exception to the provisions of 120-4.1, when approved by the Engineer, muck (A-8 material) may be placed on the slopes, or stored alongside the roadway, provided there is a clear distance of at least 6 feet between the roadway grading limits and the muck, and the muck is dressed to present a neat appearance. In addition, this material may also be disposed of by placing it on the slopes where, in the opinion of the Engineer, this will result in an aesthetically pleasing appearance and will have no detrimental effect on the adjacent developments. Where the Engineer permits the disposal of muck or other unsuitable material inside the right-of-way limits, do not place such material in a manner which will impede the inflow or outfall of any channel or of side ditches. The Engineer will determine the limits adjacent to channels within which such materials may be disposed.

120-4.3 Disposal of Paving Materials: Unless otherwise noted, take ownership of paving materials, such as paving brick, asphalt block, concrete slab, sidewalk, curb and gutter, etc., excavated in the removal of existing pavements, and dispose of them outside the right-of-way. If the materials are to remain the property of the Agency, place them in neat piles as directed. Existing limerock base that is removed may be incorporated in the stabilized portion of the subgrade. If the construction sequence will allow, incorporate all existing limerock base into the project as allowed by the Contract Documents.

120-4.4 Disposal Areas: Where the Contract Documents require disposal of excavated materials outside the right-of-way, and the disposal area is not indicated in the Contract Documents, furnish the disposal area without additional compensation.

Provide areas for disposal of removed paving materials out of sight of the project and at least 300 feet from the nearest roadway right-of-way line of any road. If the materials are buried, disregard the 300 foot limitation.

120-5 Materials for Embankment.

120-5.1 General Requirements for Embankment Materials: Construct embankments using suitable materials excavated from the roadway or delivered to the jobsite from authorized borrow pits.

Construct the embankment using maximum particle sizes as follows:

In top 12 inches: 3 1/2 inches (in any dimension).

12 to 24 inches: 6 inches (in any dimension).

In the depth below 24 inches: not to exceed 12 inches (in any dimension) or the compacted thickness of the layer being placed, whichever is less.

Spread all material so that the larger particles are separated from each other to minimize voids between them during compaction. Compact around these rocks in accordance with 120-7.2.

When and where approved by the Engineer, larger rocks (not to exceed 18 inches in any dimension) may be placed outside the one to two slope and at least 4 feet or more below the bottom of the base. Compact around these rocks to a firmness equal to that of the supporting soil. Where constructing embankments adjacent to bridge end bents or abutments, do not place rock larger than 3 1/2 inches in diameter within 3 feet of the location of any end-bent piling.

120-5.2 Use of Materials Excavated From the Roadway and Appurtenances: Assume responsibility for determining the suitability of excavated material for use on the project in accordance with the applicable Contract Documents. Consider the sequence of work and maintenance of traffic phasing in the determination of the availability of this material.

120-5.3 Authorization for Use of Borrow: Use borrow only when sufficient quantities of suitable material are not available from roadway and drainage excavation, to properly construct the embankment, subgrade, and shoulders, and to complete the backfilling of structures and pipe. Do not use borrow material until so ordered by the Engineer, and then only use material from approved borrow pits.

120-5.3.1 Haul Routes for Borrow Pits: Provide and maintain, at no expense to the Agency, all necessary roads for hauling the borrow material. Where borrow area haul roads or trails are used by others, do not cause such roads or trails to deteriorate in condition.

Arrange for the use of all non-public haul routes crossing the property of any railroad. Incur any expense for the use of such haul routes. Establish haul routes which will direct construction vehicles away from developed areas when feasible, and keep noise from hauling operations to a minimum. Advise the Engineer in writing of all proposed haul routes.

120-5.3.2 Borrow Material for Shoulder Build-up: When so indicated in the plans, furnish borrow material with a specific minimum bearing value, for building up of existing shoulders. Blend materials as necessary to achieve this specified minimum bearing value prior to placing the materials on the shoulders. Take samples of this borrow material at the pit or blended stockpile.

120-5.4 Materials Used at Pipes, Culverts, etc.: Construct embankments over and around pipes, culverts, and bridge foundations with selected materials.

120-6 Embankment Construction.

120-6.1 General: Construct embankments in sections of not less than 300 feet in length or for the full length of the embankment.

120-6.2 Dry Fill Method:

120-6.2.1 General: Construct embankments to meet compaction requirements in 120-7 and in accordance with the acceptance program requirements in 120-9. Restrict the compacted thickness of the last embankment lift to 6 inches maximum.

As far as practicable, distribute traffic over the work during the construction of embankments so as to cover the maximum area of the surface of each layer.

Construct embankment in the dry whenever normal dewatering equipment and methods can accomplish the needed dewatering.

120-6.2.1.1 For A-3 and A-2-4 Materials with up to 15% fines:

Construct the embankment in successive layers with lifts up to a maximum compacted thickness of 12 inches. Ensure the percentage of fines passing the No. 200 US Standard sieve in the A-2-4 material does not exceed 15%.

120-6.2.1.2 For A-1 Plastic materials (As designated in FDOT Design Standard Index 505) and A-2-4 Materials with greater than 15% fines: Construct the embankment in successive layers with lifts up to a maximum compacted thickness of 6 inches.

120-6.2.1.3 Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, sumps and siphons.

When normal dewatering does not adequately remove the water, the Engineer may require the embankment material to be placed in the water or in low swampy ground in accordance with 120-7.2.4.

120-6.2.2 Placing in Unstable Areas: Where depositing the material in water, or in low swampy ground that will not support the weight of hauling equipment, construct the embankment by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers. Once sufficient material has been placed so that the hauling equipment can be supported, construct the remaining portion of the embankment in layers in accordance with the applicable provisions of 120-7.2.4 and 120-7.2.6.

120-6.2.3 Placing on Steep Slopes: When constructing an embankment on a hillside sloping more than 20 degrees from the horizontal, before starting the fill, deeply plow or cut into steps the surface of the original ground on which the embankment is to be placed.

120-6.2.4 Placing Outside Standard Minimum Slope: Where material that is unsuitable for normal embankment construction is to be used in the embankment outside the standard minimum slope (approximately one to two), place such material in layers of not more than 18 inches in thickness, measured loose. The Contractor may also place material which is suitable for normal embankment, outside such standard minimum

slope, in 18 inch layers. Maintain a constant thickness for suitable material placed within and outside the standard minimum slope, unless placing in a separate operation.

120-6.3 Hydraulic Method:

120-6.3.1 Method of Placing: When the hydraulic method is used, as far as practicable, place all dredged material in its final position in the embankment by such method. Place and compact any dredged material that is re-handled, or moved and placed in its final position by any other method, as specified in 120-7.2. The Contractor may use baffles or any form of construction he may select, provided the slopes of the embankments are not steeper than indicated in the plans. Remove all timber used for temporary bulkheads or baffles from the embankment, and fill and thoroughly compact the holes thus formed. When placing fill on submerged land, construct dikes prior to beginning of dredging, and maintain the dikes throughout the dredging operation.

120-6.3.2 Excess Material: Do not use excess material placed outside the prescribed slopes, below the normal high-water level, to raise the fill. Remove only the portion of this material required for dressing the slopes.

120-6.3.3 Protection of Openings in Embankment: Leave openings in the embankments at the bridge sites. Remove any material which invades these openings or existing channels without additional compensation to provide the same depth of channel as existed before the construction of the embankment. Do not excavate or dredge any material within 200 feet of the toe of the proposed embankment.

120-7 Compaction Requirements.

120-7.1 Moisture Content: Compact the materials at a moisture content such that the specified density can be attained. If necessary to attain the specified density, add water to the material, or lower the moisture content by manipulating the material or allowing it to dry, as is appropriate.

120-7.2 Compaction of Embankments:

120-7.2.1 Earthwork Category 1 and 2 Density Requirements: The Engineer will accept a minimum density of 95% of the maximum density as determined by AASHTO T-99 Method C for all earthwork items requiring densities.

120-7.2.2 Earthwork Category 3 Density Requirements: The Engineer will accept a minimum of 100% of the maximum density as determined by AASHTO T-99 Method C for all densities required under category 3.

Except for embankments constructed by the hydraulic method as specified in 120-6.3, and for the material placed outside the standard minimum slope as specified in 120-6.2.4, and for other areas specifically excluded herein, compact each layer of the material used in the formation of embankments to the required density stated above. Uniformly compact each layer using equipment that will achieve the required density, and as compaction operations progress, shape and manipulate each layer as necessary to ensure uniform density throughout the embankment.

120-7.2.3 Compaction Over Unstable Foundations: Where the embankment material is deposited in water or on low swampy ground, and in a layer thicker than 12 inches (as provided in 120-6.2.2), compact the top 6 inches (compacted thickness) of such layer to the density as specified in 120-9.5.

120-7.2.4 Compaction Where Plastic Material Has Been Removed: Where unsuitable material is removed and the remaining surface is of the A-4, A-5, A-6, or A-7 Soil Groups, as determined by the Engineer, compact the surface of the excavated

area by rolling with a sheepsfoot roller exerting a compression of at least 250 psi on the tamper feet, for the full width of the roadbed (subgrade and shoulders). Perform rolling before beginning any backfill, and continue until the roller feet do not penetrate the surface more than 1 inch. Do not perform such rolling where the remaining surface is below the normal water table and covered with water. Vary the procedure and equipment required for this operation at the discretion of the Engineer.

120-7.2.5 Compaction of Material To Be Used In Base, Pavement, or Stabilized Areas: Do not compact embankment material which will be incorporated into a pavement, base course, or stabilized subgrade, to be constructed as a part of the same Contract.

120-7.2.6 Compaction of Grassed Shoulder Areas: For the upper 6 inch layer of all shoulders which are to be grassed, since no specific density is required, compact only to the extent directed.

120-7.2.7 Compaction of Grassed Embankment Areas: For the outer layer of all embankments where plant growth will be established, do not compact. Leave this layer in a loose condition to a minimum depth of 6 inches for the subsequent seeding or planting operations.

120-7.3 Compaction of Subgrade: If the plans do not provide for stabilizing, compact the subgrade in both cuts and fills to the density specified in 120-9.5. For undisturbed soils, do not apply density requirements where constructing narrow widening strips or paved shoulders 5 feet or less in width.

Where trenches for widening strips are not of sufficient width to permit the use of standard compaction equipment, perform compaction using vibratory rollers, trench rollers, or other type compaction equipment approved by the Engineer.

Maintain the required density until the base or pavement is placed on the subgrade.

120-8 Backfilling Around Structures and Pipe.

120-8.1 Requirements for all Structures:

120-8-1.1 General: Backfill around structures and pipe in the dry whenever normal dewatering equipment and methods can accomplish the needed dewatering.

129-8.1.2 Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps, wellpoints and header pipe and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, perforated pipe drains, sumps and siphons.

120-8.1.3 Backfill Materials: Backfill to the original ground surface or subgrade surface of openings made for structures, with a sufficient allowance for settlement. The Engineer may require that the material used for this backfill be obtained from a source entirely apart from the structure.

Do not allow heavy construction equipment to cross over culvert or storm sewer pipes until placing and compacting backfill material to the finished earthwork grade or to an elevation at least 4 feet above the crown of the pipe.

120-8.1.4 Use of A-7 Material: In the backfilling of trenches, A-7 material may be used from a point 12 inches above the top of the pipe up to the elevation shown on the FDOT Design Standards as the elevation for undercutting of A-7 material.

120-8.1.5 Time of Placing Backfill: Do not place backfill against any masonry or concrete abutment, wingwall, or culvert until the Engineer has given permission to do so, and in no case until the masonry or concrete has been in place seven days or until the specified 28-day compressive strength occurs.

120-8.1.6 Placement and Compaction: When the backfill material is deposited in water, compact per 120-8.2.5 and 120-8.3.4. Place the material in horizontal layers not exceeding 6 inches compacted thickness, in depth above water level, behind abutments, wingwalls and end bents or end rest piers, and around box culverts and all structures including pipe culverts. The Engineer may approve placing material in thicker lifts of no more than 12 inches compacted thickness above the soil envelope if a test section demonstrates the required density can be achieved. Approval will be based on five passing density tests over the test section consisting of a lift of backfill from structure to structure. The Engineer will identify the test section with the compaction effort and soil classification in the Agency Logbook. In case of a change in compaction effort or soil classification, construct a new test section. The Engineer reserves the right to terminate the Contractor's use of thick lift construction and have him revert to the 6 inch compacted lifts whenever it is determined that satisfactory results are not being obtained.

120-8.2 Additional Requirements for Structures Other than Pipe:

120-8.2.1 Density: Where the backfill material is deposited in water, obtain a 12 inch layer of comparatively dry material, thoroughly compacted by tamping, before the Engineer verifies layer and density requirements. Meet the requirements of the density Acceptance Criteria.

120-8.2.2 Box Culverts: For box culverts over which pavement is to be constructed, compact around the structure to an elevation not less than 12 inches above the top of the structure, using rapid-striking mechanical tampers.

120-8.2.3 Other Limited Areas: Compact in other limited areas using mechanical tampers or approved hand tampers, until the cover over the structure is at least 12 inches thick. When hand tampers are used, deposit the materials in layers not more than 4 inches thick using hand tampers suitable for this purpose with a face area of not more than 100 in². Take special precautions to prevent any wedging action against the masonry, and step or terrace the slope bounding the excavation for abutments and wingwalls if required by the Engineer.

120-8.2.4 Culverts and Piers: Backfill around culverts and piers on both sides simultaneously to approximately the same elevation.

120-8.2.5 Compaction Under Wet Conditions: Where wet conditions do not permit the use of mechanical tampers, compact using hand tampers. Use only A-3 material for the hand tamped portions of the backfill. When the backfill has reached an elevation and condition such as to make the use of the mechanical tampers practical, perform mechanical tamping in such manner and to such extent as to transfer the compaction force into the sections previously tamped by hand.

120-8.3 Additional Requirements for Pipe 15 Inches Inside Diameter or Greater:

120-8.3.1 General: Trenches for pipe may have up to four zones that must be backfilled.

Lowest Zone: The lowest zone is backfilled for deep undercuts up to within 4 inches of the bottom of the pipe.

Bedding Zone: The zone above the Lowest Zone is the Bedding Zone. Usually it will be the backfill which is the 4 inches of soil below the bottom of the pipe. When rock or other hard material has been removed to place the pipe, the Bedding Zone will be the 12 inches of soil below the bottom of the pipe.

Cover Zone: The next zone is backfill that is placed after the pipe has been laid and will be called the Cover Zone. This zone extends to 12 inches above the top of the pipe. The Cover Zone and the Bedding Zone are considered the Soil Envelope for the pipe.

Top Zone: The Top Zone extends from 12 inches above the top of the pipe to the base or final grade.

120-8.3.2 Material:

120-8.3.2.1 Lowest Zone: Backfill areas undercut below the Bedding Zone of a pipe with coarse sand, or other suitable granular material, obtained from the grading operations on the project, or a commercial material if no suitable material is available.

120-8.3.2.2 Soil Envelope: In both the Bedding Zone and the Cover Zone of the pipe, backfill with materials classified as A-1, A-2, or A-3. Material classified as A-4 may be used if the pipe is concrete pipe.

120-8.3.2.3 Top Zone: Backfill the area of the trench above the soil envelope of the pipe with materials allowed on Design Standard, Index No. 505.

120-8.3.3 Compaction:

120-8.3.3.1 Lowest Zone: Compact the soil in the Lowest Zone to approximately match the density of the soil in which the trench was cut.

120-8.3.3.2 Bedding Zone: If the trench was not undercut below the bottom of the pipe, loosen the soil in the bottom of the trench immediately below the approximate middle third of the outside diameter of the pipe.

If the trench was undercut, place the bedding material and leave it in a loose condition below the middle third of the outside diameter of the pipe. Compact the outer portions to meet the density requirements of the Acceptance Criteria. Place the material in lifts no greater than 6 inches (compacted thickness).

120-8.3.3.3 Cover Zone: Place the material in 6 inches layers (compacted thickness), evenly deposited on both sides of the pipe, and compact with mechanical tampers suitable for this purpose. Hand tamp material below the pipe haunch that cannot be reached by mechanical tampers. Meet the requirements of the density Acceptance Criteria.

120-8.3.3.4 Top Zone: Place the material in layers not to exceed 12 inches in compacted thickness. Meet the requirements of the density Acceptance Criteria.

120-8.3.4 Backfill Under Wet Conditions: Where wet conditions are such that dewatering by normal pumping methods would not be effective, the procedure outlined below may be used when specifically authorized by the Engineer in writing.

Granular material may be used below the elevation at which mechanical tampers would be effective, but only material classified as A-3. Place and compact the material using timbers or hand tampers until the backfill reaches an elevation

such that it's moisture content will permit the use of mechanical tampers. When the backfill has reached such elevation, use normally acceptable backfill material. Compact the material using mechanical tampers in such manner and to such extent as to transfer the compacting force into the material previously tamped by hand.

120-9 Acceptance Program.

120-9.1 Density over 105%: When a computed dry density results in a value greater than 105% of the applicable Proctor maximum dry density, the Engineer will perform a second density test within 5 feet. If the second density results in a value greater than 105%, investigate the compaction methods, examine the applicable Maximum Density and material description. If necessary, the Engineer will test an additional sample for acceptance in accordance with AASHTO T 99, Method C.

120-9.2 Maximum Density Determination: The Engineer will determine the maximum density and optimum moisture content by sampling and testing the material in accordance with the specified test method listed in 120-9.3.

120-9.3 Density Testing Requirements: Compliance with the requirements of 120-9.5 will be determined in accordance FM 1-T 238. The in-place moisture content will be determined for each density in accordance with FM 5-507 (Determination of Moisture Content by Means of a Calcium Carbide Gas Pressure Moisture Tester), or ASTM D 4643 (Laboratory Determination of Moisture Content of Granular Soils By Use of a Microwave Oven).

120-9.4 Soil Classification: The Engineer will perform soil classification tests in accordance with AASHTO T-88, and classify soils in accordance with AASHTO M-145 (Standard Specification for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes) in order to determine compliance with embankment utilization requirements.

120-9.5 Acceptance Criteria: The Engineer will accept a minimum density in accordance with 120-7.2 with the following exceptions:

- 1) embankment constructed by the hydraulic method as specified in 120-6.3;
- 2) material placed outside the standard minimum slope as specified in 120-6.2.4;
- 3) other areas specifically excluded herein.

120-9.6 Frequency: The Engineer will conduct sampling and testing at a minimum frequency listed in the table below.

Test Name	Frequency
Maximum Density	One per soil type
Density	1 per 500' RDWY (Alt Lift)
Soil Classification	One per Maximum Density

120-10 Maintenance and Protection of Work.

While construction is in progress, maintain adequate drainage for the roadbed at all times. Maintain a shoulder at least 3 feet wide adjacent to all pavement or base construction in order to provide support for the edges.

Maintain and protect all earthwork construction throughout the life of the Contract, and take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. Repair any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work. Maintain all channels excavated as a part of the Contract work against natural shoaling or other encroachments to the lines, grades, and cross-sections shown in the plans, until final acceptance of the project.

120-11 Construction.

120-11.1 Construction Tolerances: Shape the surface of the earthwork to conform to the lines, grades, and cross-sections shown in the plans. In final shaping of the surface of earthwork, maintain a tolerance of 0.3 foot above or below the plan cross-section with the following exceptions:

1. Shape the surface of shoulders to within 0.1 foot of the plan cross-section.
2. Shape the earthwork to match adjacent pavement, curb, sidewalk, structures, etc.
3. Shape the bottom of ditches so that the ditch impounds no water.
4. When the work does not include construction of base or pavement, shape the entire roadbed (shoulder point to shoulder point) to within 0.1 foot above or below the plan cross-section.

Ensure that the shoulder lines do not vary horizontally more than 0.3 foot from the true lines shown in the plans.

120-11.2 Operations Adjacent to Pavement: Carefully dress areas adjacent to pavement areas to avoid damage to such pavement. Complete grassing of shoulder areas prior to placing the final wearing course. Do not manipulate any embankment material on a pavement surface.

When shoulder dressing is underway adjacent to a pavement lane being used to maintain traffic, exercise extreme care to avoid interference with the safe movement of traffic.

120-12 Method of Measurement.

120-12.1 Excavation: Excavation will be paid for by volume, in cubic yards, calculated by the method of average end areas, unless the Engineer determines that another method of calculation will provide a more accurate result. The material will be measured in its original position by field survey or by photogrammetric means as designated by the Engineer. Measurement for payment will include the excavation of unsuitable material, lateral ditch excavation, channel excavation, and excavation for structures and pipe. Payment will not be made for excavation or embankment beyond the limits shown in the plans or authorized by the Engineer.

120-12.2 Embankment: Measurement will be made on a loose volume basis, as measured in trucks or other hauling equipment at the point of dumping on the road. Payment will not be made for embankment beyond the limits shown in the plans or authorized by the Engineer.

120-13 Basis of Payment.

120-13.1 General: Prices and payments for the work items included in this Section will be full compensation for all work described herein, including excavating, dredging, hauling, placing, and compacting; dressing the surface of the earthwork; and maintaining and protecting the complete earthwork.

120-13.2 Excavation: The total quantity of all excavation specified under this Section will be paid for at the Contract unit price for Excavation. No payment will be made for the excavation of any materials which are used for purposes other than those shown in the plans or designated by the Engineer. No payment will be made for materials excavated outside the lines and grades given by the Engineer, unless specifically authorized by the Engineer.

120-13.3 Embankment: The total quantity of embankment specified in this Section will be paid for at the Contract unit price for embankment. No payment will be made for materials which are used for purposes other than those shown in the plans or designated by the Engineer. No payment will be made for materials placed outside the lines and grades given by the Engineer.

CONCRETE

(REV 12-20-11) (FA 2-27-12)

SECTION 344 CONCRETE

344-1 Description.

344-1 General: Construct concrete based on the type of work as described in the Contract and the concrete work categories as defined below.

344-1.2 Work Categories: Construction will fall into one of the following concrete work categories:

344-1.2.1 Concrete Work Category 1: Includes the construction of sidewalks, curb and gutter, ditch and slope pavement, or other non-reinforced cast-in-place elements.

344-1.2.2 Concrete Work Category 2: Includes the construction of precast concrete including concrete barriers, traffic railing barriers, parapets, sound barriers, inlets, manholes, junction boxes, pipe culverts, storm sewers, box culverts, prestressed concrete poles, concrete bases for light poles, highway sign foundations, retaining wall systems, traffic separators or other structural precast elements.

344-1.2.3 Concrete Work Category 3: Includes the work associated with the placement and/or construction of structural cast-in-place concrete meeting the requirements of this section.

344-2 Materials.

344-2.1 General: Use concrete composed of a mixture of Portland cement, aggregates, and water, with or without chemical or mineral admixtures that meet the following requirements:

344-2.1.1 Portland Cement: Portland cements meeting the requirements of AASHTO M-85 or ASTM C-150 is required. Different brands of cement, cement of the same brand from different facilities or different types of cement shall be stored separately and shall not be mixed.

344-2.1.2 Coarse and Fine Aggregates: Aggregates shall meet ASTM C 33. Source approval by the FDOT is not required.

344-2.1.3 Water: Water shall meet the requirements of ASTM C 1602.

344-2.1.4 Chemical Admixtures: Chemical admixtures shall be listed on the FDOT Qualified Products List. Admixtures may be added at the dosage rates recommended by the manufacturer.

344-2.1.5 Pozzolans and Slag: Pozzolans and Slag shall meet the requirements of Table 344-1. Fly ash shall not include the residue resulting from the burning of municipal garbage or any other refuse with coal, or the burning of industrial or municipal garbage in incinerators.

Type or Class	Test Method	Exceptions
Class C Fly Ash	ASTM C 618	Not to be used with Types IP or IS cements.
Class F Fly Ash	ASTM C 618	Not to be used with Types IP or IS cements.
Petroleum Coke Class F	ASTM C 618	Not to be used with Types IP or IS cements.
Bark Ash Class F	ASTM C 618	Not to be used with Types IP or IS cements.
Silica Fume	ASTM C 1240	
Metakaolin	ASTM C 618	
Slag	ASTM C 989	Use only ground granulated blast-furnace slag grade 100 or 120.
Ultra Fine Fly Ash	ASTM C 618	Not to be used with Types IP or IS cements.

344-3 Production, Mixing and Delivery of Concrete.

344-3.1 Concrete Production Requirements:

344-3.1.1 Category 1: Use a concrete production facility that is certified by the National Ready Mixed Concrete Association (NRMCA) or listed on the FDOT list of non-structural concrete producers. Concrete production facilities listed on the FDOT Producers with Accepted QC Programs list for structural concrete may also be used for Category 1.

344-3.1.2 Category 2: Use a prestressed and or precast facility listed on the FDOT Producers with Accepted QC Programs for precast or prestressed concrete.

344-3.1.3 Category 3: Use a structural concrete facility listed on the FDOT Producers with Accepted QC Programs for structural concrete.

344-3.2 Classes of Concrete: Meet the requirements of Table 344-2.

Class	Minimum Strength (28 day) (psi)	Target Slump (inches)	Target Range (inches)	Air Content Range (%)	Minimum Total Cementitious Materials	Maximum Water to Cementitious Material Ratio
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					Content (lb/yd ³)	(lb/lb)
Category 1						
Class NS	2,500	N/A	N/A	N/A	N/A	N/A
Category 3						
I	3,000	3	± 1.5	1.0 to 6.0	470	0.53
I (Pavement)	3,000	2	± 1.5	1.0 to 6.0	470	0.50
II	3,400	3	± 1.5	1.0 to 6.0	470	0.53
II (Bridge Deck)	4,500	3	± 1.5	1.0 to 6.0	611	0.44
III	5,000	3	± 1.5	1.0 to 6.0	611	0.44
III (Seal)	3,000	8	± 1.5	1.0 to 6.0	611	0.53
IV	5,500	3	± 1.5	1.0 to 6.0	658	0.41
IV (Drilled Shaft)	4,000	8.5	± 1.5	0.0 to 6.0	658	0.41
V (Special)	6,000	3	± 1.5	1.0 to 6.0	752	0.37
V	6,500	3	± 1.5	1.0 to 6.0	752	0.37
VI	8,500	3	± 1.5	1.0 to 6.0	752	0.37

344-3.3 Contractors Quality Control: For Categories 1 and 2, assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times.

For Category 3, furnish a Quality Control (QC) plan to identify to the Engineer how quality will be ensured at the project site. During random inspections, the Engineer will use this document to verify that the construction of the project is in agreement with the QC plan.

344-3.4 Concrete Mix Design: Before producing any Category 1 or Category 2, submit the proposed mix designs to the Engineer on a form provided by the Engineer. For Category 3, submit to the Engineer for approval, FDOT approved mix designs. Do not use concrete mix designs without prior approval of the Engineer.

Materials may be adjusted provided that the theoretical yield requirement of the approved mix design is met. Show all required original approved design mix data and batch adjustments on an Engineer approved concrete delivery ticket.

344-3.5 Delivery: For Category 3, the maximum allowable transit time of concrete is 90 minutes.

Furnish a delivery ticket on a form approved by the Engineer with each batch of concrete before unloading at the placement site. Record material quantities incorporated into the mix on the delivery ticket. Ensure that the Batchers responsible for producing the concrete signs the delivery ticket certifying that the batch was produced and delivered in accordance with these requirements. Sign the delivery ticket certifying that the concrete was placed in accordance with these requirements.

344-3.6 Placing Concrete:

344-3.6.1 Concreting in Cold Weather: Do not mix or place concrete when the air temperature at placement is below 45°F.

During the curing period, if NOAA predicts the ambient temperature to fall below 35°F for 12 hours or more or to fall below 30°F for more than 4 hours, enclose the structure in such a way that the air temperature within the enclosure

can be kept above 50°F for a period of 3 days after placing the concrete or until the concrete reaches a minimum compressive strength of 1,500 psi.

Assume all risks connected with the placing and curing of concrete. Although the Engineer may give permission to place concrete, the Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the Agency.

344-3.6.2 Concreting in Hot Weather: For Category 3, hot weather concreting is defined as the production, placing and curing of concrete when the concrete temperature at placing exceeds 86°F but is less than 100°F.

Unless the specified hot weather concreting measures are in effect, reject concrete exceeding 86°F at the time of placement. Regardless of special measures taken, reject concrete exceeding 100°F. Predict the concrete temperatures at placement time and implement hot weather measures to avoid production shutdown.

344-3.7 Mixers: For Category 3 concrete, do not place concrete from a truck mixer that does not have a current FDOT mixer identification card.

344-3.8 Small Quantities of Concrete: With approval of the Engineer, small quantities of concrete, less than 3 cubic yards placed in one day and less than 0.5 cubic yards placed in a single placement may be accepted using a pre-bagged mixture. The Engineer may verify that the pre-bagged mixture is prepared in accordance with the manufacturer's recommendations and will meet the requirements of this Specification.

344-3.9 Sampling and Testing:

344-3.9.1 Category 1: The Engineer may sample and test the concrete to verify its quality. The minimum 28 day compressive strength requirement for this concrete is 2,500 psi.

344-3.9.2: Category 2: No sampling and testing is required for category 2.

344-3.9.3 Category 3: The Engineer will randomly select a sample from each 200 cubic yards or one day's production to determine plastic properties and to make three 4 x 8 inch cylinders for testing by the Engineer at 28 days to ensure that the design compressive strength has been met for the class of concrete as specified in Table 344-2.

344-3.10 Records: Ensure the following records are available for review for at least 3 years after final acceptance of the project:

1. Approved concrete mix designs.
2. Materials source (delivery tickets, certifications, certified mill test reports).
3. A copy of the scale company or testing agency report showing the observed deviations from quantities checked during calibration of the scales and meters.
4. A copy of the documentation certifying the admixture weighing/measuring devices.

344-4 Acceptance of the Work.

344-4.1 Category 1 Work: Category 1 work will be accepted based on certification by the batcher and contractor on the delivery ticket.

344-4.2 Category 2 Work: Certify that the precast elements were produced by a production facility on the FDOT's list of Producers with Accepted QC Programs for precast or prestressed concrete. In addition, the producer's logo shall be stamped on the element. The producer shall not use the Florida Department of Transportation QC stamp on elements used on this project. Provide a statement of certification from the

manufacturer of the precast element that the element meets the requirements of this Specification.

344-4.3 Category 3 Work: Category 3 concrete will be accepted based on the Engineer's test results for plastic properties and compressive strength requirements for the class of concrete as defined in Table 344-2. In addition, a Delivery Ticket as described in 344-3.5 will be required for acceptance of the material at the project site.

344-4.4 Small Quantities of Concrete: Category 3 concrete meeting the definition of 344-3.8 will be accepted in accordance with 344-4.3 based on test results for plastic properties and compressive strength.

344-5 Method of Measurement.

The quantities to be paid for will be the items shown in the plans, completed and accepted.

344-6 Basis of Payment.

Prices and payments will be full compensation for all work and materials specified in this Section.

LANDSCAPE INSTALLATION

(REV 4-5-11) (FA 4-15-11)

**SECTION 580
LANDSCAPE INSTALLATION**

580-1 Description.

Plant trees and shrubs of the species, size, and quality indicated in the plans.

The Engineer reserves the right to adjust the number and location of any of the designated types and species to be used at any of the locations shown, in order to provide for any unanticipated effects which might become apparent after the substantial completion of other phases of the project, or for other causes.

580-2 Materials.

580-2.1 Plants:

580-2.1.1 Authority for Nomenclature; Species, etc.: For the designated authority in the identification of all plant material, refer to two publications of L.H. Bailey: "Hortus III" and "Manual of Cultivated Plants," and ensure that all specimens are true to type, name, etc., as described therein. For the standard nomenclature, refer to the publication of the American Joint Committee on Horticultural Nomenclature, "Standardized Plant Names."

580-2.1.2 Grade Standards and Conformity with Type and Species: Only use nursery grown plant material except where specified as Collected Material. Use nursery grown plant material that complies with all required inspection, grading standards, and plant regulations in accordance with the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants".

Except where a lesser grade might be specifically specified in the plans, ensure that the minimum grade for all trees and shrubs is Florida No. 1. Ensure that all plants are the proper size and grade at the time of delivery to the site, throughout the project construction period and during any designated plant establishment period.

Ensure that plant materials are true to type and species and that any plant materials not specifically covered in Florida Department of Agriculture's "Grades and Standards for Nursery Plants" conform in type and species with the standards and designations in general acceptance by Florida nurseries.

Ensure that plant materials are shipped with tags stating the botanical and common name of the plant.

580-2.1.3 Inspection and Transporting: Move nursery stock in accordance with all Federal and State regulations therefor, and accompany each shipment with the required inspection certificates for filing with the Engineer.

580-2.2 Water: Water used in landscaping operations may be obtained from any approved source. Ensure that water is free of any substance which might be detrimental to plant growth. The use of effluent water is subject to approval and must meet all Federal, State and Local requirements.

580-3 Specific Requirements for the Various Plant Designations.

580-3.1 Balled-and-Burlapped Plants (B&B), and Wired Balled-and-Burlapped (WB & B):

580-3.1.1 General: Properly protect the root ball of these plants until planting them. The Engineer may reject any plant which shows evidence of having been mishandled.

Set the B&B and WB&B plants then remove the top 2/3 of all wire, rope, and binding surrounding the plant. Remove the burlap from the top 4 inches of the root ball. Do not disturb the root ball in any way. Bare root material is not allowed for substitution.

At least 90 days before digging out B & B and WB & B plants, root-prune those 1 1/2 inches or greater in diameter and certify such fact on accompanying invoices.

580-3.1.2 Provisions for Wiring: For plants grown in soil of a loose texture, which does not readily adhere to the root system (and especially in the case of large plants or trees), the Engineer may require WB & B plants. For WB & B plants, before removing the plant from the excavated hole, place sound hog wire around the burlapped ball, and loop and tension it until the tightened wire netting substantially packages the burlapped ball such as to prevent disturbing of the loose soil around the roots during handling.

580-3.2 Container-Grown Plants (CG): The Engineer will not accept any CG plants with roots which have become pot-bound or for which the top system is too large for the size of the container. Fully cut and open all containers in a manner that will not damage the root system. Do not remove CG plants from the container until immediately before planting to prevent damage to the root system.

580-3.3 Collected Plants (Trees and Shrubs) (C): Use C plants which have a root ball according to "Florida Grades and Standards for Nursery Plants". Do not plant any C plant before the Engineer's inspection and acceptance at the planting site.

580-3.4 Collected Plants (Herbaceous) (HC): The root mass and vegetative portions of collected herbaceous plants shall be as large as the specified container-grown equivalent. Do not plant any collected plant before inspection and acceptance by the Engineer.

580-3.5 Specimen Plants (Special Grade): When Specimen (or Special Grade) plants are required, label them as such on the plant list, and tag the plant to be furnished.

580-3.6 Palms: Wrap the roots of all plants of the palm species before transporting, except if they are CG plants and ensure that they have an adequate root ball structure and mass for healthy transplantation as defined in “Florida Grades and Standards for Nursery Plants”.

The Engineer will not require burlapping if the palm is carefully dug from marl or heavy soil that adheres to the roots and retains its shape without crumbling. During transporting and after arrival, carefully protect root balls of palms from wind and exposure to the sun. Muck grown palms are not allowed. After delivery to the job site, if not planting the palm within 24 hours, cover the root ball with a moist material. Plant all palms within 48 hours of delivery to the site.

Move sabal and coconut palms in accordance with the “Florida Grades and Standards for Nursery Plants.”

580-3.7 Substitution of Container-Grown (CG) Plants: With the Engineer’s approval, the Contractor may substitute CG plants for any other root classification types, if he has met all other requirements of the Contract Documents.

580-4 Planting Requirements.

580-4.1 Layout: Prior to any excavation or planting, mark all planting beds and individual locations of palms, trees, large shrubs and proposed art and architectural structures, as shown in the plans, on the ground with a common bright orange colored spray paint, or with other approved methods, within the project limits. Obtain the Engineer’s approval and make necessary utility clearance requests.

580-4.2 Excavation of Plant Holes: Excavate plant holes after an area around the plant three times the size of the root ball has been tilled to a depth of the root ball. Ensure that the plant hole is made in the center of the tilled area only to the depth of the plant root ball.

Where excess material has been excavated from the plant hole, use the excavated material to backfill to proper level.

580-4.3 Setting of Plants: Center plants in the hole. Lower the plant into the hole so that it rests on a prepared hole bottom such that the roots are level with, or slightly above, the level of their previous growth and so oriented such as to present the best appearance.

Backfill with native soil, unless otherwise specified on the plans. Firmly rod and water-in the backfill so that no air pockets remain. Apply a sufficient quantity of water immediately upon planting to thoroughly moisten all of the backfilled earth. Keep plants in a moistened condition for the duration of the planting period.

When so directed, form a water ring 6 inches in width to make a water collecting basin with an inside diameter equal to the diameter of the excavated hole. Maintain the water ring in an acceptable condition.

580-4.4 Special Bed Preparation: Where multiple or mass plantings are to be made in extended bedding areas, and the plans specify Special Bed Preparation, prepare the planting beds as follows:

Remove all vegetation from within the area of the planting bed and excavate the surface soil to a depth of 6 inches. Backfill the excavated area with peat, sand, finish soil layer material or other material to the elevation of the original surface. Till the entire area to provide a loose, friable mixture to a depth of at least 8 inches. Level the bed only slightly above the adjacent ground level. Then mulch the entire bedding area, in accordance with 580-8.

580-5 Staking and Guying.

580-5.1 General: When specified in the plans, or as directed by the Engineer, stake plants in accordance with the following.

Use wide plastic, rubber or other flexible strapping materials to support the tree to stakes or ground anchors that will give as the tree moves in any direction up to 30 degrees. Do not use rope or wire through a hose. Use guy chords, hose or any other thin bracing or anchorage material which has a minimum 12 inches length of high visibility flagging tape secured to guys, midway between the tree and stakes for safety.

Stake trees larger than 1 inch diameter and smaller than 2 inches diameter with a 2 by 2 inch stake, set at least 2 feet in the ground and extending to the crown of the plant. Firmly fasten the plant to the stake with flexible strapping materials as noted above.

580-5.2 Trees of 2 to 3 1/2 inches [50 to 90 mm] Caliper: Stake all trees, other than palm trees, larger than 2 inches caliper and smaller than 3 1/2 inches caliper with two 2 by 4 inch stakes, 8 feet long, set 2 feet in the ground. Place the tree midway between the stakes and hold it firmly in place by flexible strapping materials as noted above.

580-5.3 Large Trees: Guy all trees, other than palm trees, larger than 3 1/2 inches caliper, from at least three points, with flexible strapping materials as noted above.

Anchor flexible strapping to 2 by 4 by 24 inch stakes, driven into the ground such that the top of the stake is at least 3 inches below the finished ground.

580-5.4 Special Requirements for Palm Trees: Brace palms which are to be staked with three 2 by 4 inch wood braces, toe-nailed to cleats which are securely banded at two points to the palm, at a point one third the height of the trunk. Pad the trunk with five layers of burlap under the cleats. Place braces approximately 120 degrees apart and secure them underground by 2 by 4 by 12 inch stake pads.

580-6 Tree Protection and Root Barriers.

Install tree barricades when called for in the Contract Documents or by the Engineer to protect existing trees from damage during project construction. Place barricades at the drip line of the tree foliage or as far from the base of the tree trunk as possible. Barricades shall be able to withstand bumps by heavy equipment and trucks. Maintain barricades in good condition.

When called for in the Contract Documents, install root barriers or fabrics in accordance with the details shown.

580-7 Pruning.

Prune all broken or damaged roots and limbs in accordance with established arboriculture practices. When pruning is completed ensure that all remaining wood is alive. Do not reduce the size or quality of the plant below the minimum specified.

580-8 Mulching.

Uniformly apply mulch material, consisting of wood chips (no Cypress Mulch is allowed), pine straw, compost, or other suitable material approved by the Engineer, to a minimum loose thickness of 3 inches over the entire area of the backfilled hole or bed within two days after the planting. Maintain the mulch continuously in place until the time of final inspection.

580-9 Disposal of Surplus Materials and Debris.

Dispose of surplus excavated material from plant holes by scattering or otherwise as might be directed so that it is not readily visible or conspicuous to the passing motorist or pedestrian. Remove all debris and other objectionable material from the site and clean up the entire area and leave it in neat condition.

580-10 Contractor's Responsibility for Condition of the Plantings.

Ensure that the plants are kept watered, that the staking and guying is kept adjusted as necessary, that all planting areas and beds are kept free of weeds and undesirable plant growth and that the plants are maintained so that they are healthy, vigorous, and undamaged at the time of acceptance.

580-11 Plant Establishment Period.

If the Contract Documents designate a Plant Establishment Period, assume responsibility for the proper maintenance, survival and condition of all landscape items during such period at no additional cost.

580-12 Method of Measurement.

The quantities to be paid for will be the items shown in the plans, completed and accepted.

580-13 Basis of Payment.

Prices and payments will be full compensation for all work specified in this Section.

EXCAVATION AND EMBANKMENT

(REV 01-00) (1-13)

SECTION 120 EXCAVATION AND EMBANKMENT

120-1 Description.

120-1.1 General: Excavate and construct embankments as required for the roadway, ditches, channel changes and borrow material. Prepare subgrades and foundations, construct embankments, and otherwise use or dispose of the materials excavated. Use suitable excavated materials or authorized borrow. Also compact and dress excavated areas and embankments. For excavation and backfilling of structures, refer to Section 125.

Excavate materials for clearing and grubbing under Section 110. Material displaced by the storm sewer or drainage structure system is not included in the earthwork quantities shown on the plans.

120-1.2 Unidentified Areas of Contamination: When encountering or exposing any abnormal condition indicating the presence of a hazardous or toxic waste, or contaminants, cease operations immediately in the vicinity and notify the Engineer. The presence of tanks or barrels; discolored earth, metal, wood, ground water, etc.; visible fumes; abnormal odors; excessively hot earth; smoke; or other conditions that appear abnormal may indicate hazardous or toxic wastes or contaminants and must be treated with extreme caution.

Make every effort to minimize the spread of contamination into uncontaminated areas. Immediately provide for the health and safety of all workers at the job site and make provisions necessary for the health and safety of the public that may be exposed to any potentially hazardous conditions. Provisions shall meet all applicable laws, rules or regulations covering hazardous conditions and will be in a manner commensurate with the gravity of the conditions.

The Engineer will notify the District Contamination Assessment Coordinator who will coordinate selecting and tasking the Department's Contamination Assessment/Remediation Contractor (CAR). Provide access to the potential contamination area. Preliminary investigation by the CAR Contractor will determine the course of action necessary for site security and the steps necessary under applicable laws, rules, and regulations for additional assessment and/or remediation work to resolve the contamination issue.

The CAR Contractor will delineate the contamination area(s), any staging or holding area required, and, in cooperation with the Prime Contractor and Engineer, develop a work plan that will provide the CAR Contractor's operations schedule with projected completion dates for the final resolution of the contamination issue.

The CAR Contractor will maintain jurisdiction over activities inside any outlined contaminated areas and any associated staging holding areas. The CAR Contractor will be responsible for the health and safety of workers within the delineated areas. Provide continuous access to these areas for the CAR Contractor and representatives of regulatory or enforcement agencies having jurisdiction.

Both Contractors shall use the schedule as a basis for planning the completion of both work efforts. The Engineer may grant the Contract Time extensions according to the provisions of 8-7.3.2.

Cooperate with the CAR Contractor to expedite integration of the CAR Contractor's operations into the construction project. The Prime Contractor is not expected to engage in routine construction activities, such as excavating, grading, or any type of soil manipulation, or any construction processes required if handling of contaminated soil, surface water or ground water is involved. All routine construction activities will be by the CAR Contractor. Adjustments to quantities or to Contract unit prices will be made according to work additions or reductions on the part of the Prime Contractor in accordance with 4-3.

The Engineer will direct the Prime Contractor when operations may resume in the affected area.

120-2 Classifications of Excavation.

120-2.1 General: The Department may classify excavation specified under this Section for payment as any of the following: (1) Regular Excavation, (2) Subsoil Excavation, (3) Lateral Ditch Excavation, and (4) Channel Excavation.

If the proposal does not show Subsoil Excavation or Lateral Ditch Excavation as separate items of payment, include such excavation under the item of Regular Excavation.

If the proposal shows Lateral Ditch Excavation as a separate item of payment, but does not show Channel Excavation as a separate item of payment, include such excavation under the item of Lateral Ditch Excavation. Otherwise, include Channel Excavation under the item of Regular Excavation.

120-2.2 Regular Excavation: Regular Excavation includes roadway excavation and borrow excavation, as defined below for each.

120-2.2.1 Roadway Excavation: Roadway Excavation consists of the excavation and the utilization or disposal of all materials necessary for the construction of the roadway, ditches, channel changes, etc., except as may be specifically shown to be paid for separately and that portion of the lateral ditches within the limits of the roadway right-of-way as shown in the plans.

120-2.2.2 Borrow Excavation: Borrow Excavation consists of the excavation and utilization of material from authorized borrow pits, including only material that is suitable for the construction of roadway embankments or of other embankments covered by the Contract.

A Value Engineering Change Proposal (VECP) submittal based on using borrow material from within the project limits will not be considered.

120-2.3 Subsoil Excavation: Subsoil Excavation consists of the excavation and disposal of muck, clay, rock, or any other material that is unsuitable in its original position and that is excavated below the finished grading template. For stabilized bases and sand bituminous road mixes, consider the finished grading template as the top of the finished base, shoulders and slopes. For all other bases and rigid pavement, consider the finished grading template as the finished shoulder and slope lines and bottom of completed base or rigid pavement. For pond and ditches that identify the placement of a blanket material, consider the finished grading template as the bottom of the blanket

material. Subsoil Excavation also consists of the excavation of all suitable material within the above limits as necessary to excavate the unsuitable material. Consider the limits of Subsoil Excavation indicated on the plans as being particularly variable, in accordance with the field conditions actually encountered.

The quantity of material required to replace the excavated material and to raise the elevation of the roadway to the bottom of the template will be paid for under Embankment or Borrow Excavation (Truck Measure).

120-2.4 Lateral Ditch Excavation: Lateral Ditch Excavation consists of all excavation of inlet and outlet ditches to structures and roadway, changes in channels of streams, and ditches parallel to the roadway right-of-way. Dress lateral ditches to the grade and cross-section shown in the plans.

120-2.5 Channel Excavation: Channel Excavation consists of the excavation and satisfactory disposal of all materials from the limits of the channel as shown in the plans.

120-3 Preliminary Soils Investigations.

When the plans contain the results of a soil survey, do not assume such data is a guarantee of the depth, extent, or character of material present.

120-4 Removal of Unsuitable Materials and Existing Roads.

120-4.1 Subsoil Excavation: Where muck, rock, clay, or other material within the limits of the roadway is unsuitable in its original position, excavate such material to the cross-sections shown in the plans or indicated by the Engineer, and backfill with suitable material. Shape backfill material to the required cross-sections. Where the removal of plastic soils below the finished earthwork grade is required, meet a construction tolerance, from the lines shown in the plans as the removal limits, of ± 0.2 feet [± 60 mm] in depth and ± 6 inches [± 150 mm] (each side) in width.

120-4.2 Removal of Existing Old Road: Where a new roadway is to be constructed over an old one, plow or scarify the old road, and break it up full width, regardless of height of fill. If the plans provide that paving materials may be incorporated into the fill, distribute such material in a manner so as not to create voids.

120-4.3 Obliterating Old Road: Where the plans call for obliteration of portions of an old road outside of the proposed new roadway, obliterate such sections of the old road by grading to fill ditches and to restore approximately the original contour of the ground or a contour which produces a pleasing appearance.

120-5 Disposal of Surplus and Unsuitable Material.

120-5.1 Ownership of Excavated Materials: Dispose of surplus and excavated materials as shown in the plans or, if the plans do not indicate the method of disposal, take ownership of the materials and dispose of them outside the right-of-way.

120-5.2 Disposal of Muck on Side Slopes: As an exception to the provisions of 120-5. 1, when approved by the Engineer, in rural undeveloped areas, the Contractor may place muck (A-8 material) on the slopes, or store it alongside the roadway, provided there is a clear distance of at least 6 feet [2 m] between the roadway grading limits and the muck, and the Contractor dresses the muck to present a neat appearance. In addition, the

Contractor may also dispose of this material by placing it on the slopes in developed areas where, in the opinion of the Engineer, this will result in an aesthetically pleasing appearance and will have no detrimental effect on the adjacent developments. Where the Engineer permits the disposal of muck or other unsuitable material inside the right-of-way limits, do not place such material in a manner which will impede the inflow or outfall of any channel or of side ditches. The Engineer will determine the limits adjacent to channels within which such materials may be disposed.

120-5.3 Disposal of Paving Materials: Unless otherwise noted, take ownership of paving materials, such as paving brick, asphalt block, concrete slab, sidewalk, curb and gutter, etc., excavated in the removal of existing pavements, and dispose of them outside the right-of-way. If the materials are to remain the property of the Department, place them in neat piles as directed. Existing limerock base that is removed may be incorporated in the stabilized portion of the subgrade. If the construction sequence will allow, incorporate all existing limerock base into the project as allowed by the Contract Documents.

120-5.4 Disposal Areas: Where the Contract Documents require disposal of excavated materials outside the right-of-way, and the disposal area is not indicated in the Contract Documents, furnish the disposal area without additional compensation.

Provide areas for disposal of removed paving materials out of sight of the project and at least 300 feet [90 m] from the nearest roadway right-of-way line of any State-maintained road. If the materials are buried, disregard the 300 foot [90 m] limitation.

120-6 Borrow.

120-6.1 Materials for Borrow: Do not open borrow pits until the Engineer has approved their location.

Do not provide borrow materials that are polluted as defined in Chapter 376 of the Florida Statutes (oil of any kind and in any form, gasoline, pesticides, ammonia, chlorine, and derivatives thereof, excluding liquefied petroleum gas) in concentrations above any local, State, or Federal standards.

Prior to placing any borrow material that is the product of soil incineration, provide the Engineer with a copy of the Certificate of Materials Recycling and Post Burn Analysis showing that the material is below all allowable pollutant concentrations.

120-6.2 Furnishing of Borrow Areas: Furnish areas for borrow.

To obtain the Engineer's approval to use an off-site construction activity area that involves excavation such as a borrow pit or local aggregate pit, request in writing, a Cultural Resources Assessment. Send the request to the Division of Historical Resources, Department of State, State Historic Preservation Officer, Tallahassee, FL. As a minimum, include in the request the State Project Job Number, the County, a description of the property with Township, Range, Section, etc., the dimensions of the area to be affected, and a location map. Do not start any work at the off-site construction activity area until receiving a clearance letter from the Division of Archives and written clearance from the Engineer concerning compliance with the Federal Endangered Species Act as specified in 7-1.4.

For certain locations, the Division of Archives will require a Cultural Resources Field Survey before approval can be granted. When this is required, secure professional archaeological services to make the survey and prepare a report. Submit the report to the Division of Archives with a copy to the Department. The Engineer will base final approval or rejection of the use of the off-site construction activity area on the report.

Before receiving approval or use of borrow areas, obtain written clearance from the engineer concerning compliance with the Federal Endangered Species Act as specified in 7-1.4 and Section 4(f) of the USDOT Act as specified in Section 7-1.7.

The Department will adjust Contract Time in accordance with 8-7 for any suspension of operations required to comply with this Article. The Department will not accept any monetary claims due to delays or loss of off-site construction activity areas.

Except where the plans specifically call for the use of a particular borrow or dredging area, the Contractor may substitute borrow or dredging areas of his own choosing provided: (1) the Engineer determines the materials from such areas meet the Department's standards and other requirements for stability for use in the particular sections of the work in which it is to be placed, and (2) the Contractor absorbs any increase in hauling or other costs.

Before using any borrow material from any substitute areas, obtain the Engineer's approval, in writing, for the use of the particular areas, and, where applicable, ensure that the Engineer has cross-sectioned the surface. Upon such written approval by the Engineer, consider the substitute areas as designated borrow areas.

When furnishing the dredging or borrow areas, supply the Department with evidence that the necessary permits, rights, or waivers for the use of such areas have been secured.

Do not excavate any part of a Contractor furnished borrow area which is less than 300 feet [90 m] from the right-of-way of the project or any State Road until the Engineer has approved a plan for landscaping and restoring the disturbed area. Perform this landscaping and land restoration at no expense to the Department, prior to final acceptance of the project. Do not provide a borrow area closer than 25 feet [8 m] to the right-of-way of any state road. In Department furnished borrow pits, do not excavate material within 5 feet [1.5 m] of the adjacent property lines.

Upon completion of excavation, neatly shape, dress, grass, vegetate, landscape, and drain all exposed areas including haul roads, as necessary so as not to present an objectionable appearance.

Meet the requirements of Section 104 when furnishing borrow areas, regardless of location.

120-6.3 Borrow Material for Shoulder Build-up: When so indicated in the plans, furnish borrow material with a specific minimum bearing value, for building up of existing shoulders. Blend materials as necessary to achieve this specified minimum bearing value prior to placing the materials on the shoulders. Take samples of this borrow material at the pit or blended stockpile. Include all costs of providing a material with the required bearing value in the Contract unit price for borrow material.

120-6.4 Haul Routes for Borrow Pits: Provide and maintain, at no expense to the Department, all necessary roads for hauling the borrow material. Where borrow area

haul roads or trails are used by others, do not cause such roads or trails to deteriorate in condition.

Arrange for the use of all non-public haul routes crossing the property of any railroad. Incur any expense for the use of such haul routes. Establish haul routes which will direct construction vehicles away from developed areas when feasible, and keep noise from hauling operations to a minimum. Advise the Engineer in writing of all proposed haul routes.

120-6.5 Authorization for Use of Borrow: When the item of Borrow Excavation is included in the Contract, use borrow only when sufficient quantities of suitable material are not available from roadway and drainage excavation, to properly construct the embankment, subgrade, and shoulders, and to complete the backfilling of structures. Do not use borrow material until so ordered by the Engineer, and then only use material from approved borrow pits.

120-7 Materials for Embankment.

120-7.1 Use of Materials Excavated From the Roadway and Appurtenances: Be responsible for determining the suitability of excavated material for use on the project in accordance with the applicable Contract Documents. Consider the sequence of work and maintenance of traffic phasing in the determination of the availability of this material.

120-7.2 General Requirements for Embankment Materials: Construct embankments of acceptable material including broken portland cement concrete pavement and portland cement concrete rubble, but containing no muck, stumps, roots, brush, vegetable matter, rubbish, reinforcement bar or other material that does not compact into a suitable and enduring roadbed. Remove and waste material designated as undesirable. Use material in embankment construction in accordance with plan details or as the Engineer directs.

Complete the embankment using maximum particle sizes as follows:

In top 12 inches [300 mm]: 3 1/2 inches [90 mm] (in any dimension).

12 to 24 inches [300 to 600 mm]: 6 inches [150 mm] (in any dimension).

In the depth below 24 inches [600 mm]: not to exceed 12 inches [300 mm] (in any dimension) or the compacted thickness of the layer being placed, whichever is less.

Spread all material so that the larger particles are separated from each other to minimize voids between them during compaction. Compact around these rocks in accordance with 120-9.2.

When and where approved by the Engineer, the Contractor may place larger rocks (not to exceed 18 inches [450 mm] in any dimension) outside the two to one slope and at least 4 feet [1.2 m] or more below the bottom of the base. Compact around these rocks to a firmness equal to that of the supporting soil. Compact grassed embankment areas in accordance with 120-9.2.6.

Where constructing embankments adjacent to bridge end bents or abutments, do not place rock larger than 3 1/2 inches [90 mm] in diameter within 3 feet [1.0 m] of the location of any end-bent piling.

120-7.3 Materials Used at Pipes, Culverts, etc.: Construct embankments over and around pipes, culverts, and bridge foundations with selected materials.

120-8 Embankment Construction.

120-8.1 General: Construct embankments in sections of not less than 300 feet [90 m] in length or for the full length of the embankment.

120-8.2 Dry Fill Method:

120-8.2.1 General: Except as provided below for material placed on unstable ground and for materials used for flattening slopes, construct embankments in successive layers of not more than 8 inches [200 mm] in thickness, measured loose, for the full width of the embankment. However, the Contractor may construct embankments in successive layers of not more than 12 inches [300 mm] compacted thickness, if he can demonstrate with field tests that he has compacting equipment sufficient to achieve density required by 120-9.2 for the full depth of a thicker lift, and if the compactive effort is approved by the Engineer. Construct all layers approximately parallel to the centerline profile of the road.

The Engineer will base his approval on the results of a test section the Contractor constructed using his specified compactive effort. Construct the test section with a minimum length of 300 feet [90 m], full width, and a maximum length of 1,000 feet [300 m].

Once approved, if there is a change in soil classification of the embankment materials, construct a new test section. Do not change the compactive effort once a test section is approved.

The Engineer reserves the right to terminate the Contractor's use of thick lift construction and have him revert to the 8 inch [200 mm] loose lifts whenever it is determined that satisfactory results are not being achieved.

As far as practicable, distribute traffic over the work during the construction of embankments so as to cover the maximum area of the surface of each layer.

Construct embankment in the dry whenever normal dewatering equipment and methods can accomplish the needed dewatering.

120-8.2.1.1 Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, sumps and siphons.

When normal dewatering does not adequately remove the water, the Engineer may require the embankment material to be placed in the water or in low swampy ground in accordance with 120-8.2.2.

120-8.2.2 Placing in Unstable Areas: Where depositing the material in water, or in low swampy ground that will not support the weight of hauling equipment, construct the embankment by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers. Once sufficient material has been placed so that the hauling equipment can be supported, construct the remaining portion of the embankment in layers in accordance with the applicable provisions of 120-8.2.1 and 120-8.2.3.

120-8.2.3 Placing on Steep Slopes: When constructing an embankment on a hillside sloping more than 20 degrees from the horizontal, before starting the fill, deeply plow or cut into steps the surface of the original ground on which the embankment is to be placed.

120-8.2.4 Placing Outside Standard Minimum Slope: Where material that is unsuitable for normal embankment construction is to be used in the embankment outside the standard minimum slope (approximately two to one), place such material in layers of not more than 18 inches [450 mm] in thickness, measured loose. The Contractor may also place material which is suitable for normal embankment, outside such standard minimum slope, in 18 inch [450 mm] layers.

120-8.3 Hydraulic Method:

120-8.3.1 Method of Placing: When the hydraulic method is used, as far as practicable, place all dredged material in its final position in the embankment by such method. Place and compact any dredged material that is rehandled, or moved and placed in its final position by any other method, as specified in 120-8.2. The Contractor may use baffles or any form of construction he may select provided the slopes of the embankments are not steeper than indicated in the plans. Remove all timber used for temporary bulkheads or baffles from the embankment, and fill and thoroughly compact the holes thus formed. When placing fill on submerged land, construct dikes prior to beginning of dredging, and maintain the dikes throughout the dredging operation.

120-8.3.2 Excess Material: Do not use excess material placed outside the prescribed slopes, below the normal high-water level, to raise the fill. Remove only the portion of this material required for dressing the slopes.

120-8.3.3 Protection of Openings in Embankment: Leave openings in the embankments at the bridge sites. Remove any material which invades these openings or existing channels without additional compensation to provide the same depth of channel as existed before the construction of the embankment. Do not excavate or dredge any material within 200 feet [60 m] of the toe of the proposed embankment.

120-9 Compaction Requirements.

120-9.1 Moisture Content: Compact the materials at a moisture content such that the specified density can be attained. If necessary to attain the specified density, add water to the material, or lower the moisture content by manipulating the material or allowing it to dry, as is appropriate.

120-9.2 Compaction of Embankments:

120-9.2.1 Density Requirements: Except for embankment constructed by the hydraulic method as specified in 120-8.3 and for the material placed outside the standard minimum slope as specified in 120-8.2.4, and for other areas specifically excluded herein, compact each layer of the material used in the formation of embankments to a density of at least 100% of the maximum density as determined by AASHTO T 99, Method C. Uniformly compact each layer, using equipment that will achieve the required density, and as compaction operations progress, shape and manipulate each layer as necessary to ensure uniform density throughout the embankment.

120-9.2.2 Compaction Over Unstable Foundations: Where the embankment material is deposited in water or on low swampy ground, and in a layer

thicker than 12 inches [300 mm] (as provided in 120-8.2.2), compact the top 6 inches [150 mm] (compacted thickness) of such layer to the density as specified in 120-9.2.1.

120-9.2.3 Compaction Where Plastic Material Has Been Removed:

Where unsuitable material is removed and the remaining surface is of the A-4, A-5, A-6, or A-7 Soil Groups (see Florida Sampling and Testing Methods, M145), as determined by the Engineer, compact the surface of the excavated area by rolling with a sheepsfoot roller exerting a compression of at least 250 psi [1.7 MPa] on the tamper feet, for the full width of the roadbed (subgrade and shoulders). Perform rolling before beginning any backfill, and continue until the roller feet do not penetrate the surface more than 1 inch [25 mm]. Do not perform such rolling where the remaining surface is below the normal water table and covered with water. Vary the procedure and equipment required for this operation at the discretion of the Engineer.

120-9.2.4 Compaction of Material To Be Used In Base, Pavement, or Stabilized Areas: Do not compact embankment material which will be incorporated into a pavement, base course, or stabilized subgrade, to be constructed as a part of the same Contract.

120-9.2.5 Compaction of Grassed Shoulder Areas: For the upper 6 inches [150 mm] layer of all shoulders which are to be grassed, since no specific density is required, compact only to the extent directed.

120-9.2.6 Compaction of Grassed Embankment Areas: For the outer layer of all embankments where plant growth will be established, do not compact. Leave this layer in a loose condition to a minimum depth of 6 inches [150 mm] for the subsequent seeding or planting operations.

120-9.3 Compaction for Pipes, Culverts, etc.: Compact the backfill of trenches to the densities specified for embankment or subgrade, as applicable, and in accordance with the requirements of 125-8.

Thoroughly compact embankments over and around pipes, culverts, and bridges in a manner which will not place undue stress on the structures, and in accordance with the requirements of 125-8.

120-9.4 Compaction of Subgrade: If the plans do not provide for stabilizing, compact the subgrade area (as defined in 1-3) in both cuts and fills to the density specified in 120-9.2.1. Do not apply density requirements where constructing narrow widening strips 4 feet [1.2 m] or less on undisturbed soil.

Where trenches for widening strips are not of sufficient width to permit the use of standard compaction equipment, perform compaction using vibratory rollers, trench rollers, or other type compaction equipment approved by the Engineer.

Maintain the required density until the base or pavement is placed on the subgrade.

120-10 Maintenance and Protection of Work.

While construction is in progress, maintain adequate drainage for the roadbed at all times. Maintain a shoulder at least 3 feet [1 m] wide adjacent to all pavement or base construction in order to provide support for the edges.

Maintain all earthwork construction throughout the life of the Contract, and take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. Repair, at no expense to the Department, except as otherwise provided

herein, any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work. Perform maintenance and protection of earthwork construction in accordance with Section 104.

Maintain all channels excavated as a part of the Contract work against natural shoaling or other encroachments to the lines, grades, and cross-sections shown in the plans, until final acceptance of the project.

120-11 Construction.

120-11.1 Construction Tolerances: Shape the surface of the earthwork to conform to the lines, grades, and cross-sections shown in the plans. In final shaping of the surface of earthwork, maintain a tolerance of 0.3 foot [90 mm] above or below the plan cross-section with the following exceptions:

1. Shape the surface of shoulders to within 0.1 foot [30 mm] of the plan cross-section.
2. Shape the earthwork to match adjacent pavement, curb, sidewalk, structures, etc.
3. Shape the bottom of ditches so that the ditch impounds no water.
4. When the work does not include construction of base or pavement, shape the entire roadbed (shoulder point to shoulder point) to within 0.1 foot [30 mm] above or below the plan cross-section.

Ensure that the shoulder lines do not vary horizontally more than 0.3 foot [90 mm] from the true lines shown in the plans.

120-11.2 Operations Adjacent to Pavement: Carefully dress areas adjacent to pavement areas to avoid damage to such pavement. Complete grassing of shoulder areas prior to placing the final wearing course. Do not manipulate any embankment material on a pavement surface.

When shoulder dressing is underway adjacent to a pavement lane being used to maintain traffic, exercise extreme care to avoid interference with the safe movement of traffic.

120-12 Method of Measurement.

120-12.1 General: When payment for excavation is on a volumetric basis, the quantity to be paid for will be the volume, in cubic yards [cubic meters], calculated by the method of average end areas, unless the Engineer determines that another method of calculation will provide a more accurate result. The material will be measured in its original position by field survey or by photogrammetric means as designated by the Engineer, unless otherwise specified under the provisions for individual items.

Where Subsoil Excavation extends outside the lines shown in the plans or authorized by the Engineer including allowable tolerances, and the space is backfilled with material obtained in additional authorized roadway or borrow excavation, the net fill, plus shrinkage allowance, will be deducted from the quantity of Roadway Excavation or Borrow Excavation to be paid for, as applicable.

The quantity of all material washed, blown, or placed beyond the authorized roadway cross-section will be determined by the Engineer and will be

deducted from the quantity of Roadway Excavation or Borrow Excavation to be paid for, as applicable.

Subsoil Excavation that extends outside the lines shown in the plans or authorized by the Engineer including allowable tolerances will be deducted from the quantity to be paid for as Subsoil Excavation.

120-12.2 Roadway Excavation: The measurement will include only the net volume of material excavated between the original ground surface and the surface of the completed earthwork, except that the measurement will also include all unavoidable slides which may occur in connection with excavation classified as Roadway Excavation.

The pay quantity will be the plan quantity provided that the excavation was accomplished in substantial compliance with the plan dimensions and subject to the provisions of 9-3.2 and 9-3.4. On designated 3-R Projects, Regular Excavation will be paid for at the Contract lump sum price provided that the excavation was accomplished in substantial compliance with the plan dimension.

120-12.3 Borrow Excavation: Measurement will be made on a loose volume basis, as measured in trucks or other hauling equipment at the point of dumping on the road. If measurement is made in vehicles, level the material to facilitate accurate measurement.

Unsuitable material excavated from borrow pits where truck measurement is provided for and from any borrow pits furnished by the Contractor, will not be included in the quantity of excavation to be paid for.

120-12.4 Lateral Ditch Excavation: The measurement will include only material excavated within the lines and grades indicated in the plans or as directed by the Engineer. The measurement will include the full station-to-station length shown in the plans or directed by the Engineer and acceptably completed. Excavation included for payment under Section 125 will not be included in this measurement.

The pay quantity will be the plan quantity provided that the excavation was accomplished in substantial compliance with the plan dimensions and subject to the provisions of 9-3.2 and 9-3.4.

120-12.5 Channel Excavation: The measurement will include only material excavated within the lines and grades indicated in the plans or in accordance with authorized plan changes. The measurement will include the full station-to-station length shown in the plans including any authorized changes thereto.

If shoaling occurs subsequent to excavation of a channel and the Engineer authorized the shoaled material to remain in place, the volume of any such material remaining within the limits of channel excavation shown in the plans will be deducted from the measured quantity of Channel Excavation.

120-12.6 Subsoil Excavation: The measurement will include only material excavated within the lines and grades indicated in the plans (including the tolerance permitted therefore) or as directed by the Engineer.

When no item for Subsoil Excavation is shown in the proposal but Subsoil Excavation is subsequently determined to be necessary, such unanticipated Subsoil Excavation will be paid for as provided in 4-4.

120-12.7 Embankment: The quantity will be at the plan quantity.

Where payment for embankment is not to be included in the payment for the excavation, and is to be paid for on a cubic yard [cubic meter] basis for the item of

Embankment, the plan quantities to be paid for will be calculated by the method of average end areas unless the Engineer determines that another method of calculation will provide a more accurate result. The measurement will include only material actually placed above the original ground line, within the lines and grades indicated in the plans or directed by the Engineer. The length used in the computations will be the station-to-station length actually constructed. The original ground line used in the computations will be as determined prior to placing of embankment subject to the provisions of 9-3.2, and no allowance will be made for subsidence of material below the surface of the original ground.

If there are authorized changes in plan dimensions or if errors in plan quantities are detected, plan quantity will be adjusted as provided in 9-3.2.

Where the work includes excavation of unsuitable material below the finished grading template or original ground line, whichever is lower as defined in 120-2.3, the original ground line is defined as the surface prior to beginning excavation, except that this surface is not outside the permissible tolerance of lines and grades for Subsoil Excavation as indicated in the plans or as directed by the Engineer. Any overrun or underrun of plan quantity for Subsoil Excavation which results in a corresponding increase or decrease in embankment will be considered as an authorized plan change for adjustment purposes as defined in 9-3.2.2.

No payment will be made for embankment material used to replace unsuitable material excavated beyond the lines and grades shown in the plans or ordered by the Engineer.

In no case will payment be made for material allowed to run out of the embankment on a flatter slope than indicated on the cross-section. The Contractor shall make his own estimate on the volume of material actually required to obtain the pay section.

120-13 Basis of Payment.

120-13.1 General: Prices and payments for the various work items included in this Section will be full compensation for all work described herein, including excavating, dredging, hauling, placing, and compacting; dressing the surface of the earthwork; maintaining and protecting the complete earthwork; and hauling.

The Department will not allow extra compensation for any rehandling of materials.

The Department will compensate for the cost of grassing or other permanent erosion control measures directed by the Engineer as provided in the Contract for similar items of roadway work.

120-13.2 Excavation:

120-13.2.1 Items of Payment: When no classification of material is indicated in the plans, and bids are taken only on Regular Excavation, the total quantity of all excavation specified under this Section will be paid for at the Contract unit price for Regular Excavation.

When separate classifications of excavation are shown in the proposal, the quantities of each of the various classes of materials so shown will be paid for at the Contract unit prices per cubic yard [cubic meter] for Regular Excavation, Lateral Ditch Excavation, Subsoil Excavation, and Channel Excavation, as applicable,

and any of such classifications not so shown will be included under the item of Regular Excavation (except that if there is a classification for Lateral Ditch Excavation shown and there is no classification for Channel Excavation, any channel excavation will be included under the item of Lateral Ditch Excavation). As an exception, on designated Projects, Regular Excavation will be paid for at the Contract lump sum price.

120-13.2.2 Basic Work Included in Payments: Prices and payments will be full compensation for all work described under this Section, except for any excavation, or embankment which is specified to be included for payment under other items. Such prices and payments will include hauling; any rehandling that may be necessary to accomplish final disposal as shown in the plans; the dressing of shoulders, ditches and slopes; removal of trash, vegetation, etc., from the previously graded roadway where no item for clearing and grubbing is shown in the plans; and compacting as required.

120-13.2.3 Additional Depth of Subsoil Excavation: Where Subsoil Excavation is made to a depth of 0 to 5 feet [0 to 1.5 m] below the depth shown on the Contract plans, such excavation will be paid for at the unit price bid.

Where Subsoil Excavation is made to a depth greater than 5 feet [1.5 m], and up to 15 feet [4.5 m], deeper than the depth shown on the Contract plans, such excavation will be paid for at the unit price bid plus 25% of such unit price. Additional extra depth, more than 15 feet [4.5 m] below such plan depth, will be considered as a change in the character of the work and will be paid for as Unforeseeable Work.

Where no subsoil excavation is shown in a particular location on the original plans, payment for extra depth of subsoil will begin 5 feet [1.5 m] below the lowest elevation on the grading template.

120-13.2.4 Borrow Excavation: When the item of Borrow Excavation is included in the Contract, price and payment will also include the cost of furnishing the borrow areas and any necessary clearing and grubbing thereof, the removal of unsuitable material that it is necessary to excavate in order to obtain suitable borrow material, and also the costs incurred in complying with the provisions of 120-6.4.

120-13.2.5 Materials Excluded from Payment for the Excavation: No payment as excavation will be made for any excavation covered for payment under the item of Embankment.

No payment will be made for the excavation of any materials which are used for purposes other than those shown in the plans or designated by the Engineer. No payment will be made for materials excavated outside the lines and grades given by the Engineer, unless specifically authorized by the Engineer; except that, in the operations of roadway excavation, all slides and falls of insecure masses of material beyond the regular slopes and not due to lack of precaution on the part of the Contractor will be paid for at the Contract unit price for the material involved. The removal of slides and falls of material classified as Lateral Ditch Excavation or as Subsoil Excavation will not be paid for separately, but will be included in the Contract unit price for the pay quantity of these materials, measured as provided in 120-12.

120-13.3 Embankment:

120-13.3.1 General: Price and payment will be full compensation for all work specified in this Section, including all material for constructing the embankment; all excavating, dredging, pumping, placing and compacting of material for constructing the

embankment complete; dressing of the surface of the roadway, maintenance and protection of the completed earthwork, and the removal of rubbish, vegetation, etc., from the roadway, where no clearing and grubbing of the area is specified in the plans. Also, such price and payment, in each case, will specifically include all costs of any roadway, lateral ditch, or channel excavation, unless such excavation is specifically shown to be paid for separately, regardless of whether the materials are utilized in the embankment.

120-13.3.2 Excluded Material: No payment will be made for the removal of muck or overburden from the dredging or borrow areas. No payment will be made for embankment material used to replace muck or other unsuitable material excavated beyond the lines and grades shown in the plans or ordered by the Engineer.

120-13.3.3 Clearing and Grubbing: No payment will be made for any clearing and grubbing of the borrow or dredging areas. Where no clearing and grubbing of such areas is specified in the plans, the cost of any necessary clearing and grubbing will be included in the Contract unit or lump sum price for Embankment.

120-13.3.4 Cost of Permits, Rights, and Waivers: Where the Contractor provides borrow or dredging areas of his own choosing, the cost of securing the necessary permits, rights or waivers will be included in the Contract price for Embankment.

120-13.4 Payment Items: Payment will be made under:

- Item No. 120- 1- Regular Excavation - per cubic yard.
- Item No. 120- 2- Borrow Excavation - per cubic yard.
- Item No. 120- 3- Lateral Ditch Excavation - per cubic yard.
- Item No. 120- 4- Subsoil Excavation - per cubic yard.
- Item No. 120- 5- Channel Excavation - per cubic yard.
- Item No. 120- 6- Embankment - per cubic yard.
- Item No. 120-71- Regular Excavation (3-R Projects)- lump sum.

EXCAVATION FOR STRUCTURES (REV 01-00) (1-13)

SECTION 125

EXCAVATION FOR STRUCTURES

125-1 Description.

Excavate for bridge foundations, box culverts, pipe culverts, storm sewers and all other pipe lines, retaining walls, headwalls for pipe culverts and drains, catch basins, drop inlets, manholes, and similar structures. Also, (1) construct and remove cofferdams, sheeting, bracing, etc.; (2) pump or otherwise dewater foundations; (3) remove and dispose of any existing structures or portions of structures not covered by other items in the Contract, including foundations, abutments, piers, wings, and all other materials, obstructions, etc., found necessary to clear the site for the proposed work; (4) backfill, dispose of surplus material, and perform final cleaning, as may be necessary for the proper execution of the work. This Section does not include excavation for bases or pavements, curbs, curb and gutter, valley gutter, ditch pavement, or rubble gutter.

125-1.1 Trench Excavation Safety System and Shoring, Special (Trench Excavation: When performing trench excavation in excess of 5 feet [1.5 m] in depth, comply with the Occupational Safety and Health Administration's (OSHA) trench safety standards, 29 C.F.R.,

s. 1926.650, Subpart P, and all subsequent revisions or updates adopted by the Department of Labor and Employment Security. Ensure that trench boxes are wide enough to accommodate compaction and density testing.

Submission of bid and subsequent execution of the Contract will serve as certification that all trench excavation in excess of 5 feet [1.5 m] in depth will be in compliance with Section 553.62, Florida Statutes.

Consider all available geotechnical information available when designing the trench excavation safety system.

Consider these and any more stringent trench safety standards as minimum Contract requirements.

125-2 Classification.

Consider all materials excavated as unclassified and as excavation regardless of the material encountered.

125-3 Cofferdams.

125-3.1 Construction:

125-3.1.1 Methods: Construct all foundations by open excavation, and shore, brace, or protect the foundation openings with cofferdams. Provide cofferdams or cribs for foundation construction below the bottom of the footings. Provide sufficient clearance in the cofferdam interiors to permit construction of forms and inspection of their exteriors, and for pumping equipment.

125-3.1.2 Protection of Concrete: Construct cofferdams to protect green concrete against damage from a sudden rising of the water and to prevent damage by erosion. Do not leave timber or bracing in cofferdams or cribs that extend into the substructure masonry except where permitted in writing by the Engineer.

125-3.1.3 Placing in the Dry: For placing footings in the dry, the Engineer may require cofferdam sheeting to be driven to an elevation 6 feet [1.8 m] below the elevation of the bottom of the footings and require sufficient pumping equipment to dewater and maintain the cofferdam in a comparatively dry condition.

125-3.1.4 Working Drawings: For substructure work, submit drawings showing the proposed method of cofferdam construction and other details left to choice or not fully shown on the plans. Obtain the Engineer's approval of the type and clearance of cofferdams, insofar as such details affect the character of the finished work. For other details of design that do not affect the character of the finished work, assume responsibility for the successful construction of the work. Retain a Professional Engineer, registered in the State of Florida, to prepare the above construction drawing, and keep a signed and sealed copy on hand at the site at all times. On completion of the work, furnish the Department with as-built drawings on permanent reproducible material as noted in 5-1.4.1.

125-3.2 Removal: Unless otherwise provided, remove cofferdams or cribs, with all sheeting and bracing, after completion of the substructure without disturbing or marring the finished masonry.

125-4 Excavation.

125-4.1 Requirements for all Excavation: Excavate foundation pits to permit the placing of the full widths and lengths of footings shown in the plans, with full horizontal beds. Do not round or undercut corners or edges of footings. Perform all excavation to foundation materials, satisfactory to the Engineer, regardless of the elevation shown on the plans. Perform all excavation in stream beds to a depth at least 4 feet [1.2 m] below the permanent bed of the stream, unless a firm footing can be established on solid rock before such depth is reached, and

excavate to such additional depth as may be necessary to eliminate any danger of undermining. Wherever rock bottom is secured, excavate in such manner as to allow the solid rock to be exposed and prepared in horizontal beds for receiving the masonry. Remove all loose and disintegrated rock or thin strata. Have the Engineer inspect and approve all foundation excavations prior to placing masonry.

125-4.2 Earth Excavation:

125-4.2.1 Foundation Material other than Rock: When masonry is to rest on an excavated surface other than rock, take special care to avoid disturbing the bottom of the excavation, and do not remove the final foundation material to grade until just before placing the masonry. In case the foundation material is soft or mucky, the Engineer may require excavation to a greater depth and to backfill to grade with approved material.

125-4.2.2 Foundation Piles: Where foundation piles are used, complete the excavation of each pit before driving the piles. After the driving is completed, remove all loose and displaced material, leaving a smooth, solid, and level bed to receive the masonry.

125-4.2.3 Removal of Obstructions: Remove boulders, logs, or any unforeseen obstacles encountered in excavating. Compensation will be in accordance with the requirements of 4-3.4.

125-4.3 Rock Excavation: Clean all rock and other hard foundation material, remove all loose material, and cut all rock to a firm surface. Either level, step vertically and horizontally, or serrate the rock, as may be directed by the Engineer. Clean out all seams, and fill them with concrete or mortar.

125-4.4 Pipe Trench Excavation: Excavate trenches for pipe culverts and storm sewers to the elevation of the bottom of the pipe and to a width sufficient to provide adequate working room. Remove soil not meeting the classification specified as suitable backfill material in 125-8.3.2.2, to a depth of 4 inches [100 mm] below the bottom of the pipe elevation. Remove rock, boulders or other hard lumpy or unyielding material to a depth of 12 inches [300 mm] below the bottom of the pipe elevation. Remove muck or other soft material to a depth necessary to establish a firm foundation. Where the soils permit, ensure that the trench sides are vertical up to at least the mid-point of the pipe.

For pipe lines placed above the natural ground line, place and compact the embankment, prior to excavation of the trench, to an elevation at least 2 feet [0.6 m] above the top of the pipe and to a width equal to four pipe diameters, and then excavate the trench to the required grade.

125-5 Preservation of Channel.

125-5.1 General unless shown on the plans, do not excavate outside of caissons, cribs, cofferdams, or sheet piling, and do not disturb the natural stream bed adjacent to the structure. If excavating or dredging at the site of the structure before sinking caissons, cribs, or cofferdams, complete the foundation and backfill all such excavations to the original ground surface or other required elevation, with material satisfactory to the Engineer.

125-5.2 Removal of Excavated Materials: Do not allow materials that are deposited adjacent to the stream area to infiltrate the water areas. Leave the stream in its original condition.

125-6 Disposal of Surplus.

Use suitable excavated materials for backfilling over or around the structure. Dispose of unsuitable materials. Meet the disposal requirements pertaining to water pollution contained in Section 104 and in 7-1.1.

125-7 Pumping.

Pump from the interior of any foundation enclosure in such manner as to preclude the possibility of any portion of the concrete materials being carried away. Do not pump while

placing concrete, or for a period of at least 24 hours thereafter, unless using a suitable pump separated from the concrete work by a watertight wall.

125-8 Backfilling.

125-8.1 Requirements for all Structures:

125-8.1.1 General: Backfill in the Dry whenever normal dewatering equipment and methods can accomplish the needed dewatering.

125-8.1.2 Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps, wellpoints and header pipe and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, perforated pipe drains, sumps and siphons.

125-8.1.3 Backfill Materials: Backfill to the original ground surface or subgrade surface of openings made for structures, with a sufficient allowance for settlement. The Engineer may require that the material used for this backfill be obtained from a source entirely apart from the structure. Use only material accepted by the Engineer.

Do not allow heavy construction equipment to cross over culvert or storm sewer pipes until placing and compacting backfill material to the finished earthwork grade or to an elevation at least 4 feet [1.2 m] above the crown of the pipe.

125-8.1.4 Use of A-7 Material: In the backfilling of trenches, A-7 material may be used from a point 12 inches [300 mm] above the top of the pipe up to the elevation shown on the Roadway and Traffic Design Standards as the elevation for undercutting of A-7 material.

125-8.1.5 Time of Placing Backfill: Do not place backfill against any masonry or concrete abutment, wingwall, or culvert until permission has been given by the Engineer, and in no case until the masonry or concrete has been in place seven days or until the specified 28-day compressive strength occurs.

125-8.2 Requirements for Structures Other than Pipe:

125-8.2.1 Density: Place the material in horizontal layers not exceeding 8 inches [200 mm] in depth above water level, behind abutments, wing walls and end bents or end rest piers, and around box culverts and structures other than pipe culverts, and compact it to a density of at least 100% of the maximum density as determined by AASHTO T 99. Where the backfill material is deposited in water, obtain a 12 inch [300 mm] layer of comparatively dry material, thoroughly compacted by tamping, before verifying the layer and density requirements.

125-8.2.2 Box Culverts: For box culverts over which pavement is to be constructed, compact around the structure to an elevation not less than 12 inches [300 mm] above the top of the structure, using rapid-striking mechanical tampers.

125-8.2.3 Other Limited Areas: Compact in other limited areas using mechanical tampers or approved hand tampers, until the cover over the structure is at least 12 inches [300 mm] thick. When hand tampers are used, deposit the materials in layers not more than 4 inches [100 mm] thick using hand tampers suitable for this purpose with a face area of not more than 100 in² [64,500 mm²]. Take special precautions to prevent any wedging action against the masonry, and step or terrace the slope bounding the excavation for abutments and wingwalls if required by the Engineer.

125-8.2.4 Culverts and Piers: Backfill around culverts and piers on both sides simultaneously to approximately the same elevation.

125-8.2.5 Compaction Under Wet Conditions: Where wet conditions do not permit the use of mechanical tampers, compact using hand tampers. Use only A-3 material for the hand tamped portions of the backfill. When the backfill has reached an elevation and condition such as to make the use of the mechanical tampers practical, perform mechanical tamping in such manner and to such extent as to transfer the compaction force into the sections previously tamped by

hand.

125-8.3 Requirements for Pipe 15 Inches [375 mm] Inside Diameter or Greater:

125-8.3.1 General: Trenches for pipe may have up to four zones that must be backfilled.

Lowest Zone: The lowest zone is backfilled for deep undercuts up to within 4 inches [100 mm] of the bottom of the pipe.

Bedding Zone: The zone above the Lowest Zone is the Bedding Zone. Usually it will be the backfill which is the 4 inches [100 mm] of soil below the bottom of the pipe. When rock or other hard material has been removed to place the pipe, the Bedding Zone will be the 12 inches [300 mm] of soil below the bottom of the pipe.

Cover Zone: The next zone is backfill that is placed after the pipe has been laid and will be called the Cover Zone. This zone extends to 12 inches [300 mm] above the top of the pipe. The Cover Zone and the Bedding Zone are considered the Soil Envelope for the pipe.

Top Zone: The Top Zone extends from 12 inches [300 mm] above the top of the pipe to the base or final grade.

125-8.3.2 Material:

125-8.3.2.1 Lowest Zone: Backfill areas undercut below the Bedding Zone of a pipe with coarse sand, or other suitable granular material, obtained from the grading operations on the project, or a commercial material if no suitable material is available.

125-8.3.2.2 Soil Envelope: In both the Bedding Zone and the Cover Zone of the pipe, backfill with materials classified as A-1, A-2, or A-3. Material classified as A-4 may be used if the pipe is concrete pipe.

125-8.3.2.3 Top Zone: Backfill the area of the trench above the soil envelope of the pipe with materials allowed on Roadway and Traffic Design Standard, Index No. 505.

125-8.3.3 Compaction:

125-8.3.3.1 Lowest Zone: Compact the soil in the Lowest Zone to approximately match the density of the soil in which the trench was cut.

125-8.3.3.2 Bedding Zone: If the trench was not undercut below the bottom of the pipe, loosen the soil in the bottom of the trench immediately below the approximate middle third of the outside diameter of the pipe.

If the trench was undercut, place the bedding material and leave it in a loose condition below the middle third of the outside diameter of the pipe. Compact the outer portions to a minimum of 100% of the maximum density as determined by AASHTO T 99, Method C. Place the material in lifts no greater than 6 inches [150 mm] (compacted thickness).

125-8.3.3.3 Cover Zone: Before placing the Cover Zone material, lay pipe according to Section 430. Excavate for pipe bells before laying pipe. Place the material in 6 inch [150 mm] layers (compacted thickness), evenly deposited on both sides of the pipe, and compact with mechanical tampers suitable for this purpose. Hand tamp material below the pipe haunch that cannot be reached by mechanical tampers. For concrete pipe, compact the backfill to a density of at least 100% of the maximum density as determined by AASHTO T 99, Method C. For metal and plastic pipe, compact the backfill to a density of at least 95% of the maximum density as determined by AASHTO T 99, Method C.

125-8.3.3.4 Top Zone: Place the material in layers not to exceed 12 inches [300 mm] in compacted thickness. Compact with appropriate equipment to a density of at least 100% of the maximum density as determined by AASHTO T 99, Method C, except as provided below.

In locations outside the plane described by a two (horizontal) to one (vertical) slope downward from the roadway shoulder line or the back of curb as applicable and along storm sewer outfall lines where no vehicular traffic will pass over the pipe, compact the

backfill to a firmness approximately equal to that of the soil next to the pipe trench.

125-8.3.3.5 Exceptions to Density Requirements: For side drain pipe under driveways serving individual home sites a single residential lot, the density test requirements above are waived. The lift thickness and compaction requirements apply.

125-8.3.4 Backfill Under Wet Conditions: Where wet conditions are such that dewatering by normal pumping methods would not be effective, the procedure outlined below may be used when specifically authorized by the Engineer in writing. The Department will pay for any select material which is not available from the grading as Unforeseeable Work. The Department will not pay for select material that might be used by the Contractor for his own convenience instead of dewatering.

The Department will permit the use of granular material below the elevation at which mechanical tampers would be effective, but only material classified as A-3. Place and compact the material using timbers or hand tampers until the backfill reaches an elevation such that its moisture content will permit the use of mechanical tampers. When the backfill has reached such elevation, use normally acceptable backfill material. Compact the material using mechanical tampers in such manner and to such extent as to transfer the compacting force into the material previously tamped by hand.

The Department will permit the use of coarse aggregate below the elevation at which mechanical tampers would be effective. Use coarse aggregate as specified in Section 901 for Aggregate Size Number 89, 8, 78, 7, 68, 6, or 57. Place the coarse aggregate such that it will be stable and firm. Fully wrap the aggregate with a layer of Type D-4 filter fabric, as specified on Roadway and Traffic Design Standard, Index No. 199. Do not place coarse aggregate within 4 feet [1.2 m] of the ends of the trench or ditch. Use normally accepted backfill material at the ends.

125-8.4 Requirements for Thick Lift Compaction in Granular Materials: If it is demonstrated that the required density can be obtained in thicker lifts than permitted above, the Engineer may permit placement of granular material of soil groups A-1, A-2, or A-3 in lifts up to a maximum of 3 foot [0.9 m] compacted thickness. In such cases, furnish equipment and labor to excavate and backfill test pits to be dug for the performance of density tests.

Use of thick lift compaction procedures will not be allowed for backfilling the soil envelope of pipe culverts and storm sewers.

125-9 Replacing Pavement.

Where existing pavement, curb, curb and gutter, sidewalk or valley gutter is removed only for the purpose of constructing or removing box culverts, pipe culverts, storm sewers, inlets, manholes, etc., replace or restore those items to the Engineer's satisfaction, without direct compensation.

125-10 Cleaning Up.

Upon completion of the work, leave the structure and all adjacent areas in a neat and presentable condition, clear up all temporary structures, rubbish and surplus material and leave the space under the structure unobstructed and in such shape that drift will not collect nor scour be induced. Pile all material from existing structures that have been removed neatly on the bank, unless otherwise directed by the Engineer. Pull falsework piling unless the Engineer permits it to cut or broken off, in which case it will be cut or broken off at least 2 feet [0.6 m] below the ground line or stream bed.

125-11 Method of Measurement.

When direct payment for Excavation for Structures is provided in the proposal, and such payment is on a unit basis, such excavation will be measured in its original position by

the cross-section method to determine the amount of material. The cubic yard [cubic meter] volume of excavation used as a basis of payment will then be that material actually removed below the original ground line or stream bed, but not including that shown on the plans to be paid for either as Regular Excavation, Subsoil Excavation, Lateral Ditch Excavation or Channel Excavation, or which is included in the item for Grading, and except that no payment will be made for material removed in excavating for footings or foundations outside of an area which is bounded by vertical planes 12 inches [300 mm] outside of the limits of the footing and parallel thereto. For pipe trenches the width used to be in the calculation shall be the diameter of the pipe, plus 24 inches [600 mm].

125-12 Basis of Payment.

125-12.1 When No Direct Payment Provided: When direct payment for Excavation for Structures is not provided for in the proposal, all work specified in this Section, other than as specified in 125-12.3 through 125-12.7, shall be included in the Contract price for the concrete or for other items covering the applicable structure.

125-12.2 Direct Payment: When direct payment for work under this Section is provided, the Contract price per cubic yard [cubic meter] (measured as provided in 125-11), as shown in the proposal, shall be full compensation for all the work specified in this Section, except such work as is specifically stipulated to be paid for separately, in 125-12.3 through 125-12.7.

125-12.3 Excavation Below Plan Grade: When excavation of material below plan grade is called for in the plans or authorized by the Engineer, and payment for Excavation for Structures is on a cubic yard [cubic meter] basis, the material excavated below plan grade will be included in the measurement for this item.

Payment for the material used for the backfill will be made as specified in 125-12.7.

125-12.4 Strengthening Foundations: The work of strengthening the foundations (as provided in 125-4.2) shall be paid for as provided in 4-4, unless such work is covered by a bid item.

125-12.5 Backfilling for Additional Support: The work of providing additional support by backfilling with sand or other satisfactory material, where called for by the Engineer (as specified in 125-8), shall be paid for as provided in 4-4.

125-12.6 Removal and Replacement of Existing Pavement: For pavement, curb, etc., which is removed only in order to construct pipe culverts or storm sewers, as specified in 125-9, all costs of such removal and replacement shall be included in the costs of the pipe or other structure for which it is removed, unless otherwise provided for in the contract.

125-12.7 Removal and Replacement of Material Unsuitable for Backfill: When it cannot reasonably be anticipated from information contained in the plans, that material excavated for the structure will be unsuitable for use as backfill, and such material proves to be unsuitable for this use, the work of disposing of such material away from the site will be paid for as unforeseeable work, and the work of bringing in substitute material for the backfill will be paid for as specified for the particular case shown below:

(a) No additional payment will be made for backfill materials obtained from surplus material available from the normal excavation or grading operations.

(b) When the necessary material is not available from the normal excavation or grading operations, and the Contract includes an item for Borrow Excavation, backfill material authorized to be obtained from designated borrow areas will be included in the volume of Borrow Excavation to be paid for.

(c) When the necessary material is not available from the normal excavation or grading operations and no separate item for Borrow Excavation is included in the Contract, any backfill

material obtained by increasing the volume of excavation within the roadway right of way will be measured and paid for as regular excavation subject to the provisions of 9-3.2.2.

(d) When authorization is given for obtaining the material from outside the right of way and from other than designated borrow areas, such excavation will be paid for as unforeseeable work.

(e) Where pipe bedding is provided, as specified in 125-8, by the use of select granular material, the quantity of such select material obtained either as commercial material or from material from the grading operations other than in the immediate vicinity of the pipe to be bedded, as authorized by the Engineer, will be paid for at the Contract price per cubic yard [cubic meter] for Select Bedding Material. No payment for this material will be made for material available from the excavation for the pipe culvert or from other material available from the grading operations at a location not sufficiently remote as to require loading on trucks.

125-12.8 Pay Items: Payment for the work under this Section, when provided for directly, shall be made under:

Item No. 125- 1- Excavation for Structures - per cubic yard.

Item No. 125- 3- Select Bedding Material - per cubic yard.

STABILIZING

(REV 01-00) (1-13)

SECTION 160

STABILIZING

160-1 Description.

Stabilize designated portions of the roadbed to provide a firm and unyielding subgrade, having the required bearing value specified in the plans. When specified in the plans, provide additional strengthening of the subbase by additional stabilizing of the upper portion of the previously stabilized subgrade, within the limits specified.

160-2 Stabilized Subgrade.

For stabilized subgrade, the Contractor may choose the type of material, Commercial or Local.

When the stabilizing is designated as Type B, the Engineer will determine compliance with the bearing value requirements by the Limerock Bearing Ratio (LBR) Method. If approved by the Engineer and only for materials requiring an LBR value of 40, the Engineer may omit Sections 6.0 and 6.1 of Florida Method of Test for Limerock Bearing Ratio (FM 5-515) and perform an Unsoaked LBR Test. The Engineer or the Contractor may request to use this method. If the Unsoaked LBR Test results in a failing test, then the Engineer will perform a standard Soaked LBR Test. When the stabilizing is designated as Type C, the Engineer will determine compliance by the Florida Soil Bearing Test.

The Contractor is responsible to make the finished roadbed section meet the bearing value requirements, regardless of the quantity of stabilizing materials necessary to be added. Also, the Department will make full payment for any areas where the existing subgrade materials meet the design bearing value requirements without the addition of stabilizing additives, as well as areas where the Contractor may elect to place select high-bearing materials from other sources within the limits of the stabilizing.

After substantially completing the roadbed grading operations, determine the type and quantity (if any) of stabilizing material necessary for compliance with the bearing value requirements. Notify the Engineer of the approximate quantity to be added. Obtain the Engineer's

approval for spreading and mixing-in of such quantity of materials to achieve uniformity and effectiveness.

The Engineer may allow, at no additional cost to the Department, the substitution of 6 inches [150 mm] of Granular Subbase meeting the requirements of Section 290, when 12 inches [300 mm] of Type B Stabilization requiring an LBR value of 40 is specified.

160-3 Stabilized Subbase.

When Stabilized Subbase is required, after the mixing operations for the stabilization of the entire subgrade limits, strengthen the upper portion of the subgrade, within the limits shown, by adding and mixing-in a loose depth of commercial stabilizing material as designated in the plans or as may be otherwise designated by the Engineer. Provide a minimum depth of spread 3 inches [75 mm] (loose measurement).

160-4 Materials.

160-4.1 Commercial and Local Materials: Meet the requirements of Section 914 for the particular type of stabilizing material to be used.

160-4.2 Use of Materials from Existing Base: When the use of materials from an existing base is required as all, or a portion, of the stabilizing additives, the Engineer will direct the location, placement, and distribution of such materials. Perform this work prior to the spreading of any additional commercial or local materials. Do not remove any section of existing base until the need for it in maintaining traffic is fulfilled.

The Engineer may direct the Contractor to use materials from an existing base in combination with either of the designated types of stabilizing.

160-5 Construction Methods.

160-5.1 General: Prior to the beginning of stabilizing operations, construct the area to be stabilized to an elevation such that, upon completion of stabilizing operations, the completed stabilized subgrade will conform to the lines, grades, and cross-section shown in the plans. Prior to spreading any additive stabilizing material, bring the surface of the roadbed to a plane approximately parallel to the plane of the proposed finished surface.

The Contractor may process the subgrade to be stabilized in one course, unless the equipment and methods being used do not provide the required uniformity, particle size limitation, compaction, and other desired results, in which case, the Engineer will direct that the processing be done in more than one course.

160-5.2 Application of Stabilizing Material: When additive stabilizing materials are required, spread the designated quantity uniformly over the area to be stabilized.

When materials from an existing base are to be used in the stabilizing at a particular location, place and spread all of such materials prior to the addition of other stabilizing additives.

Spread commercial stabilizing material by the use of mechanical material spreaders, except that where use of such equipment is not practicable, use other means of spreading, but only upon written approval of the proposed alternate method.

160-5.3 Mixing: Perform mixing using rotary tillers or other equipment meeting the approval of the Engineer. The Contractor may mix the materials in a plant of an approved type suitable for this work. Thoroughly mix the area to be stabilized throughout the entire depth and width of the stabilizing limits.

Perform the mixing operations, as specified, (either in place or in a plant) regardless of whether the existing soil, or any select soils placed within the limits of the stabilized sections, have the required bearing value without the addition of stabilizing materials.

As an exception to the above mixing requirements, where the subgrade is of rock, the Engineer may waive the mixing operations (and the work of stabilizing), and the Department will

not pay for stabilization for such sections of the roadway.

160-5.4 Maximum Particle Size of Mixed Materials: At the completion of the mixing, ensure that the gradation of the material within the limits of the area being stabilized is such that 97% will pass a 3/8 inch [90 mm] sieve and that the material does not have a plasticity index greater than eight or liquid limit greater than 30. Note that clay balls or lumps of clay size particles (2 microns or less) [(2 µm or less)] and therefore cannot be considered as individual particle sizes. Remove any materials not meeting the plasticity requirements from the stabilized area. The Contractor may break down or remove from the stabilized area materials not meeting the gradation requirements.

160-5.5 Compaction: Except where a stabilized subbase is also to be constructed (as specified in 160-6), after completing the mixing operations and satisfying the requirements for bearing value, uniformity, and particle size, compact the stabilized area in accordance with 160-8. Compact the materials at a moisture content permitting the specified compaction. If the moisture content of the material is improper for attaining the specified density, either add water or allow the material to dry until reaching the proper moisture content for the specified compaction.

160-5.6 Finish Grading: Shape the completed stabilized subgrade to conform with the finished lines, grades, and cross-section indicated in the plans. Check the subgrade using elevation stakes or other means approved by the Engineer.

160-5.7 Requirements for Condition of Completed Subgrade: After completing the stabilizing and compacting operations, ensure that the subgrade is firm and substantially unyielding to the extent that it will support construction equipment and will have the bearing value required by the plans.

Remove all soft and yielding material, and any other portions of the subgrade which will not compact readily, and replace it with suitable material so that the whole subgrade is brought to line and grade, with proper allowance for subsequent compaction.

160-5.8 Maintenance of Completed Subgrade: After completing the subgrade as specified above, maintain it free from ruts, depressions, and any damage resulting from the hauling or handling of materials, equipment, tools, etc. The Contractor is responsible for maintaining the required density until the subsequent base or pavement is in place including any repairs, replacement, etc., of curb and gutter, sidewalk, etc., which might become necessary in order to recompact the subgrade in the event of underwash or other damage occurring to the previously compacted subgrade. Perform any such recompaction at no expense to the Department. Construct and maintain ditches and drains along the completed subgrade section.

160-6 Stabilized Subbase (Additional Strengthening of Upper Portion).

When a stabilized subbase is to be constructed in conjunction with the stabilization operations, after the mixing of the stabilization area as specified in 160-5.3, and determination that the bearing value requirements specified in 160-7 have been met, shape the area over which the stabilized subbase is to be constructed as provided in 160-5.1, and compact it sufficiently to provide a firm surface for the operations to follow. Spread the amount of commercial stabilizing material specified in 160-3 for this operation, in accordance with 160-5.2, and mix it to the depth indicated in the plans, in accordance with 160-5.3. Allow a tolerance of 1 inch [25 mm] in excess of the plan depth in this mixing. The Engineer will not perform any additional tests for bearing value after the mixing of materials for the Stabilized Subbase.

Compact and finish grading, as specified in 160-5.5 and 160-5.6, and meet the provisions of 160-5.4, 160-5.7, and 160-5.8 for this work.

When commercial materials are used as the stabilizing additives for the initial subgrade stabilization, the Engineer may eliminate the work of Stabilized Subbase, either entirely or in designated sections of the overall limits for this work as may be specified in the plans.

160-7 Bearing Value Requirements.

160-7.1 General: The Engineer will obtain and test bearing value samples at completion of satisfactory mixing of the stabilized area. For any area where the bearing value obtained is deficient from the value indicated in the plans, in excess of the tolerances established herein, spread and mix additional stabilizing material in accordance with 160-5.3. Perform this reprocessing for the full width of the roadway being stabilized and longitudinally for a distance of 50 feet [15 m] beyond the limits of the area in which the bearing value is deficient.

The Contractor shall make his own determination of the quantity of additional stabilizing material to be used in reprocessing.

160-7.2 Tolerances in Bearing Value Requirements: Use the following undertolerances from the specified bearing value, as based on tests performed on samples obtained after completing mixing operations:

Specified Bearing Value	Undertolerance
LBR 40	5.0
LBR 35	4.0
LBR 30 (and under)	2.5
All Florida Bearing Values	5.0

The following unsoaked bearing value requirement is based on tests performed on samples obtained after completing mixing operations:

Specified Bearing Value	Unsoaked Bearing Value Required	Undertolerance
LBR 40	LBR 43	0.0

160-8 Density Requirements.

160-8.1 General: Within the entire limits of the width and depth of the areas to be stabilized, other than as provided in 160-8.2, obtain a minimum density at any location of 98% of the maximum density as determined by AASHTO T 180. When bearing value determinations are made by the Florida Soil Bearing Test, the Engineer will use Test Method C of AASHTO T 180, and, when bearing value determinations are made by the Limerock Bearing Ratio Method, the Engineer will use Test Method D of AASHTO T 180 (as modified by the Department's Research Bulletin 22-B, Revised April, 1972).

160-8.2 Exceptions to Density Requirements: The Contractor need not obtain the minimum density specified in 160-8.1 if within the following limits:

(a) The width and depth of areas which are to be subsequently incorporated into a base course under the same contract.

(b) The upper 6 inches [150 mm] of areas to be grassed under the same contract.

Compact these areas to a reasonably firm condition as directed by the Engineer.

160-9 Method of Measurement.

160-9.1 Type B Stabilization and Type C Stabilization: The quantity to be paid for will be the plan quantity, in square yards [square meters], completed and accepted.

160-9.2 Stabilized Subbase: The quantity to be paid for will be the area, in square yards [square meters], completed and accepted.

160-9.3 Commercial Stabilizing Material: The quantity to be paid for separately will be determined by measurement, loose volumes, in truck bodies, at the point of unloading.

160-10 Basis of Payment.

160-10.1 Type B Stabilization and Type C Stabilization: Price and payment will constitute full compensation for all work specified in this Section applicable to these types of Stabilization, including furnishing and spreading of all stabilizing material required and any reprocessing of stabilization areas necessary to attain the specified bearing value.

160-10.2 Stabilized Subbase: Price and payment will constitute full compensation for the work of incorporating the additional commercial stabilizing material into the designated subbase area.

160-10.3 Commercial Stabilizing Material: Price and payment will be full compensation for furnishing and spreading commercial stabilizing material.

No separate payment will be made for any commercial stabilizing material which the Contractor may elect to use in Type B or Type C Stabilization.

No separate payment will be made for the work of using materials from an existing base, in the stabilizing section.

160-10.4 General: The above prices and payments will constitute full compensation for all work and materials specified in this Section, specifically including all costs of the processing and incorporation of existing base materials into the proposed stabilization area when such work is required by the plans.

If the item of Borrow Excavation is included in the Contract, any stabilizing materials obtained from designated borrow areas will be included in the pay quantity for Borrow Excavation.

160-10.5 Payment Items: Payment will be made under:

Item No. 160- 3- Commercial Stabilizing Material - per cubic yard.

Item No. 160- 4- Type B Stabilization - per square yard.

Item No. 160- 5- Type C Stabilization - per square yard.

Item No. 160- 6- Stabilized Subbase - per square yard.

STABILIZED SUBBASE

(REV 01-00) (1-13)

SECTION 180 STABILIZED SUBBASE

180-1 Description.

Construct a Stabilized Subbase composed of roadbed soil stabilized with commercial stabilizing material.

180-2 Stabilizing Material.

Use commercial stabilizing material meeting the requirements of 914-3.1 for roadbed construction, as amended herein.

180-3 Preparation of Roadbed and Rate of Spread for Stabilizing Material.

Before beginning stabilizing operations, complete the area to be stabilized to a grade and typical cross-section parallel to the finished elevation of the stabilized subbase. Dispose of surplus excavated materials resulting from this work as set forth in 120-5.

As an exception to the above, if the typical section does not include curb and gutter construction, the Engineer will authorize raising the finished stabilized subbase elevation to allow for excess bulking caused by adding commercial stabilizing material. Raise the overlying base and pavement course a corresponding distance. The pay quantity for Embankment will not be adjusted when the finished elevation of the completed roadway is raised in accordance with the above.

When the commercial stabilizing material to be used is known, the Engineer will determine the rate of spread from laboratory tests of blends of roadway material sampled after roadbed grading operations are completed to the approximate elevation of the finished subbase over a substantial section of the project. The Engineer will verify the rate of spread as to field performance using test sections described below.

Approximately 30 days before beginning stabilized subbase operations, construct a trial section approximately 1,000 feet [300 m] in length using the commercial stabilizing material selected for project use. The Engineer will designate the rate of spread of commercial stabilizing material for the trial section. The rate within the trial section may vary to provide up to four subsections. During the 30 day period, the Engineer will evaluate the test section based on appropriate sampling, testing and observation of the subbase's capability to remain firm and unyielding when subjected to construction equipment loading.

If soil characteristics in the upper portion of the roadway vary significantly between project sections or if the commercial stabilizing material is from more than one source, the Engineer will require construction of additional trial sections.

Schedule operations to allow time for evaluation of the trial section.

180-4 Incorporation of Stabilizing Material and Mixing-In.

180-4.1 Spreading and Mixing: Place the stabilizing material on areas to be stabilized and spread uniformly to the loose depth shown in the plans or ordered by the Engineer. Use mechanical material spreaders, unless the Engineer approves other means of controlling the spread. Mix the stabilizing material thoroughly with the soil using rotary tillers or other approved equipment capable of achieving a satisfactory blend. Mix as soon as practicable but no later than one week after placing the stabilizing material. Thoroughly mix the area throughout the entire depth and width of the stabilized subbase.

180-4.2 Maximum Particle Size of Mixed Materials: After mixing, all material particles within the stabilized subbase limits shall pass a 3 1/2 inch [90 mm] sieve. Remove particles not meeting this requirement or break them down to meet this requirement.

180-4.3 Plant Mixing: Provided that a uniform mixture containing the proper amount of water is achieved, a central plant mix method may be used for soil mixing instead of mixing in place.

180-4.4 Depth of Mixing Stabilizing Material: Mix the stabilizing material to the nominal depth shown in the plans. The following tolerances over or under the specified depth will be allowed:

Plan Depth	Tolerance
8 inches [200 mm] or less	1 inch [25 mm]

Plan Depth	Tolerance
Over 8 inches [200 mm]	2 inches [50 mm]

If the measured mixing depth is less than the minimum specified above, remix the stabilized subbase until the stabilizing material is distributed throughout the subbase course to the required depth.

Where the measured mixing depth exceeds the maximum specified, add 1 inch [25 mm] of stabilizing material (loose measure) for each 1 inch [25 mm] exceeding the allowable depth (but in no case less than 1 inch [25 mm] of material) in the top 6 inches [150 mm] of the subbase. Work or materials to correct the above deficiency will be at no expense to the Department.

The Engineer may waive the above remixing requirements or adding stabilizing material and remixing for Stabilized Subbase that serves solely as a working platform for concrete paving equipment, if the original subbase is firm and substantially unyielding.

180-5 Compaction.

Shape and compact the subbase after the mixing operations are complete. The minimum density acceptable is 98% of the maximum density determined by AASHTO T 180. Use Test Method D of AASHTO T 180 (as modified by the Department’s Research Bulletin 22-B, Revised April, 1972). The specified density is not required in the upper 6 inches [150 mm] of areas to be grassed.

The Engineer may waive the density requirement for Stabilized Subbase that serves solely as a working platform for concrete paving equipment, if the subbase as compacted is firm and substantially unyielding.

Compact the materials at a moisture content to allow the specified density be attained. Add water or allow the material to dry to achieve the proper moisture content for adequate compaction.

180-6 Finish Grading.

180-6.1 General: Shape the completed stabilized subbase to conform with the finished lines, grades and cross section indicated in the plans. Check the subbase by using elevation stakes, or other means approved by the Engineer.

Do not dispose of surplus excavated materials on shoulders to be grassed or sodded.

180-6.2 Working Platforms for Econcrete Base on Through Lanes: Immediately prior to placing of roadway Econcrete Base, trim the subbase with an automatically controlled subgrade trimming machine, as specified in 350-3.2, to a tolerance of 1/8 inch [3 mm] above or below true grade as established by the taut line set for vertical control of the machine. Trim across the entire width to be paved in each pass of the paving train (including the area on which the slipform paver tracks will operate) in a single pass. The Engineer will check the area of the subbase where the slipform paver tracks will operate for proper elevation by measuring from a stringline stretched across the taut lines placed for vertical control of the subgrade trimming machine. Provide labor necessary to assist in taking such measurements.

180-7 Requirements for Condition of Completed Subbase.

After the stabilizing and compacting operations, ensure that the subbase is firm and substantially unyielding to support construction equipment.

Remove and replace with a suitable material, all soft and yielding material, and any other portions of the subbase that will not compact readily. Bring the whole subbase to line and grade, with proper allowance for subsequent compaction.

180-8 Maintenance of Completed Subbase.

Maintain the completed subbase free from ruts, depressions and any damage resulting from the hauling or handling of materials, equipment, tools, etc. Maintain the required density until the subsequent base is in place. Recomaction will be at no expense to the Department.

180-9 Method of Measurement.

The quantity to be paid for will (1) be plan quantity, in square yards [square meters] of stabilized subbase, completed and accepted, and (2) the volume in cubic yards [cubic meters] of commercial stabilizing material, applied on the road and accepted.

The quantity of Commercial Stabilizing Material will be determined by measurement in a loose condition, leveled in truck bodies at the placement location.

180-10 Basis of Payment.

Prices and payments will be full compensation for all the work in this Section including furnishing, hauling, placing and spreading all stabilizing material, and mixing, compacting, finishing and maintaining the subbase. The costs of necessary excavation below the finished grade of the subbase to place the stabilizing material, and the disposal of all surplus excavation, will also be included.

No additional compensation will be made for any of the work or material required to correct over or under depth mixing as specified in 180-4.4.

Payment shall be made under:

- Item No. 180- 70- Stabilized Subbase (12 inches) - per square yard.
- Item No. 180- 71- Commercial Stabilizing Material (Special) - per cubic yard.

**LIMEROCK BASE
(REV 01-00) (1-13)**

SECTION 200
LIMEROCK BASE
200-1 Description.

Construct a base composed of limerock.

200-2 Materials.

Meet the requirements of Section 911. The Contractor may use more than one source of limerock on a single Contract provided that a single source is used throughout the entire width and depth of a section of base. Obtain approval from the Engineer before placing material from more than one source. Place material to ensure total thickness single source integrity at any station location of the base. Intermittent placement or "Blending" of sources is not permitted. Limerock may be referred to hereinafter as "rock".

Do not use any of the existing limerock base that is removed to construct the new limerock base.

200-3 Equipment.

Use mechanical rock spreaders, equipped with a device that strikes off the rock uniformly to laying thickness, capable of producing even distribution. For crossovers, intersections and ramp areas; roadway widths of 20 feet [6 m] or less; the main roadway area when forms are used and any other areas where the use of a mechanical spreader is not practicable; the Contractor may spread the rock using bulldozers or blade graders.

200-4 Transporting Limerock.

Transport the limerock to its point of use, over rock previously placed, if practicable, and dump it on the end of the preceding spread. Hauling and dumping on the subgrade will be permitted only when, in the Engineer's opinion, these operations will not be detrimental to the subgrade.

200-5 Spreading Limerock.

200-5.1 Method of Spreading: Spread the rock uniformly. Remove all segregated areas of fine or coarse rock and replace them with properly graded rock.

200-5.2 Number of Courses: When the specified compacted thickness of the base is greater than 6 inches [150 mm], construct the base in multiple courses of equal thickness. Individual courses shall not be less than 3 inches [75 mm]. The thickness of the first course may be increased to bear the weight of the construction equipment without disturbing the subgrade.

If, through field tests, the Contractor can demonstrate that the compaction equipment can achieve density for the full depth of a thicker lift, and if approved by the Engineer, the base may be constructed in successive courses of not more than 8 inches [200 mm] compacted thickness.

The Engineer's approval will be based on results of a test section constructed using the Contractor's specified compactive effort. Approval requires the compactive effort pass a minimum of five density tests with no failing tests. Construct a test section between 300 feet [90 m] and 1,000 feet [300 m] in length, full width. At each test site, the bottom 6 inches [150 mm] must be tested and pass. Remove the materials above the bottom 6 inches [150 mm], at no expense to the Department. The minimum density required on the thicker lift will be the average of the five results obtained on the thick lift in the passing test section. Maintain the exposed surface as close to "undisturbed" as possible; no further compaction will be permitted during the test preparation. If unable to achieve the required density, remove and replace or repair the test section to comply with the specifications at no additional expense to the Department.

Once approved, a change in the source of base material will require the construction of a new test section. The compactive effort will not be allowed to change once the test section is approved. The Engineer will periodically verify the density of the bottom 6 inches [150 mm] during thick lift operations.

The Department may terminate the use of thick lift construction and have the Contractor revert to the 6 inch [150 mm] maximum lift thickness if satisfactory results are not being

achieved.

200-5.3 Limerock Base for Shoulder Pavement: Unless otherwise permitted, complete all limerock base shoulder construction at any particular location before placing the final course of pavement on the traveled roadway. When dumping material for the construction of a limerock base on the shoulders, do not allow material capable of scarring or contaminating the pavement surface on the adjacent pavement. Immediately sweep off any limerock material that is deposited on the surface course.

200-6 Compacting and Finishing Base.

200-6.1 General:

200-6.1.1 Single Course Base: After spreading, scarify the entire surface, then shape the base to produce the required grade and cross-section after compaction.

200-6.1.2 Multiple Course Base: Clean the first course of foreign material, then blade and bring it to a surface cross-section approximately parallel to the finished base. Before spreading any material for the upper courses, allow the Engineer to make density tests for the lower courses to determine that the required compaction has been obtained. After spreading the material for the top course, finish and shape its surface to produce the required grade and cross-section, free of scabs and laminations, after compaction.

200-6.2 Moisture Content: When the material does not have the proper moisture content to ensure the required density, wet or dry it as required. When adding water, uniformly mix it in by disking to the full depth of the course that is being compacted. During wetting or drying operations, manipulate, as a unit, the entire width and depth of the course that is being compacted.

200-6.3 Density Requirements: When proper moisture conditions are attained, compact the material to not less than 98% of maximum density determined by AASHTO T 180.

Compact the limerock base for shoulder pavement to not less than 95% of the maximum density determined under AASHTO T 180.

200-6.4 Density Tests: The Engineer will perform at least three density determinations on each day's final compaction operations on each course, and at more frequent intervals, if deemed necessary.

During final compacting operations, blade any areas necessary to obtain the true grade and cross-section before making the Engineer the density tests on the finished base.

200-6.5 Correction of Defects:

200-6.5.1 Contamination of Base Material: If, at any time, the subgrade material becomes mixed with the base course material, dig out and remove the mixture, and reshape and compact the subgrade. Then replace the materials removed with clean base material, and shape and compact as specified above. Perform this work at no expense to the Department.

200-6.5.2 Cracks and Checks: If cracks or checks appear in the base, either before or after priming, which, in the opinion of the Engineer, would impair the structural efficiency of the base, remove the cracks or checks by rescarifying, reshaping, adding base material where necessary, and recompacting.

200-6.6 Compaction of Widening Strips: Where base construction consists of widening strips and the trench width is not sufficient to permit use of standard base compaction equipment, compact the base using vibratory compactors, trench rollers or other special equipment which will achieve the density requirements specified herein.

When multiple course base construction is required, compact each course prior to spreading material for the overlaying course.

200-7 Testing Surface.

Check the finished surface of the base course with a template cut to the required crown and with a 15 foot [4.572 m] straightedge laid parallel to the centerline of the road. Correct all

irregularities greater than $\frac{1}{4}$ inch [6 mm] to the satisfaction of the Engineer by scarifying and removing or adding rock as required, and recompact the entire area as specified hereinbefore.

200-8 Priming and Maintaining.

200-8.1 Priming: Apply the prime coat only when the base meets the specified density requirements and when the moisture content in the top half of the base does not exceed 90% of the optimum moisture of the base material. At the time of priming, ensure that the base is firm, unyielding and in such condition that no undue distortion will occur.

200-8.2 Maintaining: Maintain the true crown and template, with no rutting or other distortion, while applying the surface course.

200-9 Thickness Requirements.

Meet the requirements of 285-6.

200-10 Calculations for Average Thickness of Base.

Calculations for determining the average thickness of base will be made in accordance with 285-7.

200-11 Method of Measurement.

200-11.1 General: The quantity to be paid for will be the plan quantity, adjusted as specified below.

200-11.2 Authorized Normal Thickness Base: The surface area of authorized normal thickness base to be adjusted will be the plan quantity as specified above, omitting any areas not allowed for payment under the provisions of 200-9 and omitting areas which are to be included for payment under 200-11.3. The adjustment shall be made by adding or deducting, as appropriate, the area of base represented by the difference between the calculated average thickness, determined as provided in 200-10, and the specified normal thickness, converted to equivalent square yards [square meters] of normal thickness base.

200-11.3 Authorized Variable Thickness Base: Where the base is constructed to a compacted thickness other than the normal thickness as shown on the typical section in the plans, as specified on the plans or ordered by the Engineer for providing additional depths at culverts or bridges, or for providing transitions to connecting pavements, the volume of such authorized variable thickness compacted base will be calculated from authorized lines and grades, or by other methods selected by the Engineer, converted to equivalent square yards [square meters] of normal thickness base for payment.

200-12 Basis of Payment.

Price and payment will be full compensation for all the work specified in this Section, including correcting all defective surface and deficient thickness, removing cracks and checks as provided in 200-6.5.2, and the additional limerock required for crack elimination.

Prime coat will be paid for under Section 300.

Payment shall be made under:

Item No. 285-7- Optional Base - per square yard.

ASPHALT BASE COURSES

(REV 01-01-2000) (1-13)

SECTION 280 ASPHALT BASE COURSES

280-1 Description.

Construct asphalt base courses, and meet the specific requirements for base widening construction.

The Engineer will accept work on a LOT to LOT basis in accordance with the applicable requirements of Section 331. The Engineer will determine the size of the LOT as specified in 331-6 for the bituminous mixture accepted at the plant and as specified in 331-7 for the material accepted on the roadway.

Use mixes designated as Asphalt Base Course Type 1 (ABC-1), Asphalt Base Course Type 2 (ABC-2) and Asphalt Base Course Type 3 (ABC-3).

280-2 Materials.

280-2.1 Bituminous Material: Use Superpave PG Asphalt Binder or Recycling Agent meeting the requirements of 916-1.

280-2.2 Course Aggregates: Meet the requirements of Section 901.

280-2.3 Fine Aggregates: Meet the requirements of 335-2.2.

280-3 General Composition of the Mixes.

280-3.1 General: Meet the requirements of 332-3.1.

280-3.2 Grading Requirements: The mix design, as established by the Contractor and approved by the Department, shall be within the design ranges as specified in Table 331-1, for ABC-1, ABC-2, and ABC-3.

280-3.3 Stability: Meet the requirements of 332-3.3.2.

280-4 Job Mix Formula.

Meet the requirements of 332-3.3.1.

280-5 Contractor's Quality Control.

Meet the requirements of 332-3.4.

280-6 Acceptance of Mixture.

280-6.1 Acceptance at the Plant: The Engineer will accept the bituminous mixture at the plant with respect to gradation and asphalt content in accordance with the requirements of 331-6.

280-6.2 Acceptance on the Roadway: The Engineer will accept the bituminous mixture on the roadway with respect to compacted density in accordance with the

applicable provisions of 331-7. Use the permissible variations from longitudinal and transverse grades as specified in 200-7.

280-6.3 Additional Tests: Meet the requirements of 331-6.4 for ABC-1, ABC-2, and ABC-3.

280-7 Plant, Methods, and Equipment.

Meet the plant, methods, and equipment requirements for asphalt base course construction as specified in Section 320, with the following modifications:

(a) Paving Equipment: The Engineer will not require mechanical spreading and finishing equipment for the construction of base widening strips less than 6 feet [1.8 m] in width.

(b) Compacting Equipment: For compaction in areas too restricted to accommodate the standard rollers, the Contractor may use vibratory rollers supplemented with trucks, motor graders, or other compaction equipment approved by the Engineer.

280-8 Construction Requirements.

280-8.1 General: Meet the construction requirements for asphalt base course construction as specified in Section 330, with the following modifications and specific requirements.

280-8.2 Limitations for Spreading: The Contractor may place the base mix on the subgrade when the air temperature is at least 40°F [4°C] and rising, provided the subgrade upon which the base mix is to be placed is not frozen or noticeably affected by frost. The Contractor may place the base mix where he removed all such frozen or frost-affected material during excavation for the subgrade.

280-8.3 Preparation of Subgrade: Before placing the initial layer of base material, prepare and compact the subgrade as specified in 160-8. Do not apply this requirement to base widening strips that are not to be stabilized and where the underlying native material has not been disturbed.

280-8.4 Tacking Between Layers: Place a tack coat between each successive layer of base material. As an exception, the Engineer may authorize the elimination of the tack coat between successive layers when the Contractor has laid them on the same day and the initial layer has not become contaminated by sand, dust, etc. Place a tack coat on all asphalt base courses before placing the structural course.

280-8.5 Placing the Mixture:

280-8.5.1 Spreading and Finishing: Place the base course material with a mechanical spreading and finishing machine meeting the requirements as specified in 320-5. Prior to the placing of the surface course, the Engineer may require motor grader leveling to bring the base into conformance with the plan grades and cross-section. The Contractor may spread the first course of multiple course bases with a motor grader where the subgrade will not support the use of a mechanical spreader.

280-8.5.2 Automatic Screed Control: For all machine-laid courses, use a paver that is equipped with automatic screed control of the ski or traveling string line type. Use the automatic joint matcher on the top course of the base after the first pass with the paving machine.

280-8.5.3 Thickness of Layers: Ensure that the maximum compacted thickness of any layer of asphalt base course is 3 inches [75 mm].

280-8.6 Compacting the Mixture: Apply the requirements for compaction as specified in 330-10 to the compaction of asphalt base courses with these two exceptions:

1. For widening strips 3 feet [1 m] or less in width, the Engineer will not perform density testing for acceptance. The Contractor may apply the compactive efforts using a trench roller, motor grader tires, or any other heavy equipment that will effectively exert a compactive effort. Specify what equipment will be used and what compactive effort (coverage) will be furnished. Obtain the Engineer's approval before starting the operation.

2. For the initial layer of an asphalt base course placed on a soil subgrade, the Engineer will not perform any density determinations. Propose a rolling train and pattern for the approval of the Engineer. The Engineer will perform density determinations on all subsequent layers, and apply the provisions of 331-7.

280-9 Thickness Requirements.

Meet the requirements of 285-6.

280-10 Calculations for Average Thickness of Base.

Meet the requirements of 285-7.

280-11 Method of Measurement.

The quantity to be paid for will be the area, in square yards [square meters], of asphalt base course as specified in 285-8.

280-12 Basis of Payment.

Prices and payments will be full compensation for all work specified in this Section, including the tack coats required, bituminous material used in bituminous plant mix, also the applicable requirements of Sections 320 and 330.

Where the plans include a typical cross-section which requires the construction of an asphalt base only, the price adjustments for bituminous material provided for in 9-2.1.2 will apply to that typical cross-section.

For typical cross-sections which permit the use of asphalt or other base materials for construction of an optional base, price adjustments for the bituminous material as provided for in 9-2.1.2 will not apply.

Payment will be made under:

Item No. 285- 7- Optional Base - per square yard.

**SUPERPAVE HOT MIX ASPHALT
(REV 12-19-03) (1-13)**

**SECTION 334
SUPERPAVE HOT MIX ASPHALT
FOR LOCAL AGENCIES**

334-1 Description.

334-1.1 General: Construct a Superpave Hot Mix Asphalt pavement for local agencies using the type of mixture specified in the Contract, or when offered as alternates, as selected. Superpave mixes are identified as Type SP-9.5, Type SP-12.5 or Type SP-19.0.

All test methods designated as FM refer to the FDOT Florida Sampling and Testing Methods. All references to the Department shall mean the local agency. All references to the Engineer shall mean the designated Engineer of the local agency. Any incorrect references to FDOT specifications, test methods, or standards should be brought to the attention of the Engineer for clarification.

Meet the requirements of Section 320 for plant and equipment, and meet the general construction requirements of Section 330.

The Engineer will accept the work based on one of the following methods as described in 334-5: 1) Certification, 2) Certification and process control testing by the Contractor, 3) acceptance testing by the Agency or 4) other method(s) as determined by the Contract.

334-1.2 Traffic Levels: The requirements for Type SP Hot Mix Asphalt mixtures are based on the design traffic level of the project, expressed in 18-Kip Equivalent Single Axle Loads (ESAL's). The traffic levels are as shown in Table 334-1.

Table 334-1 Superpave Traffic Levels		
Traffic Level	Million ESAL's	Typical Applications
A	<0.3	Local roads, county roads, city streets where truck traffic is light or prohibited.
B	0.3 to <3	Collector roads, access streets. Medium duty city streets and majority of county roadways
C	3 to < 10	
D	10 to <30	Medium to heavy traffic city streets, many state routes, US highways, some rural interstates.
E	≥30	US Interstate class roadways.

The traffic level(s) for the project are as specified in the Contract. In situations where the design traffic level is not specified in the Contract, use a Traffic

Level C mix. Where Type S Hot Mix Asphalt is specified in the Contract, if approved by the Engineer, the equivalent fine Type SP Hot Mix Asphalt mixture (Traffic Level C) may be selected as an alternate at no additional cost to the Department. The equivalent mixes are as follows:

Type S-I	Type SP-12.5
Type S-II	Type SP-19.0
Type S-III.....	Type SP-9.5

334-1.3 Layer Thicknesses: Use only fine graded Superpave mixes. Fine graded mixes are defined as having a gradation that passes above the restricted zone when plotted on an FHWA 0.45 Power Gradation Chart.

334-1.3.1 Fine Mixes: The allowable structural layer thicknesses for fine Type SP Hot Mix Asphalt mixtures are as follows:

Type SP-9.5.....	3/4 – 1 1/4 inches
Type SP-12.5.....	1 1/4 – 2 1/2 inches
Type SP-19.0.....	2- 2 3/4 inches

In addition to the minimum and maximum thickness requirements, the following restrictions are placed on fine mixes when used as a structural course:

Type SP-9.5 - Limited to the final (top) structural layer, one layer only.

Type SP-12.5 - May not be used in the first layer of courses over 3 1/2 inches thick, nor in the first layer of courses over 2 3/4 inches thick on limited access facilities.

Type SP-19.0 - May not be used in the final (top) structural layer.

334-1.3.2 Additional Requirements: The following requirements also apply to fine Type SP Hot Mix Asphalt mixtures:

1. A minimum 1 1/2 inch initial lift is required over an Asphalt Rubber Membrane Interlayer (ARMI).
2. When construction includes the paving of adjacent shoulders (≤ 5 feet wide), the layer thickness for the upper pavement layer and shoulder shall be the same and paved in a single pass, unless shown differently in the plans.
3. All overbuild layers shall be Type SP Hot Mix Asphalt designed at the traffic level as stated in the Contract. Use the minimum and maximum layer thicknesses as specified in 334-1.3.1 unless shown differently in the plans. On variable thickness overbuild layers, the minimum allowable thickness may be reduced by 1/2 inch, and the maximum allowable thickness may be increased 1/2 inch, unless shown differently in the plans.

334-2 Materials.

334-2.1 General Requirements: Meet the material requirements specified in Division III. Specific references are as follows:

Superpave PG Asphalt Binder or Recycling Agent.....	916-1, 916-2
Coarse Aggregate, Stone, Slag or Crushed Gravel.....	Section 901
Fine Aggregate.....	Section 902

Crushed Reclaimed Portland Cement Concrete Pavement may be used as a coarse aggregate or screenings component subject to meeting all applicable specifications.

334-2.2 Gradation Requirements: Combine the coarse and fine aggregate in proportions that will produce an asphalt mixture meeting all of the requirements defined in this Specification and conform to the gradation requirements at design as defined in Table 334-2. Aggregates from various sources may be combined.

Table 334-2 Aggregate Gradation Control Points (Gradation Design Ranges)						
Sieve Size	Superpave Mixture (Percent Passing)					
	SP-9.5		SP-12.5		SP-19.0	
	Min.	Max.	Min.	Max.	Min.	Max.
1 inch	-	-	-	-	100	-
3/4 inch	-	-	100	-	90	100
1/2 inch	100	-	90	100	-	90
3/8 inch	90	100	-	90	-	-
No. 4	-	90	-	-	-	-
No. 8	32	67	28	58	23	49
No. 200	2	10	2	10	2	8

334-2.3 Restricted Zone: The gradation identified in 334-2.2 shall pass above the restricted zone specified in Table 334-3.

334-2.4 Aggregate Consensus Properties: Meet the following consensus properties at design for the aggregate blend:

334-2.4.1 Coarse Aggregate Angularity: When tested in accordance with ASTM D 5821, meet the coarse aggregate angularity requirement defined in Table 334-4.

334-2.4.2 Fine Aggregate Angularity: When tested in accordance with AASHTO T-304, meet the fine aggregate angularity requirement defined in Table 334-5.

Table 334-3 Aggregate Gradation Restricted Zone (Design Only)						
Sieve Size within Restricted Zone	Boundaries of Restricted Zone Superpave Mixture (Percent Passing)					
	SP-9.5		SP-12.5		SP-19.0	
	Min.	Max.	Min.	Max.	Min.	Max.
No. 4	-	-	-	-	-	-
No. 8	47.2	47.2	39.1	39.1	34.6	34.6
No. 16	31.6	37.6	25.6	31.6	22.3	28.3
No. 30	23.5	27.5	19.1	23.1	16.7	20.7

Table 334-4 Coarse Aggregate Angularity Criteria (Minimum Percent Fractured Faces)				
Traffic Level	Depth of Top of Pavement Layer From Surface			
	≤4 inches		>4 inches	
	1 or More Fractured Faces (%)	2 or More Fractured Faces (%)	1 or More Fractured Faces (%)	2 or More Fractured Faces (%)
A	55	-	-	-
B	75	-	50	-
C	85	80	60	-
D	95	90	80	75
E	100	100	100	100

Table 334-5 Fine Aggregate Angularity Criteria		
Traffic Level	Depth of Top of Pavement Layer From Surface	
	≤4 inches	>4 inches
	Minimum Uncompacted Void Content (%)	Minimum Uncompacted Void Content (%)
A	-	-
B	40	40
C	45	40
D	45	40
E	45	45

334-2.4.3 Flat and Elongated Particles: When tested in accordance with ASTM D 4791, use a ratio of maximum to minimum dimensions of 5:1 and do not exceed 10% as the maximum amount of flat and elongated particles for the coarse aggregate blend for all projects with Traffic Levels B and higher. This criteria does not apply for Traffic Level A.

334-2.4.4 Clay Content: When tested in accordance with AASHTO T 176, meet the sand equivalent value for fine aggregate blend defined in Table 334-6.

Table 334-6 Clay Content	
Traffic Level	Sand Equivalent Minimum (%)
A	40
B	40
C	45
D	45
E	50

334-2.5 Use of Reclaimed Asphalt Pavement:

334-2.5.1 General Requirements: Reclaimed Asphalt Pavement (RAP) may be used as a component material of the asphalt mixture subject to the following:

1. The Contractor assumes responsibility for the design of asphalt mixes which incorporate RAP as a component material.

2. For design purposes, the Contractor assumes responsibility for establishing accurate specific gravity values for the RAP material. This may be accomplished by one of the following methods:

a) Calculation of the bulk specific gravity value based upon the effective specific gravity of the RAP, determined on the basis of the asphalt binder content and maximum specific gravity. The Engineer will approve the estimated asphalt binder absorption value used in the calculation.

b) Testing of the extracted aggregate obtained through a vacuum extraction or ignition oven extraction.

3. For projects with Traffic Levels D and E, do not permit the amount of RAP material used in the mix to exceed 30% by weight of total aggregate. For projects with Traffic Levels A, B and C, do not permit the amount of RAP material used in the mix to exceed 50% by weight of total aggregate.

4. Use a grizzly or grid over the RAP cold bin, in-line roller crusher, screen, or other suitable means to prevent oversized RAP material from showing up in the completed recycled mixture.

If oversized RAP material appears in the completed recycled mix, take the appropriate corrective action immediately. If the appropriate corrective actions are not immediately taken, stop plant operations.

5. Provide stockpiled RAP material that is reasonably consistent in characteristics and contains no aggregate particles which are soft or conglomerates of fines.

6. Provide RAP having a minimum average asphalt content of 4.0% by weight of total mix. The Engineer may sample the stockpile to verify that this requirement is met.

334-2.5.2 Binder for Mixes with RAP: Select the appropriate binder based on Table 334-7. The Engineer reserves the right to change binder type and grade at design based on the characteristics of the RAP binder, and reserves the right to make changes during production. Maintain the viscosity of the recycled mixture within the range of 4,000 to 12,000 poises. Obtain a sample of the mixture for the Engineer within the first 1,000 tons and at a frequency of approximately one per 4,000 tons of mix.

Table 334-7 Binder Grade for Mixes Containing RAP	
% RAP	Asphalt Binder Grade
<20	PG 67-22
20-29	PG 64-22
≥ 30	Recycling Agent

Note: When a PG 76-22 Asphalt Binder is called for in the Contract, limit the amount of RAP material used in the mix to a maximum of 15%.

334-2.6 Use of Recycled Crushed Glass: Recycled crushed glass may be used as a component of the bituminous mixture subject to the following:

1. Consider the recycled crushed glass a local material and meet all requirements specified in 902-6.
2. Limit the amount of recycled crushed glass in any bituminous mixture to a maximum of 15% of the total aggregate weight.
3. Use an asphalt binder that contains a minimum of 0.5% anti-stripping agent from the Department's Qualified Products List. The addition of the specified amount of anti-stripping agent must be certified by the supplier.
4. Do not use recycled crushed glass in friction course mixtures or in structural course mixtures, which are to be used as the final wearing course.

334-3 General Composition of Mixture.

334-3.1 General: Compose the asphalt mixture using a combination of aggregate (coarse, fine or mixtures thereof), mineral filler, if required, and asphalt binder material. Size, grade and combine the aggregate fractions to meet the grading and physical properties of the approved mix design. Aggregates from various sources may be combined.

334-3.2 Mix Design:

334-3.2.1 General: Design the Superpave asphalt mixture in accordance with AASHTO PP-28, except as noted herein, to meet the requirements of this Specification. Use only FDOT verified mix designs. (Note: For Fine graded Traffic Level D & E mixes, if an FDOT verified design is not available, use a design as approved by the Engineer.) Prior to the production of any Superpave asphalt mixture, submit the proposed mix design with supporting test data indicating compliance with all Superpave mix design criteria.

The Engineer will consider any marked variations from original test data for a mix design or any evidence of inadequate field performance of a mix design as sufficient evidence that the properties of the mix design have changed, and the Engineer will no longer allow the use of the mix design.

334-3.2.2 Grading Requirements: Meet the gradation design ranges of Table 334-2.

334-3.2.3 Gyrotory Compaction: Compact the design mixture in accordance with AASHTO TP-4. Use the number of gyrations as defined in Table 334-8.

Table 334-8 Superpave Design Gyrotory Compactive Effort			
Traffic Level	N _{initial}	N _{design}	N _{maximum}
A	6	50	75
B	7	75	115
C	7	75	115
D	8	100	160
E	9	125	205

334-3.2.4 Volumetric Criteria: Use an air void content of the mixture at design of 4.0% at the design number of gyrations (N_{design}). Meet the requirements of Table 334-9.

Table 334-9 Mixture Densification Criteria			
Traffic Level	% G_{mm}		
	$N_{initial}$	N_{design}	$N_{maximum}$
A	≤ 91.5	96.0	≤ 98.0
B	≤ 90.5	96.0	≤ 98.0
C	≤ 89.0	96.0	≤ 98.0
D	≤ 89.0	96.0	≤ 98.0
E	≤ 89.0	96.0	≤ 98.0

334-3.2.5 VMA Criteria: Meet the requirements of Table 334-10 for voids in the mineral aggregate (VMA) of the mixture at the design number of gyrations.

Table 334-10 VMA Criteria	
Type Mix	Minimum VMA (%)
SP-9.5	15.0
SP-12.5	14.0
SP-19.0	13.0

334-3.2.6 VFA Criteria: Meet the requirements of Table 334-11 for voids filled with asphalt (VFA) of the mixture at the design number of gyrations.

Table 334-11 VFA Criteria	
Traffic Level	Design VFA (%)
A	70 - 80
B	65 - 78
C	65 - 75
D	65 - 75
E	65 - 75

Note: For Type SP-9.5 mixtures at Traffic Levels C, D & E, the specified VFA range shall be 73% to 76%.

334-3.2.7 Dust Proportion: Use a dust to effective asphalt binder content by weight between 0.6 to 1.2.

334-3.2.8 Moisture Susceptibility: Test the specimens in accordance with FM 1-T 283. Provide a mixture (4 inch specimens) having a retained tensile strength ratio of at least 0.80 and a minimum tensile strength (dry and unconditioned) of 100 psi. If necessary, add a liquid anti-stripping agent, which is on the Department's Qualified

Products List or hydrated lime (meeting the requirements of Section 337) in order to meet these criteria.

334-3.2.9 Additional Information: In addition to the requirements listed above, provide the following information with each proposed mix design submitted for use:

1. The design traffic level and the design number of gyrations (N_{design}).
2. The source and description of the materials to be used.
3. The FDOT source number product code of the aggregate components furnished from an FDOT approved source.
4. The gradation and proportions of the raw materials as intended to be combined in the paving mixture. The gradation of the component materials shall be representative of the material at the time of use. Compensate for any change in aggregate gradation in handling and processing as necessary.
5. A single percentage of the combined mineral aggregate passing each specified sieve. Degradation of the aggregate due to processing (particularly - No. 200 [-75 μm]) should be accounted for and identified for the applicable sieves.
6. The bulk specific gravity value for each individual aggregate (and RAP) component, as identified in the FDOT aggregate control program.
7. A single percentage of asphalt binder by weight of total mix intended to be incorporated in the completed mixture, shown to the nearest 0.1%.
8. A target temperature at which the mixture is to be discharged from the plant and a target roadway temperature (per 330-6.3). Do not exceed a target temperature of 340°F for modified asphalts and 315°F for unmodified asphalts.
9. Evidence that the completed mixture conforms to all specified physical requirements.
10. The name of the Mix Designer.
11. The ignition oven calibration factor(s).

334-3.3 Revision of Mix Design: During production, the Contractor may request a target value revision to a mix design, subject to: (1) the target change falls within the limits defined in Table 334-12, (2) appropriate data exists demonstrating that the mix complies with production air voids specification criteria, and (3) the mixture gradation meets the basic gradation requirements defined in 334-2.2 and 334-2.3.

Characteristic	Limit from Original Mix Design
No. 8 sieve and Coarser	$\pm 5.0\%$
No. 16 sieve	$\pm 4.0\%$
No. 30 sieve	$\pm 4.0\%$
No. 50 sieve	$\pm 3.0\%$
No. 100 sieve	$\pm 3.0\%$
No. 200 sieve	$\pm 1.0\%$
Asphalt Binder Content (1)	$\pm 0.3\%$

(1) Reductions to the asphalt binder content will not be permitted if the VMA during production is lower than 1.0% below the design criteria.

Submit all requests for revisions to mix designs, along with supporting documentation, to the Engineer. In order to expedite the revision process, the request for revision or discussions on the possibility of a revision may be made verbally, but must be followed up by a written request. The initial mix design will remain in effect until a change is authorized by the Engineer. In no case may the effective date of the revision be established earlier than the date of the first communication between the Contractor and the Engineer regarding the revision.

A new design mix will be required for any substitution of an aggregate product with a different aggregate code, unless approved by the Engineer.

334-4.4 Contractor's Process Control:

334-4.4.1 Personnel: Provide the necessary quality control personnel to comply with the requirements of the Contract.

334-4.4.2 Initial Production Test Strip: For initial use of a Type SP mix design at a particular plant, limit full-scale production and placement of the mix to a test strip of 500 tons (for each mix) to demonstrate the capability of producing, placing, and compacting the mix as specified, unless waived by the Engineer. Upon agreement between the Contractor and the Engineer, test strips of up to 1,000 tons may be used. Initial production requirements do not apply if the total quantity of mix to be placed is less than 2000 tons.

334-4.4.2.1 Calibration of the Superpave Gyratory Compactor: Calibrate the Superpave Gyratory Compactor in accordance with the manufacturer's recommendations prior to producing the Superpave mixture for the test strip. Check the height calibration, the speed of rotation, ram pressure and angle of gyration. (Following completion of the test strip, calibrate the height daily, the ram pressure and speed of rotation weekly, and the angle of gyration monthly.)

334-4.4.2.2 Plant Testing Requirements: During the initial production period, take a minimum of three separate sets of mixture samples which will be used for extraction gradation analysis and determination of volumetric properties. Provide a split sample of one of the samples for comparison testing with the Engineer if determined necessary by the Engineer.

334-4.4.2.3 Roadway Testing Requirements: For density determination, obtain 6 inch diameter roadway cores at random locations as directed by the Engineer within the test strip, at a frequency shown in Table 334-16.

334-4.4.2.4 Criteria for Passing Test Strip: Resume production when authorized by the Engineer based upon acceptable extraction gradation analysis as determined in accordance with 334-4.4.3, acceptable volumetric properties as determined in accordance with 334-4.4.4, acceptable density in accordance with 334-5.4.2, and a favorable comparison with the Engineer's test results (G_{mb} at N_{design} (within 1%) and G_{mm} (within 0.019) only). In the event that the test strip fails to meet any of the above mentioned criteria, remove and replace the material at no cost to the Department if so directed by the Engineer.

334-4.4.3 Extraction Gradation Analysis: Sample the asphalt mixture at the plant in accordance with FM 1-T 168. The percent asphalt binder content of the mixture will be determined in accordance with FM 5-563 (ignition oven). The gradation of the extracted mixture will be determined in accordance with FM 1-T 030. All test results will be shown to the nearest 0.01. All calculations will be carried to the nearest

0.001 and rounded to the nearest 0.01, in accordance with the Department’s rules of rounding.

Run an extraction gradation analysis on the mixture at a minimum frequency of once per production day when the daily production is less than 1,000 tons. If the daily production exceeds 1,000 tons, perform the extraction gradation analysis of the mix a minimum of two times per production day.

During normal production, the Engineer will not require extraction gradation analysis on days when mix production is less than 100 tons. However, when mix production is less than 100 tons per day on successive days, run the test when the accumulative tonnage on such days exceeds 100 tons.

The target gradation and asphalt content will be as shown on the mix design. Any changes in target will require a change in the mix design in accordance with 334-4.3.

If the percentage of asphalt binder deviates from the optimum asphalt binder content by more than 0.55%, or the percentage passing any sieve falls outside the limits in Table 334-13, immediately resample the mix and test to validate the previous test result, and if needed, make the necessary correction. If the results for two consecutive tests deviate from the optimum asphalt binder content by more than 0.55%, or exceed the limits in Table 334-13 for any sieve, notify the Engineer and take immediate steps to identify and correct the problem, then resample the mix. If the results from this test deviate from the optimum asphalt binder content by more than 0.55%, or exceed the limits in Table 334-13 for any sieve, stop plant operations until the problem has been corrected.

Table 334-13 Tolerances for Quality Control Tests (Extraction Gradation Analysis)	
Size	Percent Passing
1 inch	7.0
3/4 inch	7.0
1/2 inch	7.0
3/8 inch	7.0
No. 4	7.0
No. 8	5.5
No. 16	5.0
No. 30	4.5
No. 50	4.5
No. 100	3.0
No. 200	2.0

Maintain control charts showing the results of the extraction gradation analysis (asphalt binder content and sieve analysis).

334-4.4.4 Volumetric Control: During production of the mix, monitor the volumetric properties of the Superpave mix with a Superpave Gyratory Compactor to

determine the air voids, VMA, VFA, and dust-to-effective asphalt binder ratio (dust proportion) at N_{design} .

Take appropriate corrective actions in order to maintain an air void content at N_{design} between 3.0 and 5.0% during production. When the air void content at N_{design} drops below 2.5 or exceeds 5.5%, stop plant operations until the appropriate corrective actions are made and the problem is resolved to the satisfaction of the Engineer. Evaluate any failing material in accordance with 334-6.

Determine the volumetric properties of the mixture at a minimum frequency of once per production day when the daily production is less than 1,000 tons. If the daily production exceeds 1,000 tons, monitor the volumetric properties two times per production day.

During normal production, volumetric properties of the mixture will not be required on days when mix production is less than 100 tons. However, when mix production is less than 100 tons per day on successive days, run the test when the accumulative tonnage on such days exceeds 100 tons.

Testing required for volumetric property determination includes AASHTO TP-4, FM 1-T 209, FM 5-563 and FM 1-T 030. Prior to testing samples in accordance with AASHTO TP-4 and FM 1-T 209, condition the test-sized sample for one hour at the compaction temperature in a covered container.

Maintain control charts showing the results of the volumetric testing (air voids, G_{mm} , G_{mb}).

334-4.4.5 Plant Calibration: At or before the start of mix production, perform an extraction gradation analysis of the mix to verify calibration of the plant. This extraction gradation analysis may also be used for the first test of the first day's production.

334-4.4.6 Viscosity of Asphalt Binder in Mixes Containing Reclaimed Asphalt Pavement: When RAP is a component material, assure that the viscosity of the asphalt binder material in the asphalt mixture, when determined in accordance with FM 1-T 202, will be within the range of 4,000 - 12,000 poises. This determination will be made on samples obtained by the Engineer on a random basis at a frequency of approximately one per 2,000 tons of mix.

If the viscosity determined by the Engineer is out of the specified range, adjust the binder formulation or blend or RAP in the mix to bring the viscosity within tolerance.

334-4.4.7 Process Control of In-Place Compaction: Develop and implement a method to control the compaction of the pavement and ensure its compliance with the minimum specified density requirements. Include density determinations by the use of a nuclear density gauge at a frequency of one test per 1,000 feet of compacted pavement in the process control. Other density measuring devices may be used in lieu of the nuclear density gauge, provided that it is demonstrated to the satisfaction of the Engineer that the device can accurately measure the relative level of density in the pavement on a consistent basis.

334-5 Acceptance of the Mixture.

334-5.1 General: The asphalt mixture will be accepted based on one of the following methods as determined by the Engineer and/or Contract Documents:

- 1) Certification by the Contractor

- 2) Certification and Process Control Testing by the Contractor
- 3) Acceptance testing by the Engineer
- 4) Other method(s) as determined by the Contract

334-5.2 Certification by the Contractor: Submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer that all material produced and placed on the project was in substantial compliance with the Specifications.

334-5.3 Certification and Process Control Testing by the Contractor: Submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer that all material produced and placed on the project was in substantial compliance with the Specifications, along with supporting test data documenting all process control testing as described in 334-4.4. If so required by the Contract, utilize an Independent Laboratory as approved by the Engineer for the Process Control testing.

334-5.4 Acceptance Testing by the Engineer:

334-5.4.1 Acceptance at the Plant: The asphalt mixture will be accepted at the plant, with respect to gradation and asphalt binder content, on a LOT to LOT basis. However, any load or loads of mixture which, in the opinion of the Engineer, are unacceptable for reasons of excessive segregation, aggregates improperly coated, or of excessively high or low temperature will be rejected for use in the work.

A standard size LOT at the asphalt plant will consist of 4,000 tons with four equal sublots of 1,000 tons each.

A partial LOT may occur due to the following:

- (1) the completion of a given mix type on a project.
- (2) an approved LOT termination by the Engineer due to a change in process, extended delay in production (greater than 60 days), or change in mix design.

If the partial LOT contains one or two sublots with their appropriate test results, then the previous full-size LOT will be redefined to include this partial LOT and the evaluation of the LOT will be based on either five or six subplot determinations. If the partial LOT contains three sublots with their appropriate test results, this partial LOT will be redefined to be a whole LOT and the evaluation of it will be based on three subplot determinations.

When the total quantity of any mix is less than 3,000 tons, the partial LOT will be evaluated for the appropriate number of sublots from $n=1$ to $n=3$. When the total quantity of any mix type is less than 500 tons, the Engineer will accept the mix on the basis of visual inspection. The Engineer may run extraction and gradation analysis for verification purposes; however, the provisions for partial payment will not apply.

On multiple project contracts, the LOT(s) at the asphalt plant will carry over from project to project.

334-5.4.1.1 Acceptance Procedures: Control all operations in the handling, preparation, and production of the asphalt mix so that the percent asphalt binder content and the percents passing the No. 8 and No. 200 sieves will meet the targets from the mix design within the tolerances shown in Table 334-14.

Table 334-14 Tolerances for Acceptance Tests	
Characteristic	Tolerance*
Asphalt Binder Content	±0.55%
Passing No. 8 Sieve	±5.50%
Passing No. 200 Sieve	±2.00%
*Tolerances for sample size of n=1. See Table 334-15 for other sample sizes n=2 through n=6.	

Acceptance of the mixture will be on the basis of test results on consecutive random samples from each LOT. The Engineer will take one random sample from each subplot. The asphalt mixture will be sampled at the plant in accordance with FM 1-T 168. The percent asphalt binder content of the mixture will be determined in accordance with FM 5-563. The percentages passing the No. 8 and No. 200 sieves will be determined in accordance with FM 1-T 030.

Calculations for the acceptance test results for asphalt binder content and gradation (percentages passing the No. 8 and No. 200 sieves) will be shown to the nearest 0.01. Calculations for arithmetic averages will be carried to the 0.001 and rounded to the nearest 0.01 in accordance with the Department's rules of rounding.

Payment will be made on the basis of Table 334-15 "Acceptance Schedule of Payment". The process will be considered out of control when the deviation of any individual test result from the mix design falls in the 80% pay factor for the "1 Test" column of Table 334-15. When this happens, the LOT will be automatically terminated and acceptance of the LOT determined in accordance with Table 334-15.

Table 334-15 Acceptance Schedule of Payment (Asphalt Plant Mix Characteristics)						
Average of Accumulated Deviations of the Acceptance Tests from the Mix Design						
Pay Factor	1-Test	2-Tests	3-Tests	4-Tests	5-Tests	6-Tests
Asphalt Binder Content						
1.00	0.00-0.55	0.00-0.43	0.00-0.38	0.00-0.35	0.00-0.33	0.00-0.31
0.95	0.56-0.65	0.44-0.50	0.39-0.44	0.36-0.40	0.34-0.37	0.32-0.36
0.90	0.66-0.75	0.51-0.57	0.45-0.50	0.41-0.45	0.38-0.42	0.36-0.39
0.80*	over 0.75	over 0.57	over 0.50	over 0.45	over 0.42	over 0.39
No. 8 Sieve **						
1.00	0.00-5.50	0.00-4.33	0.00-3.81	0.00-3.50	0.00-3.29	0.00-3.13
0.98	5.51-6.50	4.34-5.04	3.82-4.39	3.51-4.00	3.30-3.74	3.14-3.54
0.95	6.51-7.50	5.05-5.74	4.40-4.96	4.01-4.50	3.75-4.18	3.55-3.95
0.90	7.51-8.50	5.75-6.45	4.97-5.54	4.51-5.00	4.19-4.63	3.96-4.36
0.80*	over 8.50	over 6.45	over 5.54	over 5.00	over 4.63	over 4.36
No. 200 Sieve **						
1.00	0.00-2.00	0.00-1.71	0.00-1.58	0.00-1.50	0.00-1.45	0.00-1.41
0.95	2.01-2.40	1.72-1.99	1.59-1.81	1.51-1.70	1.46-1.63	1.42-1.57
0.90	2.41-2.80	2.00-2.27	1.82-2.04	1.71-1.90	1.64-1.80	1.58-1.73
0.80*	over 2.80	over 2.27	over 2.04	over 1.90	over 1.80	over 1.73
<p>*If approved by the Engineer based on an engineering determination that the material is acceptable to remain in place, the indicated partial pay may be accepted. Otherwise, the Engineer will require removal and replacement at no cost. The Contractor may remove and replace at no cost to the Department at any time.</p> <p>**When there are two reduced payments for these items in one LOT of material, only the greatest reduction in payment will be applied. CAUTION: This rule applies only to these two gradation test results.</p> <p>Note: Deviations are absolute values with no plus or minus signs.</p>						

When possible, the Engineer will complete all acceptance tests on the same day the sample was taken, and on no occasion will they be completed later than the following work day.

334-5.4.1.2 Automatic Batch Plant With Printout: Acceptance determinations for asphalt binder content and gradation for mixtures produced by automatic batch plants with printout will be based on extraction results as specified in 334-5.4.1.1.

334-5.4.2 Acceptance on the Roadway:

334-5.4.2.1 Density Control: The in-place density of each course of asphalt mix construction will be evaluated by the use of 6 inch diameter roadway cores. The required average density of a completed course will be based on the maximum specific gravity (G_{mm}) of the as-produced mix.

The Engineer will not perform density testing on patching courses, leveling courses, open-graded friction courses, or any course with a specified thickness less than 1 inch or a specified spread rate less than 105 lb/yd². In addition,

density testing will not be performed on the following areas when they are less than 1,000 feet in length: crossovers, intersections, turning lanes, acceleration lanes or deceleration lanes. Compact these courses (with the exception of open-graded friction courses) in accordance with the rolling procedure as approved by the Engineer.

334-5.4.2.1.1 LOTs: For the purpose of acceptance and determination of payment, each day’s production will be divided into LOTs, and all LOTs are to be closed out at the end of the day. The standard size of a LOT will consist of 5,000 feet of any pass made by the paving train regardless of the width of the pass. Changes in thickness, mix design, or underlying layer shall constitute a separate LOT. Mix placed on the shoulder shall also be considered a separate LOT. Pavers traveling in echelon will be considered as two separate passes. When at the end of a day’s production (production day) or the completion of a given course, layer, or mix, or at the completion of the project, a LOT size is determined to be less than 5,000 feet, it is considered a partial LOT. Partial LOTs are to be handled as follows:

If the length of the partial LOT is 2,000 feet or less, then the previous full-size LOT will be redefined to include this partial LOT and the number of tests required for the combined LOT will be as shown in Table 334-16. If the partial LOT is 2,000 feet or less, and a previous full-size LOT from the same day, mix, layer and project is not available, then the partial LOT will be evaluated separately and the number of tests required for the partial LOT will be as shown in Table 334-16. If the partial LOT is greater than 2,000 feet long, it will be evaluated separately, with the number of tests required as shown in Table 334-16.

Table 334-16 Density Testing Requirements for Partial LOTs	
(feet)	Number of Tests
Less than 3,000	3
3,001 - 4,000	4
4,001 - 5,000	5
5,001 - 6,000	6
6,001 - 7,000	7
Greater than 7,000	2 LOTs

334-5.4.2.1.2 Target Maximum Specific Gravity: The target maximum specific gravity of the mix will be based on the average daily value as determined by the Contractor’s Process Control testing described in 334-4.4. Obtain two separate samples for maximum specific gravity determination on a daily basis. If only one maximum specific gravity test value is available, this value shall be used as the target maximum specific gravity. If a maximum specific gravity value is not determined for a day’s production, the previous day’s value will be used. Obtain, under the Engineer’s supervision, split samples of the asphalt mixture used for the maximum specific gravity test for verification purposes. The minimum size of the split sample will be 4,000 g. The split samples shall be conditioned in accordance with 334-4.4.4 prior to testing and will become the property of the Department. The split samples will become the property of the Department. In the event of an obvious sampling or testing error, the Engineer may allow the Contractor to retest a portion of the split sample. The Engineer will run

verification tests on the split samples in order to determine the acceptability of the Contractor's test results. If the verification test result differs from the Quality Control test result by more than 0.019 for two consecutive tests, the target G_{mm} value will be established by the Department's result until the cause of the discrepancy is identified and resolved to the satisfaction of the Engineer.

334-5.4.2.1.3 Acceptance: The completed pavement will be accepted with respect to density on a LOT basis. For each LOT, 6 inch diameter roadway cores will be obtained at random locations within the LOT, at the frequency shown in Table 334-16. Obtain the roadway cores at the random locations as directed by the Engineer, at the end of each day's production prior to opening the roadway to traffic. The locations of the cores will be determined in the longitudinal direction by the use of statistically derived stratified random number tables furnished by the Department. The locations of the cores transversely will be uniformly spaced across the width of the pavement, with no cores located closer than 1 foot of any unsupported edge. These will also be used for partial LOTs. Assume responsibility for maintenance of traffic, coring, patching the core holes, and trimming the cores to the proper thickness prior to density testing.

The density of the cores will be determined in accordance with FM 1-T 166, and will be averaged for each LOT. To receive full payment for density, the average density of a LOT shall be a minimum of 92% of G_{mm} . Partial payment will be made for those LOTs that have an average density less than 92% of G_{mm} based on Table 334-17 (for pavements with an unrestricted compactive effort). As an exception, if the Engineer (or Contract Documents) limits compaction to the static mode, the percent of payment will be based on the Restricted Compactive Effort schedule defined in Table 334-17.

Once the average density of a LOT has been determined, do not provide additional compaction to raise the average.

Table 334-17 Payment Schedule For Density			
Unrestricted Compactive Efforts (Vibratory and/or Static)		Restricted Compactive Efforts (Static Only)	
Percent of Maximum Specific Gravity (G_{mm})	Percent of Payment	Percent of Maximum Specific Gravity (G_{mm})	Percent of Payment
92.0 and above	100	91.0 and above	100
91.0 to less than 92.0	95	90.5 to less than 91.0	95
90.0 to less than 91.0	90	90.0 to less than 91.5	90
Less than 90.0 *	0 Remove and Replace	Less than 90.0 *	0 Remove and Replace

*The Department will require removal and replacement at no cost. The Contractor may remove and replace at no cost to the Department at any time.

334-5.4.2.1.4 Additional Density Requirement:

1) On shoulders with a width of 5 feet or less, the Engineer will not require density. Compact the pavement in accordance with the rolling procedure (equipment and pattern) approved by the Engineer. Stop the production of the mix if the rolling procedure deviates from the approved procedure.

334-5.4.2.2 Surface Tolerance: The asphalt mixture will be accepted on the roadway with respect to surface tolerance in accordance with the applicable requirements of 330-12.

334-5.5 Additional Tests: The Department reserves the right to run any test at any time for informational purposes and for determining the effectiveness of the Contractor's quality control.

334-5.5.1 Verification of Volumetric Properties: The Engineer will verify the densification properties of the mix during production with the Superpave Gyratory Compactor and will determine volumetric properties of the mix (air voids, VMA, VFA, and dust-to-effective asphalt binder ratio). The Engineer will condition the specimens as specified in 334-4.4.4 prior to testing.

Take appropriate corrective actions to maintain an air void content at N_{design} between 3.0 and 5.0% during production. When the air void content at N_{design} drops below 2.5 or exceeds 5.5%, stop plant operations until the appropriate corrective actions are made and the problem is resolved. Evaluate any failing material in accordance with 334-6.

When plant operations are stopped for mixes that have failing volumetric properties, obtain the Engineer's approval prior to resuming production of the mix. Limit production to 500 tons until passing volumetric properties are obtained.

334-6 Disposition of Failing Material.

Any material that is represented by failing test results identified in 334-4.4.4 or 334-5.5.1 (less than 2.5% air voids at N_{design}) will be evaluated to determine if removal and replacement is necessary. Remove and replace any material, if required, at no cost to the Department. The evaluation will be conducted by the Engineer. If so directed, obtain an engineering analysis, as directed by the Engineer, by an independent laboratory (as approved by the Engineer) to determine if the material can (a) remain in place, for this case the appropriate pay factor will be applied, or (b) be removed and replaced at no cost to the Department. The analysis will be a signed and sealed report by a Professional Engineer licensed in the State of Florida.

334-7 Method of Measurement.

For the work specified under this Section (including the pertinent provisions of Sections 320 and 330), the quantity to be paid for will be the weight of the mixture, in tons.

The bid price for the asphalt mix will include the cost of the liquid asphalt or the asphalt recycling agent. There will be no separate payment or unit price adjustment for the asphalt binder material in the asphalt mix. For the calculation of unit price adjustments of bituminous material, the asphalt content will be based on the percentage specified in 9-2.1.2. The weight will be determined as provided in 320-2 (including the provisions for the automatic recordation system).

334-8 Basis of Payment:

Price and payment will be full compensation for all the work specified under this Section (including the applicable requirements of Sections 320 and 330).

Payment shall be made under:

Item No. 334- 1- Superpave Asphaltic Concrete - per ton.

ASPHALT CONCRETE FRICTION COURSES

(REV 1-1-00) (1-13)

**SECTION 337
ASPHALT CONCRETE FRICTION COURSES**

337-1 Description.

Construct an asphalt concrete friction course. This Section specifies mixes designated as Friction Course 2 (FC-2), Friction Course 3 (FC-3), Friction Course 5 (FC-5) and Friction Course 6 (FC-6).

Meet the plant and equipment requirements of Section 320, as modified herein. Meet the general construction requirements of Section 330, as modified herein.

337-2 Materials.

337-2.1 General Requirements: Meet the requirements specified in Division III as modified herein. The Engineer will base continuing approval of material sources on field performance.

337-2.2 Asphalt Rubber Binder: Meet the requirements of Section 336, and any additional requirements or modifications specified herein for the various mixtures. For projects with a total quantity of FC-2, FC-3, FC-5 or FC-6 less than 500 tons [450 metric tons], the Contractor may elect to substitute a PG 76-22 or PG 70-22 for the ARB-12 or ARB-5, respectively, meeting the requirements of AASHTO MP-1.

337-2.3 Coarse Aggregate: Meet the requirements of Section 901, and any additional requirements or modifications specified herein for the various mixtures.

337-2.4 Fine Aggregate: Meet the requirements of Section 902, and any additional requirements or modifications specified herein for the various mixtures.

337-2.5 Hydrated Lime: Meet the requirements of AASHTO M303 Type 1. Provide certified test results for each shipment of hydrated lime indicating compliance with the specifications.

337-2.6 Fiber Stabilizing Additive (Required for FC-5 only): Use either a mineral or cellulose fiber stabilizing additive. Meet the following requirements:

337-2.6.1 Mineral Fibers: Use mineral fibers made from virgin basalt, diabase, or slag treated with a cationic sizing agent to enhance the disbursement of the fiber, as well as to increase adhesion of the fiber surface to the bitumen. Meet the following requirements for physical properties:

1. Size Analysis
 - Average fiber length0.25 inch [6.0 mm] (maximum)
 - Average fiber thickness 0.0002 inch [0.005 mm] (maximum)
2. Shot Content (ASTM C612)

Percent passing No. 60 [250 μm] Sieve..... 90 - 100
Percent passing No.230 [63 μm] Sieve..... 65 - 100

Provide certified test results for each batch of fiber material indicating compliance with the above tests.

337-2.6.1.1 Notice of Patented Process: Take notice that the use of mineral fibers treated with cationic sizing agent and the size analysis range for average fiber thickness are subject to U.S. Patent No. 4,613,376, held by Fiberand Corporation, 7150 Southwest 62nd Avenue, South Miami, Fl. 33143. Obtain all mineral fibers required to meet the FC-5 requirements of this Contract only from Fiberand Corporation or a duly authorized licensee of Fiberand. Assume responsibility, pursuant to 7-3, for obtaining any and all necessary rights to use such processes and pay any and all royalties, license fees or other costs incurred in order to meet the FC-5 requirements of this Contract. Include any and all royalties, license fees and other costs arising due to the existence of U.S. Patent No. 4,613,376 in the bid unit price for friction course FC-5.

337-2.6.2 Cellulose Fibers: Use cellulose fibers meeting the following requirements:

1. Fiber length.....0.25 inch [6.0 mm] (maximum)
2. Sieve Analysis
 - a. Alpine Sieve Method
Percent passing No. 100 [150 μm] sieve 60-80
 - b. Ro-Tap Sieve Method
Percent passing No. 20 [850μm] sieve 80-95
Percent passing No. 40 [425μm] sieve 45-85
Percent passing No. 100 [150μm sieve]..... 5-40
3. Ash Content: 18% non-volatiles (±5%)
4. pH:.....7.5 (±1.0)
5. Oil Absorption:5.0 (±1.0) (times fiber weight)
6. Moisture Content:5.0 (maximum)

Provide certified test results for each batch of fiber material indicating compliance with the above tests.

337-3 General Composition of Mixes.

337-3.1 General: Use a bituminous mixture composed of aggregate (coarse, fine, or a mixture thereof), asphalt rubber binder, and in some cases, fibers and/or hydrated lime. Size, uniformly grade and combine the aggregate fractions in such proportions that the resulting mix meets the requirements of this Section. The use of RAP material will not be permitted.

337-3.2 Specific Component Requirements by Mix:

337-3.2.1 FC-2:

337-3.2.1.1 Aggregates: In addition to the requirements of Section 901, meet the following coarse aggregate requirements. Use either crushed granite, crushed slag, or lightweight aggregates approved by the Engineer. Crushed limestone from the Oolitic formation may be used if it contains a minimum of 12% non-carbonate material as determined by FM 5-510 and the Engineer grants approval of the source prior to its use. Aggregates other than those listed above may be used if approved by the Engineer.

337-3.2.1.2 Asphalt Rubber: Use an ARB-12 asphalt rubber.

337-3.2.2 FC-3:

337-3.2.2.1 Aggregates: In addition to the requirements of Section 901, meet the following coarse aggregate requirements. Use either crushed gravel, crushed granite, crushed slag, or crushed limestone from the Oolitic formation as specified for use in FC-2. Aggregates other than those listed above may be used if approved by the Engineer.

In addition to the requirements of Section 902, meet the following fine aggregate requirements. Use crushed screenings or a combination of crushed screenings and local materials. Use crushed screenings composed of hard, durable particles resulting from crushing or processing the coarse aggregate as specified above. Screenings from other approved sources may be used provided that the total of these screenings along with silica sand or local materials does not exceed 40%. Ensure that not more than 20% by weight of the total aggregate used is silica sand or local materials defined in Section 902.

337-3.2.2.2 Asphalt Rubber: Use an ARB-5 asphalt rubber.

337-3.2.3 FC-5:

337-3.2.3.1 Aggregates: Use an aggregate blend which consists of either 100% crushed granite or 100% crushed Oolitic limestone.

In addition to the requirements of Section 901, meet the following coarse aggregate requirements. Use either crushed granite or crushed limestone. Use crushed limestone from the Oolitic formation, which contains a minimum of 12% non-carbonate material (as determined by FM 5-510), and has been approved for this use.

In addition to the requirements of Section 902, meet the following fine aggregate requirements. Use either crushed granite screenings, or crushed Oolitic limestone screenings for the fine aggregate.

337-3.2.3.2 Asphalt Rubber: Use an ARB-12 asphalt rubber.

337-3.2.3.3 Hydrated Lime: Add the lime at a dosage rate of 1.0% by weight of the total dry aggregate to mixes containing granite.

337-3.2.3.4 Fiber Stabilizing Additive: Add either mineral fibers at a dosage rate of 0.4% by weight of the total mix, or cellulose fibers at a dosage rate of 0.3% by weight of total mix.

337-3.2.4 FC-6:

337-3.2.4.1: Aggregates: Use coarse and fine aggregate components which also meet the aggregate requirements for an SP-9.5 or SP-12.5 Superpave mix as specified in Section 334.

In addition to the requirements of Section 901, meet the following coarse aggregate requirements. Use either crushed granite, crushed slag, crushed river gravel, lightweight aggregate (that has been approved for this use), or crushed limestone for the coarse aggregate component. Use crushed limestone from the Oolitic formation, which contains a minimum of 12% non-carbonate material (as determined by FM 5-510), and is approved for this use. In addition, other types of aggregates may be used if approved for this use by the Engineer.

In addition to the requirements of Section 902, meet the following fine aggregate requirements. Use crushed screenings or a combination of

crushed screenings and local materials for the fine aggregate components. Use crushed screenings composed of hard, durable particles resulting from the crushing or processing of coarse aggregate as specified above. In addition, screenings from other approved sources may be used provided that the total of these screenings (along with silica sand or local materials) does not exceed 40%.

337-3.2.4.2: Asphalt Rubber: Use an ARB-5 asphalt rubber.

337-3.3 Grading Requirements:

337-3.3.1 FC-2 and FC-3: Use a mixture with a gradation within the design range specified in Table 331-1.

337-3.3.2 FC-5: Use a mixture having a gradation at design within the ranges shown in Table 337-1.

Table 337-1 FC-5 Gradation Design Range							
3/4 inch [19.00 mm]	1/2 inch [12.50 mm]	3/8 inch [9.50 mm]	No.4 [4.75 mm]	No.10 [2.00 mm]	No. 40 [425 μm]	No. 80 [180μm]	No. 200 [75 μm]
100	85-100	55-75	15-25	5-10	-	-	2-4

337-3.3.3 FC-6: Meet the design gradation requirements for a SP-9.5 Superpave mix passing below the restricted zone, or the design gradation requirements for a SP-12.5 Superpave mix passing above the restricted zone, as specified in Section 334.

337-4 Mix Design.

337-4.1 FC-2 and FC-5: The Department will design the FC-2 and FC-5 mixtures. Furnish materials and the appropriate information (source, gradation, etc.) as specified in 331-4.3. The Department will have two weeks to design the mix.

The Department will establish the design binder content for FC-2 within the following ranges based on aggregate type:

Aggregate Type	Binder Content % by weight of total mix
Crushed Granite	5.5-7.0
Crushed Slag	6.0-8.0
Crushed Limestone (Oolitic)	6.5-7.5
Lightweight	12.5-15.0

The Department will establish the design binder content for FC-5 within the following ranges based on aggregate type:

Aggregate Type	Binder Content
Crushed Granite	5.5 - 7.0
Crushed Limestone (Oolitic)	6.5 - 7.5

337-4.2 FC-3: Provide a mix design conforming to the requirements of 331-4.3. Submit data showing that the mix design meets the requirements of Table 331-2 using an ARB-5 meeting the requirements of Section 336.

337-4.3 FC-6: Provide a mix design conforming to the requirements of 334-4.2 for Traffic Level C unless otherwise designated in the plans. Develop the mix design using an ARB-5 meeting the requirements of Section 336.

337-5 Contractor's Quality Control.

Provide the necessary quality control of the friction course mix and construction in accordance with the applicable provisions of 331-5.2 for FC-2, FC-3 and FC-5, and 334-4.4 for FC-6. After the mix design has been approved, furnish the material to meet the approved mix design in accordance with the provisions of 331-4.4.2 and Table 331-3 for FC-2, FC-3 and FC-5, and 334-4.4 for FC-6. Calibrate the plant in accordance with 331-4.4.3 and Table 331-3.

The Engineer will monitor the spread rate periodically to ensure uniform thickness. Provide quality control procedures for daily monitoring and control of spread rate variability. If the spread rate varies by more than 5% of the spread rate set by the Engineer in accordance with 337-8, immediately make all corrections necessary to bring the spread rate into the acceptable range.

337-6 Acceptance of Mix.

337-6.1 Acceptance at the Plant: The bituminous mix will be accepted at the plant with respect to gradation and asphalt content in accordance with the applicable requirements of 331-6 for FC-2, FC-3 and FC-5, and 334-5 for FC-6, with the exception that the asphalt content of the mixture will be determined in accordance with FM 5-563, and the gradation will be determined in accordance with FM 1-T 030.

337-6.2 Acceptance on the Roadway: The FC-3 mix will be accepted on the roadway with respect to density in accordance with the applicable provisions of 330-10. There will be no density requirements for FC-2 and FC-5.

The FC-2, FC-3 and FC-5 mixtures will be accepted on the roadway with respect to surface tolerance in accordance with the applicable provisions of 330-12.

The FC-6 mix will be accepted on the roadway with respect to density and surface tolerance in accordance with the applicable provisions of 334-5.4.

337-6.3 Additional Tests: The provisions of 331-5.5 will apply to FC-2, FC-3 and FC-5. The provisions of 334-5.5 will apply to FC-6.

337-7 Special Construction Requirements

337-7.1 Hot Storage of FC-2 and FC-5 Mixtures: When using surge or storage bins in the normal production of FC-2 and FC-5, do not leave the mixture in the surge or storage bin for more than one hour.

337-7.2 Longitudinal Grade Controls for Open-Graded Friction Courses: On FC-2, do not use a longitudinal grade control (skid, ski, or traveling stringline). Use a joint matcher. On FC-5, use either longitudinal grade control (skid, ski or traveling stringline) or a joint matcher.

337-7.3 Temperature Requirements for FC-2:

337-7.3.1 Air Temperature at Laydown: Spread the mixture only when the air temperature, taken as the temperature in the shade away from artificial heat, is at or above 60°F [15°C].

337-7.3.2 Temperature of the Mixture: Heat and combine the asphalt rubber binder and aggregate in a manner which will produce a mixture having a temperature, when discharged from the plant, meeting the requirements of 330-6.3. Meet all the requirements of 330-9.1.2 at the roadway.

337-7.4 Compaction of FC-2: Perform only seal rolling using a tandem steel-wheel roller. Do not allow the weight of the steel-wheel roller to exceed 135 lb/in (PLI) [2.4 kg/mm] of drum width.

$$\text{PLI} = \frac{\text{Non SI Units}}{\text{Total Weight of Roller (pounds)}} \div \frac{\text{Total Width of Drums (inches)}}{\text{Total Width of Drums (inches)}}$$

$$\frac{\text{kg}}{\text{mm}} = \frac{\text{SI Units}}{\text{Total Weight of Roller (kilograms)}} \div \frac{\text{Total Width of Drums (millimeters)}}{\text{Total Width of Drums (millimeters)}}$$

Perform seal rolling with a single coverage and with a nominal amount of overlap. Where the lane being placed is adjacent to a previously laid mat, do not pinch the longitudinal joint with the roller on the cold mat. Pinch the longitudinal joint with the roller on the mat being rolled, overlapping onto the cold mat by no more than 3 inches [75 mm]. Never allow a roller on the mat after completing the seal rolling.

337-7.5 Temperature Requirements for FC-3:

337-7.5.1 Air Temperature at Laydown: Spread the mixture only when the air temperature, taken in the shade away from artificial heat, is at or above 45°F [7°C].

337-7.5.2 Temperature of the Mixture: Heat and combine the asphalt rubber binder and aggregate in a manner which will produce a mixture having a temperature, when discharged from the plant, meeting the requirements of 330-6.3. Meet all requirements of 330-9.1.2 at the roadway.

337-7.6 Temperature Requirements for FC-5:

337-7.6.1 Air Temperature at Laydown: Spread the mixture only when the air temperature (the temperature in the shade away from artificial heat) is at or above 65°F [18°C].

337-7.6.2 Temperature of the mix: Heat and combine the asphalt rubber binder and aggregate in a manner to produce a mix having a temperature, when discharged from the plant, meeting the requirements of 330-6.3. Meet all the requirements of 330-9.1.2 at the roadway.

337-7.7 Compaction of FC-5: Provide 2, 8-10 ton static steel-wheeled rollers. (Any variation of this equipment requirement must be approved by the Engineer.) The Engineer will establish the appropriate rolling pattern for the pavement. If the rollers

crush the aggregate, use a tandem steel-wheel roller weighing not more than 135 lb/in (PLI) [2.4 kg/mm] of drum width as determined in accordance with 337-7.4.

337-7.8. Temperature Requirements for FC-6:

337-7.8.1 Air Temperature at Laydown: Spread the mixture only when the air temperature (the temperature in the shade away from artificial heat) is at or above 45°F [7°C].

337-7.8.2 Temperature of the mix: Heat and combine the asphalt rubber binder and aggregate in a manner to produce a mix having a temperature, when discharged from the plant, meeting the requirements of 330-6.3. Meet all the requirements of 330-9.1.2 at the roadway.

337-7.9 Prevention of Adhesion: To minimize adhesion to the drum during the rolling operations, the Contractor may add a small amount of liquid detergent to the water in the roller.

At intersections and in other areas where the pavement may be subjected to cross-traffic before it has cooled, spray the approaches with water to wet the tires of the approaching vehicles before they cross the pavement.

337-7.10 Transportation Requirements of Friction Course Mixtures: Cover all loads of friction course mixtures with a tarpaulin.

337-8 Thickness of Friction Courses.

The thickness of the friction courses will be based on the spread rate set by the Engineer. Plan quantities are based on the maximum spread rate within the ranges shown below. Pay quantities may be less, based on the spread rate set by the Engineer.

337-8.1 Spread Rate for FC-2: For FC-2 with granite, oolitic limestone, or other conventional aggregate, the Engineer will set the spread rate within the range of 50 - 60 lb/yd² [27 - 34 kg/m²]. For FC-2 with lightweight aggregate, the Engineer will set the spread rate within the range of 28 - 35 lb/yd² [15 - 19 kg/m²].

337-8.2 Spread rate for FC-3: The Engineer will set the spread rate within the range of 100 - 110 lb/yd² [54 - 60 kg/m²].

337-8.3 Spread Rate of FC-5: The Engineer will set the spread rate within the range of 70 - 80 lb/yd² [38 - 44 kg/m²].

337-8.4 Spread Rate of FC-6: The Engineer will set the spread rate within the range of 150 - 160 lb/yd² [80 - 88 kg/m²].

337-9 Special Equipment Requirements for FC-5.

337-9.1 Fiber Supply System: Use a separate feed system to accurately proportion the required quantity of mineral fibers into the mixture in such a manner that uniform distribution is obtained. Interlock the proportioning device with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes. Control the proportion of fibers to within plus or minus 10% of the amount of fibers required. Provide flow indicators or sensing devices for the fiber system, interlocked with plant controls so that the mixture production will be interrupted if introduction of the fiber fails.

When a batch plant is used, add the fiber to the aggregate in the weigh hopper or as approved and directed by the Engineer. Increase the batch dry mixing time by 8 to 12 seconds, or as directed by the Engineer, from the time the aggregate is

completely emptied into the pugmill. Ensure that the fibers are uniformly distributed prior to the addition of asphalt rubber into the pugmill.

When a drum-mix plant is used, add and uniformly disperse the fiber with the aggregate prior to the addition of the asphalt rubber. Add the fiber in such a manner that it will not become entrained in the exhaust system of the drier or plant.

337-9.2 Hydrated Lime Supply System: For FC-5 mixes containing granite, use a separate feed system to accurately proportion the required quantity of hydrated lime into the mixture in such a manner that uniform coating of the aggregate is obtained prior to the addition of the asphalt rubber. Add the hydrated lime in such a manner that it will not become entrained in the exhaust system of the drier or plant. Interlock the proportioning device with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes and to ensure that all mixture produced is properly treated with hydrated lime. Control the proportion of hydrated lime to within plus or minus 10% of the amount of hydrated lime required. Provide and interlock flow indicators or sensing devices for the hydrated lime system with plant controls so that the mixture production will be interrupted if introduction of the hydrated lime fails. The addition of the hydrated lime to the aggregate may be accomplished by Method (A) or (B) as follows:

337-9.2.1 Method (A) - Dry Form: Add hydrated lime in a dry form to the mixture according to the type of asphalt plant being used.

When a batch plant is used, add the hydrated lime to the aggregate in the weigh hopper or as approved and directed by the Engineer. Increase the batch dry mixing time by eight to twelve seconds, or as directed by the Engineer, from the time the aggregate is completely emptied into the pugmill. Uniformly distribute the hydrated lime prior to the addition of asphalt rubber into the pugmill.

When a drum-mix plant is used, add and uniformly disperse the hydrated lime to the aggregate prior to the addition of the asphalt rubber. Add the hydrated lime in such a manner that it will not become entrained in the exhaust system of the drier or plant.

337-9.2.2 Method (B) - Hydrated Lime/Water Slurry: Add the required quantity of hydrated lime (based on dry weight) in a hydrated lime/water slurry form to the aggregate. Provide a solution consisting of hydrated lime and water in concentrations as directed by the Engineer. Use a plant equipped to blend and maintain the hydrated lime in suspension and to mix it with the aggregates uniformly in the proportions specified.

337-10 Method of Measurement.

The quantity to be paid for will be the weight, in tons [metric tons], as determined in accordance with 320-2 (including provisions for the automatic recordation system). The pay quantity will be based on the average spread rate for the project, limited to a maximum of 105% of the spread rate set by the Engineer in accordance with 337-8.

337-11 Basis of Payment.

Price and payment will be full compensation for all the work specified under this Section, including the cost of the asphalt rubber (asphalt cement, ground tire rubber, anti-stripping agent, blending, and handling), as well as fiber stabilizing additive and hydrated lime (if required).

Payment will be made under:

Item No. 337- 7- Asphaltic Concrete Friction Course -per ton.

**711 THERMOPLASTIC PAVEMENT MARKINGS.
(REV 2-24-15) (FA 3-13-15) (7-15)**

SECTION 711 is deleted and the following substituted:

**SECTION 711
THERMOPLASTIC PAVEMENT MARKINGS**

711-1 Description.

Apply new thermoplastic pavement markings, or refurbish existing thermoplastic pavement markings, in accordance with the Contract Documents.

711-2 Materials.

Use only materials listed on the Department’s Approved Product List (APL) meeting the following requirements.

Standard and Refurbishment Thermoplastic.....	
.....	971-1 and 971-5
Preformed Thermoplastic.....	971-1 and 971-6
Glass Spheres.....	971-1 and 971-2

Use sand materials meeting the requirements of 971-5.4.

The Engineer will take random samples of all material in accordance with the Department’s Sampling, Testing and Reporting Guide schedule.

711-3 Equipment.

Use equipment capable of providing continuous, uniform heating of the pavement marking material to temperatures exceeding 390°F, mixing and agitation of the material in the reservoir to provide a homogeneous mixture without segregation. Use equipment that will maintain the pavement marking material in a plastic state, in all mixing and conveying parts, including the line dispensing device until applied. Use equipment which can produce varying width lines and which meets the following requirements:

1. Capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, to produce a uniform application of pavement marking material and capable of following straight lines and making normal curves in a true arc.
2. Capable of applying glass spheres to the surface of the completed pavement marking by a double drop application for standard thermoplastic pavement markings and a single drop application for recapping and refurbishment thermoplastic pavement markings. The bead dispenser for the first bead drop shall be attached to the pavement marking machine in such a manner that the beads are dispensed closely behind the installed line. The second bead dispenser bead shall be attached to the pavement marking machine in such a manner that the beads are dispensed immediately after the first bead drop application. Use glass spheres dispensers equipped with an automatic cut-off control that is synchronized with the cut-off of the thermoplastic material and applies

the glass spheres uniformly on the entire pavement markings surface with 50 to 60% embedment.

3. Equipped with a special kettle for uniformly heating and melting the pavement marking material. The kettle must be equipped with an automatic temperature control device and material thermometer for positive temperature control and to prevent overheating or scorching of the thermoplastic material.

4. Meet the requirements of the National Fire Protection Association, state, and local authorities.

711-4 Application.

711-4.1 General: Remove existing pavement markings such that scars or traces of removed markings will not conflict with new pavement markings by a method approved by the Engineer. Cost for removing conflicting pavement markings during maintenance of traffic operations to be included in Maintenance of Traffic, Lump Sum.

Before applying pavement markings, remove any material that would adversely affect the bond of the pavement markings by a method approved by the Engineer.

Before applying pavement markings to any portland cement concrete surface, apply a primer, sealer, or surface preparation adhesive of the type recommended by the manufacturer. Offset longitudinal lines at least 2 inches from any longitudinal joints of portland cement concrete pavement.

Apply pavement markings to dry surfaces only, and when the ambient air and surface temperature is at least 50°F and rising for asphalt surfaces and 60°F and rising for concrete surfaces.

Apply pavement markings to the same tolerances in dimensions and in alignment specified in 710-5. When applying pavement markings over existing markings, ensure that no more than 2 inches on either end and not more than 1 inch on either side of the existing line is visible.

Apply thermoplastic material to the pavement by extrusion or other means approved by the Engineer.

Conduct field tests in accordance with FM 5-541. Take test readings representative of the pavement marking performance. Remove and replace pavement markings not meeting the requirements of this Section at no additional cost to the Department.

Wait at least 14 days after constructing the final asphalt surface course to place thermoplastic pavement markings. Provide temporary pavement markings during the interim period prior to opening the road to traffic.

711-4.1.1 Preformed Thermoplastic: Apply markings to dry surfaces only and when ambient air temperature is at least 32°F. Prior to installation, follow the manufacturer's recommendations for pre-heating.

711-4.2 Thickness:

711-4.2.1 Standard Thermoplastic Markings: Apply or recap standard thermoplastic pavement markings for longitudinal lines to attain a minimum thickness of 0.10 inch or 100 mils and a maximum thickness 0.15 inch or 150 mils maximum thickness, when measured above the pavement surface.

All chevrons, diagonal and transverse lines, messages, symbols, and arrows, wherever located, will have a thickness of 0.09 inch or 90 mils to 0.12 inch or 120 mils when measured above the pavement surface.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

711-4.2.2 Refurbishment Thermoplastic Markings: Apply a minimum of 0.06 inch or 60 mils of thermoplastic material. Ensure that the combination of the existing marking and the overlay after application of glass spheres does not exceed the maximum thickness of 0.150 inch or 150 mils for all lines.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

711-4.2.3 Preformed Thermoplastic: Apply 0.125 inch or 125 mils of preformed thermoplastic material.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of the pavement markings in accordance with FM 5-541.

711-4.3 Retroreflectivity: Apply white and yellow pavement markings that will attain an initial retroreflectivity of not less than 450 mcd/lx·m² and not less than 350 mcd/lx·m², respectively for all longitudinal lines. All chevrons, diagonal lines, stop lines, messages, symbols, and arrows will attain an initial retroreflectivity of not less than 300 mcd/lx·m² and 250 mcd/lx·m² for white and yellow respectively. All crosswalks and bicycle markings shall attain an initial retroreflectivity of not less than 275 mcd/lx·m².

Measure, record and certify on Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

711-4.4 Glass Spheres:

711-4.4.1 Longitudinal Lines: For standard thermoplastic markings, apply the first drop of Type 4 or larger glass spheres immediately followed by the second drop of Type 1 glass spheres. For refurbishment thermoplastic markings, apply a single drop of Type 3 glass spheres. Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

711-4.4.2 Chevrons, Diagonal and Transverse Lines, Messages, Symbols, and Arrows: For standard or refurbishment thermoplastic markings, apply a single drop of Type 1 glass spheres. Apply retroreflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

Apply a mixture consisting of 50% glass spheres and 50% sharp silica sand to all standard thermoplastic crosswalk lines at the rates determined by the manufacturer's recommendations.

711-4.4.3 Preformed Markings: These markings are factory supplied with glass spheres and skid resistant material. No additional glass spheres or skid resistant material should be applied during installation.

711-5 Contractor's Responsibility for Notification.

Notify the Engineer prior to the placement of the materials. Furnish the Engineer with the manufacturer's name and batch numbers of the thermoplastic materials and glass spheres to be used. Ensure that the approved batch numbers appear on the thermoplastic materials and glass spheres packages.

711-6 Protection of Newly Applied Thermoplastic Pavement Markings.

Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Department.

711-7 Observation Period.

Longitudinal pavement markings are subject to a 180 day observation period under normal traffic. The observation period shall begin with the satisfactory completion and acceptance of the work.

The longitudinal pavement markings shall show no signs of failure due to blistering, excessive cracking, chipping, discoloration, poor adhesion to the pavement, loss of retroreflectivity or vehicular damage. The retroreflectivity shall meet the initial requirements of 711-4.3. The Department reserves the right to check the retroreflectivity any time prior to the end of the observation period.

Replace, at no additional expense to the Department, any longitudinal pavement markings that do not perform satisfactorily under traffic during the 180 day observation period.

711-8 Corrections for Deficiencies.

Recapping applies to conditions where additional pavement marking material is applied to new or refurbished pavement markings to correct a thickness deficiency. Correct deficiencies by recapping or removal and reapplication of a 1 mile section centered around the deficiency, as determined by the Engineer, at no additional cost to the Department.

711-9 Submittals.

711-9.1 Submittal Instructions: Prepare a certification of quantities, using the Department's current approved form, for each project in the Contract. Submit the certification of quantities and daily worksheets to the Engineer. The Department will not pay for any disputed items until the Engineer approves the certification of quantities.

711-9.2 Contractor's Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O clock noon Monday after the estimate cut-off date or as directed by the Engineer, based on the amount of work done or completed. Ensure the certification of quantities consists of the following:

1. Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.
2. The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

711-10 Method of Measurement.

The quantities, authorized and acceptably applied, under this Section will be paid as follows:

1. The length, in gross miles, of solid, 10'-30' skip, 3'-9' dotted, 6'-10' dotted, and 2'-4' dotted lines.
2. The length, in linear feet, of transverse lines, diagonal lines, chevrons, and parking spaces.
3. The number of pavement messages, symbols, and arrows. Each arrow is paid as a complete marking, regardless of the number of "points" or directions.
4. The area, in square feet, for removal of existing markings acceptably removed. Payment for removal of conflicting markings will be in accordance with 102-5.8. Payment for removal of non-conflicting markings will be paid separately.

The gross mile measurement will be taken as the distance from the beginning of the thermoplastic line to the end of the thermoplastic line and will include the unmarked gaps for skip and dotted lines. The gross mile measurement will not include designated unmarked lengths at intersections, turn lanes, etc. Final measurement will be determined by plan dimensions or stations, subject to 9-1.3.1.

711-11 Basis of Payment.

Prices and payments will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

Payment will be made under:

Item No. 711	Thermoplastic Pavement Markings
	Solid - per gross mile.
	Solid - per linear foot.
	Skip - per gross mile.
	Dotted - per gross mile.
	Message or Symbol - each.
	Arrows - each.
	Yield Line - per linear foot.
	Remove - per square foot.

710 PAINTED PAVEMENT MARKINGS.
(REV 2-24-15) (FA 3-13-15) (7-15)

SECTION 710 is deleted and the following substituted:

SECTION 710
PAINTED PAVEMENT MARKINGS

710-1 Description.

Apply painted pavement markings, in accordance with the Contract Documents.

710-2 Materials.

Use only materials listed on the Department's Approved Product List (APL) meeting the following requirements:

Raised Retroreflective Pavement Markers and Bituminous Adhesive	Section 970
Standard Paint	971-1 and 971-3
Durable Paint	971-1 and 971-4
Glass Spheres	971-1 and 971-2

The Engineer will take random samples of all material in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

710-3 Equipment.

Use equipment that will produce continuous uniform dimensions of pavement markings of varying widths and meet the following requirements:

1. Capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, in order to produce a uniform application of paint and capable of following straight lines and making normal curves in a true arc.
2. Capable of applying glass spheres to the surface of the completed line by an automatic sphere dispenser attached to the pavement marking machine such that the glass spheres are dispensed closely behind the installed line. Use a glass spheres dispenser equipped with an automatic cut-off control that is synchronized with the cut-off of the paint and applies the glass spheres in a manner such that the spheres appear uniform on the entire pavement markings surface.
3. Capable of spraying the paint to the required thickness and width without thinning of the paint. Equip the paint tank with nozzles equipped with cut-off valves, which will apply broken or skip lines automatically.

710-4 Application.

710-4.1 General: Remove existing pavement markings, such that scars or traces of removed markings will not conflict with new pavement markings, by a method approved by the Engineer.

Before applying pavement markings, remove any material that would adversely affect the bond of the pavement markings by a method approved by the Engineer.

Apply standard paint to dry surfaces only, and when the ambient air and surface temperature is at least 40°F and rising.

Apply durable paint to dry surfaces only. Do not apply durable paint when the ambient air and surface temperature is below 50°F, relative humidity is above 80% or when the dew point is within 5°F of the ambient air temperature.

Do not apply painted pavement markings when winds are sufficient to cause spray dust.

Apply painted pavement markings, having well defined edges, over existing pavement markings such that not more than 2 inches on either end and not more than 1 inch on either side is visible. When stencils are used to apply symbols and messages, the areas covered by the stencil reinforcing will not be required to be painted.

Mix the paint thoroughly prior to pouring into the painting machine.

Apply paint to the pavement by spray or other means approved by the Engineer.

Conduct field testing in accordance with FM 5-541. Remove and replace painted pavement markings not meeting the requirements of this Section at no additional cost to the Department.

Apply all pavement markings prior to opening the road to traffic.

710-4.1.1 Final Surface: When permanent pavement markings are included in the Plans, such as thermoplastic, tape, etc., the painted pavement markings (final surface) will include one application of standard paint and one application of retroreflective pavement markers applied to the final newly constructed surface prior to the final permanent markings. If no permanent pavement markings, such as thermoplastic, tape etc., are included in the Plans, the painted pavement markings (final surface) will include two applications of standard paint and one application of retroreflective pavement markers applied to the final surface. Wait at least 14 days after the first application to apply the second application of paint. Second application must be applied prior to final acceptance of the project.

Apply all retroreflective pavement markers per the requirements of Section 706.

710-4.2 Thickness: Apply standard paint to attain a minimum wet film thickness in accordance with the manufacturer's recommendations. Apply durable paint to attain a minimum wet film thickness of 0.025 inches or 25 mils. Measure, record and certify on a Department approved form and submit to the Engineer, the thickness of white and yellow durable paint pavement markings in accordance with FM 5-541.

710-4.3 Retroreflectivity: Apply white and yellow standard paint that will attain an initial retroreflectance of not less than 300 mcd/lx·m² and not less than 250 mcd/lx·m², respectively. Apply white and yellow durable paint that will attain an initial retroreflectance of not less than 450 mcd/lx·m² and not less than 300 mcd/lx·m², respectively.

Measure, record and certify on a Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

The Department reserves the right to test the markings within three days of receipt of the Contractor's certification. Failure to afford the Department opportunity to test the markings will result in non-payment. The test readings should be representative of the Contractor's pavement marking performance. If the retroreflectivity values measure below values shown above, reapply the pavement marking at no additional cost to the Department.

For standard paint, ensure that the minimum retroreflectance of white and yellow pavement markings are not less than 150 mcd/lx m². If the retroreflectivity values for standard paint fall below the 150 mcd/lx m² value within 180 days of initial application, the pavement marking will be reapplied at the Contractor's expense. If the retroreflectivity values for durable paint fall below the initial values of 450 mcd/lx m² value for white and 300 mcd/lx m² for yellow within 180 days of initial application, the pavement marking will be reapplied at the Contractor's expense.

710-4.4 Color: Use paint material that meets the requirements of 971-1.

710-4.5 Glass Spheres: Apply glass spheres on all pavement markings immediately and uniformly following the paint application. The rate of application shall be based on the manufacturer's recommendation.

For longitudinal durable paint markings, apply a double drop of Type 1 and Type 3 glass spheres. For transverse durable paint markings, apply a single drop of Type 3 glass spheres.

The rate of application shall be based on the manufacturer's recommendation.

710-5 Tolerances in Dimensions and in Alignment.

Establish tack points at appropriate intervals for use in aligning pavement markings, and set a stringline from such points to achieve accuracy.

710-5.1 Dimensions:

710-5.1.1 Longitudinal Lines: Apply painted skip line segments with no more than plus or minus 12 inches variance, so that over-tolerance and under-tolerance lengths between skip line and the gap will approximately balance. Apply longitudinal lines at least 2 inches from construction joints of portland cement concrete pavement.

710-5.1.2 Transverse Markings, Gore Markings, Arrows, and Messages: Apply paint in multiple passes when the marking cannot be completed in one pass, with an overall line width allowable tolerance of plus or minus 1 inch.

710-5.1.3 Contrast Lines: Use black paint to provide contrast on concrete or light asphalt pavement, when specified by the Engineer. Apply black paint in 10 foot segments following each longitudinal skip line.

710-5.2 Alignment: Apply painted pavement markings that will not deviate more than 1 inch from the stringline on tangents and curves one degree or less. Apply painted pavement markings that will not deviate more than 2 inches from the stringline on curves greater than one degree. Apply painted edge markings uniformly, not less than 2 inches or more than 4 inches from the edge of pavement, without noticeable breaks or deviations in alignment or width.

Remove and replace at no additional cost to the Department, pavement markings that deviate more than the above stated requirements.

710-5.3 Correction Rates: Make corrections of variations in width at a maximum rate of 10 feet for each 0.5 inch of correction. Make corrections of variations in alignment at a maximum rate of 25 feet for each 1 inch of correction, to return to the stringline.

710-6 Contractor's Responsibility for Notification.

Notify the Engineer prior to the placement of the materials. Furnish the Engineer with the manufacturer's name and batch numbers of the materials and glass spheres to be

used. Ensure that the approved batch numbers appear on the materials and glass spheres packages.

710-7 Protection of Newly Applied Pavement Markings.

Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Department.

710-8 Corrections for Deficiencies to Applied Painted Pavement Markings.

Reapply a 1.0 mile section, centered around any deficiency, at no additional cost to the Department.

710-9 Submittals.

710-9.1 Submittal Instructions: Prepare a certification of quantities, using the Department’s current approved form, for each project in the Contract. Submit the certification of quantities and daily worksheets to the Engineer. The Department will not pay for any disputed items until the Engineer approves the certification of quantities.

710-9.2 Contractor’s Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O’clock noon Monday after the estimate cut-off date or as directed by the Engineer, based on the amount of work done or completed. Ensure the certification of quantities consists of the following:

1. Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.
2. The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

710-10 Method of Measurement.

The quantities, authorized and acceptably applied, under this Section will be paid as follows:

1. The length, in gross miles, of solid, 10’-30’ skip, 3’-9’ dotted, 6’-10’ dotted, and 2’-4’ dotted lines.
2. The length, in linear feet, of transverse lines, diagonal lines, chevrons, and parking spaces.
3. The number of pavement messages, symbols, and arrows. Each arrow is paid as a complete marking, regardless of the number of “points” or directions.
4. Lump Sum, as specified in 710-4.1.1 (final surface).
5. The area, in square feet, for removal of existing markings acceptably removed. Payment for removal of conflicting markings will be in accordance with 102-5.8. Payment for removal of non-conflicting markings will be paid separately.

The gross mile measurement will be taken as the distance from the beginning of the painted line to the end of the painted line and will include the unmarked gaps for skip and dotted lines. The gross mile measurement will not include designated unmarked lengths at intersections, turn lanes, etc. Final measurement will be determined by plan dimensions or stations, subject to 9-1.3.1.

710-11 Basis of Payment.

710-11.1 General: Price and payment will be full compensation for all work specified in this Section, including all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

710-11.2 Lump Sum Payment: Price and payment for painted pavement markings (final surface) will be full compensation for all applications of painted pavement markings to the final surface, and one application of retroreflective pavement markers applied to the final surface in accordance with Section 706.

Payment will be made under:

Item No. 710	Painted Pavement Markings. Solid - per gross mile. Solid - per linear foot. Skip - per gross mile. Dotted - per gross mile. Message or Symbol -each. Arrows - each. Yield Line - per linear foot. Island Nose - per square foot.
Item No. 710-90	Painted Pavement Markings (Final Surface) - lump sum.

700 HIGHWAY SIGNING.

(REV 4-1-15) (FA 4-8-15) (7-15)

SUBARTICLE 700-4.5 is deleted and the following substituted:

700-4.5 Main Power Supply and Energy Distribution Specifications: Provide a nominal single-phase power line voltage of 120/240 VAC. Ensure the DMS meets the requirements of NEMA TS 4-2005, Section 10.2.

Ensure all 120 VAC wiring has an overall nonmetallic jacket or is placed in metal conduit, pull boxes, raceways, or control cabinets and installed as required by the NEC. Do not use the sign housing as a wiring raceway or control cabinet.

Provide Type XHHW power cables sized as required by the NEC for acceptable voltage drops while supplying alternating current to the sign.

Ensure surge protective devices (SPD) are installed or incorporated in the sign system by the manufacturer to guard against lightning, transient voltage surges, and induced current. Ensure that SPDs meet or exceed the requirements of Section 620. Ensure SPDs protect all electric power and data communication connections.

SUBARTICLE 700-4.8.4 is deleted and the following substituted:

700-4.8.4 Control Cabinet: Provide a control cabinet that meets the

requirements of Section 676. Ensure that the minimum height of the cabinet is 46 inches.

Provide a ground control cabinet that includes the following assemblies and components: power indicator, surge suppression on both sides of all electronics, communication interface devices, connection for a laptop computer for local control and programming, a four foot long cable to connect laptop computers, a workspace for a laptop computer, and duplex outlets.

Provide for all telephone, data, control, power, and confirmation connections between the sign and ground control box, and for any required wiring harnesses and connectors.

**334 SUPERPAVE ASPHALT CONCRETE.
(REV 2-12-16) (FA 3-30-16) (7-16)**

SUBARTICLE 334-1.2 is deleted and the following substituted:

334-1.2 Traffic Levels: The requirements for Type SP Asphalt Concrete mixtures are based on the design traffic level of the project, expressed in 18,000 pound Equivalent Single Axle Loads (ESAL's). The five traffic levels are as shown in Table 334-1.

Table 334-1 Superpave Traffic Levels	
Traffic Level	Traffic Level (1x10 ⁶ ESAL's)
A	<0.3
B	0.3 to <3
C	3 to <10
D	10 to <30
E	≥30

The traffic levels for the project are as specified in the Contract Documents. A Type SP mix one traffic level higher than the traffic level specified in the Contract Documents may be substituted, at no cost to the Department (i.e., Traffic Level B may be substituted for Traffic Level A, etc.). As an exception, the same traffic level and binder type that is used for the mainline traffic lanes may be placed in the shoulder at no additional cost to the Department.

SUBARTICLE 334-5.1.2 is deleted and the following substituted:

334-5.1.2 Acceptance Testing Exceptions: When the total combined quantity of hot mix asphalt for the project, as indicated in the Plans for Type SP and Type FC mixtures only, is less than 2000 tons, the Engineer will accept the mix on the basis of visual inspection. The Engineer may require the Contractor to run process control tests for informational purposes, as defined in 334-4, or may run independent verification tests to determine the acceptability of the material.

Density testing for acceptance will not be performed on widening strips or shoulders with a width of 5 feet or less, open-graded friction courses, variable

thickness overbuild courses, leveling courses, any asphalt layer placed on subgrade (regardless of type), miscellaneous asphalt pavement, shared use paths, crossovers, gore areas, or any course with a specified thickness less than 1 inch or a specified spread rate that converts to less than 1 inch as described in 334-1.4. Density testing for acceptance will not be performed on asphalt courses placed on bridge decks or approach slabs; compact these courses in static mode only per the requirements of 330-7.7. In addition, density testing for acceptance will not be performed on the following areas when they are less than 1,000 feet (continuous) in length: turning lanes, acceleration lanes, deceleration lanes, shoulders, parallel parking lanes or ramps. Do not perform density testing for acceptance in situations where the areas requiring density testing is less than 50 tons within a sublot.

Density testing for acceptance will not be performed in intersections. The limits of the intersection will be from stop bar to stop bar for both the mainline and side streets. A random core location that occurs within the intersection shall be moved forward or backward from the intersection at the direction of the Engineer.

Where density testing for acceptance is not required, compact these courses (with the exception of open-graded friction courses) in accordance with the rolling procedure (equipment and pattern) as approved by the Engineer or with Standard Rolling Procedure as specified in 330-7.2. In the event that the rolling procedure deviates from the procedure approved by the Engineer, or the Standard Rolling Procedure, placement of the mix shall be stopped.

The density pay factor (as defined in 334-8.2) for areas not requiring density testing for acceptance will be paid at the same density pay factor as for the areas requiring density testing within the same LOT. If the entire LOT does not require density testing for acceptance, the LOT will be paid at a density pay factor of 1.00.

SUBARTICLE 334-5.4.1 is deleted and the following substituted:

334-5.4.1 Lost or Missing Verification/Resolution Samples: In the event that any of the Verification and/or Resolution asphalt mixture samples that are in the custody of the Contractor are lost, damaged, destroyed, or are otherwise unavailable for testing, the minimum possible pay factor for each quality characteristic as described in 334-8.2 will be applied to the entire LOT in question, unless called for otherwise by the Engineer. Specifically, if the LOT in question has more than two sublots, the pay factor for each quality characteristic will be 0.55. If the LOT has two or less sublots, the pay factor for each quality characteristic will be 0.80. If only the roadway cores are lost, damaged, destroyed, or are otherwise unavailable for testing, then the minimum possible pay factor for density will be applied to the entire LOT in question. In either event, the material in question will also be evaluated in accordance with 334-5.9.5.

If any of the Verification and/or Resolution samples that are in the custody of the Department are lost, damaged, destroyed or are otherwise unavailable for testing, the corresponding QC test result will be considered verified, and payment will be based upon the Contractor's data.

ASPHALT CONCRETE FRICTION COURSES.

(REV 11-10-16) (1-17)

SUBARTICLE 337-3.2 is deleted and replaced by the following:

337-3.2 Specific Component Requirements by Mix:

337-3.2.1 FC-5:

337-3.2.1.1 Aggregates: Use an aggregate blend which consists of either 100% crushed granite, 100% crushed Oolitic limestone or 100% other crushed materials (as approved by the Engineer for friction courses per Rule 14-103.005, Florida Administrative Code).

Crushed limestone from the Oolitic formation may be used if it contains a minimum of 12% silica material as determined by FM 5-510 and the Engineer grants approval of the source prior to its use.

A list of aggregates approved for use in friction course may be available on the Department's website. The URL for obtaining this information, if available, is: <http://www.fdot.gov/materials/mac/production/frictioncourse.pdf>.

337-3.2.1.2 Asphalt Binder: Use an asphalt binder as called for in the Contract Documents meeting the requirements of Section 916.

337-3.2.1.3 Hydrated Lime: Add the lime at a dosage rate of 1.0% by weight of the total dry aggregate to mixes containing granite.

337-3.2.1.4 Liquid Anti-strip Additive: Use a liquid anti-strip additive at a rate of 0.5% by weight of the asphalt binder for mixtures containing limestone aggregate. Other rates of anti-strip additive may be used upon approval of the Engineer.

337-3.2.1.5 Fiber Stabilizing Additive: Add either mineral fibers at a dosage rate of 0.4% by weight of the total mix, or cellulose fibers at a dosage rate of 0.3% by weight of total mix.

337-3.2.2 FC-9.5 and FC-12.5:

337-3.2.2.1: Aggregates: Use an aggregate blend that consists of crushed granite, crushed Oolitic limestone, other crushed materials (as approved by the Engineer for friction courses per Rule 14-103.005, Florida Administrative Code), or a combination of the above. Crushed limestone from the Oolitic formation may be used if it contains a minimum of 12% silica material as determined by FM 5-510 and the Engineer grants approval of the source prior to its use. As an exception, mixes that contain a minimum of 60% crushed granite may either contain: up to 40% fine aggregate from other sources or a combination of up to 20% RAP and the remaining fine aggregate from other sources.

A list of aggregates approved for use in friction course may be available on the Department's website. The URL for obtaining this information, if available, is: <http://www.fdot.gov/materials/mac/production/frictioncourse.pdf>.

337-3.2.2.2: Asphalt Binder: Use an asphalt binder as called for in the Contract Documents meeting the requirements of Section 916.

LANDSCAPING.
(REV 1-7-15) (7-17)

The following new Section is added after Section 571:

SECTION 580
LANDSCAPING

580-1 Description.

Install landscaping as indicated in the Contract Documents.

580-2 Materials.

580-2.1 Plants:

580-2.1.1 Sizes: Small plants includes all ground covers, shrubs to less than 7 gallon, trees to less than 7 gallon, clustering type palms less than 6 foot overall height, cycads to less than 7 gallon, and incidental landscaping.

Large plants include shrubs 7 gallon or greater, trees 7 gallon or greater, all single trunk palms, and clustering type palms 6 foot overall height and greater.

580-2.1.2 Grade Standards and Conformity with Type and Species:

Only use nursery grown plant materials purchased from Florida based Nurseryman Stock that comply with all required inspection, grading standards, and plant regulations in accordance with the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants."

Unless otherwise specified, minimum grade for all plants is Florida No. 1 or better. All plants must be the specified size and grade at the time of delivery to the site and the minimum grade maintained until final acceptance.

Use only plants that are true to type and species and ensure that the plants not specifically covered by Florida Department of Agriculture's "Grades and Standards for Nursery Plants" conform in type and species with the standards and designations in general acceptance by Florida nurseries. Prior to planting, certify to the Engineer that all plant materials have been purchased from Florida based Nurseryman Stock.

A minimum of two plants of each species on each shipment must be shipped with tags stating the botanical nomenclature and common name of the plant. Should discrepancies between botanical nomenclature and common name arise, the botanical name will take precedence.

580-2.1.3 Inspection and Transporting: Move nursery stock in accordance with all Federal and State regulations and accompany each shipment with the required inspection certificates for filing with the Engineer.

580-2.2 Water: Meet the requirements of Section 983.

580-2.3 Mulching: Use of cypress mulch is prohibited.

580-3 Installation.

580-3.1 Delivery: All materials must be available for inspection before installation and will be subject to approval or rejection.

580-3.2 Layout: Mark proposed mowing limits, planting beds and individual locations of trees and palms as shown in the Contract Documents for the Engineer's review, prior to excavation or planting.

Make no changes to the layout, materials or any variations of plant materials from the Contract Documents without the Engineer's written approval.

580-3.3 Soil Drainage: All planting holes and beds must drain sufficiently prior to installing any plants. Immediately notify the Engineer of drainage or percolation problems before plant installation.

580-3.4 Planting: Meet the requirements of the Design Standards, Index No. 544.

580-4 Disposal of Surplus Materials and Debris.

Remove from the jobsite any surplus material unless otherwise directed by the Engineer. Surplus is defined as material not needed after installation of plants per Contract Documents. Upon commencement of the plant installation, remove daily all landscape installation debris from the landscape locations described in the Contract Documents.

580-5 Method of Measurement.

The quantities to be paid for will be the items shown in the Contract Documents, completed and accepted.

580-6 Basis of Payment.

Price and payment will be full compensation for all work and materials specified in this Section.

LAP DIVISION 1 SPECIFICATIONS.

(REV 11-1-16) (1-17)

FROM SECTION 4 (ALTERATION OF WORK).

4-3 Alteration of Plans or of Character of Work.

4-3.1 General: The Engineer reserves the right to make, at any time prior to or during the progress of the work, such increases or decreases in quantities, whether a significant change or not, and such alterations in the details of construction, whether a substantial change or not, including but not limited to alterations in the grade or alignment of the road or structure or both, as may be found necessary or desirable by the Engineer. Such increases, decreases or alterations shall not constitute a breach of Contract, shall not invalidate the Contract, nor release the Surety from any liability arising out of this Contract or the Surety bond. The Contractor agrees to perform the work, as altered, the same as if it had been a part of the original Contract.

The term "significant change" applies only when:

1. The Engineer determines that the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction, or
2. A major item of work, as defined in 1-3, is increased in excess of 125% or decreased below 75% of the original Contract quantity. The Department will

apply any price adjustment for an increase in quantity only to that portion in excess of 125% of the original Contract item quantity in accordance with 4-3.2 below. In the case of a decrease below 75% the Department will only apply a price adjustment for the additional costs that are a direct result of the reduction in quantity.

In (1) above, the determination by the Engineer shall be conclusive. If the determination is challenged by the Contractor in any proceeding, the Contractor must establish by clear and convincing proof that the determination by the Engineer was without any reasonable basis.

4-3.2 Increase, Decrease or Alteration in the Work: The Engineer reserves the right to make alterations in the character of the work which involve a substantial change in the nature of the design or in the type of construction or which materially increases or decreases the cost or time of performance. Such alteration shall not constitute a breach of Contract, shall not invalidate the Contract or release the Surety.

Notwithstanding that the Contractor shall have no formal right whatsoever to any extra compensation or time extension deemed due by the Contractor for any cause unless and until the Contractor follows the procedures set forth in 5-12.2 for preservation, presentation and resolution of the claim, the Contractor may at any time, after having otherwise timely submitted a notice of intent to claim or preliminary time extension request pursuant to 5-12.2 and 8-7.3.2, submit to the Department a request for equitable adjustment of compensation or time or other dispute resolution proposal. The Contractor shall in any request for equitable adjustment of compensation, time, or other dispute resolution proposal certify under oath and in writing, in accordance with the formalities required by Florida law, that the request is made in good faith, that any supportive data submitted is accurate and complete to the Contractor's best knowledge and belief, and that the amount of the request accurately reflects what the Contractor in good faith believes to be the Department's responsibility. Such certification must be made by an officer or director of the Contractor with the authority to bind the Contractor. Any such certified statements of entitlement and costs shall be subject to the audit provisions set forth in 5-12.14. While the submittal or review of a duly certified request for equitable adjustment shall neither create, modify, nor activate any legal rights or obligations as to the Contractor or the Department, the Department will review the content of any duly certified request for equitable adjustment or other dispute resolution proposal, with any further action or inaction by the Department thereafter being in its sole discretion. Any request for equitable adjustment that fails to fully comply with the certification requirements will not be reviewed by the Department.

The monetary compensation provided for below constitutes full and complete payment for such additional work and the Contractor shall have no right to any additional monetary compensation for any direct or indirect costs or profit for any such additional work beyond that expressly provided below. The Contractor shall be entitled to a time extension only to the extent that the performance of any portion of the additional work is a controlling work item and the performance of such controlling work item actually extends completion of the project due to no fault of the Contractor. All time related costs for actual performance of such additional work are included in the compensation already provided below and any time extension entitlement hereunder will be without additional monetary compensation. The Contractor shall have no right to any monetary compensation or damages whatsoever for any direct or indirect delay to a

controlling work item arising out of or in any way related to the circumstances leading up to or resulting from additional work (but not relating to the actual performance of the additional work, which is paid for as otherwise provided herein), except only as provided for under 5-12.6.2.1.

4-3.2.1 Allowable Costs for Extra Work: The Engineer may direct in writing that extra work be done and, at the Engineer’s sole discretion, the Contractor will be paid pursuant to an agreed Supplemental Agreement or in the following manner:

1. Labor and Burden: The Contractor will receive payment for actual costs of direct labor and burden for the additional or unforeseen work. Labor includes foremen actually engaged in the work; and will not include project supervisory personnel nor necessary on-site clerical staff, except when the additional or unforeseen work is a controlling work item and the performance of such controlling work item actually extends completion of the project due to no fault of the Contractor. Compensation for project supervisory personnel, but in no case higher than a Project Manager’s position, shall only be for the pro-rata time such supervisory personnel spent on the contract. In no case shall an officer or director of the Company, nor those persons who own more than 1% of the Company, be considered as project supervisory personnel, direct labor or foremen hereunder.

Payment for burden shall be limited solely to the following:

Table 4-3.2.1	
Item	Rate
FICA	Rate established by Law
FUTA/SUTA	Rate established by Law
Medical Insurance	Actual
Holidays, Sick & Vacation benefits	Actual
Retirement benefits	Actual
Workers Compensation	Rates based on the National Council on Compensation Insurance basic rate tables adjusted by Contractor’s actual experience modification factor in effect at the time of the additional work or unforeseen work.
Per Diem	Actual but not to exceed State of Florida’s rate
Insurance*	Actual
*Compensation for Insurance is limited solely to General Liability Coverage and does not include any other insurance coverage (such as, but not limited to, Umbrella Coverage, Automobile Insurance, etc.).	

At the Pre-construction conference, certify to the Engineer the following:

- a. A listing of on-site clerical staff, supervisory personnel and their pro-rated time assigned to the contract,
- b. Actual Rate for items listed in Table 4-3.2.1,
- c. Existence of employee benefit plan for Holiday, Sick and Vacation benefits and a Retirement Plan, and,
- d. Payment of Per Diem is a company practice for instances when compensation for Per Diem is requested.

Such certification must be made by an officer or director of the Contractor with authority to bind the Contractor. Timely certification is a condition precedent to any right of the Contractor to recover compensations for such costs, and failure to timely submit the certification will constitute a full, complete, absolute and irrevocable waiver by the Contractor of any right to recover such costs. Any subsequent changes shall be certified to the Engineer as part of the cost proposal or seven calendar days in advance of performing such extra work.

2. Materials and Supplies: For materials accepted by the Engineer and used on the project, the Contractor will receive the actual cost of such materials incorporated into the work, including Contractor paid transportation charges (exclusive of equipment as hereinafter set forth). For supplies reasonably needed for performing the work, the Contractor will receive the actual cost of such supplies.

3. Equipment: For any machinery or special equipment (other than small tools), including fuel and lubricant, the Contractor will receive 100% of the "Rental Rate Blue Book" for the actual time that such equipment is in operation on the work, and 50% of the "Rental Rate Blue Book" for the time the equipment is directed to standby and remain on the project site, to be calculated as indicated below. The equipment rates will be based on the latest edition (as of the date the work to be performed begins) of the "Rental Rate Blue Book for Construction Equipment" or the "Rental Rate Blue Book for Older Construction Equipment," whichever is applicable, as published by Machinery Information Division of PRIMEDIA Information, Inc. (version current at the time of bid), using all instructions and adjustments contained therein and as modified below. On all projects, the Engineer will adjust the rates using regional adjustments and Rate Adjustment Tables according to the instructions in the Blue Book.

Allowable Equipment Rates will be established as set out below:

- a. Allowable Hourly Equipment Rate = Monthly Rate/176 x Adjustment Factors x 100%.
- b. Allowable Hourly Operating Cost = Hourly Operating Cost x 100%.
- c. Allowable Rate Per Hour = Allowable Hourly Equipment Rate + Allowable Hourly Operating Cost.
- d. Standby Rate = Allowable Hourly Equipment Rate x 50%.

The Monthly Rate is The Basic Machine Rate Plus Any Attachments. Standby rates will apply when equipment is not in operation and is directed by the Engineer to standby at the project site when needed again to complete work and the cost of moving the equipment will exceed the accumulated standby cost. Standby rates will not apply on any day the equipment operates for eight or more hours. Standby payment will be limited to only that number of hours which, when added to the operating time for that day equals eight hours. Standby payment will not be made on days that are not normally considered work days on the project.

The Department will allow for the cost of transporting the equipment to and from the location at which it will be used. If the equipment requires assembly or disassembly for transport, the Department will pay for the time to perform this work at the rate for standby equipment.

Equipment may include vehicles utilized only by Labor, as defined above.

4. Indirect Costs, Expenses, and Profit: Compensation for all indirect costs, expenses, and profit of the Contractor, including but not limited to overhead of any kind, whether jobsite, field office, division office, regional office, home office, or otherwise, is expressly limited to the greater of either (a) or (b) below:

a. Solely a mark-up of 17.5% on the payments in (1) through (3), above.

1. Bond: The Contractor will receive compensation for any premium for acquiring a bond for such additional or unforeseen work at the original Contract bond rate paid by the Contractor. No compensation for bond premium will be allowed for additional or unforeseen work paid by the Department via initial contingency pay item.

2. The Contractor will be allowed a markup of 10% on the first \$50,000 and a markup of 5% on any amount over \$50,000 on any subcontract directly related to the additional or unforeseen work. Any such subcontractor mark-up will be allowed only by the prime Contractor and a first tier subcontractor, and the Contractor must elect the markup for any eligible first tier subcontractor to do so.

b. Solely the formula set forth below and only as applied solely as to such number of calendar days of entitlement that are in excess of ten cumulative calendar days as defined below.

$$D = \frac{A \times C}{B}$$

Where A = Original Contract Amount

B = Original Contract Time

C = 8%

D = Average Overhead Per Day

Cumulative Calendar Days is defined as the combined total number of calendar days granted as time extensions due to either extra work, excluding overruns to existing contract items, that extend the duration of the project or delay of a controlling work item caused solely by the Department, or the combined total number of calendar days for which a claim of entitlement to a time extension due to delay of a controlling work item caused solely by the Department is otherwise ultimately determined to be in favor of the Contractor.

Further, in the event there are concurrent delays to one or more controlling work items, one or more being caused by the Department and one or more being caused by the Contractor, the Contractor shall be entitled to a time extension for each day that a controlling work item is delayed by the Department but shall have no right to nor receive any monetary compensation for any indirect costs for any days of concurrent delay. No compensation, whatsoever, will be paid to the Contractor for any jobsite overhead and other indirect impacts when the total number of calendar days granted for time extension due to delay of a controlling work item caused solely by the Department is, or the total number of calendar days for which entitlement to

a time extension due to delay of a controlling work item caused solely by the Department is otherwise ultimately determined in favor of the Contractor to be, equal to or less than ten calendar days and the Contractor also fully assumes all monetary risk of any and all partial or single calendar day delay periods, due to delay of a controlling work item caused solely by the Department, that when combined together are equal to or less than ten calendar days and regardless of whether monetary compensation is otherwise provided for hereunder for one or more calendar days of time extension entitlement for each calendar day exceeding ten calendar days. All calculations under this provision shall exclude weather days, Holidays, and Special Events.

4-3.2.2 Subcontracted Work: Compensation for the additional or unforeseen work performed by a subcontractor shall be limited solely to that provided for in 4-3.2.1 (1), (2), (3) and (4)(a). In addition, the Contractor compensation is expressly limited to the greater of the total provided in either 4-3.2.1(4)(a) or (4)(b), except that the Average Overhead Per-Day calculation is as follows:

$$D_s = \frac{A_s \times C}{B}$$

Where A_s = Original Contract Amount minus
Original Subcontract amounts(s)*

B = Original Contract Time

C = 8%

D_s = Average Overhead Per-Day

* deduct Original Subcontract Amount(s) of
subcontractor(s) performing the work

The subcontractor may receive compensation for any premium for acquiring a bond for the additional or unforeseen work; provided, however, that such payment for additional subcontractor bond will only be paid upon presentment to the Department of clear and convincing proof that the subcontractor has actually submitted and paid for separate bond premiums for such additional or unforeseen work in such amount and that the subcontractor was required by the Contractor to acquire a bond.

The Contractor shall require the subcontractor to submit a certification, in accordance with 4-3.2.1 (1), as part of the cost proposal and submit such to the Engineer. Such certification must be made by an officer or director of the subcontractor with authority to bind the subcontractor. Timely certification is a condition precedent to any right of the Contractor to recover compensation for such subcontractor costs, and failure to timely submit the certification will constitute a full, complete, absolute and irrevocable waiver by the Contractor of any right to recover such subcontractor costs.

4-3.3 No Waiver of Contract: Changes made by the Engineer will not be considered to waive any of the provisions of the Contract, nor may the Contractor make any claim for loss of anticipated profits because of the changes, or by reason of any variation between the approximate quantities and the quantities of work actually

performed. All work shall be performed as directed by the Engineer and in accordance with the Contract Documents.

4-3.4 Conditions Requiring a Supplemental Agreement or Unilateral Payment: A Supplemental Agreement or Unilateral Payment will be used to clarify the Plans and Specifications of the Contract; to provide for unforeseen work, grade changes, or alterations in the Plans which could not reasonably have been contemplated or foreseen in the original Plans and Specifications; to change the limits of construction to meet field conditions; to provide a safe and functional connection to an existing pavement; to settle documented Contract claims; to make the project functionally operational in accordance with the intent of the original Contract and subsequent amendments thereto.

A Supplemental Agreement or Unilateral Payment may be used to expand the physical limits of the project only to the extent necessary to make the project functionally operational in accordance with the intent of the original Contract. The cost of any such agreement extending the physical limits of the project shall not exceed \$100,000 or 10% of the original Contract price, whichever is greater.

Perform no work to be covered by a Supplemental Agreement or Unilateral Payment before written authorization is received from the Engineer. The Engineer's written authorization will set forth sufficient work information to allow the work to begin. The work activities, terms and conditions will be reduced to written Supplemental Agreement or Unilateral Payment form promptly thereafter. No payment will be made on a Supplemental Agreement or Unilateral Payment prior to the Department's approval of the document.

4-3.5 Extra Work: Extra work authorized in writing by the Engineer will be paid in accordance with the formula in 4-3.2. Such payment will be the full extent of all monetary compensation entitlement due to the Contractor for such extra work. Any entitlement to a time extension due to extra work will be limited solely to that provided for in 4-3.2 for additional work.

4-3.6 Connections to Existing Pavement, Drives and Walks: Generally adhere to the limits of construction at the beginning and end of the project as detailed in the Plans. However, if the Engineer determines that it is necessary to extend the construction in order to make suitable connections to existing pavement, the Engineer will authorize such a change in writing.

For necessary connections to existing walks and drives that are not indicated in the Plans, the Engineer will submit direction regarding the proper connections in accordance with the Design Standards.

4-3.7 Differing Site Conditions: During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the Contract, or if unknown physical conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the Contractor disturbs the conditions or performs the affected work.

Upon receipt of written notification of differing site conditions from the Contractor, the Engineer will investigate the conditions, and if it is determined that the

conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the Contract, an adjustment will be made, excluding loss of anticipated profits, and the Contract will be modified in writing accordingly. The Engineer will notify the Contractor whether or not an adjustment of the Contract is warranted.

The Engineer will not allow a Contract adjustment for a differing site condition unless the Contractor has submitted the required written notice.

The Engineer will not allow a Contract adjustment under this clause for any effects caused to any other Department or non-Department projects on which the Contractor may be working.

4-3.8 Changes Affecting Utilities: The Contractor shall be responsible for identifying and assessing any potential impacts to a utility that may be caused by the changes proposed by the Contractor, and the Contractor shall at the time of making the request for a change notify the Department in writing of any such potential impacts to utilities.

Department approval of a Contractor proposed change does not relieve the Contractor of sole responsibility for all utility impacts, costs, delays or damages, whether direct or indirect, resulting from Contractor initiated changes in the design or construction activities from those in the original Contract Specifications, Design Plans (including Traffic Control Plans) or other Contract Documents and which effect a change in utility work different from that shown in the Utility Plans, joint project agreements or utility relocation schedules.

4-3.9 Cost Savings Initiative Proposal:

4-3.9.1 Intent and Objective:

1. This Subarticle applies to any cost reduction proposal (hereinafter referred to as a Proposal) that the Contractor initiates and develops for the purpose of refining the Contract to increase cost effectiveness or significantly improve the quality of the end result. A mandatory Cost Savings Initiative Workshop will be held prior to Contract Time beginning for the Contractor and Department to discuss potential Proposals. This Subarticle does not, however, apply to any such proposal unless the Contractor identifies it at the time of its submission to the Department as a proposal submitted pursuant to this Subarticle.

2. The Department will consider Proposals that would result in net savings to the Department by providing a decrease in the cost of the Contract. Proposals must result in savings without impairing essential functions and characteristics such as safety, service, life, reliability, economy of operation, ease of maintenance, aesthetics and necessary standard design features. However, nothing herein prohibits the Contractor from submitting Proposals when the required functions and characteristics can be combined, reduced or eliminated because they are nonessential or excessive. The Department will not recognize the Contractor's correction of plan errors that result in a cost reduction, as a Proposal.

3. The Department reserves the right to reject at its discretion any Proposal submitted that proposes a change in the design of the pavement system or that would require additional right-of-way. Pending the Department's execution of a formal supplemental agreement implementing an approved Proposal, the Contractor shall remain obligated to perform the work in accordance with the terms of the existing Contract. The

Department may grant time extensions to allow for the time required to develop and review a Proposal.

4. For potential Proposals not discussed at the Cost Savings Initiative Workshop, a mandatory concept meeting will be held for the Contractor and Department to discuss the potential Proposal prior to development of the Proposal.

4-3.9.2 Subcontractors: The Department encourages the Contractor to include the provisions of this Subarticle in Contracts with subcontractors and to encourage submission of Proposals from subcontractors. However, it is not mandatory to submit Proposals to the Department or to accept or transmit subcontractor proposed Proposals to the Department.

4-3.9.3 Data Requirements: As a minimum, submit the following information with each Proposal:

1. a description of the difference between the existing Contract requirement, including any time extension request, and the proposed change, and the comparative advantages and disadvantages.

2. separate detailed cost estimates for both the existing Contract requirement and the proposed change. Break down the cost estimates by pay item numbers indicating quantity increases or decreases and deleted pay items. Identify additional proposed work not covered by pay items within the Contract, by using pay item numbers in the Basis of Estimates Manual. In preparing the estimates, include overhead, profit, and bond within pay items in the Contract. Separate pay item(s) for the cost of overhead, profit, and bond will not be allowed.

3. an itemization of the changes, deletions or additions to plan details, plan sheets, design standards and Specifications that are required to implement the Proposal if the Department adopts it. Submit preliminary plan drawings sufficient to describe the proposed changes.

4. engineering or other analysis in sufficient detail to identify and describe specific features of the Contract that must be changed if the Department accepts the Proposal with a proposal as to how these changes can be accomplished and an assessment of their effect on other project elements. The Department may require that engineering analyses be performed by a prequalified consultant in the applicable class of work. Support all design changes that result from the Proposal with drawings and computations signed and sealed by the Contractor's Engineer of Record. Written documentation or drawings will be submitted clearly delineating the responsibility of the Contractor's Engineer of Record.

5. the date by which the Department must approve the Proposal to obtain the total estimated cost reduction during the remainder of the Contract, noting any effect on the Contract completion time or delivery schedule.

6. a revised project schedule that would be followed upon approval of the Proposal. This schedule would include submittal dates and review time for the Department and Peer reviews.

4-3.9.4 Processing Procedures: Submit Proposals to the Engineer or his duly authorized representative. The Department will process Proposals expeditiously; however, the Department is not liable for any delay in acting upon a Proposal submitted pursuant to this Subarticle. The Contractor may withdraw, in whole or in part, a Proposal not accepted by the Department within the period specified in the Proposal. The

Department is not liable for any Proposal development cost in the case where the Department rejects or the Contractor withdraws a Proposal.

The Engineer is the sole judge of the acceptability of a Proposal and of the estimated net savings in construction costs from the adoption of all or any part of such proposal. In determining the estimated net savings, the Department reserves the right to disregard the Contract bid prices if, in the judgment of the Engineer, such prices do not represent a fair measure of the value of work to be performed or to be deleted.

Prior to approval, the Engineer may modify a Proposal, with the concurrence of the Contractor, to make it acceptable. If any modification increases or decreases the net savings resulting from the Proposal, the Department will determine the Contractor's fair share upon the basis of the Proposal as modified and upon the final quantities. The Department will compute the net savings by subtracting the revised total cost of all bid items affected by the Proposal from the total cost of the same bid items as represented in the original Contract.

Prior to approval of the Proposal that initiates the supplemental agreement, submit acceptable Contract-quality plan sheets revised to show all details consistent with the Proposal design.

4-3.9.5 Computations for Change in Contract Cost of Performance: If the Proposal is adopted, the Contractor's share of the net savings as defined hereinafter represents full compensation to the Contractor for the Proposal.

The Department will not include its costs to process and implement a Proposal in the estimate. However, the Department reserves the right, where it deems such action appropriate, to require the Contractor to pay the Department's cost of investigating and implementing a Proposal as a condition of considering such proposal. When the Department imposes such a condition, the Contractor shall accept this condition in writing, authorizing the Department to deduct amounts payable to the Department from any monies due or that may become due to the Contractor under the Contract.

4-3.9.6 Conditions of Acceptance for Major Design Modifications of Category 2 Bridges: A Proposal that proposes major design modifications of a category 2 bridge, as determined by the Engineer, shall have the following conditions of acceptance:

All bridge Plans relating to the Proposal shall undergo an independent peer review conducted by a single independent engineering firm referred to for the purposes of this article as the Independent Review Engineer who is not the originator of the Proposal design, and is pre-qualified by the Department in accordance with Rule 14-75, Florida Administrative Code. The independent peer review is intended to be a comprehensive, thorough verification of the original work, giving assurance that the design is in compliance with all Department requirements. The Independent Review Engineer's comments, along with the resolution of each comment, shall be submitted to the Department. The Independent Review Engineer shall sign and seal the submittal cover letter stating that all comments have been adequately addressed and the design is in compliance with the Department requirements. If there are any unresolved comments the Independent Review Engineer shall specifically list all unresolved issues in the signed and sealed cover letter.

The Contractor shall designate a primary engineer responsible for the Proposal design and as such will be designated as the Contractor's Engineer of Record for the Proposal design. The Department reserves the right to require the Contractor's Engineer of Record to assume responsibility for design of the entire structure.

New designs and independent peer reviews shall be in compliance with all applicable Department, FHWA and AASHTO criteria requirements including bridge load ratings.

4-3.9.7 Sharing Arrangements: If the Department approves a Proposal, the Contractor shall receive 50% of the net reduction in the cost of performance of the Contract as determined by the final negotiated agreement between the Contractor and the Department. The net reduction will be determined by subtracting from the savings of the construction costs the reasonable documented engineering costs incurred by the contractor to design and develop a Proposal. The reasonable documented engineering costs will be paid by the Department. Engineering costs will be based on the consultant's certified invoice and may include the costs of the Independent Review Engineer in 4-3.9.6. The total engineering costs to be subtracted from the savings to determine the net reduction will be limited to 25% of the construction savings and shall not include any markup by the Contractor or the costs for engineering services performed by the Contractor.

4-3.9.8 Notice of Intellectual Property Interests and Department's Future Rights to a Proposal:

4-3.9.8.1 Notice of Intellectual Property Interests: The Contractor's Proposal submittal shall identify with specificity any and all forms of intellectual property rights that either the Contractor or any officer, shareholder, employee, consultant, or affiliate, of the Contractor, or any other entity who contributed in any measure to the substance of the Contractor's Proposal development, have or may have that are in whole or in part implicated in the Proposal. Such required intellectual property rights notice includes, but is not limited to, disclosure of any issued patents, copyrights, or licenses; pending patent, copyright or license applications; and any intellectual property rights that though not yet issued, applied for or intended to be pursued, could nevertheless otherwise be subsequently the subject of patent, copyright or license protection by the Contractor or others in the future. This notice requirement does not extend to intellectual property rights as to stand-alone or integral components of the Proposal that are already on the Department's Approved Product List (APL) or Design Standard Indexes, or are otherwise generally known in the industry as being subject to patent or copyright protection.

4-3.9.8.2 Department's Future Rights to a Proposal: Notwithstanding 7-3 nor any other provision of the Standard Specifications, upon acceptance of a Proposal, the Contractor hereby grants to the Department and its contractors (such grant being expressly limited solely to any and all existing or future Department construction projects and any other Department projects that are partially or wholly funded by or for the Department) a royalty-free and perpetual license under all forms of intellectual property rights to manufacture, to use, to design, to construct, to disclose, to reproduce, to prepare and fully utilize derivative works, to distribute, display and publish, in whole or in part, and to permit others to do any of the above, and to otherwise in any manner and for any purpose whatsoever do anything reasonably

necessary to fully utilize any and all aspects of such Proposal on any and all existing and future construction projects and any other Department projects.

Contractor shall hold harmless, indemnify and defend the Department and its contractors and others in privity therewith from and against any and all claims, liabilities, other obligations or losses, and reasonable expenses related thereto (including reasonable attorneys' fees), which are incurred or are suffered by any breach of the foregoing grants, and regardless of whether such intellectual property rights were or were not disclosed by the Contractor pursuant to 4-3.9.8.1, unless the Department has by express written exception in the Proposal acceptance process specifically released the Contractor from such obligation to hold harmless, indemnify and defend as to one or more disclosed intellectual property rights.

FROM SECTION 5 – CONTROL OF THE WORK (CLAIMS).

5-12 Claims by Contractor.

5-12.1 General: When the Contractor deems that extra compensation or a time extension is due beyond that agreed to by the Engineer, whether due to delay, additional work, altered work, differing site conditions, breach of Contract, or for any other cause, the Contractor shall follow the procedures set forth herein for preservation, presentation and resolution of the claim.

Submission of timely notice of intent to file a claim, preliminary time extension request, time extension request, and the certified written claim, together with full and complete claim documentation, are each a condition precedent to the Contractor bringing any circuit court, arbitration, or other formal claims resolution proceeding against the Department for the items and for the sums or time set forth in the Contractor's certified written claim. The failure to provide such notice of intent, preliminary time extension request, time extension request, certified written claim and full and complete claim documentation within the time required shall constitute a full, complete, absolute and irrevocable waiver by the Contractor of any right to additional compensation or a time extension for such claim.

5-12.2 Notice of Claim:

5-12.2.1 Claims For Extra Work: Where the Contractor deems that additional compensation or a time extension is due for work or materials not expressly provided for in the Contract or which is by written directive expressly ordered by the Engineer pursuant to 4-3, the Contractor shall submit written notification to the Engineer of the intention to make a claim for additional compensation before beginning the work on which the claim is based, and if seeking a time extension, the Contractor shall also submit a preliminary request for time extension pursuant to 8-7.3.2 within ten calendar days after commencement of a delay and a request for Contract Time extension pursuant to 8-7.3.2 within thirty calendar days after the elimination of the delay. If such written notification is not submitted and the Engineer is not afforded the opportunity for keeping strict account of actual labor, material, equipment, and time, the Contractor waives the claim for additional compensation or a time extension. Such notice by the Contractor, and the fact that the Engineer has kept account of the labor, materials and equipment, and time, shall not in any way be construed as establishing the validity of the claim or method

for computing any compensation or time extension for such claim. On projects with an original Contract amount of \$3,000,000 or less within 90 calendar days after final acceptance of the project in accordance with 5-11, and on projects with an original Contract amount greater than \$3,000,000 within 180 calendar days after final acceptance of the project in accordance with 5-11, the Contractor shall submit full and complete claim documentation as described in 5-12.3 and duly certified pursuant to 5-12.9. However, for any claim or part of a claim that pertains solely to final estimate quantities disputes the Contractor shall submit full and complete claim documentation as described in 5-12.3 and duly certified pursuant to 5-12.9, as to such final estimate claim dispute issues, within 90 or 180 calendar days, respectively, of the Contractor's receipt of the Department's final estimate.

If the Contractor fails to submit a certificate of claim as described in 5-12.9, the Department will so notify the Contractor in writing. The Contractor shall have ten calendar days from receipt of the notice to resubmit the claim documentation, without change, with a certificate of claim as described in 5-12.9, without regard to whether the resubmission is within the applicable 90 or 180 calendar day deadline for submission of full and complete claim documentation. Failure by the Contractor to comply with the ten calendar day notice shall constitute a waiver of the claim.

5-12.2.2 Claims For Delay: Where the Contractor deems that additional compensation or a time extension is due on account of delay, differing site conditions, breach of Contract, or any other cause other than for work or materials not expressly provided for in the Contract (Extra Work) or which is by written directive of the Engineer expressly ordered by the Engineer pursuant to 4-3, the Contractor shall submit a written notice of intent to the Engineer within ten days after commencement of a delay to a controlling work item expressly notifying the Engineer that the Contractor intends to seek additional compensation, and if seeking a time extension, the Contractor shall also submit a preliminary request for time extension pursuant to 8-7.3.2 within ten calendar days after commencement of a delay to a controlling work item, as to such delay and providing a reasonably complete description as to the cause and nature of the delay and the possible impacts to the Contractor's work by such delay, and a request for Contract Time extension pursuant to 8-7.3.2 within thirty calendar days after the elimination of the delay. On projects with an original Contract amount of \$3,000,000 or less within 90 calendar days after final acceptance of the project in accordance with 5-11, and on projects with an original Contract amount greater than \$3,000,000 within 180 calendar days after final acceptance of the project in accordance with 5-11, the Contractor shall submit full and complete documentation as described in 5-12.3 and duly certified pursuant to 5-12.9.

If the Contractor fails to submit a certificate of claim as described in 5-12.9, the Department will so notify the Contractor in writing. The Contractor shall have ten calendar days from receipt of the notice to resubmit the claim documentation, without change, with a certificate of claim as described in 5-12.9, without regard to whether the resubmission is within the applicable 90 or 180 calendar day deadline for submission of full and complete claim documentation. Failure by the Contractor to comply with the ten calendar day notice shall constitute a waiver of the claim.

There shall be no Contractor entitlement to any monetary compensation or time extension for any delays or delay impacts, whatsoever, that are not

to a controlling work item, and then as to any such delay to a controlling work item entitlement to any monetary compensation or time extension shall only be to the extent such is otherwise provided for expressly under 4-3 or 5-12, except that in the instance of delay to a non-controlling item of work the Contractor may be compensated for the direct costs of idle labor or equipment only, at the rates set forth in 4-3.2.1(1) and (3), and then only to the extent the Contractor could not reasonably mitigate such idleness.

5-12.3 Content of Written Claim: As a condition precedent to the Contractor being entitled to additional compensation or a time extension under the Contract, for any claim, the Contractor shall submit a certified written claim to the Department which will include for each individual claim, at a minimum, the following information:

1. A detailed factual statement of the claim providing all necessary dates, locations, and items of work affected and included in each claim;
2. The date or dates on which actions resulting in the claim occurred or conditions resulting in the claim became evident;
3. Identification of all pertinent documents and the substance of any material oral communications relating to such claim and the name of the persons making such material oral communications;
4. Identification of the provisions of the Contract which support the claim and a statement of the reasons why such provisions support the claim, or alternatively, the provisions of the Contract which allegedly have been breached and the actions constituting such breach;
5. A detailed compilation of the amount of additional compensation sought and a breakdown of the amount sought as follows:
 - a. documented additional job site labor expenses;
 - b. documented additional cost of materials and supplies;
 - c. a list of additional equipment costs claimed, including each piece of equipment and the rental rate claimed for each;
 - d. any other additional direct costs or damages and the documents in support thereof;
 - e. any additional indirect costs or damages and all documentation in support thereof.
6. A detailed compilation of the specific dates and the exact number of calendar days sought for a time extension, the basis for entitlement to time for each day, all documentation of the delay, and a breakout of the number of days claimed for each identified event, circumstance or occurrence.

Further, the Contractor shall be prohibited from amending either the bases of entitlement or the amount of any compensation or time stated for any and all issues claimed in the Contractor's written claim submitted hereunder, and any circuit court, arbitration, or other formal claims resolution proceeding shall be limited solely to the bases of entitlement and the amount of any compensation or time stated for any and all issues claimed in the Contractor's written claim submitted hereunder. This shall not, however, preclude a Contractor from withdrawing or reducing any of the bases of entitlement and the amount of any compensation or time stated for any and all issues claimed in the Contractor's written claim submitted hereunder at any time.

5-12.4 Action on Claim: The Engineer will respond in writing on projects with an original Contract amount of \$3,000,000 or less within 90 calendar days of receipt of a

complete claim submitted by a Contractor in compliance with 5-12.3, and on projects with an original Contract amount greater than \$3,000,000 within 120 calendar days of receipt of a complete claim submitted by a Contractor in compliance with 5-12.3. Failure by the Engineer to respond to a claim in writing within 90 or 120 days, respectively, after receipt of a complete claim submitted by the Contractor in compliance with 5-12.3 constitutes a denial of the claim by the Engineer. If the Engineer finds the claim or any part thereof to be valid, such partial or whole claim will be allowed and paid for to the extent deemed valid and any time extension granted, if applicable, as provided in the Contract. No circuit court or arbitration proceedings on any claim, or a part thereof, may be filed until after final acceptance per 5-11 of all Contract work by the Department or denial hereunder, whichever occurs last.

5-12.5 Pre-Settlement and Pre-Judgment Interest: Entitlement to any pre-settlement or pre-judgment interest on any claim amount determined to be valid subsequent to the Department's receipt of a certified written claim in full compliance with 5-12.3, whether determined by a settlement or a final ruling in formal proceedings, the Department shall pay to the Contractor simple interest calculated at the Prime Rate (as reported by the Wall Street Journal as the base rate on corporate loans posted by at least 75% of the nations 30 largest banks) as of the 60th calendar day following the Department's receipt of a certified written claim in full compliance with 5-12.3, such interest to accrue beginning 60 calendar days following the Department's receipt of a certified written claim in full compliance with 5-12.3 and ending on the date of final settlement or formal ruling.

5-12.6 Compensation for Extra Work or Delay:

5-12.6.1 Compensation for Extra Work: Notwithstanding anything to the contrary contained in the Contract Documents, the Contractor shall not be entitled to any compensation beyond that provided for in 4-3.2.

5-12.6.2 Compensation for Delay: Notwithstanding anything to the contrary contained in the Contract Documents, the additional compensation set forth in 5-12.6.2.1 shall be the Contractor's sole monetary remedy for any delay other than to perform extra work caused by the Department unless the delay shall have been caused by acts constituting willful or intentional interference by the Department with the Contractor's performance of the work and then only where such acts continue after Contractor's written notice to the Department of such interference. The parties anticipate that delays may be caused by or arise from any number of events during the term of the Contract, including, but not limited to, work performed, work deleted, supplemental agreements, work orders, disruptions, differing site conditions, utility conflicts, design changes or defects, time extensions, extra work, right-of-way issues, permitting issues, actions of suppliers, subcontractors or other contractors, actions by third parties, suspensions of work by the Engineer pursuant to 8-6.1, shop drawing approval process delays, expansion of the physical limits of the project to make it functional, weather, weekends, holidays, special events, suspension of Contract Time, or other events, forces or factors sometimes experienced in construction work. Such delays or events and their potential impacts on the performance by the Contractor are specifically contemplated and acknowledged by the parties in entering into this Contract, and shall not be deemed to constitute willful or intentional interference with the Contractor's performance of the work without clear and convincing proof that they were the result of a deliberate act,

without reasonable and good-faith basis, and specifically intended to disrupt the Contractor's performance.

5-12.6.2.1 Compensation for Direct Costs, Indirect Costs, Expenses, and Profit thereon, of or from Delay: For any delay claim, the Contractor shall be entitled to monetary compensation for the actual idle labor and equipment, and indirect costs, expenses, and profit thereon, as provided for in 4-3.2.1(4) and solely for costs incurred beyond what reasonable mitigation thereof the Contractor could have undertaken.

5-12.7 Mandatory Claim Records: After submitting to the Engineer a notice of intent to file a claim for extra work or delay, the Contractor must keep daily records of all labor, material and equipment costs incurred for operations affected by the extra work or delay. These daily records must identify each operation affected by the extra work or delay and the specific locations where work is affected by the extra work or delay, as nearly as possible. The Engineer may also keep records of all labor, material and equipment used on the operations affected by the extra work or delay. The Contractor shall, once a notice of intent to claim has been timely filed, and not less than weekly thereafter as long as appropriate, submit the Contractor's daily records to the Engineer and be likewise entitled to receive the Department's daily records. The daily records to be submitted hereunder shall be done at no cost to the recipient.

5-12.8 Claims For Acceleration: The Department shall have no liability for any constructive acceleration of the work, nor shall the Contractor have any right to make any claim for constructive acceleration nor include the same as an element of any claim the Contractor may otherwise submit under this Contract. If the Engineer gives express written direction for the Contractor to accelerate its efforts, such written direction will set forth the prices and other pertinent information and will be reduced to a written Contract Document promptly. No payment will be made on a Supplemental Agreement for acceleration prior to the Department's approval of the documents.

5-12.9 Certificate of Claim: When submitting any claim, the Contractor shall certify under oath and in writing, in accordance with the formalities required by Florida law, that the claim is made in good faith, that the supportive data are accurate and complete to the Contractor's best knowledge and belief, and that the amount of the claim accurately reflects what the Contractor in good faith believes to be the Department's liability. Such certification must be made by an officer or director of the Contractor with the authority to bind the Contractor.

5-12.10 Non-Recoverable Items: The parties agree that for any claim the Department will not have liability for the following items of damages or expense:

1. Loss of profit, incentives or bonuses;
2. Any claim for other than extra work or delay;
3. Consequential damages, including, but not limited to, loss of bonding capacity, loss of bidding opportunities, loss of credit standing, cost of financing, interest paid, loss of other work or insolvency;
4. Acceleration costs and expenses, except where the Department has expressly and specifically directed the Contractor in writing "to accelerate at the Department's expense"; nor
5. Attorney fees, claims preparation expenses and costs of litigation.

5-12.11 Exclusive Remedies: Notwithstanding any other provision of this Contract, the parties agree that the Department shall have no liability to the Contractor for expenses, costs, or items of damages other than those which are specifically identified as payable under 5-12. In the event any legal action for additional compensation, whether on account of delay, acceleration, breach of contract, or otherwise, the Contractor agrees that the Department's liability will be limited to those items which are specifically identified as payable in 5-12.

5-12.12 Settlement Discussions: The content of any discussions or meetings held between the Department and the Contractor to settle or resolve any claims submitted by the Contractor against the Department shall be inadmissible in any legal, equitable, arbitration or administrative proceedings brought by the Contractor against the Department for payment of such claim. Dispute Resolution Board, State Arbitration Board and Claim Review Committee proceedings are not settlement discussions, for purposes of this provision.

5-12.13 Personal Liability of Public Officials: In carrying out any of the provisions of the Contract or in exercising any power or authority granted to the Secretary of Transportation, Engineer or any of their respective employees or agents, there shall be no liability on behalf of any employee, officer or official of the Department for which such individual is responsible, either personally or as officials or representatives of the Department. It is understood that in all such matters such individuals act solely as agents and representatives of the Department.

5-12.14 Auditing of Claims: All claims filed against the Department shall be subject to audit at any time following the filing of the claim, whether or not such claim is part of a suit pending in the Courts of this State. The audit may be performed, at the Department's sole discretion, by employees of the Department or by any independent auditor appointed by the Department, or both. The audit may begin after ten days written notice to the Contractor, subcontractor, or supplier. The Contractor, subcontractor, or supplier shall make a good faith effort to cooperate with the auditors. As a condition precedent to recovery on any claim, the Contractor, subcontractor, or supplier must retain sufficient records, and provide full and reasonable access to such records, to allow the Department's auditors to verify the claim and failure to retain sufficient records of the claim or failure to provide full and reasonable access to such records shall constitute a waiver of that portion of such claim that cannot be verified and shall bar recovery thereunder. Further, and in addition to such audit access, upon the Contractor submitting a written claim, the Department shall have the right to request and receive, and the Contractor shall have the affirmative obligation to submit to the Department any and all documents in the possession of the Contractor or its subcontractors, materialmen or suppliers as may be deemed relevant by the Department in its review of the basis, validity or value of the Contractor's claim.

Without limiting the generality of the foregoing, the Contractor shall upon written request of the Department make available to the Department's auditors, or upon the Department's written request, submit at the Department's expense, any or all of the following documents:

1. Daily time sheets and foreman's daily reports and diaries;
2. Insurance, welfare and benefits records;
3. Payroll register;

4. Earnings records;
5. Payroll tax return;
6. Material invoices, purchase orders, and all material and supply acquisition contracts;
7. Material cost distribution worksheet;
8. Equipment records (list of company owned, rented or other equipment used);
9. Vendor rental agreements and subcontractor invoices;
10. Subcontractor payment certificates;
11. Canceled checks for the project, including, payroll and vendors;
12. Job cost report;
13. Job payroll ledger;
14. General ledger, general journal, (if used) and all subsidiary ledgers and journals together with all supporting documentation pertinent to entries made in these ledgers and journals;
15. Cash disbursements journal;
16. Financial statements for all years reflecting the operations on this project;
17. Income tax returns for all years reflecting the operations on this project;
18. All documents which reflect the Contractor's actual profit and overhead during the years this Contract was being performed and for each of the five years prior to the commencement of this Contract;
19. All documents related to the preparation of the Contractor's bid including the final calculations on which the bid was based;
20. All documents which relate to each and every claim together with all documents which support the amount of damages as to each claim;
21. Worksheets used to prepare the claim establishing the cost components for items of the claim including, but not limited to, labor, benefits and insurance, materials, equipment, subcontractors, and all documents that establish which time periods and individuals were involved, and the hours and rates for such individuals.

FROM SECTION 8 (SUBLETTING, CONTRACT TIME EXTENSIONS, AND LIQUIDATED DAMAGES).

8-1 Subletting or Assigning of Contracts.

Do not, sell, transfer, assign or otherwise dispose of the Contract or Contracts or any portion thereof, or of the right, title, or interest therein, without written consent of the Department. If the Contractor chooses to sublet any portion of the Contract, the Contractor must provide a written request to sublet work on the Certification of Sublet Work form developed by the Department for this purpose. With the Engineer's acceptance of the request, the Contractor may sublet a portion of the work, but shall perform with its own organization work amounting to not less than 40% of the total

Contract amount. The Certification of Sublet Work request will be deemed acceptable by the Department, for purposes of the Department's consent, unless the Engineer notifies the Contractor within 5 business days of receipt of the Certification of Sublet Work that the Department is not consenting to the requested subletting.

Include in the total Contract amount the cost of materials and manufactured component products, and their transportation to the project site. For the purpose of meeting this requirement the Department will not consider off-site commercial production of materials and manufactured component products that the Contractor purchases, or their transportation to the project, as subcontracted work.

If the Contractor sublets a part of a Contract item, the Department will use only the sublet proportional cost in determining the percentage of subcontracted normal work.

Execute all agreements to sublet work in writing and include all pertinent provisions and requirements of the Contract. All other agreements must be in writing and reference all applicable Contract provisions. Upon request, furnish the Department with a copy of the subcontract and agreement. The subletting of work does not relieve the Contractor or the surety of their respective liabilities under the Contract.

The Department recognizes a subcontractor only in the capacity of an employee or agent of the Contractor, and the Engineer may require the Contractor to remove the subcontractor as in the case of an employee.

8-7.3.2 Contract Time Extensions: The Department may grant an extension of Contract Time when a controlling item of work is delayed by factors not reasonably anticipated or foreseeable at the time of bid. The Department may allow such extension of time only for delays occurring during the Contract Time period or authorized extensions of the Contract Time period. When failure by the Department to fulfill an obligation under the Contract results in delays to the controlling items of work, the Department will consider such delays as a basis for granting a time extension to the Contract.

Whenever the Engineer suspends the Contractor's operations, as provided in 8-6, for reasons other than the fault of the Contractor, the Engineer will grant a time extension for any delay to a controlling item of work due to such suspension. The Department will not grant time extensions to the Contract for delays due to the fault or negligence of the Contractor.

The Department does not include an allowance for delays caused by the effects of inclement weather or suspension of Contractor's operations as defined in 8-6.4, in establishing Contract Time. The Engineer will continually monitor the effects of weather and, when found justified, grant time extensions on either a bimonthly or monthly basis. The Engineer will not require the Contractor to submit a request for additional time due to the effects of weather.

The Department will grant time extensions, on a day for day basis, for delays caused by the effects of rains or other inclement weather conditions, related adverse soil conditions or suspension of operations as defined in 8-6.4 that prevent the Contractor from productively performing controlling items of work resulting in:

1. The Contractor being unable to work at least 50% of the normal work day on pre-determined controlling work items; or

2. The Contractor must make major repairs to work damaged by weather, provided that the damage is not attributable to the Contractor's failure to perform or neglect; and provided that the Contractor was unable to work at least 50% of the normal workday on pre-determined controlling work items.

No additional compensation will be made for delays caused by the effects of inclement weather.

The Department will consider the delays in delivery of materials or component equipment that affect progress on a controlling item of work as a basis for granting a time extension if such delays are beyond the control of the Contractor or supplier. Such delays may include an area-wide shortage, an industry-wide strike, or a natural disaster that affects all feasible sources of supply. In such cases, the Contractor shall furnish substantiating letters from a representative number of manufacturers of such materials or equipment clearly confirming that the delays in delivery were the result of an area-wide shortage, an industry-wide strike, etc. No additional compensation will be made for delays caused by delivery of materials or component equipment.

The Department will not consider requests for time extension due to delay in the delivery of custom manufactured equipment such as traffic signal equipment, highway lighting equipment, etc., unless the Contractor furnishes documentation that he placed the order for such equipment in a timely manner, the delay was caused by factors beyond the manufacturer's control, and the lack of such equipment caused a delay in progress on a controlling item of work. No additional compensation will be paid for delays caused by delivery of custom manufactured equipment.

The Department will consider the affect of utility relocation and adjustment work on job progress as the basis for granting a time extension only if all the following criteria are met:

1. Delays are the result of either utility work that was not detailed in the Plans, or utility work that was detailed in the Plans but was not accomplished in reasonably close accordance with the schedule included in the Contract Documents.

2. Utility work actually affected progress toward completion of controlling work items.

3. The Contractor took all reasonable measures to minimize the effect of utility work on job progress, including cooperative scheduling of the Contractor's operations with the scheduled utility work at the preconstruction conference and providing adequate advance notification to utility companies as to the dates to coordinate their operations with the Contractor's operations to avoid delays.

As a condition precedent to an extension of Contract Time the Contractor must submit to the Engineer:

A preliminary request for an extension of Contract Time must be made in writing to the Engineer within ten calendar days after the commencement of a delay to a controlling item of work. If the Contractor fails to submit this required preliminary request for an extension of Contract Time, the Contractor fully, completely, absolutely and irrevocably waives any entitlement to an extension of Contract Time for that delay. In the case of a continuing delay only a single preliminary request for an extension of Contract Time will be required. Each such preliminary request

for an extension of Contract Time shall include as a minimum the commencement date of the delay, the cause of the delay, and the controlling item of work affected by the delay.

Furthermore, the Contractor must submit to the Engineer a request for a Contract Time extension in writing within 30 days after the elimination of the delay to the controlling item of work identified in the preliminary request for an extension of Contract Time. Each request for a Contract Time extension shall include as a minimum all documentation that the Contractor wishes the Department to consider related to the delay, and the exact number of days requested to be added to Contract Time. If the Contractor contends that the delay is compensable, then the Contractor shall also be required to submit with the request for a Contract Time extension a detailed cost analysis of the requested additional compensation. If the Contractor fails to submit this required request for a Contract Time extension, with or without a detailed cost analysis, depriving the Engineer of the timely opportunity to verify the delay and the costs of the delay, the Contractor waives any entitlement to an extension of Contract Time or additional compensation for the delay.

Upon timely receipt of the preliminary request of Contract Time from the Contractor, the Engineer will investigate the conditions, and if it is determined that a controlling item of work is being delayed for reasons beyond the control of the Contractor the Engineer will take appropriate action to mitigate the delay and the costs of the delay. Upon timely receipt of the request for a Contract Time extension the Engineer will further investigate the conditions, and if it is determined that there was an increase in the time or the cost of performance of the controlling item of work beyond the control of the Contractor, then an adjustment of Contract Time will be made, and a monetary adjustment will be made, excluding loss of anticipated profits, and the Contract will be modified in writing accordingly.

The existence of an accepted schedule, including any required update(s), as stated in 8-3.2, is a condition precedent to the Contractor having any right to the granting of an extension of Contract Time or any monetary compensation arising out of any delay. Contractor failure to have an accepted schedule, including any required update(s), for the period of potential impact, or in the event the currently accepted schedule and applicable updates do not accurately reflect the actual status of the project or fail to accurately show the true controlling or non-controlling work activities for the period of potential impact, will result in any entitlement determination as to time or money for such period of potential impact being limited solely to the Department's analysis and identification of the actual controlling or non-controlling work activities. Further, in such instances, the Department's determination as to entitlement as to either time or compensability will be final, unless the Contractor can prove by clear and convincing evidence to a Disputes Review Board that the Department's determination was without any reasonable factual basis.

8-10 Liquidated Damages for Failure to Complete the Work.

8-10.2 Amount of Liquidated Damages: Applicable liquidated damages are the amounts established in the following schedule:

Original Contract Amount	Daily Charge Per Calendar Day
\$50,000 and under.....	\$763
Over \$50,000 but less than \$250,000.....	\$958

\$250,000 but less than \$500,000.....	\$1,099
\$500,000 but less than \$2,500,000.....	\$1,584
\$2,500,000 but less than \$5,000,000.....	\$2,811
\$5,000,000 but less than \$10,000,000.....	\$3,645
\$10,000,000 but less than \$15,000,000.....	\$4,217
\$15,000,000 but less than \$20,000,000.....	\$4,698
\$20,000,000 and over.....	\$6,323 plus 0.00005 of any amount over \$20 million (Round to nearest whole dollar)

FROM SECTION 9 (PARTIAL PAYMENTS).

9-5 Partial Payments.

9-5.1 General: The Engineer will make partial payments on monthly estimates based on the amount of work that the Contractor completes during the month (including delivery of certain materials, as specified herein below). The Engineer will make approximate monthly payments, and the Department will correct all partial estimates and payments in the subsequent estimates and in the final estimate and payment.

The Department will base the amount of such payments on the total value of the work that the Contractor has performed to the date of the estimate, based on the quantities completed and the Contract prices, less payments previously made and less any retainage withheld.

Retainage will not be withheld until the percent of Contract Time used exceeds 75%. From that time forward, the Department will withhold retainage of 10% of the amount due on the current estimate as retainage when the percent of Contract Time used exceeds the percent of Contract amount earned by more than 15%.

Contract amount is defined as the original Contract amount adjusted by approved supplemental agreements.

Retainage will be determined for each job on multiple job Contracts. The Department will not accept Securities, Certificates of Deposit or letters of credit as a replacement for retainage. Amounts withheld will not be released until payment of the final estimate.

9-5.2 Unsatisfactory Payment Record: In accordance with Sections 255.05 and 337.16 of the Florida Statutes, and the rules of the Department, the Department may disqualify the Contractor from bidding on future Department contracts if the Contractor’s payment record in connection with contract work becomes unsatisfactory.

9-5.3 Withholding Payment:

9-5.3.1 Withholding Payment for Defective Work: If the Department discovers any defective work or material prior to the final acceptance, or if the Department has a reasonable doubt as to the integrity of any part of the completed work prior to final acceptance, then the Department will not allow payment for such defective or questioned work until the Contractor has remedied the defect and removed any causes of doubt.

9-5.3.2 Withholding Payment for Failure to Comply: The Department will withhold progress payments from the Contractor if he fails to comply with any or all of the following within 60 days after beginning work:

1. comply with and submit required paperwork relating to prevailing wage rate provisions, Equal Employment Opportunity, On-The-Job Training, and Affirmative Action;
2. comply with the requirement to all necessary information, including actual payments to DBEs, all other subcontractors and major suppliers, through the Internet based Equal Opportunity Reporting System;
3. comply with or make a good faith effort to ensure employment opportunity for minorities and females in accordance with the required contract provisions for Federal Aid Construction Contracts, and
4. comply with or make a good faith effort to meet On-The-Job Training goals.

The Department will withhold progress payments until the Contractor has satisfied the above conditions.

9-5.4 Release of Retainage After Acceptance: When the Contractor has furnished the Department with all submittals required by the Contract, such as invoices, EEO reports, materials certifications, certification of materials procured, etc., (excluding Contractor's letter of acceptance of final amount due and Form 21-A release) and the Engineer has determined that the measurement and computation of pay quantities is correct, the Department may reduce the retainage to \$1,000 plus any amount that the Department elects to deduct for defective work as provided in 9-5.3.

The Department will not allow a semifinal estimate under the provisions of the above paragraphs unless the time elapsing between (1) acceptance of the project and receipt of all test reports, invoices, etc., and (2) submission of the final estimate to the Contractor for acceptance, exceeds or is expected to exceed ten days.

The Department may deduct from payment estimates any sums that the Contractor owes to the Department on any account. Where more than one project or job (separate job number) is included in the Contract, the Department will distribute the reduced retainage as provided in the first paragraph of this Subarticle to each separate project or job in the ratio that the Contract value of the work for the particular job bears to the total Contract amount.

9-5.5 Partial Payments for Delivery of Certain Materials:

9-5.5.1 General: The Department will allow partial payments for new materials that will be permanently incorporated into the project and are stockpiled in approved locations in the project vicinity. Stockpile materials so that they will not be damaged by the elements and in a manner that identifies the project on which they are to be used.

The following conditions apply to all payments for stockpiled materials:

1. There must be reasonable assurance that the stockpiled material will be incorporated into the specific project on which partial payment is made.
2. The stockpiled material must be approved as meeting applicable specifications.
3. The total quantity for which partial payment is made shall not exceed the estimated total quantity required to complete the project.
4. The Contractor shall furnish the Engineer with copies of certified invoices to document the value of the materials received. The amount of the

partial payment will be determined from invoices for the material up to the unit price in the Contract.

5. Delivery charges for materials delivered to the jobsite will be included in partial payments if properly documented.

6. Partial payments will not be made for materials which were stockpiled prior to award of the Contract for a project.

9-5.5.2 Partial Payment Amounts: The following partial payment restrictions apply:

1. Partial payments less than \$5,000 for any one month will not be processed.

2. Partial payments for structural steel and precast prestressed items will not exceed 85% of the bid price for the item. Partial payments for all other items will not exceed 75% of the bid price of the item in which the material is to be used.

3. Partial payment will not be made for aggregate and base course material received after paving or base construction operations begin except when a construction sequence designated by the Department requires suspension of paving and base construction after the initial paving operations, partial payments will be reinstated until the paving and base construction resumes.

9-5.5.3 Off Site Storage: If the conditions of 9-5.5.1 are satisfied, partial payments will be allowed for materials stockpiled in approved in-state locations. Additionally, partial payments for materials stockpiled in approved out-of-state locations will be allowed if the conditions of 9-5.5.1 and the following conditions are met:

1. Furnish the Department a Materials Bond stating the supplier guarantees to furnish the material described in the Contract to the Contractor and Department. Under this bond, the Obligor shall be the material supplier and the Obligees shall be the Contractor and the Florida Department of Transportation. The bond shall be in the full dollar amount of the bid price for the materials described in the contract.

2. The following clauses must be added to the construction Contract between the Contractor and the supplier of the stockpiled materials:

“Notwithstanding anything to the contrary, <supplier> will be liable to the Contractor and the Florida Department of Transportation should <supplier> default in the performance of this agreement.”

“Notwithstanding anything to the contrary, this agreement, and the performance bond issued pursuant to this agreement, does not alter, modify, or otherwise change the Contractor’s obligation to furnish the materials described in this agreement to the Florida Department of Transportation.”

3. The agreement between the Contractor and the supplier of the stockpiled materials must include provisions that the supplier will store the materials and that such materials are the property of the Contractor.

9-5.6 Certification of Payment to Subcontractors: The term “subcontractor,” as used herein, includes persons or firms furnishing materials or equipment incorporated into the work or stockpiled for which the Department has made partial payment and firms working under equipment-rental agreements. The Contractor is required to pay all subcontractors for satisfactory performance of their Contracts before the Department will make a further progress (partial) payment. The Contractor shall also return all retainage withheld to the subcontractors within 30 days after the subcontractor’s work is

satisfactorily complete, as determined by the Department. Prior to receipt of any progress (partial) payment, the prime contractor shall certify that all subcontractors having an interest in the Contract were paid for satisfactory performance of their Contracts and that the retainage is returned to subcontractors within 30 days after satisfactory completion of the subcontractor's work. Provide this certification in the form designated by the Department.

Within 30 days of the Contractor's receipt of the final progress payment or any other payments thereafter, except the final payment, the Contractor shall pay all subcontractors and suppliers having an interest in the Contract for all work completed and materials furnished. The Department will honor an exception to the above when the Contractor demonstrates good cause for not making any required payment and furnishes written notification of any such good cause to both the Department and the affected subcontractors or suppliers within said 30 day period.

The Contractor shall indemnify and provide defense for the Department when called upon to do so for all claims or suits against the Department, by third parties, pertaining to Contractor payment or performance issues arising out of the Contract. It is expressly understood that the monetary limitation on the extent of the indemnification shall be the approved Contract amount, which shall be the original Contract amount as may be increased by subsequent Supplemental Agreements.

**THIS COMPLETES
THIS
SPECIFICATIONS
PACKAGE**