

TAB 11



City of Palmetto Agenda Item

Meeting Date

1/4/09

Presenter: Allen R. Tusing, Director

Department: Public Works

Title:

10th Street West Projects: Contract Award

- Resurfacing 10th Street West from 8th Avenue West to 14th Avenue West COP Job #09- 597
- Intersection Improvement Project: 10th Street West at 14th Avenue West: COP Job # 07- 576

Background:

Recently, the Public Works Department held a bid opening for the following projects, Resurfacing 10th Street West from 8th Avenue to 14th Avenue West and Intersection Improvement Project for 10th Street West at 14th Avenue West. During the initial review of the proposals Superior Asphalt was the apparent low bidder, and the project was awarded to Superior Asphalt, Inc. at the December 7, 2009 meeting. After further review and discussion with FDOT, staff was instructed by FDOT to remove all bid items associated with the Intersection Improvement Project for 10th Street West at 10th Avenue West (COP Job# 07-555) due to the fact that a formal Notice to Proceed from FDOT had not been issued for this portion of the project, although state staff reviewed and approved plans for the project. As instructed all bids items for the 10th Street West at 10th Avenue West project were deleted from the bid summary and the new apparent low bidder is Woodruff and Sons, Inc.

Staff is recommending to award the approved 10th Street Projects to Woodruff and Sons, Inc. in the amount not to exceed \$481,640.17. Public Works has discussed this with FDOT and are in agreement with the new recommendation.

It should be noted that Public Works has requested that funding for the 10th Street West at 10th Avenue West be advanced to insure that this project is constructed in conjunction with the other two projects and will be bid separately per FDOT.

Budgeted Amount:	\$481,640.17	Budget Page No(s):		Available Amount:	\$496,873.00	Expenditure Amount:	\$0.00
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Additional Budgetary Information: FDOT has agreed to fund the projects via execution of a LAP Agreement.

Funding Source(s):		Sufficient Funds Available:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Budget Amendment Required:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Source:	
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City Attorney Reviewed:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Advisory Board Recommendation:	<input type="checkbox"/> For <input type="checkbox"/> Against <input checked="" type="checkbox"/> N/A	Consistent With:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
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Potential Motion/ Direction Requested:

1. Reconsider the award of the prior award to Superior Asphalt due to the change in scope of the project.
2. Authorize the Mayor to execute a contract with the apparent low bidder Woodruff and Sons, Inc. in accordance with the terms and conditions of the bid package.

Staff Contact: Allen R. Tusing, Director

Attachments: 10th Street Projects Bid Summary

TOTAL BID ITEMS COST BID SUMMARY
Resurfacing Project: 10th Street West from 8th Avenue to 14th Avenue West
Financial Project ID: 426728-1- 58- 01 COP Job # 09- 597
Add Turn Lanes: 10th Street West at 14th Avenue West
Financial Project ID 420876-1- 58- 01 COP Job # 07- 576

SUMMARY	Gator Grading & Paving, Inc.	Superior Asphalt, Inc.	Woodruff & Sons, Inc.	McLeod Land Services, Inc.	Ajax Paving Industries of Florida, LLC	Westra Construction Corp.
A. 14TH AVE. & 10TH ST. W. ROADWAY	\$255,445.40	\$257,043.65	\$247,033.66	\$252,606.34	\$363,580.57	\$333,313.55
B. 14TH AVE. & 10TH ST. W. SIGNAL	\$158,632.45	\$153,687.15	\$158,501.15	\$156,755.59	\$157,588.10	\$165,671.50
C. 10TH ST. W. RESURFACING ROADWAY	\$64,152.60	\$73,337.76	\$76,105.36	\$87,157.02	\$111,314.70	\$127,277.70
GRAND TOTAL	\$478,230.45	\$484,068.56	\$481,640.17	\$496,518.95	\$632,483.37	\$626,262.75

Note: Gator Grading & Paving did not include costs for the following item: 522-1A, Handicap ramps Addendum #3. Therefore Woodruff & Sons is the apparent low bidder.

**Resurfacing Project 10th St W from 8th Ave to 14th Avenue
Financial Project ID 426728-1-58-01, and Intersection
Improvements 10th St and 14th Ave W Financial Project
ID 420876-1-58-01**

PROJECT NO. 07-576, and 09-597

CONSTRUCTION AGREEMENT

THIS AGREEMENT made and entered into on the _____ day of _____, 20___, by and between **Woodruff and Sons, Inc.** herein after called First Party, and the City of Palmetto, herein called Second Party.

WITNESSETH:

That the First Party, for the consideration hereinafter fully set out, hereby agrees with the Second Party as follows:

1. That the First Party shall furnish all materials and equipment and perform all of the work in the manner and to the full extent set forth in the following enumerated Plans and Specifications therefor prepared by Lombardo, Foley and Kolarik, Inc., and the Contract Documents relative thereto, including among others the following:

Invitation to Bid, Instruction to Bidders, Form of Proposal, Form of Contract, Form(s) of Bond(s), General Conditions, Supplemental General Conditions, Special Provisions, Technical Specifications and the drawings, and all addenda, if any, issued prior to the opening of bids, all of which are made a part of this Agreement as completely as if set forth herein. The General Conditions and Supplemental General Conditions and Special Provisions are attached hereto as composite Attachment "A". The materials and the manner and extent of the work shall be to the satisfaction of the Second Party or its duly authorized representative, who shall at all times have full opportunity to inspect the materials and the work to be done under this Agreement.

2. That the First Party shall commence the work to be performed under this Agreement on a date to be specified in a written order of the Second Party and shall fully complete all work hereunder within 152 consecutive calendar days from and after said date.

3. The Second Party hereby agrees to pay to the First Party for the faithful performance of this Agreement, subject to additions and deductions as provided in the specifications or proposal, in lawful money of the United States, as follows:

On or before the 15th day of each calendar month, the Second Party shall make partial payments to the First Party on the basis of a duly certified and approved estimate of work performed

during the preceding calendar month by the First Party, equal to the contract value of the estimated work performed less ten percent of the amount of such estimate which is to be retained by the Second Party until the work has been performed strictly in accordance with this Agreement and until such work has been accepted by the Second Party.

4. Upon submission by the First Party of evidence satisfactory to the Second Party that all payrolls, material bills, taxes, and other costs incurred in connection with said construction work have been paid in full, final payment on account of this Agreement shall be made within 30 days after the final completion by the First Party of all work covered by this Agreement and the acceptance of such work by the Second Party.

5. It is further agreed that if, at any time after the execution of this Agreement and the execution of the performance and payment bond(s) hereto attached, the Second Party shall deem the bond(s) or the surety or sureties thereon to be unsatisfactory, or the coverage of the bonds(s) to be inadequate, the First Party shall at its expense, within (5) days after the receipt of notice from the Second Party so to do, furnish an additional bond(s) in such form and amount and with such surety or sureties as shall be satisfactory to the Second Party. In such event no further payment to the First Party shall be deemed to be due under this Agreement until such new or additional bond shall be furnished in manner and form satisfactory to the Second Party.

IN WITNESS WHEREOF the parties hereto have executed this Agreement on the day and date first above written in six counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original contract.

WOODRUFF AND SONS, INC. (First Party)

(WITNESS:) _____

(BY:) _____

(SEAL)

(First Party)

CITY OF PALMETTO, a Florida Municipal Corporation (Second Party)

(ATTEST:)

BY: _____
Shirley Groover Bryant, Mayor

James R. Freeman, City Clerk

Approved as to Form

City Attorney

**CITY OF PALMETTO
INVITATION TO BID**

**RESURFACING PROJECT:
10TH STREET WEST FROM 8TH AVENUE WEST TO 14TH AVENUE WEST
and
ADD TURN LANES:
10TH STREET WEST AT 14TH AVENUE WEST**

The City of Palmetto will accept bids from State of Florida licensed contractors to provide the professional services needed to furnish all materials; labor and equipment to resurface approximately 2,640 linear feet of roadway along 10th Street West from 8th Avenue West to 14th Avenue West and to furnish all materials; labor and equipment to widen 14th Avenue West, north and south of the intersection with striping and to widen 10th Street West, west of the intersection. Project also includes new striping along 10th Street, east and west of the intersection all for the addition of left turn lanes on each intersecting street.

GENERAL CONDITIONS

The provisions of these bid documents and technical specifications shall be binding upon the bidder selected by the City to perform the work described herein.

1. CONTRACTOR'S ABILITY

It is the intent of the City to award the Contract for this work to a Contractor whose experience, skill, and financial resources enable it to perform the work in a rapid and satisfactory manner, and successfully complete the work within the time limit set. Upon request by the City, any bidder may be required to submit an attested statement of their ability, financial status, and history.

2. BID GUARANTEE

Decision on the acceptance or rejection of the various bids will be made as soon as practicable after bids are received, but the right is reserved by the City to defer action on awarding a contract for twenty one (21) calendar days.

3. PROHIBITED INTERESTS

(a) No city officer, employee, or agent shall participate, directly or indirectly, in the selection of a contractor, or in the award or administration of a contract if such officer, employee, or agent, or a spouse, child, parent, brother or sister of such officer, employee or agent, or a person that employs any of the above has an interest, financial, or otherwise, in a person or entity submitting a bid or proposal, except where such interest is not substantial and such interest is disclosed to and approved by the city council prior to such participation.

(b) No city officer, employee, or agent shall solicit or accept a gratuity, favor or anything of monetary value from contractors, bidders, offerors or any person with an interest in a contract except where such is unsolicited, of a nominal value and disclose to the city council and the city council approves acceptance thereof.

(c)No city officer, employee or agent that participates, directly or indirectly, in the procurement process shall be employed by any person bidding for or contracting with the city for contracts hereunder.

4. CONTRACTOR'S OBLIGATION OF EXAMINATION

The City has endeavored to provide a description of all of the conditions which may affect the performance of the work in these bid documents. By submitting a bid, contractors acknowledge that they have examined all of the bid Documents, technical specifications, the project site, and any other relevant information that may be on file in the offices of the City. No plea of ignorance of conditions that may exist, or of conditions or difficulties that may be encountered under this contract, as a result of a failure to make the necessary examinations and investigations, will be accepted as an excuse for any failure or omission on the part of the Contractor to fulfill in every detail all the requirements of the bid, or will be accepted as a basis for any claims whatsoever for extra compensation.

5. BASIS UPON WHICH BIDS ARE SOLICITED AND AWARDED

Bids are solicited on the basis of the criteria set forth in these bid documents. The City shall not be liable for any services, sales tax, or any other charge whatsoever that may be levied by the Federal Government, the State Government, or any other private, public, or political agency against the bidder. Award of the contract will be to the Contractor who has submitted the lowest, most responsive and responsible bid as determined by the City Commission. The City's decision will be final. The City reserves the right to informally negotiate certain points of the final contract with the qualified bidder.

6. LAWS TO BE OBSERVED

The act of submitting a response to this bid shall constitute an agreement by the Contractor that they have made themselves familiar with, and shall at all times observe and comply with, Federal, State, and Local laws, ordinances, codes, and regulations. No plea of misunderstanding will be considered on account of ignorance thereto. The Contractor shall indemnify and hold harmless the City and all of their officers, agents, employees, or representatives from all suits, actions, or claims arising from or based on the violation of any such laws, ordinances, codes, and regulations whether by themselves, their employees, subcontractors, or agents.

7. SAFETY AND PROTECTION

Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to, all persons on the work site or who may be affected by the work, all the work and materials and equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of the construction.

8. TIME OF COMPLETION

After approval by City Commission, a Purchase Order and/or Agreement for Contractor Services will be executed between the City and Contractor and work shall continue in effect until final completion. The City will expect the Contractor to take the lead and adhere to the time schedule in accomplishing this project.

9. ASSIGNMENT OF CONTRACT

The winning bidder shall not be permitted to assign the contract without the written consent of the City.

10. CHANGE ORDERS

The cost of performing any work not covered by the unit price bid shall be negotiated by the City and the Contractor and shall not be effective unless a written change order is executed by the parties.. Such change orders shall specifically provide for any changes to the purchase order price or time of completion that are necessitated by the changes. Additional work performed by the Contractor without authorization of a Change Order will not entitle the Contractor to an increase in the Purchase Order price or an extension of the completion date.

11. PREPARATION OF BIDS

The Contractor's bid shall be submitted as required by the bid documents (one (1) original and (4) four copies) in accordance with these instructions. The bids must be complete in every detail. All costs must be stated in figures, the location sums stated in figures, and the grand total for all items proposed computed and stated in figures if required by the Response Format.

The City reserves the right to correct any apparent error resulting from erroneous multiplication or addition before awarding a contract.

An authorized representative of the company shall complete and sign the Bid Form in its entirety.

A Partnership Contractor must give the names and addresses of all partners and the Bid Form must be signed by at least one person who shall designate them self as a partner. When a contractor submits a response, any officer having binding authority to do so may sign the bid and describe themselves as doing business under a contractor name and style.

A Corporation must name the state in which its articles are held. The Bid Form must be signed in the name of, and under the seal of, the corporation, by a duly authorized officer or agent of the corporation and their address must be given. Such officer or agent must present legal evidence that they have lawful authority to sign said bid and that the signature is binding upon the corporation and that the corporation has a legal existence. In the event that any corporation, organized and doing business under the laws of any foreign state, is the successful bidder, such corporation shall present evidence before a Purchase Order for said work is executed, that it is authorized to do business in the State of Florida.

12. REJECTION OF BIDS

The City reserves the right to reject any bid containing any omission, addition, extension, erasure, alteration, or irregularity of any kind.

The judgment of the City shall be final in determining the capability, experience, and ability of the Contractor to successfully and properly execute the proposed work to completion within the proposed time.

The City reserves the right to reject any or all responses and to waive any irregularity, variance or informality whether technical or substantial in nature, and to accept or reject any item or combination of items, in keeping with the best interests of the City.

13. INQUIRIES AND ADDENDA

If determined that a Pre-Bid Meeting is necessary, this meeting would be scheduled for Wednesday, November 18, 2009 at our Public Works Department located at 600 17th Street West. Official notification of this meeting will be sent in advance to all Contractors that received the Bid package.

Each Contractor shall examine the entire bid document. Any inquiries, suggestions, or requests concerning interpretation, clarification, or additional information pertaining to this bid shall be made in writing via mail, email or by fax through the City of Palmetto's Purchasing Agent:

Nixa Haisley
Purchasing Agent
P.O. Box 1209
Palmetto, FL 34220

Fax: 941-723-4576
Email: nhaisley@palmettoll.org

The issuance of a written addendum is the only official method whereby interpretation, clarification, or additional information can be given. The City shall not be responsible for oral interpretations given by any City employee, representative or others. If any addenda are issued to this bid, the City will attempt to notify all prospective Contractors who have requested a copy of the bid of such addenda and post a notice on the City web site. However, it shall be the responsibility of each Contractor, prior to submitting a response, to contact the City of Palmetto's purchasing office (941-723-4570) to determine if addenda were issued and to make such addenda a part of the response.

14. INSURANCE REQUIREMENTS

A. General:

Before beginning and until acceptance of final completion by the City, the Contractor shall procure and maintain insurance of the types and the limits specified below.

B. Coverage and Limits:

The Contractor shall provide the following described insurance, except for coverage specifically waived by the City, on policies and with insurers acceptable to the City. These insurance requirements shall not limit the liability of the Contractor. The City does not represent these types or amounts of insurance to be sufficient or adequate to protect the Contractor's interests or

liabilities, but are merely minimums. Except for workers' compensation, the Contractor's insurance policies shall be endorsed to name the City as an additional insured to the extent of the City's interests arising from this contract or agreement.

Except for workers' compensation, the Contractor waives their right of recovery against the City, to the extent permitted by its insurance policies.

The Contractor's deductibles/self-insured retention shall be disclosed and may be disapproved by the City. They shall be reduced or eliminated at the option of the City. The Contractor is responsible for the amount of any deductible or self-insured retention.

Requirements

A. Workers' Compensation / Employer's Liability

1. Worker's Compensation: meets statutory limits in compliance with the workers' compensation laws of the State of Florida.

2. Employer's Liability: \$1,000,000 each accident, \$1,000,000 each employee (disease), \$1,000,000 disease (policy limit).

B. Commercial General Liability Includes Bodily Injury Liability, Property Damage Liability, Personal Injury Liability and Advertising Injury Liability

Coverage Includes: Premises/Operations, Products/Completed Operations, Contractual Liability, Independent Contractors

Limit of Liability: \$3,000,000 each occurrence combined single limit or \$3,000,000 each occurrence / \$3,000,000 general aggregate.

C. Business Auto Liability

Coverage Includes: Owned Autos, Leased Autos, Hired Autos, Non-owned Autos

Limit of Liability: \$3,000,000 each occurrence, combined single limit or \$3,000,000 each occurrence / \$3,000,000 general aggregate

Special Requirements:

Prior to the commencement of any work under this contract a certificate of insurance will be provided to the Risk Manager for review and approval. The certificate shall provide for the following:

1.) The City of Palmetto will be named as an "Additional Insured" on both the General Liability and Auto Liability policies.

2.) The City of Palmetto will be given thirty (30) days notice prior to cancellation or modification of any stipulated insurance. Such notice will be in writing by certified mail, return receipt requested and addressed to the Risk Manager.

{b)-An-appropriate "indemnification"-clause-shall-be made-a provision-of the contract.

(c) It is the responsibility of the contractor to insure that all subcontractors comply with all the City's stipulated insurance requirements.

(d) It should be remembered that these are minimum requirements which are subject to modification in response to high hazard operations.

D. Professional Liability:

Contractor shall maintain a good and sufficient professional liability insurance policy of not less than Five Hundred Thousand Dollars (\$1,000,000) protecting the Contractor against claims of the City for negligence, errors, mistakes, or omissions in the performance of the services to be performed and furnished.

CONTRACTOR SHALL NAME CITY OF PALMETTO AS ADDITIONAL INSURED IN EACH OF THE APPLICABLE POLICIES.

E. Hold Harmless:

The Contractor shall hold the City harmless against all claims for bodily injury, sickness, disease, death, personal injury, damage to property or loss of use resulting there from, arising out of performance of the contract unless such claims are a result of the City's own negligence.

The Contractor agrees to pay on behalf of the City, and to pay the cost of the City's legal defense, as may be selected by the City, for all claims described in the Hold Harmless paragraph. Such payment on behalf of the City shall be in addition to any and all other legal remedies available to the City and shall not be considered to be the City's exclusive remedy.

If requested by the City, the Contractor shall furnish complete copies of the Contractor's insurance policies, forms and endorsements. For Commercial General Liability coverage the Contractor shall, at the option of the City, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage.

Receipt of certificates or other documentation of insurance or policies or copies of policies by the City, or by any of its representatives, which indicate less coverage than required does not constitute a waiver of the Contractor's obligation to fulfill the insurance requirements herein.

F. Insurance of the Contractor Primary

Insurance required of the Contractor shall be considered primary. Insurance of the City shall be considered excess, as may be applicable to claims which arise out of the Hold Harmless, Payment on Behalf of City, Insurance, Additional Insurance and Certificates of Insurance provisions of this agreement or contract.

15. DISPUTE AND COMPLAINT

All complaints or grievances should be first submitted in writing to the Purchasing Agent who will take prompt remedial action. The Purchasing Agent, along with the City Clerk, shall investigate the validity of the complaint and present the findings in writing to the Contractor. If the Contractor is dissatisfied with the remedies, they may then make a written appeal to the City Commission, in accordance with Section 2-63 of the City Code. This policy does not preclude consideration of legal questions in connection with any decisions made by the City.

16. INSPECTION/EXAMINATION OF SUBMITTED BIDS

Bids will not be available for public inspection until such time as there is a notice of decision or intended decision of award or within ten (10) days of the opening date, whichever is earlier (reference Florida Statutes, Section 119.071(1)(b)1.a.)

17. EQUAL EMPLOYMENT

Bidder will not discriminate against any employee or applicant for employment because of race, color, religion, age, sex, national origin, or handicap.

18. DISCRIMINATORY CONTRACTOR

Any entity, as defined in Florida Statutes, §287.134, who has been placed on the discriminatory contractor list may not submit a bid, bid, or reply on a contract with the CITY and may not be awarded or perform work as a contractor, supplier, subcontractor, or Contractor under a contract with the CITY for a period of not less than thirty-six (36) months following the date of being placed on the discriminatory contractor list.

19. PUBLIC ENTITY CRIME

As required by Florida Statutes Section 287.133a person or affiliate who has been placed on the convicted contractor list following a conviction for a Public Entity Crime may not submit a bid on a contract to provide any goods or services to a Public Entity, may not submit a bid on a contract with a Public Entity for the construction or repair of a public building or a public work, may not submit bids on leases of real property to a Public Entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or Contractor under a contract with any Public Entity, and may not transact business with any Public Entity in excess of the threshold amount provided in s. 287.017 for Category Two for a period of 36 months from the date of being placed on the convicted contractor list. Any person must notify the City within 30 days after a conviction of a Public Entity crime applicable to that person or to an affiliate of that person.

20. CONTENTS OF BID RESPONSE

In accordance with the instructions set forth in this ITB document, the Contractor's bid shall be submitted (one original and four copies) including all of the items listed below. The bids must be complete in every detail. All costs must be stated in figures, the location sums stated in figures, and the grand total for all items proposed computed and stated in figures if required by the Response Format.

Responses are due no later than 2:00pm on December 2, 2009 at 516 8th Avenue West, Palmetto, Florida 34221. Sealed envelopes should be clearly labeled "**10th Street Projects: 10th Street West**". Timely delivery is solely and strictly the responsibility of the individual or firm. Proposals received after 2:00pm on December 2, 2009 will not be considered and will be returned to the proposer unopened.

The Bidder shall include in its response, at a minimum, the following information presented in a clear and concise format, in order to demonstrate the Contractor's competence and professional qualifications for the satisfactory performance of the services outlined in the Bid Documents and Technical Specifications of this Invitation to Bid:

1. Completed and Signed Bid Form included in this bid package (4 Pages)
2. Contractor's Questionnaire included in this bid package
3. Bidder's Certification Form included in this bid package.
4. No Lobbying Affidavit Form included in this bid package.
5. Public Entity Crimes Form included in this bid package.
6. Drug Free Work Place Certification Form included in this bid package.
7. If applicable, a list of sub-contractors which the Bidder anticipates assigning to this project and the general nature of each of their responsibilities. This list shall include a copy of necessary licenses. The City will retain under its agreement with the successful Bidder the right of approval of all persons performing under the agreement.
8. Optional: Project references, with names, addresses and telephone numbers of contact persons. This list should be of the most recent projects for which the Bidder has performed similar services of like size, scope, and complexity.
9. Evidence of compliance or ability to comply with insurance requirements as outlined in this bid package

NOTE: ANY OR ALL STATEMENTS CONTAINED IN THE FOLLOWING SUPPLEMENTAL CONDITIONS, SPECIFICATIONS PACKAGE OR CONSTRUCTION PLANS WHICH VARY FROM THE GENERAL CONDITIONS, SHALL HAVE PRECEDENCE.

END OF PAGE

SUPPLEMENTAL GENERAL CONDITIONS

	<u>Page No.</u>
1. Definitions	1
2. Engineer as Referee	1
3. Notice and Service Thereof	1
4. Contract Security	2
5. Assignment	2
6. Contractors' and Subcontractors' Insurance	2
7. Accident Prevention	3
8. Qualifications for Employment	3
9. Licenses, Permits, Construction and Employment Practices	3
10. Substitutions	4
11. Patents	4
12. Time for Completion	4
13. Delays - Damages	4
14. Right of the Owner to Terminate Contract	5
15. Character of Workmen and Equipment	5
16. Use of Premises	6
17. Materials, Services and Facilities	7
18. Warranty of Title	7
19. Payments by Contractor	8
20. Subcontracting	8
21. Mutual Responsibility of Contractors	9

	<u>Page No.</u>
22. Inspection	9
23. Inspection and Testing of Materials	9
24. Coordination of Plans and Specifications	9
25. Fitting and Coordination of the Work	9
26. Construction Schedule and Periodical Estimates	10
27. Drawings	10
28. Shop Drawings	11
29. Payments to Contractor	11
30. Changes in Work	12
31. Extras	13
32. Claims for Extra Cost	13
33. Deductions for Uncorrected Work	13
34. Contractor's Responsibility for Work	13
35. Final Inspection	13
36. Right of Recovery	14
37. General Guarantee	14
38. Termination of Responsibility	14
39. Indemnification	14

SUPPLEMENTAL
GENERAL CONDITIONS

1. **Definitions:** Wherever used in any of the Contract Documents, the meaning shall be given to the terms herein defined:

1.1 The term ^{Supplemental} "Contract" means the agreement executed by the Owner and the Contractor of which these General Conditions form a part.

1.2 The terms "Owner" and "Contractor" mean the respective parties to the Contract.

1.3 The term "Subcontractor" means a person, firm, or corporation supplying services and materials, labor and materials, or only services or labor for work in connection with the project.

1.4 The term "Engineer" means the authorized representative of the Owner employed to provide engineering supervision and/or inspection of the work performed by the Contractor, and where the term "Owner" is used in connection with the interpretation of the drawings and specifications, or in connection with the enforcement of the provisions of same, the Engineer, as the Owner's representative, shall have authority to act.

1.5 The term "Contract Documents" - The Contract Documents are composed of the Invitation to Bid, Instructions to Bidders, Proposal and Bid Form, Construction Agreement Form, Form(s) of Bond(s), General Conditions, if any, Special Provisions, Technical Specifications, the drawings, and any addenda thereto predating the Construction Agreement.

2. **Engineer as Referee:** It is agreed by the parties hereto that the Engineer shall decide all questions which may arise relative to the interpretation of the Plans, Specifications, and other Contract Documents, pertaining to the character, quality, amount and value of any work done, and of the materials furnished under or by reason of this Contract. His estimates and decisions upon all such claims and questions shall be final and conclusive upon the parties thereto.

3. **Notice and Service Thereof:**

3.1 All notices, demands, requests, instructions, approvals, and claims shall be in writing.

3.2 Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor as specified in the Bid (or at such other office as the Contractor may from time to time designate to the Owner in writing), or if deposited in the United States mail in a sealed, postage-paid envelope, or delivered, with charges prepaid, to any telegraph company for transmission, in each case addressed to such office.

3.3 All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to the office of the Owner as specified in Instructions to Bidders and any notice to or demand upon the Owner shall be sufficiently given if delivered to said office or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case properly addressed to said Owner or to such other representative of the Owner or to such other address as the Owner may subsequently specify in writing to the Contractor for such purposes.

3.4 Any such notice or demand to the Contractor or to the Owner shall be deemed to have been given or made as of the time of actual delivery or, in the case of mailing, when the same should have been received in due course or, in case of telegram, at the time of actual receipt, as the case may be.

4. **Contract Security:** The Contractor shall furnish a surety bond in an amount equal to not less than one hundred percent (100%) of the contract price as security for the faithful performance of this contract and for the payment of all persons furnishing services and/or labor and/or materials for the project in connection with this contract, and shall indemnify and save harmless the said Owner from all costs, expenses and damages from all suits, actions or claims of any character, name and description brought for, or on account of, or arising out of, any act or omission, neglect or misconduct of the said Contractor in the performance or execution of this contract. Said surety shall be held until any and all of such suits, actions or claims have been settled and suitable evidence to that effect has been furnished to the Owner. The surety on such bond shall be a duly authorized surety company satisfactory to the Owner.

5. **Assignment:** The Contractor shall not assign the whole or any part of this contract, or any monies due or to become due hereunder, without written consent of the Owner. In case the Contractor assigns all or any part of any monies due or to become due under this contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior liens of all persons, firms and corporations for the services rendered or for labor performed or for materials supplied for the performance of the work called for in this contract.

6. **Contractors' and Subcontractors' Insurance:** The Contractor shall not commence work under this contract nor shall he allow any Subcontractor to commence work until the Contractor has obtained all the insurance required under this Section and such insurance has been approved by the Owner.

6.1 **Compensation Insurance** - The Contractor shall procure and shall maintain during the life of this contract Workmen's Compensation Insurance for all of his employees to be engaged in work on the project under this contract, and in case any such work is sublet, the Contractor shall require the 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 Workmen's Compensation Insurance. In a case any class of employees engaged in hazardous work on the project under this contract is not protected under the Workmen's

Compensation statute, the Contractor shall provide and shall cause each Subcontractor to provide adequate insurance for the protection of such of his employees not otherwise protected.

6.2 Contractor's Public Liability and Property Damage Insurance: The Contractor shall procure and shall maintain during the life of this contract, Contractor's Public Liability Insurance in an amount satisfactory to the Owner but not less than \$250,000 for injuries, including accidental death, to any one person, and subject to the same limit for each person, in an amount not less than \$1,000,000, on account of one accident, and the Contractor's Property Damage Insurance in an amount not less than \$500,000. This insurance shall be maintained with an insurance company or companies licensed to do business in the state in which the Contractor shall perform his contractual services.

6.3 Subcontractor's Public Liability and Property Damage Insurance: The Contractor shall require each of his Subcontractors to procure and maintain during the life of his contract Subcontractor's Public Liability and Property Damage insurance coverage in amounts satisfactory to the Contractor for his own protection, with an insurance company or companies licensed to do business in the state in which the Subcontractor shall perform his contractual services.

6.4 Scope of Insurance and Special Hazards: The insurance required under subparagraphs 6.2 and 6.3 hereof shall provide adequate protection for Contractor and his Subcontractor's respectively, against damage claims which may arise from operations under this contract, whether such operations be by the insured or by anyone directly or indirectly employed by the insured or by anyone directly or indirectly employed by him, and also against any of special hazards which may be encountered in the performance of this contract.

6.5 Proof of Carriage of Insurance: The Contractor shall furnish the Owner with satisfactory proof of carriage of the insurance required, but the failure to provide adequate insurance shall not relieve the Contractor's responsibility to protect the Owner wholly from all such claims and damages.

7. Accident Prevention: Precaution shall be exercised by the use of modern safety rules and practices at all times for the protection of persons (including employees) and property, and hazardous conditions shall be guarded against or eliminated.

8. Qualifications for Employment: Preference shall be given to qualified local residents in the employment of laborers and mechanics for work on the project under this contract. No person shall be employed in violation of the State or the National Labor Laws. No person under the age of sixteen years shall be employed on the project under the contract. No person whose age or physical condition is such as to make this employment dangerous to his health or safety or to the health or safety of others shall be employed on the project under this contract; provided, that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform. No person currently serving a sentence in a penal or correctional institution, although paroled, and no inmate of an institution for mental defectives shall be employed on the project under this contract.

9. **Licenses, Permits, Construction and Employment Practices:** All Contractors shall secure all licenses and permits required by Staté, County, and local units of government in which the project is to be constructed. Contractors are also required to comply with all laws, regulations, safety codes, and building and construction codes which apply to construction performed under this contract, also with all applicable Federal and State regulations in respect to employees' wages and hours.

10. **Substitutions:** Unless otherwise stated, reference in the specifications to any article, device, product, material, fixture, form, or type of construction, etc., by name, make or catalog number, shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition, and the Contractor, in such cases, may at his option use any article, device, product, material, fixture, form or type of construction which in the judgment of the Owner, expressed in writing, is equal to that named.

11. **Patents:** The Contractor shall hold and save the Owner and his officers, agents, servants, and employees harmless from liabilities of any nature or kind, including costs and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the contract, including its use by the Owner at any time during the prosecution or after completion of the work unless otherwise specifically stipulated in the Contract Documents.

12. **Time for Completion:** The work shall be commenced at the time stated in the notice to the Contractor to proceed and shall be completed in the number of consecutive calendar days stated in the Instructions to Bidders.

13. **Delays - Damages:**

13.1 If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with such diligence as will insure its completion within the time specified in the Instructions to Bidders, or any extension thereof, or fails to complete said work within such time, the Owner may, by written notice to the Contractor, terminate his right to proceed with the work or such part of the work as to which there has been delay. In such event the Owner may take over the work and prosecute the same to completion by contract or otherwise, and the Contractor and his sureties shall be liable to the Owner for any excess cost occasioned the Owner thereby. If the Contractor's right to proceed is so terminated, the Owner may take possession of and utilize in completing the work such materials, appliances, and plants as may be on the site of the work and necessary therefor. If the Owner does not terminate the right of the Contractor to proceed, the Contractor shall continue the work, in which event the actual damage for the delay will be impossible to determine in lieu thereof the Contractor shall pay to the Owner as fixed, agreed, and liquidated damages for each calendar day of delay until the work is completed or accepted the amount as set forth in Instructions to Bidders and the Contractor and his sureties, jointly and severally, shall be liable for the amount thereof. Provided, that the right of the Contractor to proceed shall not be terminated nor the Contractor charged with liquidated damages because of any delays in the completion of the work due to

unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of the Government, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, the unusually severe weather, or delays of Subcontractors due to such causes, if the Contractor shall within ten (10) days from the beginning of any such delay (unless the Owner shall grant a further period of time prior to the date of final settlement of the contract) notify the Engineer in writing of the causes of delay. The Engineer shall ascertain the facts and the extent of the delay and extend the time for completing the work when in his judgment the findings of fact justify such an extension, and his findings of fact thereon shall be final and conclusive on the parties hereto, subject only to appeal within thirty (30) days by the Contractor to the Owner, whose decision on such appeal as to the facts of delay and the extension of time for completing the work shall be final and conclusive on the parties hereto.

13.2 Where actual damages for any delay in completion contemplated by this Section and Section 14 are impossible of determination by reason of the Owner's election under said sections not to terminate the right of the Contractor to proceed, the Contractor and his sureties, jointly and severally, shall be liable for and shall pay to the Owner, as set forth in Instructions to Bidders, agreed and liquidated damages for each calendar day of such delay until the work is completed or accepted; provided, that the Owner may accept the work if there has been such a degree of completion as will, in Owner's opinion, make the project reasonably safe, fit and convenient for the use and accommodation for which it was intended. In such case, the Contractor shall not be charged with liquidated damages, but the Owner may assess damages caused by such delay.

14. **Right of the Owner to Terminate Contract:** If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed for the Contractor or any of his property, or if he should persistently or repeatedly refuse or fail to supply enough properly skilled workmen or proper materials, or if he should refuse or fail to make prompt payment to persons supplying labor or materials for the work under the Contract, or persistently disregard instructions of the Engineer or fail to observe or perform any provisions of the Contract Documents, or otherwise be guilty of a substantial violation of any provisions of the Contract Documents, then the Owner may, by at least five (5) days' prior written notice to the Contractor, without prejudice to any other rights or remedies of the Owner in the premises, terminate the Contractor's right to proceed with the work. In such event, the Owner may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the Owner for any excess cost occasioned to the Owner thereby; and in such case the Owner may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and necessary therefore. The foregoing provisions are in addition to, and not in limitation of, the rights of the Owner under any other provisions of the Contract Documents.

15. **Character of Workmen and Equipment:** The Contractor shall employ such superintendents, foremen and workmen as are careful and competent. Whenever the Engineer shall determine that any person employed by the Contractor is, in his opinion, incompetent, unfaithful, disorderly or insubordinate, such person shall, upon notice, be discharged from the work and shall not again be employed on it except with the written consent of the Engineer.

15.1 Should the Contractor fail to remove such person or persons, or fail to furnish suitable or sufficient machinery, equipment or force for the proper prosecution of the work the Engineer may withhold all estimates which are, or may become due, or may suspend the work until such orders are complied with.

15.2 The equipment used on any portion of the work shall be such that no injury to adjacent property, or to streets or highways will result from its use; equipment shall be modern, in good condition, and adequate in size to perform the work in satisfactory time intervals. No item of machinery or equipment, after once being placed on the work, shall be removed without the consent of the Engineer.

16. **Use of Premises:**

16.1 The Contractor shall confine his apparatus, storage of materials, and construction operations to such limits as may be directed by the Owner and shall not unreasonably encumber the premises with his materials.

16.2 The Contractor shall not load or permit any part of any structure to be loaded to such an extent as to endanger its safety.

16.3 The Contractor shall provide and maintain at his own expense, in a sanitary *and safe* condition, such accommodations for the use of his employees as is necessary to comply with the requirements and regulations of the State and City Boards of Health. He shall commit no public nuisance.

16.4 The Contractor shall conduct the work so as to insure the least obstruction to traffic practicable, and shall provide for the convenience of the general public and of residents along and adjacent to the work in a manner satisfactory to the Engineer. Materials and equipment stored on the work site shall be placed so as to cause as little obstruction to the public as possible and shall be lighted and barricaded as hereinafter provided.

16.5 Streets shall not be closed, except when and where approved by the Engineer, and whenever the street is not closed, the work must be so conducted that there shall at all times be a safe passageway for traffic. Whenever it is necessary to divert traffic from any part of the work the Contractor shall provide and maintain a passable driveway approved by the Engineer.

16.5.1 Suitable barricades, danger warnings, detour signs, etc., as hereinafter provided, shall be maintained by the Contractor in all cases and the Engineer's office and the Fire Department and Police Department having jurisdiction shall immediately be notified by telephone, or otherwise, upon the closing and/or opening of each street or section thereof.

16.6 The Contractor shall provide, erect, and maintain, at his own expense, barricades, danger warnings, and detour signs whenever they may be necessary. He shall place sufficient lights

on and/or near the work and keep them illuminated from twilight to sunrise; shall erect suitable barricades, railings, fences, and/or other protections about the work; provide all watchmen by day or night and take all other precautions that may be necessary; he shall maintain proper guards and lights for the prevention of accidents, upon materials, supplies, and equipment, and take all other precautions that may be necessary for the proper protection of the work and public convenience and safety.

16.6.1 Streets closed to traffic shall be protected by effective barricades on which shall be placed acceptable warning signs. The Contractor shall provide and maintain acceptable warning and detour signs at all closures, intersections, and along the detour routes, directing the traffic around the closed portion or portions of the work, so that the temporary detour route or routes shall be indicated clearly throughout its or their entire length.

16.7 Fire hydrants on or adjacent to the work shall be kept accessible to the fire apparatus at all times and no material or obstructions shall be placed within ten (10) feet of any such hydrant. Adjacent premises must be given access as far as practicable, and obstruction of sewer inlets, gutters, and ditches will not be permitted.

16.8 Unless otherwise expressly stipulated herein, the use of explosives is not contemplated in the prosecution of the Contract, and in no case will their use be permitted within a municipality without the written permission of the City Engineer and a permit issued by the Chief of the Fire Department.

16.8.1 Where such permission for the use of explosives is obtained, the Contractor shall use the utmost care so as not to endanger life or property, and whenever directed the number and size of the charges shall be reduced. All explosives shall be stored in a secure manner, and all such storage places shall be marked clearly, "DANGEROUS EXPLOSIVES", and shall be in care of competent watchmen.

16.9 It shall be the responsibility of the Contractor to contact in writing the Fire and Police Departments having jurisdiction in the area where the work is being performed to obtain from them a summary of the information which should be provided to them while work is in progress. It shall then be the Contractor's responsibility to provide them with all such data.

17. Materials, Services and Facilities:

17.1 It is understood that except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence and temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

17.2 Any work necessary to be performed after regular working hours, or on Sundays or legal holidays, shall be performed without additional expense to the Owner.

18. **Warranty of Title:** No material, supplies, or equipment for the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part therefor is retained by the seller or supplier. The Contractor warrants good title to all material, supplies, and equipment installed or incorporated in the work and agrees upon completion of all work to deliver the premises together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens, or charges, and further agrees that neither he nor any person, firm or corporation furnishing any materials or labor for any work covered by this contract shall have any right to a lien upon the premises or any improvements or appurtenances thereon, provided that this shall not preclude any Contractor from installing metering devices and other equipment of utility companies or of municipalities, the title to which is commonly retained by the utility company or the city. In the event of the installation of any such metering device or equipment, the Contractor shall advise the Owner as to the owner thereof. Nothing contained in this section, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this section shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

19. **Payments by Contractor:**

19.1 The Contractor shall pay for all transportation and utility services not later than the 20th day of the calendar month following that in which such services are rendered.

19.2 For all materials, tools, and other expendable equipment to the extent of ninety (90) percent of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools, and equipment are delivered at the site of the project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools and equipment are incorporated or used, and

19.3 To each of his Subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his Subcontractors, to the extent of each Subcontractor's interest therein.

20. **Subcontracting:**

20.1 The Contractor shall utilize the services of specialty Subcontractors on those parts of the work which under normal contracting practices are performed by specialty Subcontractors; provided, that if the Owner shall determine that the specialty work in question has been customarily performed by the Contractor's own organization and that such organization is presently competent to perform such work, the Contractor shall be permitted to do so.

20.2 The Contractor shall not award any work to any Subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the Subcontractors, which statement shall contain such information as the Owner may require.

20.3 The Contractor shall be as fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

20.4 The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind Subcontractors to the Contractor by the terms of the General Conditions and other Contract Documents insofar as applicable to the work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Document.

20.5 Nothing contained in this contract shall create any contractual relation between any Subcontractor and the Owner.

21. **Mutual Responsibility of Contractors:** If through acts of neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other contractor or subcontractor will so settle. If such other contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

22. **Inspection:** The Owner and his authorized representatives and agents shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records:

23. **Inspections and Testing of Materials:** Unless otherwise specifically provided for in the specifications, the inspection and testing of materials and finished articles to be incorporated in the work at the site shall be made by bureaus, laboratories, or agencies approved by the Owner. The Contractor shall furnish evidence satisfactory to the Owner that the materials and finished articles have passed the required tests prior to the incorporation of such materials and finished articles in the work. The Contractor shall promptly segregate and remove rejected materials and finished articles from the site of the work.

24. **Coordination of Plans and Specifications:** The Specifications, plans, and all supplementary documents are essential parts of the Contract. Any requirement occurring in one is as binding as though occurring in all. Items shown on the plans and not noted in the specifications, and items noted in the specifications but not shown on the plans are to be considered as shown on the plans and noted in the specifications, and items noted in the specifications but not shown on the plans are to be considered as shown on the plans and noted in the specifications. Any errors or omissions as to standards of work in the specifications or on the plans shall not relieve the

Contractor of the obligation to furnish a strictly first class job in strict accord with best practice to be found in structures or work of a similar nature.

25. **Fitting and Coordination of the Work:** The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operation of all trades, subcontractors, or material men engaged upon the work. He shall be prepared to guarantee to each of his Subcontractors the dimensions which they may require for the fitting of their work to all surrounding work and shall do, or cause his agents to do, all cutting, fitting, adjusting, and patching necessary to make the several parts of the work come together properly and to fit the work to receive or be received by that of other contractors.

26. **Construction Schedule and Periodical Estimates:** Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner a construction progress schedule in form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amounts of each monthly payment that will become due the Contractor in accordance with the progress schedule. The Contractor shall also furnish the following:

26.1 A detailed estimate giving a complete breakdown of the contract price.

26.2 Periodic itemized estimates of work done for the purpose of making partial payments thereon. The value employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

27. **Drawings:**

27.1 The general character and scope of the work are illustrated by the drawings accompanying the Contract Documents. Where necessary the approved plans will be supplemented by the Engineer with such full scale details, sketches, etc., as are necessary to adequately control the work. It is mutually agreed that all authorized alterations affecting the requirements and information given on the approved plans shall be in writing.

27.1.1 The Contractor shall furnish such detailed plans as may be required for the prosecution of the work and are not included in the plans furnished by the Engineer. They shall include shop details, erection plans, masonry layout diagrams and bending diagrams for reinforcing steel, approval of which by the Engineer must be obtained before any work involving these plans shall be performed. Plans for cribs, cofferdams, falsework, centering and form work may also be required, and such cases shall be likewise subject to approval unless approval be waived by the Engineer.

27.1.2 It is expressly understood, however, that approval by the Engineer of the Contractor's working drawings does not relieve the Contractor of any responsibility for accuracy of

dimensions and details, or of mutual agreement of dimensions and details. It is mutually agreed that the Contractor shall be responsible for agreement and conformity of his working drawings with the approved plans and specifications. The Contractor shall not attempt to construct the parts of the work for which such detail drawings are required until he has received them with written approval of the Engineer.

27.1.3 The contract price shall include the cost of furnishing all working drawings and the Contractor will be allowed no extra compensation for such drawings.

27.2 Where the word "similar" occurs on the drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection to other parts of the work.

27.3 Where on any of the drawings a portion of the work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the work. Where ornament or other detail is indicated by starting only, such detail shall be continued throughout the courses or parts in which it occurs and shall also apply to all other similar parts in the work, unless otherwise indicated.

28. **Shop Drawings:**

28.1 The Contractor shall submit for the approval of the Engineer copies of all shop and setting drawings and schedules required for the work, and no work shall be fabricated by the Contractor, save at his own risk, until such approval has been given. Copies of these drawings and schedules shall be furnished in such number as the Engineer may direct.

28.2 The Contractor shall submit all drawings and schedules sufficiently in advance of construction requirements to allow ample time for checking, correcting, resubmitting, and rechecking; and no claim by the Contractor for delays, arising from his failure in this respect, shall be allowed.

28.3 All shop drawings submitted must bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor. Any drawings submitted without this stamp of approval shall not be considered and will be returned to the Contractor for resubmission. If the shop drawings show variations from the requirements of the Contract Documents because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may

be taken for proper adjustment; otherwise, the Contractor shall not be relieved of the responsibility executing the work in accordance with the Contract Documents even though such shop drawings have been approved.

28.4 Where a shop drawing as submitted by the Contractor indicates a departure from the Contract which the Engineer deems to be a minor adjustment in the interest of the Owner and which does not involve a change in the Contract Price or extension of time, the Engineer will approve the drawing.

28.5 The approval by the Engineer of shop drawings will be general and shall not relieve the Contractor from the responsibility for adherence to the Contract, nor shall it relieve him of the responsibility for any error which may exist.

29. **Payments to Contractor:**

29.1 Not later than the 15th day of each calendar month, the Owner will make a partial payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under this contract, but to insure the proper performance of this contract, the Owner will retain ten (10) percent of the amount of each estimate until final completion and acceptance of all work covered by this contract, or until such time when the total amount of the retainage is greatly in excess of the value of the uncompleted portion of this suspended payment, provided that the Owner shall at all times retain an amount sufficient to enable him to complete the uncompleted work in the Contract and to liquidate unsatisfied claims.

29.2 In preparing estimates the material delivered on the site and preparatory work done may be taken into consideration.

29.3 The monthly payments shall be approximately only, and all partial estimates and payments shall be subject to correction in the final estimate and final payment.

29.4 All material and work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Owner to require the fulfillment of all of the terms of the Contract.

30. **Changes in Work:**

30.1 The Owner may at any time, by a written order, and without notice to the sureties, make changes in the drawings and specifications of this Contract and within the general scope thereof. In making any change, the charge or credit for the change shall be approximately determined by the Owner in one of the following methods prior to the issuance of the order for the changed work.

30.1.1 The order shall fix the total lump sum value of the change in the work of the Contractor, and shall set out the price which shall be added to or deducted from the Contract Price (which price shall include Contractor's overhead and profit). On any change which involves a net credit to the Owner, no allowance for overhead and profit shall be figured.

30.1.2 By estimating the number of unit quantities of each part of the work which is changed and then multiplying the estimated number of such unit quantities by the price (which price shall include the Contractor's overhead and profit) for a unit quantity thereof.

30.1.3 By ordering the Contractor to proceed with the work and to keep and present, in such form as the Owner may direct, a correct account of the cost of the change together with all vouchers therefore. Cost applicable to 30.1.1 and 30.1.2 above may include an allowance for overhead and profit not to exceed fifteen (15) percent of the net cost. The cost may also include all items of labor or materials, the use of power tools and equipment actually used, power and all items of cost such as public liability and workmen's compensation insurance, pro rate charges for foremen, also social security, old age and unemployment insurance; however, no percentage for overhead and profit shall be allowed on items of social security, old age and unemployment insurance. If deductions are ordered, the credits shall be the net cost. Among the items considered as overhead are included insurance other than mentioned above, bond or bonds, superintendent, time-keeper, clerks, watchmen, use of small tools, incidental job burdens, and general office expense.

30.2 The Contractor shall, when required by the Owner, furnish to the Owner an itemized breakdown of the quantities and prices used in computing the value of any change that might be ordered.

30.3 In figuring changes, instructions for measurement of quantities set forth in the specifications shall be followed.

30.4 Should the Contractor encounter, or the Owner discover, during the progress of the work, subsurface or latent conditions at the site materially differing from those shown on the drawings or indicated in the specifications, or unknown conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of character provided for in the drawings and specifications, the attention of the Owner shall be called immediately to such conditions before they are disturbed. The Owner shall thereupon promptly investigate the conditions, and if he finds that they do so materially differ the Contract shall, with the written approval of the Owner, be modified to provide for any increase or decrease of cost or difference in time resulting from such conditions.

31. **Extras:** Except as otherwise herein provided, no charge for any extra work or material will be allowed unless the same has been ordered in writing by the Owner and the price stated in such work order.

32. **Claims for Extra Cost:** If the Contractor claims that any instructions by drawings or otherwise involve extra cost or an extension of time, he shall so notify the Owner in writing within

ten (10) days after the receipt of such instructions and in any event before proceeding to execute the work. Thereafter, the procedure shall be the same as that described in Section 30, above, for changes in work. No such claim shall be valid unless made in accordance with the terms of this Section.

33. **Deductions for Uncorrected Work:** If the Owner deems it inexpedient to require the Contractor to correct work injured or not performed in accordance with the Contract Documents, an equitable deduction from the contract price shall be made by agreement between the Owner and Contractor.

34. **Contractor's Responsibility for Work:** Until acceptance of the work by the Owner it shall be under the charge and care of the Contractor and he shall take every necessary precaution against injury or damage to the work by the action of the elements or from any other cause whatsoever, including but without being limited to injury or damage arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore and make good, at his own expense, all injuries or damages to any portion of the work occasioned by any of the above causes before its completion and acceptance.

35. **Final Inspection:** When the work is substantially completed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date which shall be stated in such notice. Such notice shall be given at least ten (10) days prior to the date stated for final inspection.

36. **Right of Recovery:** Should an error be discovered in the partial or final estimates after the final payment has been made, the Owner reserves the right to claim and recover by process of law such sums as may be sufficient to correct the error.

37. **General Guarantee:** Neither the final certificate of payment nor any provision in the Contract Documents nor partial or entire use or occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of one year from the date of final acceptance of the work unless a longer period is specified. The Owner shall give notice of observed defects with reasonable promptness.

38. **Termination of Responsibility:** This contract will be considered complete when all work has been accomplished, cleanup of the premises has been made and the work has been accepted by the Engineer after making final inspection, and the final estimate has been paid. Upon this final payment the Owner shall be released from all liability whatever growing out of this contract. The Contractor will then be released from further obligation except as set forth in Sections 4, 11 and 37 of the General Conditions.

39. **Indemnification:**

39.1 The Contractor will indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided any such claim, damage, loss or expenses (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

39.2 In any and all claims against the Owner or the Engineer or any of their agents or employees by any employee of the Contractor, any Subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 39.1 shall not be limited in any way by any limitation on the amount of type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.

40. **Venue and Applicable Law:** Venue for any dispute regarding this Agreement shall be the courts in and for Manatee County, Florida. This Agreement shall be governed by the laws of the State of Florida.

41. **Conflicts:** To the extent of any conflict within the Contract Documents, the following priority, ranked from highest to lowest, shall be given to the various parts of the Contract Documents: ✓

1. Special Provisions
2. Supplemental General Provisions
3. General Conditions
4. Technical Specifications
5. The Drawings
6. The Instruction to Bidders
7. The Invitation to Bid
8. The Construction Agreement Form
9. The Proposal and Bid Form

It is the intent of the parties that the Contract Documents shall be read in such a manner as to effectuate all of the provisions of the contract documents.

SPECIAL PROVISIONS

DEFINITIONS AND TERMS

The following terms, when used in the Contract Documents, have the meaning described:

Department.

City of Palmetto.

Engineer.

The Professional Engineer, registered in the State of Florida, other than the Engineer of Record or his subcontracted consultant, acting as the project's Construction Engineering Inspection Manager. The Engineer may be City in-house staff or a consultant retained by the City.

Note: In order to avoid cumbersome and confusing repetition of expressions in these Specifications, it is provided that whenever anything is, or is to be done, if, as, or, when, or where "acceptable, accepted, approval, approved, authorized, condemned, considered necessary, contemplated, deemed necessary, designated, determined, directed, disapproved, established, given, indicated, insufficient, ordered, permitted, rejected, required, reserved, satisfactory, specified, sufficient, suitable, suspended, unacceptable, or unsatisfactory," it shall be understood as if the expression were followed by the words "by the Engineer," "to the Engineer," or "of the Engineer."

SECTION 120 – EARTHWORK AND RELATED OPERATIONS FOR LOCAL AGENCIES

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 ± 0.2 foot in depth and ± 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 (in any dimension) 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 Article 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 rehandled, 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: Reduce the minimum required density from 100% to 95% of AASHTO T99 Method C for all earthwork items requiring densities.

120-7.2.2 Earthwork Category 3 Density Requirements: 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 a density of at least 100% of the maximum density as required 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.

120-7.2.3 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.

120-8.1.2 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: 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. When the backfill material is deposited in water, compact per 120-8.2.5 and 120-8.3.4.

The Contractor may elect to place material in thicker lifts of no more than 12 inches compacted thickness outside the soil envelope if he can demonstrate with a successful test section that density can be achieved. Notify the Engineer prior to beginning construction of a test section. Construct a test section of 500 feet in length. Perform five tests at random locations within the test section. All five tests must meet the density required by 120-7.2. 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. When a test fails the requirements of 120-7.2, construct a new test section. The Contractor may elect to place material in 6 inches compacted thickness at any time.

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 verifying the 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, 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, test an additional sample for acceptance in accordance with AASHTO T 99, Method C.

120-9.2 Maximum Density Determination: 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: Ensure compliance with the requirements of 120-9.5 by Nuclear Density testing in accordance with FDOT Florida Method FM 1-T 238. Determine the in-place moisture content for each density test. Use Florida Method FM 1-T 238, 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) for moisture determination.

120-9.4 Soil Classification: Perform soil classification tests in accordance with AASHTO T-88. Classify soils in accordance with AASHTO M-145 in order to determine compliance with embankment utilization requirements.

120-9.5 Acceptance Criteria: Obtain 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: 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.

SECTION 334 – HOT MIX ASPHALT FOR LOCAL AGENCIES

334-1 Description.

334-1.1 General: Construct a Hot Mix Asphalt (HMA) pavement based on the type of work specified in the Contract and the Asphalt Work Categories as defined below. Meet the applicable requirements for plants, equipment, and construction requirements as defined below. Use a HMA mix that meets the requirements of this specification.

334-1.2 Asphalt Work Mix Categories: Construction of Hot Mix Asphalt Pavement will fall into one of the following work categories:

334-1.2.1 Asphalt Work Category 1: Includes the construction of bike paths.

334-1.2.2 Asphalt Work Category 2: Includes the construction of new HMA turn lanes, paved shoulders and other non-mainline pavement locations.

334-1.2.3 Asphalt Work Category 3: Includes the construction of new mainline HMA pavement lanes, milling and resurfacing.

334-1.3 Mix Types: Use the appropriate HMA mix as shown in Table 334-1.

Table 334-1 HMA Mix Types		
Asphalt Work Category	Mix Types	Traffic Level
1	Type SP-9.5 , or equivalent as determined by the Engineer	A
2	Type SP-9.5, SP-12.5, or equivalent as determined by the Engineer	B or C
3	Type SP-9.5, SP-12.5	C

A Type SP mix one traffic level higher than the traffic level specified in the Contract may be substituted, at no additional cost (i.e. Traffic Level B may be substituted for Traffic Level A, etc.).

334-1.4 Gradation Classification: HMA mixes are classified as either coarse or fine, depending on the overall gradation of the mixture. Coarse and fine mixes are defined in 334-3.2.2. Use only fine mixes.

The equivalent AASHTO nominal maximum aggregate size Superpave mixes are as follows:

Type SP-9.5..... 9.5 mm

Type SP-12.5..... 12.5 mm

334-1.5 Thickness: The total pavement thickness of the HMA Pavement will be based on a specified spread rate or plan thickness as shown in the Contract Documents. Before paving, propose a spread rate or thickness for each individual layer meeting the requirements of this specification, which when combined with other layers (as applicable) will equal the plan spread rate or thickness. When the total pavement thickness is specified as plan thickness, the plan thickness and individual layer thickness will be converted to spread rate using the following equation:

$$\text{Spread rate (lbs/yd}^2\text{)} = t \times G_{mm} \times 43.3$$

where: t = Thickness (in.) (Plan thickness or individual layer thickness)
 G_{mm} = Maximum specific gravity from the mix design

For target purposes only, spread rate calculations shall be rounded to the nearest whole number.

334-1.5.1 Layer Thicknesses: Unless otherwise called for in the Contract Documents, the allowable layer thicknesses for HMA mixtures are as follows:

Type SP-9.5.....3/4 - 1 1/2 inches

Type SP-12.5..... 1 1/2 - 2 1/2 inches

334-1.5.2 Additional Requirements: The following requirements also apply to

HMA mixtures:

1. 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 otherwise called for in the Contract Documents.

2. For overbuild layers, use the minimum and maximum layer thicknesses as specified above unless called for differently in the Contract Documents. On variable thickness overbuild layers, the minimum allowable thickness may be reduced by 1/2 inch, and the maximum allowable thickness may be increased by 1/2 inch, unless called for differently in the Contract Documents.

334-1.6 Weight of Mixture: The weight of the mixture shall be determined as provided in 320-2.2 of the Florida Department of Transportation (FDOT) specifications.

334-2 Materials.

334-2.1 Superpave Asphalt Binder: Unless specified elsewhere in the Contract or in 334-2.3.3, use a PG 67-22 asphalt binder from the Department's Qualified Products List (QPL).

334-2.2 Aggregate: Use aggregate capable of producing a quality pavement. For Category 2 and 3 projects, require the aggregate supplier to certify that the material meets FDOT requirements.

334-2.3 Reclaimed Asphalt Pavement (RAP) Material:

334-2.3.1 General requirements: RAP may be used as a component of the asphalt mixture if approved by the Engineer. Usage of RAP is subject to the following requirements:

1. Limit the amount of RAP material used in the mix to a maximum of 50 percent by weight of total aggregate.
2. Do not use RAP material in any friction course mixes.
3. Provide stockpiled RAP material that is reasonably consistent in characteristics and contains no aggregate particles which are soft or conglomerates of fines.
4. Provide RAP material having a minimum average asphalt content of 4.0 percent by weight of total mix. The Engineer may sample the stockpile to verify that this requirement is met.

5. 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 recycle mixture. If oversized RAP material appears in the completed recycle mix, take the appropriate corrective action immediately. If the appropriate corrective actions are not immediately taken, stop plant operations.

334-2.3.2 Material Characterization: Assume responsibility for establishing the asphalt binder content, gradation, viscosity and bulk specific gravity (G_{sb}) of the RAP material based on a representative sampling of the material.

334-2.3.3 Asphalt Binder for Mixes with RAP: Select the appropriate asphalt binder grade based on Table 334-2. Maintain the viscosity of the recycled mixture within the range of 4,000 to 12,000 poises.

Table 334-2 Asphalt Binder Grade for Mixes Containing RAP
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Percent RAP	Asphalt Binder Grade
<20	PG 67-22
20 – 29	PG 64-22
≥ 30	Recycling Agent

334-3 Composition of Mixture.

334-3.1 General: Compose the asphalt mixture using a combination of aggregates, mineral filler, if required, and asphalt binder material. Size, grade and combine the aggregate fractions to meet the grading and physical properties of the mix design. Aggregates from various sources may be combined.

334-3.2 Mix Design:

334-3.2.1 General: Design the asphalt mixture in accordance with AASHTO R35-04, except as noted herein. Submit the proposed mix design with supporting test data indicating compliance with all mix design criteria to the Engineer. Prior to the production of any asphalt mixture, obtain the Engineer's conditional approval of the mix design. If required by the Engineer, send representative samples of all component materials, including asphalt binder to a laboratory designated by the Engineer for verification. 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 at his discretion, the Engineer may no longer allow the use of the mix design.

334-3.2.2 Mixture Gradation Requirements: Combine the aggregates 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 AASHTO M323-04, Table 3. Aggregates from various sources may be combined.

334-3.2.2.1 Mixture Gradation Classification: Plot the combined mixture gradation on an FHWA 0.45 Power Gradation Chart. Include the Control Points from AASHTO M323-04, Table-3, as well as the Primary Control Sieve (PCS) Control Point from AASHTO M323-04, Table 4. Fine mixes are defined as having a gradation that passes above or through the primary control sieve control point. Use only fine mixes

334-3.2.3 Gyratory Compaction: Compact the design mixture in accordance with AASHTO T312-04. Use the number of gyrations as defined in AASHTO R35-04, Table 1.

334-3.2.4 Design Criteria: Meet the requirements for nominal maximum aggregate size as defined in AASHTO M323-04, as well as for relative density, VMA, VFA, and dust-to-binder ratio as specified in AASHTO M323-04, Table 6.

334-3.2.5 Moisture Susceptibility: Test 4 inch specimens in accordance with FM 1-T 283. Provide a mixture having a retained tensile strength ratio of at least 0.80 and a minimum tensile strength (unconditioned) of 100 psi. If necessary, add a liquid anti-stripping agent from the FDOT's Qualified Products List, or hydrated lime in order to meet these criteria.

In lieu of moisture susceptibility testing, add a liquid anti-stripping agent from the Department's Qualified Products List. Add 0.5% liquid anti-stripping agent by weight of binder.

334-3.2.6 Additional Information: In addition to the requirements listed above, provide the following information on each mix design:

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 and the FDOT product code of the aggregate components furnished from an FDOT approved source (if required).

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 caused by 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 material passing the No. 200 sieve) should be accounted for and identified.

6. The bulk specific gravity (G_{sb}) value for each individual aggregate and RAP component.

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 percent.

8. A target temperature at which the mixture is to be discharged from the plant and a target roadway temperature. Do not exceed a target temperature of 330°F for modified asphalts and 315°F for unmodified asphalts.

9. Provide the physical properties achieved at four different asphalt binder contents. One shall be at the optimum asphalt content, and must conform to all specified physical requirements.

10. The name of the Mix Designer.

11. The ignition oven calibration factor.

334-4 Contractor Quality Control.

Assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times. Perform any tests necessary at the plant and roadway for quality control purposes.

334-5 General Construction Requirements.

334-5.1 Weather Limitations: Do not transport asphalt mix from the plant to the roadway unless all weather conditions are suitable for the laying operations.

334-5.2 Limitations of Laying Operations:

334-5.2.1 General: Spread the mixture only when the surface upon which it is to be placed has been previously prepared, is intact, firm, and properly cured, and is dry.

334-5.2.2 Air Temperature: Spread the mixture only when the air temperature in the shade and away from artificial heat is at least 40°F for layers greater than 1 inch (100 lb/yd²) in thickness and at least 45°F for layers 1 inch (100 lb/yd²) or less in thickness (this includes leveling courses). The minimum temperature requirement for leveling courses with a spread rate of 50 lb/yd² or less is 50°F.

334-5.3 Mix Temperature: Heat and combine the ingredients of the mix in such a manner as to produce a mixture with a temperature at the plant and at the roadway, within a range of ±30°F from the target temperature as shown on the mix design. Reject all loads outside of this range.

334-5.4 Transportation of the Mixture: Transport the mixture in vehicles previously cleaned of all foreign material. After cleaning, thinly coat the inside surface of the truck bodies with soapy water or an asphalt release agent as needed to prevent the mixture from adhering to the beds. Do not allow excess liquid to pond in the truck body. Do not use diesel fuel or any

other hazardous or environmentally detrimental material as a coating for the inside surface of the truck body. Cover each load at all times.

334-5.5 Preparation of Surfaces Prior to Paving:

334-5.5.1 Cleaning: Clean the surface of all loose and deleterious material by the use of power brooms or blowers, supplemented by hand brooming where necessary.

334-5.5.2 Patching and Leveling Courses: Where the HMA is to be placed on an existing pavement which is irregular, wherever the plans indicate, or if directed by the Engineer, bring the existing surface to proper grade and cross-section by the application of patching or leveling courses.

334-5.5.3 Application over Surface Treatment: Where an asphalt mix is to be placed over a surface treatment, sweep and dispose of all loose material from the paving area.

334-5.5.4 Tack Coat: Apply a tack coat on existing pavement structures that are to be overlaid with an asphalt mix and between successive layers of all asphalt mixes, unless directed otherwise by the Engineer. Use a tack coat product meeting FDOT specifications. Use an emulsified tack coat spread rate of 0.02 to 0.08 gal/sy or as specified by the Engineer.

334-5.6 Paving:

334-5.6.1 Alignment of Edges: With the exception of pavements placed adjacent to curb and gutter or other true edges, place all pavements by the stringline method to obtain an accurate, uniform alignment of the pavement edge. Control the unsupported pavement edge to ensure that it will not deviate more than ± 1.5 inches from the stringline.

334-5.6.2 Rain and Surface Conditions: Immediately cease transportation of asphalt mixtures from the plant when rain begins at the roadway. Do not place asphalt mixtures while rain is falling, or when there is water on the surface to be covered. Once the rain has stopped and water has been removed from the tacked surface to the satisfaction of the Engineer and the temperature of the mixture caught in transit still meets the requirements as specified in 334-5.3, the Contractor may then place the mixture caught in transit.

334-5.6.3 Checking Depth of Layer: Check the depth of each layer at frequent intervals, and make adjustments when the thickness exceeds the allowable tolerance. When making an adjustment, allow the paving machine to travel a minimum distance of 32 feet to stabilize before the second check is made to determine the effects of the adjustment.

334-5.6.4 Hand Spreading: In limited areas where the use of the spreader is impossible or impracticable, spread and finish the mixture by hand.

334-5.6.5 Spreading and Finishing: Upon arrival, dump the mixture in the approved paver, and immediately spread and strike-off the mixture to the full width required, and to such loose depth for each course that, when the work is completed, the required weight of mixture per square yard, or the specified thickness, is secured. Carry a uniform amount of mixture ahead of the screed at all times.

334-5.6.6 Thickness of Layers: Construct each course of Type SP mixtures in layers of the thickness shown in 334-1.5.1.

334-5.7 Leveling Courses:

334-5.7.1 Patching Depressions: Before spreading any leveling course, fill all depressions in the existing surface more than 1 inch deep by spot patching with leveling course mixture, and compact thoroughly.

334-5.7.2 Spreading Leveling Courses: Place all courses of leveling with an asphalt paver or by the use of two motor graders, one being equipped with a spreader box. Other types of leveling devices may be used upon approval by the Engineer.

334-5.7.3 Rate of Application: When using Type SP-9.5 (fine graded) for leveling, do not allow the average spread of a layer to be less than 50 lb/yd² or more than 75 lb/yd². The quantity of mix for leveling shown in the plans represents the average for the entire project; however, the Contractor may vary the rate of application throughout the project as directed by the Engineer. When leveling in connection with base widening, the Engineer may require placing all the leveling mix prior to the widening operation.

334-5.8 Compaction: For each paving or leveling train in operation, furnish a separate set of rollers, with their operators.

When density testing for acceptance is required (Asphalt Work Category 3), select equipment, sequence, and coverage of rolling to meet the specified density requirement. Regardless of the rolling procedure used, complete the final rolling before the surface temperature of the pavement drops to the extent that effective compaction may not be achieved or the rollers begin to damage the pavement.

When density testing for acceptance is not required (Asphalt Work Categories 1 and 2), use a rolling pattern approved by the Engineer.

Use hand tamps or other satisfactory means to compact areas which are inaccessible to a roller, such as areas adjacent to curbs, headers, gutters, bridges, manholes, etc.

334-5.9 Joints.

334-5.9.1 Transverse Joints: Construct smooth transverse joints, which are within 3/16 inch of a true longitudinal profile when measured with a 15 foot manual straightedge.

334-5.9.2 Longitudinal Joints: For all layers of pavement except the leveling course, place each layer so that longitudinal construction joints are offset 6 to 12 inches laterally between successive layers. Do not construct longitudinal joints in the wheelpaths. The Engineer may waive these requirement where offsetting is not feasible due to the sequence of construction.

334-5.10 Surface Requirements: Construct a smooth pavement with good surface texture and the proper cross-slope.

334-5.10.1 Texture of the Finished Surface of Paving Layers: Produce a finished surface of uniform texture and compaction with no pulled, torn, raveled, crushed or loosened portions and free of segregation, bleeding, flushing, sand streaks, sand spots, or ripples. Correct any area of the surface that does not meet the foregoing requirements in accordance with 334-5.10.4.

334-5.10.2 Cross Slope: Construct a pavement surface with cross slopes in compliance with the requirements of the Contract Documents.

334-5.10.3 Pavement Smoothness: Construct a smooth pavement meeting the requirements of this Specification. Furnish a 15 foot manual and a 15 foot rolling straightedge meeting the requirements of FM 5-509. Make them available at the job site at all times during paving operations for Asphalt Work Category 3 and make them available upon request of the Engineer for Asphalt Work Categories 1 and 2.

334-5.10.3.1 Asphalt Work Category 3:

334-5.10.3.1.1 Acceptance Testing: Straightedge the final Type SP structural layer and friction course layer with a rolling straightedge. Test all pavement lanes where the width is constant using a rolling straightedge and document all deficiencies on a form approved by the Engineer. Notify the Engineer of the location and time of all straightedge testing a minimum of 48 hours before beginning testing.

334-5.10.3.1.2 Rolling Straightedge Exceptions: Testing with the rolling straightedge will not be required in the following areas: intersections, tapers, crossovers, parking lots and similar areas. In addition, testing with the rolling straightedge will not be performed on the following areas when they are less than 50 feet in length: turn lanes, acceleration/deceleration lanes and side streets. However, correct any individual surface irregularity in these areas that deviates from the plan grade in excess of 3/8 inch as determined by a 15 foot manual straightedge, and that the Engineer deems to be objectionable, in accordance with 334-5.10.4. The Engineer may waive or modify straightedging requirements if no milling, leveling, overbuild or underlying structural layer was placed on the project and the underlying layer was determined to be exceptionally irregular.

334-5.10.3.1.3 Final Type SP Structural Layer: Straightedge the final Type SP structural layer with a rolling straightedge behind the final roller of the paving train. Correct all deficiencies in excess of 3/16 inch in accordance with 334-5.10.4.2, and retest the corrected areas.

334-5.10.3.1.4 Friction Course Layer: At the completion of all paving operations, straightedge the friction course. Correct all deficiencies in excess of 3/16 inch in accordance with 334-5.10.4.3. Retest all corrected areas.

334-5.10.3.2 Asphalt Work Categories 1 and 2: If required by the Engineer, straightedge the final structural layer with a rolling straightedge, either behind the final roller of the paving train or as a separate operation. Correct all deficiencies in excess of 5/16 inch in accordance with 334-5.10.4.2. Retest all corrected areas. If the Engineer determines that the deficiencies on a bicycle path are due to field geometrical conditions, the Engineer will waive corrections with no deduction to the pay item quantity.

334-5.10.4 Correcting Unacceptable Pavement:

334-5.10.4.1 General: Correct all areas of unacceptable pavement at no additional cost.

334-5.10.4.2 Structural Layers: Correct deficiencies in the Type SP structural layer by one of the following methods:

- a. Remove and replace the full depth of the layer, extending a minimum of 50 feet on either side of the defective area for the full width of the paving lane.
- b. Mill the pavement surface to a depth and width that is adequate to remove the deficiency. (This option only applies if the structural layer is not the final surface layer.)

334-5.10.4.3 Friction Course: Correct deficiencies in the friction course layer by removing and replacing the full depth of the layer, extending a minimum of 50 feet on either side of the defective area for the full width of the paving lane. Corrections may be waived if approved by the Engineer.

334-6 Acceptance of the Mixture.

334-6.1 General: The asphalt mixture will be accepted based on the Asphalt Work Category as defined below:

- 1) Asphalt Work Category 1 – Certification by the Contractor as defined in 334-6.2.
- 2) Asphalt Work Category 2 – Certification and quality control testing by the Contractor as defined in 334-6.3
- 3) Asphalt Work Category 3 – Quality control testing by the Contractor and acceptance testing by the Engineer as defined in 334-6.4.

334-6.2 Certification by the Contractor: On Asphalt Work Category 1 construction, the Engineer will accept the mix on the basis of visual inspection. Submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer stating that all material produced and placed on the project was in substantial compliance with the Specifications. The Engineer may run independent tests to determine the acceptability of the material.

334-6.3 Certification and Quality Control Testing by the Contractor: On Asphalt Work Category 2 construction, submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer stating that all material produced and placed on the project was in substantial compliance with the Specifications, along with supporting test data documenting all quality control testing as described in 334-6.3.1. If so required by the Contract, utilize an Independent Laboratory as approved by the Engineer for the quality control testing. The mix will also require visual acceptance by the Engineer. In addition, the Engineer may run independent tests to determine the acceptability of the material.

334-6.3.1 Quality Control Sampling and Testing Requirements: Perform quality control testing at a frequency of once per day. Obtain the samples in accordance with FDOT Method FM 1-T 168. Test the mixture at the plant for gradation ($P_{.8}$ and $P_{.200}$) and asphalt binder content (P_b). Test the mixture on the roadway for density using six-inch diameter roadway cores obtained at a frequency of three cores per day.

Determine the asphalt content of the mixture in accordance with FM 5-563. Determine the gradation of the recovered aggregate in accordance with FM 1-T 030. Determine the roadway density in accordance with FM 1-T 166. The minimum roadway density will be based on the percent of the maximum specific gravity (Gmm) from the approved mix design. If the Contractor or Engineer suspects that the mix design Gmm is no longer representative of the asphalt mixture being produced, then a new Gmm value will be determined from plant-produced mix with the approval of the Engineer. Roadway density testing will not be required in certain situations as described in 334-6.4.1. Assure that the asphalt content, gradation and density test results meet the criteria in Table 334-3.

Table 334-3 Quality Control and Acceptance Values	
Characteristic	Tolerance
Asphalt Binder Content (percent)	Target \pm 0.55
Passing No. 8 Sieve (percent)	Target \pm 6.00
Passing No. 200 Sieve (percent)	Target \pm 2.00
Roadway Density (average of three cores)	91.5% Gmm
Roadway Density (any single core)	90.0 % Gmm

334-6.4 Quality Control Testing by the Contractor and Acceptance Testing by the Engineer: On Asphalt Work Category 3, perform quality control testing as described in 334-6.3.1. In addition, the Engineer will accept the mixture at the plant with respect to gradation ($P_{.8}$ and $P_{.200}$) and asphalt binder content (P_b). The mixture will be accepted on the roadway with respect to density. The Engineer will sample and test the material as described in 334-6.3.1. The Engineer will randomly obtain at least one set of samples per day. Assure that the asphalt content, gradation and density test results meet the criteria in Table 334-3. Material failing to meet these acceptance criteria will be addressed as directed by the Engineer.

334-6.4.1 Acceptance Testing Exceptions: When the total quantity of any mix type in the Project is less than 500 tons, or on Asphalt Work Category 1 construction, the Engineer will accept the mix on the basis of visual inspection. The Engineer may run independent 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, variable-thickness overbuild courses, leveling courses, first lift of asphalt base course placed on subgrade, miscellaneous asphalt pavement, or any course with a specified thickness less than 1 inch or a specified spread rate less than 100 lbs/sy. In addition, density testing for acceptance will not be performed on the following areas when they are less than 1,000 feet in length: crossovers, intersections, turning lanes, acceleration lanes, deceleration lanes, or ramps. Compact these courses in accordance with a standard rolling procedure approved by the Engineer. In the event that the rolling procedure deviates from the approved procedure, placement of the mix will be stopped.

334-7 Method of Measurement.

For the work specified under this Section, 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 and the tack coat application as specified in 334-5.5.4. There will be no separate payment or unit price adjustment for the asphalt binder material in the asphalt mix.

334-8 Basis of Payment.

334-8.1 General: Price and payment will be full compensation for all the work specified under this Section.

SECTION 344 – CONCRETE FOR LOCAL AGENCIES

344-1 Description.

344-1 General: Construct Local Agency Program (LAP) 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 of LAP concrete elements 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 or precast 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 requiring a class of concrete specified in FDOT Section 346.

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: Cement shall conform to the requirements of the AASHTO or ASTM designations. 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. Portland cements meeting the requirements of AASHTO M-85 or ASTM C-150 are allowed for LAP concrete.

344-2.1.2 Coarse and Fine Aggregates: Aggregates shall meet current FDOT requirements except that source approval by the FDOT is not required.

344-2.1.3 Water: Water shall meet current FDOT requirements.

344-2.1.4 Chemical Admixtures: Chemical admixtures shall meet current FDOT requirements. 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 current FDOT requirements.

344-2.2 Material Storage: Use a concrete production facility that meets the following requirements.

344-2.2.1 Cementitious Materials Storage: Provide a separate and clearly labeled weatherproof facility to store each brand or type of cementitious material without mixing or contamination. Provide a suitable, safe and convenient means of collecting cementitious material samples at each storage facility.

344-2.2.2 Aggregate Storage: Provide suitable bins, stockpiles or silos to store and identify aggregates without mixing, segregating or contaminating different grades or types of materials. Identify aggregate type/gradation. Handle the aggregates in a manner to minimize segregation and meet the specification requirements when recovered from storage. Continuously and uniformly sprinkle coarse aggregate with water, for 24 hours preceding introduction into the concrete mix. Timers may be used to facilitate the sprinkling of aggregate stockpiles using an alternating on/off method. However, in no event shall the top surface of the stockpile be permitted to become dry prior to batching of concrete. Moisture probes may be used to determine the moisture content of the aggregate. Ensure that the accuracy of the probe is certified annually and verified weekly. Maintain stored aggregates in a well-drained condition to minimize free water content. Provide access for the Engineer to sample the aggregates from the recovery side of the storage facility.

344-3 Production, Mixing and Delivery of Concrete.

344-3.1 Concrete Production Requirements: Use concrete production facilities certified by the National Ready-Mixed Concrete Association (NRMCA), approved by the FDOT.

Produce concrete utilizing equipment that is in good operating condition and operated in a manner to ensure a consistent product. When moisture probes are not used, ensure that the concrete production facility determines the free moisture for the coarse and fine aggregates within two hours prior to each day's batching. On concrete placements expected to exceed three hours, perform an additional moisture test approximately half way through the batching operations and adjust batch proportions accordingly.

Ensure that the calibration of the measuring devices of the concrete production facilities meets the requirements of Chapter 531 of the Florida Statutes, and are in accordance with Chapter 9.2 of the FDOT Materials Manual. At least quarterly, ensure that all scales, meters and other weighing or measuring devices are checked for accuracy by a qualified representative

of a scale company registered with the Bureau of Weights and Measures of the Florida Department of Agriculture. As an alternative, the producer may have this frequency identified in an FDOT approved QC plan. The accuracy of admixture measuring dispensers will be certified annually by the admixture supplier.

When Volumetric Mixers are used for Category I applications, deliver concrete in accordance with the requirements of Volumetric Mixer Manufacturers Bureau (VMMB) and ensure that the vehicle has a VMMB registered rating plate.

344-3.2 Classes of Concrete: Classes of concrete to be used on the project will be defined in the Contract Documents.

344-3.3 Contractors Quality Control: The Contractor will supply a Quality Control (QC) plan to identify to the Agency how quality will be ensured at the project site. During random inspections the Agency will use this document to verify that the construction of the project is in agreement with his QC plan.

344-3.4 Concrete Mix Design: Before producing any concrete, submit the proposed mix design to the Engineer on a form provided by the Agency. Otherwise, the agency will accept mix designs previously described in an FDOT approved QC plan. In any event, use only concrete mix designs having 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 and substituted material on an Agency approved concrete delivery ticket. The Engineer may disqualify any concrete production facility for non-compliance with specification requirements.

344-3.5 Delivery: For cast-in-place applications, the maximum allowable mixing and agitation time of concrete is 90 minutes.

Furnish a delivery ticket on a form approved by the Agency with each batch of concrete before unloading at the placement site. The delivery ticket shall be printed. Record material quantities incorporated into the mix on the delivery ticket. Ensure that the Batcher responsible for producing the concrete certifies that the batch was produced in accordance with these Specifications and signs the delivery ticket. The Contractor shall sign the delivery ticket certifying that the concrete was batched, delivered and placed in accordance with these Specifications.

The Contractor shall be responsible for rejecting loads of concrete that do not meet the plastic properties of the approved mix design or the minimum compressive strength requirements.

At the sole option of the Agency, the Engineer may accept concrete at a reduced pay when it is determined that the concrete will serve its intended function.

344-3.6 Placing Concrete:

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

Meet the air temperature requirements for mixing and placing concrete in cold weather as specified in Section 346. 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 concrete and air within the enclosure can be kept above 60°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: Meet the temperature requirements and special measures for mixing and placing concrete in hot weather as specified in Section 346.

When the temperature of the concrete as placed exceeds 75°F, incorporate in the concrete mix a water-reducing retarder or water reducer if allowed by Section 346.

Spray reinforcing steel and metal forms with cool fresh water just prior to placing the concrete in a method approved by the Engineer.

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.

344-3.7 Mixers: Ensure that mixers are capable of combining the components of concrete into thoroughly mixed and uniform mass, free from balls or lumps of cementitious materials, and capable of discharging the concrete uniformly. Operate concrete mixers at speeds per the manufacturer's design. Do not exceed the manufacturer's rated capacity for the volume of mixed concrete in the mixer, mixing drum, or container.

344-3.8 Small Quantities of Concrete: With approval of the Engineer, small quantities of concrete, less than 3 yd³ placed in one day and less than 0.5 yd³ placed in a single placement may be accepted using a pre-bagged mixture. The Agency 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 at his discretion to verify its quality. The minimum 28 day compressive strength requirement for this concrete is 2,500 psi.

344-3.9.2: Category 2: Provide a statement of certification from the manufacturer of the precast element that the element meets the quality control and inspection testing requirements of the Contract Documents.

344-3.9.3 Category 3: The Agency will randomly select a sample from each 200 yd³ or one day's production to determine plastic properties and to make three 4 x 8 inch cylinders for testing by the Agency at 28 days to ensure that the design compressive strength has been met. The Agency may, at its discretion, test additional concrete samples to ensure compliance with the specifications.

344-3.10 Records: Maintain the following records 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.
5. For Non Structural LAP concrete the Agency will accept recent NRMCA, VMMB or FDOT inspection records certifying the plant or truck can produce concrete. In

addition, documentation will be available at the plant or in the truck showing that action has been taken to correct deficiencies noted during the inspections.

344-4 Acceptance of the Work.

344-4.1 Category 1 Work: Category 1 work will be accepted based upon compliance with Production, Mixing and Delivery Requirements specified in 334-3.

344-4.2 Category 2 Work: Precast elements will be accepted based upon certification from the Contractor that the elements were produced by a production facility on the FDOT's current approved plant list. In addition, the producers QC stamp will be displayed on the element.

344-4.3 Category 3 Work: Category 3 work shall be in full compliance with this Specification, and with current FDOT Specifications, Section 346 and associated Contractor Quality Control (QC) specifications governing cast-in-place concrete. In addition, a Delivery Ticket as described in 344-3.5 will be required for acceptance of the material at the project site.

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.