PROJECT MANUAL

FOR THE

CITY OF LAWRENCEVILLE
PINK PARKING LOT PROJECT
LAWRENCEVILLE, GA
SB004- 27

OWNER

LAWRENCEVILLE
GEORGIA

70 S. CLAYTON STREET
LAWRENCEVILLE, GA 30046

Prepared by:
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July 2026

CITY OF LAWRENCEVILLE PINK PARKING LOT PROJECT
SB004-27

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TECHNICAL SPECIFICATIONS (Continued)

LAWRENCEVILLE
GEORGIA

July 2, 2026

NOTICE OF BID
FOR
City of Lawrenceville Pink Parking Lot Project
SB004-27

The City of Lawrenceville is soliciting competitive sealed bids from qualified contractors for the **City of Lawrenceville Pink Parking Lot Project.** Sealed bids will be received by the Lawrenceville Finance Department, 70 S. Clayton Street, Main Level, Room M46A, Lawrenceville, Georgia 30046 until **2:00 P.M. local time on 7/30/2026** and then publicly opened and read aloud. Any bid received after 2:00 P.M. will not be accepted. Bid envelope should be marked on the outside with Bid Number, name of Bidder, date and time of opening.

The work to be performed by the Contractor consists of but is not limited to the following:

The project is located to the west of Culver Street in Lawrenceville, Georgia. The project address is 232 W Pike Street and 245 W Crogan Street Lawrenceville, GA 30046. The work includes the demolition, removal, hauling, and disposal of existing building (asbestos removal), utility services, landscaping, pavement, concrete, a portion of the existing retaining wall, and other features; as well as, improvements to provide additional downtown parking; including the installation of proposed curb and gutter and concrete sidewalks, base and asphalt pavement, new modular retaining wall, storm drain piping, storm structures, stormwater underground detention, site grading, erosion control, striping, pavement markings, signage, ADA pedestrian ramps, landscaping, and installation of site lighting.

Copies of the Plans, Specifications and Contract Documents may be obtained from the Lawrenceville City website https://www.lawrencevillega.org/purchasing.

A **pre-bid conference** is scheduled for **10:00 A.M. on 7/14/2026** at Lawrenceville City Hall located at 70 South Clayton Street, 4th floor City Council Chambers, Lawrenceville, GA. 30046. **All bidders are urged to attend.**

Evaluation of Bids and Alternates

Bidders are fully responsible for submitting pricing for the base bid and all alternate and/or optional bid items as identified in the Bid Schedule. After bid opening, the City reserves the right to evaluate the base bid and any combination of alternates or optional items to determine the scope of work that best meets the City's operational needs, project priorities, and available funding.

The City will determine the lowest responsive and responsible bidder based on the base bid and those alternates or optional items selected by the City. The City is not obligated to accept all alternates or optional items and may award the contract based on the base bid only or the base bid plus any combination of alternates.

Questions regarding bids should be directed in writing to Kenneth Morris, Purchasing Director at purchasing@lawrencevillega.org no later than **3:00 P.M. on 7/17/2026.**

Bids are legal and binding upon the bidder when submitted. All bids should be submitted in duplicate.

Bids in the case of Corporations not chartered in Georgia, must be accompanied by proper certification stating that said Corporation is authorized to do business in the State of Georgia.

No Bidder may withdraw his Bid within ninety (90) days after the actual date of the opening thereof.

Bidder agrees to complete the Contract awarded within the "allowable calendar days for completion" from 10 days from the date of the "Notice to Proceed".

A five percent (5%) bid bond must be submitted with the bid. Successful contractor will be required to provide a one hundred percent (100%) payment and one hundred percent (100%) performance bond as well as an insurance certificate fulfilling requirements as stated in the bid documents. Surety and insurance companies must have an AM Best rating of A-5 or greater, be listed in the Federal Registry of Companies holding Certificate of Authority and acceptable sureties on Federal Bonds, be licensed by the Georgia Insurance Department and the Georgia Secretary of State to do business in the State of Georgia.

All bonds must be submitted on forms provided by the City of Lawrenceville and agencies providing bonds and insurance should provide proof that they meet the criteria outlined in the bid and contract documents.

The City of Lawrenceville does not discriminate on the basis of disability in the admission or access to its programs or activities. The written Bid Documents supersede any prior verbal or written communications between the parties.

Award will be made to the contractor submitting the lowest responsive and responsible bid. The City of Lawrenceville reserves the right to reject any or all bids to waive technicalities and to make an award deemed in its best interest. Bids may be split or awarded in entirety.

All companies submitting a bid will be notified in writing of award.

We look forward to your bid and appreciate your interest in the City of Lawrenceville.

END OF SECTION 00100

PART I – INSTRUCTIONS TO BIDDERS

1. Each bidder must examine the Notice to Bid, Instructions to Bidders, Contract, Contract General Conditions, Specifications, Bid Schedule, Drawings, and Addenda. Failure to do so will be at the bidder's risk.

2. Each bidder shall furnish all information required by the bidding requirements. The authorized representative must sign the bid as well as print or type his/her name on the bid schedule. Erasures or other changes must be initialed by the authorized representative signing the bid. Bids can only be signed by a person authorized to commit company resources.

3. Bids are legal and binding upon the bidder when submitted. Receipt of addenda should be acknowledged on the bid schedule. No oral interpretations or information can be considered as binding.

4. Bid envelope should be marked on the outside with Bid Number, name of Bidder, date and time of opening. One unbound marked original and two (2) copies should be submitted. Faxed bids cannot be considered.

5. Bidding Requirements will consist of the following:
   a) Bid Schedule
   b) Bid Bond
   c) Non-Collusion Affidavit
   d) Statement of Bidder's Qualifications
   e) Statement of Equipment

6. Award will be made to the bidder submitting the lowest responsive and responsible bid. The City reserves the right to make such investigations as it deems necessary to determine the ability of the bidder to perform, and the bidder shall furnish to the City, all such information for this purpose as the City may request. The City reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the City that such bidder is properly qualified to carry out the obligations of the contract.

7. Bids may be withdrawn only the case of mathematical error. The bidder shall give notice in writing of his claim of right to withdraw his bid without penalty due to an error within two (2) business days after the conclusion of the bid opening procedure. Bids may be withdrawn from consideration if the price was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of the bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and material used in the preparation of the bid sought to be withdrawn. The bidder's original work papers shall be the sole acceptable evidence of error and mistake if he elects to withdraw his bid. If a bid is withdrawn under the authority of this provision, the lowest remaining responsive bid shall be deemed to be low bid.

   No bidder who is permitted to withdraw a bid shall, for compensation, supply any material or labor or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid was submitted.

Bidder has up to forty-eight (48) hours to notify the City of Lawrenceville Purchasing Office of an obvious clerical error made in calculation of bid in order to withdraw a bid after bid opening. Withdrawal of bid for this reason must be done in writing within the forty-eight (48) hour period. Suppliers who fail to request withdrawal of bid by the required forty-eight (48) hours shall automatically forfeit bid bond. Bid may not be withdrawn otherwise.
Bid withdrawal is not automatically granted and will be allowed solely at the City of Lawrenceville's discretion.

8. The City of Lawrenceville reserves the right to reject any or all bids, to waive technicalities, and to make an award as deemed in its best interest.

9. The City is exempt from federal excise tax and Georgia sales tax with regard to goods purchased directly by the City. Nevertheless, contractors are responsible for federal excise tax and Georgia sales taxes, including taxes for materials incorporated in City construction and demolition contracts.

10. The attention of all bidders is directed to the fact that all applicable federal state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over demolition of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though therein written.

11. Information submitted by a bidder in the bidding process shall be subject to disclosure after bid award in accordance with the Georgia Open Records Act of Compulsory Process.

12. Failure to observe any of the Instructions to Bidders or conditions in the Invitation to Bid may constitute grounds for rejection of the bid. Failure to use City Bidding Form and to acknowledge applicable addenda may result in a bid being deemed non-responsive an automatic rejection.

13. The Work shall be completed within 60 consecutive calendar days.

14. Add or deduct amounts indicated on the outside of the envelope are allowed and will be applied to the lump sum amount. Amount shall be clearly stated and should be initialed by an authorized company representative.

15. "Liquidated Damages" shall mean the negotiated sum of which the Bidder agrees to pay for each consecutive working day beyond the Contract Time required to complete the work.

16. The Bidder is advised to examine all the locations of the work and to inform himself fully as to its conditions, the conformation of the ground, the character, quality and quantity of the products needed preliminary to and during the execution of the work; the general and local conditions and all other matters which can in any way affect the work to be done under the Contract. The Plans are based on field run survey provided by the City of Lawrenceville, accuracy of this information shall be verified by the Bidder.

    Failure to examine the site will not relieve the successful bidder of his obligation to furnish all products and labor necessary to carry out the provisions of his contract.

    The Bidder shall notify the Owner of the date and time he proposes to examine the location of the work. The Bidder shall confine his examination to the specific areas designated for the proposed demolition, including easements and public right-of-ways. If, due to some unforeseen reason, the Owner's proceedings for obtaining the proposed demolition site (including easements), have not been completed, the Bidder may enter the site only with the express consent of the property owner. The Bidder is solely responsible for any damages caused by his examination of the site.

17. REQUIREMENTS:
    The minimum requirements; the bidder must have:
    1 Maintain a permanent place of business.
    2 Have the appropriate technical experience and working knowledge, to perform the work.
    3 Have the right equipment to perform the work.
    4 Have done and to show proof of no less than THREE Contracts of similar character to the work being bid with an original contract price of no less than $ 1,000,000 within the past five years.
    5 Have visited and examined the location of the work.
    6 Be required to enter into a binding contract with the City to perform the work.

18. Addenda and Interpretations:
    No interpretation of the meaning of the Drawings, Specifications or other bid documents will be made to any bidder orally. Every request for such interpretation should be made in writing. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Specifications. Failure of a bidder to receive any addendum shall not relieve him of any obligation under his bid. All addenda shall become part of the Contract Documents.

PART II – BONDS AND INSURANCE

A) A Certified or Cashier's Check payable to the City of Lawrenceville or a Bid Bond in the amount of five percent (5%) of the total bid must be submitted with the bid. Successful bidder will be required to furnish a payment and performance bond each in the amount of one hundred percent (100%) of the bid amount.

B) Bonding Company must be listed in the Federal Registry of Companies Holding certificates of authority as acceptable sureties on Federal bonds, and must be listed in the AM Best catalog with a listing of A-5 or higher. Bonding company must also be licensed to do business by the Georgia Insurance Department.

The successful bidder, shall obtain, maintain and furnish to the City certificates or insurance for the entire duration of the contract period. Insurance requirements starting on the next page.

STANDARD INSURANCE REQUIREMENTS

(For projects less than $1,000,000)

1. Statutory Workers' Compensation Insurance
   (a) Employers Liability:
   - ✓ Bodily Injury by Accident - $100,000 each accident
   - ✓ Bodily Injury by Disease - $500,000 policy limit
   - ✓ Bodily Injury by Disease - $100,000 each employee

2. Commercial General Liability Insurance
   (a) $500,000 limit of liability per occurrence for bodily injury and property damage
   (b) The following additional coverage must apply:
   - ✓ 1986 (or later) ISO Commercial General Liability Form
   - ✓ Dedicated Limits per Project Site or Location (CG 25 03 or CG 25 04)
   - ✓ Additional Insured Endorsement (Form B CG 20 10 with a modification for completed operations or a separate endorsement covering Completed Operations)
   - ✓ Blanket Contractual Liability
   - ✓ Broad Form Property Damage
   - ✓ Severability of Interest
   - ✓ Underground, explosion, and collapse coverage
   - ✓ Personal Injury (deleting both contractual and employee exclusions)
   - ✓ Incidental Medical Malpractice
   - ✓ Hostile Fire Pollution Wording

3. Auto Liability Insurance
   (a) $500,000 limit of liability per occurrence for bodily injury and property damage
   (b) Comprehensive form covering all owned, non-owned, leased, hired, and borrowed vehicles
   (c) Additional Insured Endorsement
   (d) Contractual Liability

4. Umbrella Liability Insurance - $1,000,000 limit of liability
   (a) The following additional coverage must apply
   - ✓ Additional Insured Endorsement
   - ✓ Concurrency of Effective Dates with Primary
   - ✓ Blanket Contractual Liability
   - ✓ Drop Down Feature
   - ✓ Care, Custody, and Control - Follow Form Primary
   - ✓ Aggregates: Apply Where Applicable in Primary
   - ✓ Umbrella Policy must be as broad as the primary policy

5. The City of Lawrenceville should be shown as an additional insured on General Liability, Auto Liability and Umbrella Liability policies.

6. The cancellation should provide 10 days notice for nonpayment and 30 days notice of cancellation.

7. Certificate Holder should read:
   City of Lawrenceville
   70 S. Clayton St.
   P.O. Box 2200
   Lawrenceville, Georgia 30046

8. Insurance Company, except Worker' Compensation carrier, must have an A.M. Best Rating of A-5 or higher. Certain Workers' Comp funds may be acceptable by the approval of the Insurance Unit. European markets including those based in London and domestic surplus lines markets that operate on a non-admitted basis are exempt from this requirement provided that the contractor's broker/agent can provide financial data to establish that a market is equal to or exceeds the financial strengths associated with the A.M. Best's rating of A-5 or better.

9. Insurance Company should be licensed to do business by the Georgia Department of Insurance.

10. Certificates of Insurance, and any subsequent renewals, must reference specific bid/contract by project name and project/bid number.

11. The Contractor shall agree to provide complete certified copies of current insurance policy (ies) or a certified letter from the insurance company (ies) if requested by the City to verify the compliance with these insurance requirements.

12. All insurance coverages required to be provided by the Contractor will be primary over any insurance program carried by the City.

13. Contractor shall incorporate a copy of the insurance requirements as herein provided in each and every subcontract with each and every Subcontractor in any tier, and shall require each and every Subcontractor of any tier to comply with all such requirements. Contractor agrees that if for any reason Subcontractor fails to procure and maintain insurance as required, all such required Insurance shall be procured and maintained by Contractor at Contractor's expense.

14. No Contractor or Subcontractor shall commence any work of any kind under this Contract until all insurance requirements contained in this Contract have been complied with and until evidence of such compliance satisfactory to the City of Lawrenceville as to form and content has been filed with the City. **The Acord Certificate of Insurance or a preapproved substitute is the required form in all cases where reference is made to a Certificate of Insurance or an approved substitute.**

15. The Contractor shall agree to waive all rights of subrogation against the City of Lawrenceville, the Mayor, City Council members, its officers, officials, employees, and volunteers from losses arising from work performed by the contractor for the City.

16. Special Form Contractors' Equipment and Contents Insurance covering owned, used, and leased equipment, tools, supplies, and contents required to perform the services called for in the Contract. The coverage must be on a replacement cost basis. The City will be included as a Loss Payee in this coverage for City owned equipment, tools, supplies, and contents.

17. The Contractor shall make available to the City, through its records or records of their insurer, information regarding a specific claim related to any City project. Any loss run information available from the contractor or their insurer relating to a City project will be made available to the City upon their request.

18. Compliance by the Contractor and all subcontractors with the foregoing requirements as to carrying insurance shall not relieve the Contractor and all Subcontractors of their liability provisions of the Contract.

19. The Contractor and all Subcontractors are to comply with the Occupational Safety and Health Act of 1970, Public Law 91-956, and any other laws that may apply to this Contract.

20. The Contractor shall at a minimum apply risk management practices accepted by the contractors' industry.

Surety Bonds

All of the surety requirements will stay the same except the Surety Company must have the same rating as item 8 above.

Rev. 05/15

PART III – CONTRACT AWARD AND EXECUTION

A. Within ten days from receipt of the Notice of Award from the City, the successful bidder is required to:

1. Return to the City's Purchasing Office contract documents executed by the authorized representative and attested by the corporate secretary of the bidder.

2. Provide insurance certificates as specified in the bidding documents; and

3. Provide a performance bond and a payment bond as specified in the bidding documents.

The City may extend this ten day period at its discretion.

B. The successful bidder's failure to execute the contract, provide a performance bond and a payment bond and furnish satisfactory proof of coverage of the insurance required within a ten-day period or any extension thereof may be just cause for annulment of the award and forfeiture of the bid guaranty to the City of Lawrenceville, not as a penalty but as liquidation of damages sustained. At the discretion of the City the award then may be made to the next lowest, responsible bidder, or the work may be re-advertised.

C. Samples of the payment bond and performance bond are included.

D. The contract documents, including the payment bond, performance bond, and insurance certificate, shall be executed and furnished to the City in duplicate.

END OF SECTION 00200

SB004-27
City of Lawrenceville Pink Parking Lot Project

STATEMENT OF EQUIPMENT

Show machinery and other equipment available to Contractor for prosecuting the Work included in Contract. (To be filled in by Contractor and submitted with Bid.)

Available Machinery and Other Equipment Kind - Size - Capacity	Location	Ownership	Date Proposed To Be Placed On Job Site

The above is a true statement of the equipment available to the undersigned Bidder for prosecuting the Work included in the Contract. Where it is shown that the equipment is not owned by the Bidder, arrangements have been made with the owners to furnish the equipment.

Signed: _____

Name: _____

Title: _____

END OF SECTION

Failure to return this page as part of bid document may result in rejection of bid.

Bidder submits the following lump sum price for the **City of Lawrenceville Pink Parking Lot Project** identified in Bid Form as part of this Bid. Failure to utilize and return this form as a part of the bidding documents may result in rejection of bid.

BIDDING FORM

BID ITEM NO.	DESCRIPTION	UNIT	QNTY	UNIT PRICE	TOTAL PRICE
1.	Warranties and Bonds	LS	1	$	$
2.	Mobilization & Demobilization	LS	1	$	$
3.	Traffic Control (Pedestrian and Vehicular)	LS	1	$	$
4.	Temporary Security Fencing system around project site.	LS	1	$	$
5.	Erosion, Sedimentation & Pollution Control (ESPC) plans and Tree protection plan, including but not limited to plans (see sheets C0.40 and C3.00 to C3.83), water quality testing, and all permits and fees associated.	LS	1	$	$
6.	Demolition for the entire project limits and per plans, including but not limited to clearing and grubbing, site demolition **(asbestos and lead paint abatement)**, buildings demolition and utility removal/abandonment.	LS	1	$	$
7.	Chrysotile Asbestos Removal. City to provide Asbestos & Lead Based Paint Inspection Report with final Estimate Quantities after contract award.	SF	5,000	$	$
8.	Lead Paint above 0.5% Removal. City to provide Asbestos & Lead Based Paint Inspection Report with final Estimate Quantities after contract award.	SF	1,000	$	$
9.	Earthwork and Grading	LS	1	$	$
10.	Storm - Underground Detention. All included per plans and specs.	CF	11,000	$	$
11.	Drainage Structure - Curb Inlet. All included per plans and specs. Contractor to follow GDOT standards.	EA	5	$	$
12.	Outlet Control Structure. All included per plans and specs. Contractor to follow Gwinnett County standards.	EA	1	$	$
13.	Junction Box. All included per plans and specs. Contractor to follow GDOT standards.	EA	1	$	$
14.	SSMH Adjustment. All included per plans and specs. Contractor to follow GDOT standards.	EA	1	$	$
15.	Install complete storm drain pipe, 15 in, H 1-10- RCP, including stone bedding, stone backfill up to top of pipe elevation, 98% compaction, shoring & including all tie-ins and regrout all structures, compacted backfill up to grade	LF	168	$	$
16.	Install complete storm drain pipe, 24 in, H 1-10- RCP, including stone bedding, stone backfill up to top of pipe elevation, 98% compaction, shoring & including all tie-ins and regrout all structures, compacted backfill up to grade	LF	26	$	$

17.	Underground automatic and controlled irrigation system design-build by Contractor. Contractor to provide metering coordination and availability for both water and electrical services.	LS	1	$	$
18.	Retaining Wall - Redi Rock. All included per plans and specs. Contractor to design and built. Contractor to follow manufacturer specifications and account for drainage system, backfill stones, foundation and other miscellaneous components.	LF	144	$	$
19.	Painted Ornamental Steel Fence 4' Height, including foundation.	LF	88	$	$
20.	Concrete Standup Post Curb (matching existing design on West Crogan St)	LF	36	$	$
21.	Concrete Post Curb (Parking lot)	LF	56	$	$
22.	Concrete Curb & Gutter GDOT #9032B Type 2	LF	1,215	$	$
23.	Concrete Valley Gutter per Gwinnett County Standards	LF	61	$	$
24.	ADA Sidewalk Ramps (see sheet C1.81) including tactile truncated domes	EA	6	$	$
25.	Concrete Sidewalk 4" thick per Gwinnett County Standards. All utility adjustment must be at contractor cost and responsibility.	SF	2,000	$	$
26.	Asphalt Pavement including 6" of Granular Aggregable Base CRS, 2.5" asphaltic base course 19mm Superpave, and 1.5" of asphaltic surface course 9.5 mm Superpave. Include compacted subgrade, bituminous and tack coat.	SF	31,500	$	$
27.	Roadway Widening per Gwinnett County standards (Compacted subgrade, compacted GAB, Concrete Base and Asphalt Surface Layer). See sheet C1.80.	SF	169	$	$
28.	Thermoplastic Striping and Pavements markers. All included per plans and specs. Contractor to follow MUTCD and GDOT standards. Handicap to be included.	LS	1	$	$
29.	Traffic Vertical Signages. All included per plans and specs. Contractor to follow MUTCD and GDOT standards. Handicap to be included.	LS	1	$	$
30.	Wheel stop. All included per plans and specs. See sheet C1.80	EA	20	$	$
31.	City Wayfind Parking Lot Vertical Sign (including foundation). All included per plans and specs. See sheet C1.82	EA	3	$	$
32.	Photocell controlled exterior lighting 30-ft, including foundation. Bronze color. Model: GLANSA4C740UT4WMABZ10MSPTHPR710XU128800. See Sheet E1.00 for additional details	EA	4	$	$
33.	Installation of Electrical Pull Box, including conduit, wiring and connections. City will provide a 1419 Carson utility box to be installed by Contractor (box only)	EA	4	$	$
34.	Exterior Lighting Conduit Run and Wiring per manufacturer specifications.	LS	1	$	$

35.	For circuit feeding: Bored Conduit Nonmental TP2 2in (schedule 40 and 80 HDPE). Include two (2) #6AWG, and one (1) #6AWG GND. Coordinate with City of Lawrenceville Electrical Department feeding source location.	LF	45	$	$
36.	Sod (Bermuda)	SF	4,450	$	$
37.	Landscape Bed	SF	1,500	$	$
38.	4” cup Big Blue Lilyturf	EA	2,100	$	$
39.	2” Cal Large October Glory Red Maple	EA	13	$	$
40.	3 GAL Shrub Little Henry Sweet spire	EA	98	$	$
	Total				

Amounts are to be shown in numbers only. It is understood; that the estimated quantities in the Bid Proposal are approximate and are used only for comparison of bids, and are subject to increase or decrease as required to properly complete the Contract work. Low bidder shall be determined on the basis of the TOTAL BID PRICE. Furthermore, the Contractor shall be responsible for including all items required to perform the project as indicated on the plans and specifications and including all costs into the most appropriate unit prices, if not explicitly described in the Payment paragraph of each section.

NOTES

*Individuals, firms and businesses seeking an award of a City of Lawrenceville contract may not initiate or continue any verbal or written communications regarding a solicitation with any City officer, elected official, employee or other City representative without permission of the Purchasing Manager named in the solicitation between the date of the issuance of the solicitation and the date of the final contract award by the City Council. Violations will be reviewed by the Purchasing Manager. If determined that such communication has compromised the competitive process, the offer submitted by the individual, firm or business may be disqualified from consideration for award.

Failure to return this page as part of bid document may result in rejection of bid.

BIDDING FORM CONTINUED

(This Bid Form is part of the Bid Documents)

BID NUMBER SB004-27 BID DATE: July 30 2026

SUBMITTAL DATE: _____

BY: _____
(Bidder)

PROJECT DESCRIPTION: City of Lawrenceville Pink Parking Lot Project

THIS BID IS SUBMITTED TO: City of Lawrenceville, Georgia (hereinafter called Owner)

This bid is submitted to the City of Lawrenceville in accordance with the instructions, requirements, and forms included in the bidding documents, and the bidder agrees to complete all work for the bid price and substantially complete the work within **60** calendar days from the written notice to proceed.

The bidder agrees if the bid is accepted by the City of Lawrenceville within ninety (90) days of the date of bid opening, the bidder shall within ten days after receipt of notification of this acceptance execute a contract upon the terms, conditions, and prices set forth herein and in the form and manner required by the City of Lawrenceville. The bidder further accepts the terms and conditions contained in the bidding requirements for disposition of bid security.

In submitting this bid, bidder makes representations required by Instructions to Bidders and further warrants and represents:

a. Bidder has examined Bid Document Package, including Advertisement for Bids and Instructions to Bidders, and following addenda:

No.	_____	Dated	_____	No.	_____	Dated	_____
No.	_____	Dated	_____	No.	_____	Dated	_____
No.	_____	Dated	_____	No.	_____	Dated	_____
No.	_____	Dated	_____	No.	_____	Dated	_____

b. Bidder has examined site and locality where the work is to be performed and legal requirements (federal, state, and local laws, ordinances, rules, and regulations) and conditions affecting work cost, difficulty, progress, or performance and has made independent investigations as bidder deems necessary.

c. Bidder has carefully studied reports and drawings indicating subsurface conditions and drawings depicting physical conditions as identified in General Conditions and accepts determination concerning technical data contained in reports and drawings on which bidder is entitled to rely.

d. Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) examinations, investigations, explorations, tests, and studies (in addition to or to supplement those referred to in "c." above) pertaining to subsurface or physical conditions at site or otherwise affecting cost, progress, performance, or furnishing work as bidder considers necessary for performing or furnishing work at contract price, within contract time, and in accordance with terms and conditions contained in bid document package, including specifically provisions stated in General Conditions and no additional examinations, investigations, explorations, tests, reports, or similar information or data are or will be required by bidder.

e. Bidder has reviewed and checked plans and data shown or indicated on bid document package with respect to existing underground facilities at or contiguous to site and assumes responsibility for accurately locating underground facilities. No additional examinations, investigations, explorations, tests, reports, or similar information or data concerning underground facilities are or will be required by bidder in order to perform and furnish work at contract price, within contract time, and in accordance with terms and conditions contained in bid document package, including specifically provisions stated in General Conditions.

f. Bidder has correlated results from observations, examinations, investigations, explorations, tests, reports, and studies with terms and conditions contained in bid document package.

g. Bidder has given Owner written notice concerning conflicts, errors, or discrepancies discovered in bid document package and written resolution by Owner is acceptable to bidder.

h. This bid is genuine and not made in interest of or for any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules produced by any group, association, organization, or corporation; bidder has not directly or indirectly induced or solicited any other bidder to submit false or sham bid; bidder has not solicited or induced any person, firm, or corporation to refrain from bidding; and bidder has not sought by collusion to obtain for itself any advantage over any other bidder or over Owner.

i. The City requires that all who enter into a contract for the physical performance of services with the City must satisfy O.C.G.A. 13-10-91 and Rule 300-10-1-.02, in all manner, and such are conditions of the contract.

j. By submitting a bid to the City, contractor agrees that they are in compliance with O.C.G.A. 13-10-91 and Rule 300-10-1-.02. Such attestation(s) shall be maintained and may be inspected by the City at any time. Any such attestation shall become a part of the contractor/subcontractor agreement.

k. An affidavit of such compliance with O.C.G.A. 13-10-91 and Rule 300-10-1-.02 will be initiated by the City, signed by the contractor, and will become part of the contract.

l. It is the policy of the City of Lawrenceville that unauthorized aliens shall not be employed to perform work on City contracts involving the physical performance of services. Therefore, the City shall not enter into a contract for the physical performance of services within the State of Georgia unless the contractor shall provide evidence on City-provided forms that it and its subcontractors have registered for and are participating in the federal work authorization program as defined by O.C.G.A. 13-10-90(2) to verify information of all new employees.

m. The Purchasing Manager shall be authorized to conduct random audits of a contractor's or subcontractors' compliance with O.C.G.A. 13-10-91 and the rules and regulations of the Georgia Department of Labor. The contractor and subcontractors shall retain all documents and records of its compliance for a period of three (3) years following completion of the contract. Whenever it appears that a contractor's or subcontractor's records are not sufficient to verify the work eligibility of any individual in the employ of such contractor or subcontractor, the Purchasing Manager shall report same to the Department of Homeland Security.

n. A contractor's failure to participate in the federal work authorization program as defined by O.C.G.A. 13-10-90(2) may be sanctioned by termination of the contract. If it is determined that a subcontractor is not participating in the federal work authorization program as defined by O.C.G.A. 13-10-90(2), the City of Lawrenceville may direct the contractor to terminate that subcontractor. A contractor's failure to follow the City's instruction to terminate a subcontractor that is not participating in the federal work authorization program as defined by O.C.G.A. 13-10-90(2) may be sanctioned by termination of the contract.

p. The above requirements shall be in addition to the requirements of state and federal law, and shall be construed to be in conformity with those laws.

In compliance with the attached specifications, the undersigned offers and agrees, if this bid is accepted by the City Council within ninety (90) days of the date of bid opening, to furnish any or all of the items upon which prices are quoted within the time specified in the bid schedule.

Legal Business Name_____

Federal Tax ID _____

Address_____

Representative Signature_____

Print Authorized Representative's Name_____

Telephone Number_____

E-Mail Address_____

BIDDER'S ACKNOWLEDGEMENT

The undersigned bidder acknowledges all requirements outlined in the above "Instructions to Bidders Package" and all documents referred to therein. This signed form must accompany the completed bid form submitted at the time of bid.

SIGNATURE: _____ DATE: _____
(President, Vice President or Corporate Officer)

PRINTED NAME: _____ TITLE: _____

ATTESTED BY: _____ DATE: _____
(Secretary of Corporation)

PRINTED NAME: _____ TITLE: _____

SEAL

(Corporate Seal Required if Bidder is a Corporation)

COMPANY NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

TELEPHONE NO.: _____

SB004-27
City of Lawrenceville Pink Parking Lot Project

Lawrenceville, Georgia

BID BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____
(Corporation, Partnership or Individual)

hereinafter called Principal, and

_____
(Name of Surety)

_____
(Address of Surety)

a Corporation of the State of _____, and a surety authorized by law to do business in the State of Georgia, hereinafter called Surety, are held and firmly bound unto

City of Lawrenceville
(Name of Obligee)

70 S. Clayton Street, Lawrenceville, Georgia 30046
(Address of Obligee)

Thereinafter referred to as Obligee: in the penal sum of _____Dollars ($_____) in lawful money of the United States, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to submit, or has submitted, to Lawrenceville, Georgia, a proposal for furnishing materials, labor, and equipment for:_____
WHEREAS, the Principal desires to file this Bond in accordance with law in lieu of a certified Bidder's check otherwise required to accompany this Proposal.

NOW, THEREFORE, the conditions of this obligation are such that if the proposal be accepted, the Principal shall within ten days after receipt of notification of the acceptance, execute a Contract in accordance with the Proposal and upon the terms, conditions, and prices set forth in the form and manner required by Lawrenceville, Georgia, and execute a sufficient and satisfactory Performance Bond and Payment Bond payable to Lawrenceville, Georgia, each in the amount of 100% of the total Contract Price, in form and with security satisfactory to said Lawrenceville, Georgia, and otherwise, to be and remain in full force and virtue in law, and the Surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to the City of Lawrenceville, Georgia, upon demand, the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

PROVIDED, FURTHER, that Principal and Surety agree and represent that this bond is executed pursuant to and in accordance with the applicable provisions of the Official Code of Georgia Annotated, as Amended, including, but not limited to, O.C.G.A. 36-91-1 et seq., and is intended to be and shall be constructed as a bond in compliance with the requirements thereof.

Signed, sealed and dated this _____ day of _____, A.D., 20_____.

ATTEST:

_____
(Principal)

_____
(Principal Secretary)

By: _____

(SEAL)

_____
(Address)

_____

_____
(Witness as to Principal)

_____
(Address)

_____

_____
(Surety)

ATTEST:

By: _____
(Attorney-in-Fact)

_____
Resident or Nonresident Agent

_____
(Address)

(SEAL)

_____

_____
(Witness as to Surety)

_____
(Address)

NOTE: If Contractor is Partnership, all partners should execute Bond. Surety Companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information desired. Attach all additional sheets to this statement.

1. Name of Bidder:

2. Permanent main office address:

3. When organized:

4. If a Corporation, where incorporated:

5. How many years have you been engaged in the contracting business under your present firm or trade name?

6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.

7. General description of work performed by your company. Attach copy.

8. Have you ever failed to complete any work awarded to you?_____ If so, where and why _____.

9. Have you ever defaulted on a contract?_____ If so, where and why?_____.

10. List the most important projects recently completed by your company, stating the approximate cost for each, and the month and year completed. Attach copy.

11. Experience in construction work similar in importance to this project. Attach copy. Attach copy.

12. Background and experience of the principal members of your organization, including officers. Attach copy.

13. If your firm will be doing the asbestos abatement, you must provide your State of Georgia Asbestos Abatement License Number with your bid. If a subcontractor will be providing asbestos abatement, provide subcontractor information.

14. List at least three (3) projects of similar size and scope to this project on the attached REFERENCES form. The referenced projects should meet the following requirements:
    a. Completed within the past five (5) years.
    b. Projects shall be of similar size and scope.
    c. References shall have been directly involved in the project.

FAILURE TO RETURN THIS PAGE AS PART OF YOUR BID DOCUMENT MAY RESULT IN REJECTION OF BID.

REFERENCES

City of Lawrenceville requests a minimum of three (3) references for work of a similar size and scope.

1. Company Name _____

   Brief Description of Project _____

   Completion Date _____

   Contact Person _____

   Telephone _____

   E-Mail Address _____

2. Company Name _____

   Brief Description of Project _____

   Completion Date _____

   Contact Person _____

   Telephone _____

   E-Mail Address _____

3. Company Name _____

   Brief Description of Project _____

   Completion Date _____

   Contact Person _____

   Telephone _____

   E-Mail Address _____

MINIMUM REQUIREMENTS

The bidder must:

- Maintain a permanent place of business.
- Have the appropriate technical experience and working knowledge, to perform the work.
- Have the right equipment and personnel to perform the work.
- Have suitable financial means to meet obligations incidental to the work.
- Show proof of no less than THREE Contracts of similar character to the work being bid for a public agency, each with an original contract price of no less than $1,000,000.00 within the past three (3) years.
- Have visited and examined the location of the work.
- Have Underground Utility Contractor's license and/or Utility Manager license, and/or General Contractor license. (**A copy must be attached to the "Statement Of Builders Qualifications" sheet)**
- Enter into a binding contract with the City to perform the work.
- Sign the City's affidavit verifying compliance with O.C.G.A. 13-10-91 and Georgia Dept. of Labor Rule 300-10-1.02

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the local public agency in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated this _____ day of _____, 20____.

_____
(Name of Bidder)

By:_____

Title:_____

State of _____

County of _____

_____ being duly sworn deposes and says that he or she is _____ of _____ and that the answers to the foregoing questions and all statements therein contained are true and correct. Subscribed and sworn to before me this _____ day of _____, 20___.

_____
(Notary Public)
My Commission Expires:

_____ (SEAL)
(Date)

END OF SECTION 00440

CITY OF LAWRENCEVILLE, GEORGIA

FORM OF NON-COLLUSION AFFIDAVIT

(This Non-Collusion Affidavit is Part of the Bid Documents)

BID NUMBER: SB004-27 BID DATE: July 30, 2026

PROJECT NAME: City of Lawrenceville Pink Parking Lot Project

STATE OF Georgia)
SS.
COUNTY OF Gwinnett)

_____
being first duly sworn, deposes and says that he is

_____
(Sole owner, partner, president, secretary, etc.)

The party making the foregoing Proposal or Bid; that such Bid is genuine and not collusive or sham; that said Bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any Bidder or person, to put in a sham Bid, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the Bid Price of affiant or any other Bidder, or to fix any overhead, profit or cost element of said Bid Price, or of that of any other Bidder, or to secure any advantage against Gwinnett County, or any person interested in the proposed Contract; and that all statements in said Proposal or Bid are true; and further, that such Bidder has not, directly or indirectly submitted this Bid, or the contents thereof, or divulged information or data relative thereto to any association or to any member or agent thereof.

_____
(Affiant)

Subscribed and Sworn to before me this _ Day of _____ 20 ____

_____
(Notary Public in and for)

_____
(County)

My Commission expires _____ , 20 ____

(SEAL)

CONTRACT

This **CONTRACT** made and entered into this _____day of _____, 20__ by and between the City of Lawrenceville, Georgia, a Georgia Municipal Corporation, duly organized and existing under the laws of the State of Georgia (Party of the First Part, hereinafter called the City), and _____, (Party of the Second Part, hereinafter called the Contractor).

WITNESSETH: That the Contractor has agreed, and by these presents does agree, with the City for the consideration herein mentioned to furnish all equipment, tools, material, skill, knowledge and labor of every description necessary to carry out and complete in a good, firm, substantial and workmanlike manner the work required under the Contract Documents and under the provisions of the Performance Bond and Payment Bond. The term Contract Documents shall include: the Drawings and Specifications of the project, the Proposal made by the Contractor, the Advertisement, the Instructions to Bidder, the Bid Form, the General Conditions and this Contract. The work shall be performed in strict conformity with the Contract Documents and said Contract Documents shall all form essential parts of the Contract. The work covered by this Contract includes all work shown on the plans and specifications and listed in the conditions and specifications to wit:

City of Lawrenceville Pink Parking Lot Project

The Contractor awarded work under this contract shall commence work within ten (10) days after the issuance of the Notice to Proceed and shall fully complete all work hereunder **within 60 consecutive** calendar days from and after said date.

CITY and CONTRACTOR recognize that time is the essence of this Agreement. If the WORK is not substantially complete within the time specified (plus any extension of time allowed in the General Conditions), the CITY will suffer damage and loss that is difficult to calculate. The CITY and CONTRACTOR recognize and agree that the damage and loss that CITY will suffer if the WORK is not completed in a timely manner in accordance with the contract terms is difficult or impossible to accurately calculate. Therefore, CITY and CONTRACTOR agree that a reasonable amount to fully compensate CITY for damage and loss it would incur as a result of the failure of CONTRACTOR to complete the WORK in the time allowed by this Agreement shall be the sum of $2,000.00 per day. The amount in this provision is an amount CITY and CONTRACTOR agree upon as a reasonable amount of damages to fully compensate the CITY for any damage or loss it would suffer from a delay in the timely completion of the WORK, and is intended to provide CITY with reasonable liquidated damages and is not intended as a penalty.

The City shall pay and the Contractor shall receive the prices stipulated in the proposal hereto attached as full compensation for everything furnished and done by the Contractor under this contract, which shall in no event exceed _____ ($_____) based on the proposal which sum shall be paid in the manner and terms specified in the Contract Documents, but before issuance of certificate of payment, if the Contractor shall not have submitted evidence satisfactory to the City that all payrolls, materials bills, and other indebtedness connected with the work have been paid, the City may withhold, in addition to the retained percentages, such amount or amounts as may be necessary to pay just claims for labor and services rendered and materials in and about the work, and such amount or amounts withheld or retained may be applied by the City to the payment of such just claims.

When the Contractor has performed in accordance with the provisions of this Contract, the City of Lawrenceville shall pay to the Contractor, within thirty (30) days of receipt of any payment request based upon work completed or service provided pursuant to the Contract, the sum so requested, less the retainage stated in this Contract, if any. In the event that the City of Lawrenceville fails to pay the Contractor within sixty (60) days of receipt of a pay request based upon work completed or service provided pursuant to the Contract, the City shall pay the Contractor interest at the rate of l/2% per month or pro rata fraction thereof, beginning the sixty-first (61st) day following receipt of the pay request. The Contractor's acceptance of progress payments or final payment shall release all claims for interest on said payments.

It is further mutually agreed between the Parties hereto that if, at any time after the execution of the Contract and the Performance Bond for its faithful performance and the Payment Bond, the first party shall deem the surety or sureties upon such bond to be inadequate to cover the performance of the work, the second party shall, at its expense, within five (5) days after the receipt of notice from the first party to do so, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the first party. In such event, no further payment to the second party shall be deemed to be due under this Contract until such new or additional security for the faithful performance of the work shall be furnished in a manner and form satisfactory to the first party.

The parties agree that each of the provisions included in this Contract is separate, distinct and severable from the other and remaining provisions of this Contract, and that the invalidity of any Contract provision shall not affect the validity of any other provision or provisions of this Contract.

(Signatures Next Page)

IN WITNESS WHEREOF, the parties hereto, acting through their duly authorized agents, have caused this **CONTRACT** to be signed, sealed and delivered.

LAWRENCEVILLE, GEORGIA

By: _____
Signature

David R. Still, Mayor
City of Lawrenceville, Georgia

ATTEST:

_____
Signature

Karen Pierce, City Clerk
City of Lawrenceville, Georgia

APPROVED AS TO FORM:

_____
Signature
City of Lawrenceville Attorney

CONTRACTOR:_____

BY:_____
Signature

_____
Print Name

_____
Title

ATTEST:

_____
Signature

_____
Print Name
Corporate Secretary

(Seal)

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____

_____
(Address of Contractor)

a _____
(Corporation, Partnership or Individual)

hereinafter called Principal, and

_____
(Name of Surety)

_____

_____
(Address of Surety)

a Corporation of the State of _____and a surety authorized by law to do business in, the State of Georgia, hereinafter called Surety, are held and firmly bound unto:

City of Lawrenceville
(Name of Obligee)

70 S. Clayton Street, Lawrenceville, Georgia 30046
(Address of Obligee)

hereinafter referred to as Obligee are held and firmly bound unto said Obligee and all persons doing work or furnishing skill, tools, machinery, supplies, or material under or for the purpose of the Contract

referred to, in the penal sum of _____ Dollars($ ____) in lawful money of the United States, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

The condition of this obligation is such, as whereas the Principal entered into a certain contract, hereto attached, with the Obligee.

NOW, THEREFORE THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall well, truly, fully and faithfully perform said contract according to its terms, covenants, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Obligee, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreement of any and all duly authorized modifications of said contract that may hereafter be made, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that said Surety to this Bond, for value received, hereby stipulates and agrees that no change, extension of time, alterations, or additions to the terms of the Contract or to the Work to be performed thereunder shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alterations, or additions to the terms of the Contract or to the work to be performed thereunder.

PROVIDED, FURTHER, that Principal and Surety agree and represent that this bond is executed pursuant to and in accordance with the applicable provisions of the Official Code of Georgia Annotated, as Amended, including, but not limited to, O.C.G.A. 36-91-1 et seq., and is intended to be and shall be construed as a bond in compliance with the requirements thereof.

(Signatures Next Page)

ATTEST:

(Principal)

(Principal Secretary)

(SEAL)

By:

(Address)

(Witness to Principal)

(Address)

(Surety)

ATTEST:

By:

(Attorney-in-Fact)

(Resident Agent)

(Address)

(SEAL)

(Witness as to Surety)

(Address)

NOTE: If Contractor is Partnership, all partners should execute Bond. Surety Companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

BONDING AGENT CONTACT INFO

Print Name_____

Company Name_____

E-Mail_____

Phone_____

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____

_____
(Address of Contractor)

a _____
(Corporation, Partnership or Individual)

hereinafter called Principal, and

_____
(Name of Surety)

_____

_____
(Address of Surety)

a Corporation of the State of _____and a surety authorized by law to do business in, the State of Georgia, hereinafter called Surety, are held and firmly bound unto:

City of Lawrenceville
(Name of Obligee)

70 S. Clayton Street, Lawrenceville, Georgia 30046
(Address of Obligee)

hereinafter called the Obligee for the use and protection of all subcontractors and all persons supplying labor, services, skill, tools, machinery, materials and/or equipment in the prosecution of the work provided for in the contract hereinafter referred to in the full and just sum of _____Dollars($ _____)
in lawful money of the United States, for the payment of which sum, will and truly to be made, the Principal and Surety bind themselves, their, and each of their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such, as whereas the Principal entered into a certain contract, hereto attached, with the Obligee.

NOW, THEREFORE THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall well, truly, and faithfully perform said Contract according to its terms, covenants, and conditions, and shall promptly pay all persons furnishing labor, materials services, skill, tools, machinery and/or equipment for use in the performance of said Contract, then this obligation shall be void; otherwise it shall remain in full force and effect.

ALL persons who have furnished labor, materials, services, skill, tools, machinery and/or equipment for use in the performance of said Contract shall have a direct right of action on this Bond, provided payment has not been made in full within ninety (90) days after the last day on which labor was performed, materials, services, skill, tools, machinery, and equipment furnished or the subcontract completed.

PROVIDED FURTHER, that said Surety to this Bond, for value received, hereby stipulates and agrees that no change, extension of time, alterations, or additions to the terms of the Contract or to the Work to be performed thereunder shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alterations, or additions to the terms of the Contract or to the work to be performed thereunder.

PROVIDED, HOWEVER, that no suit or action shall be commenced hereunder by any person furnishing labor, materials, services, skill, tools, machinery, and/or equipment having a direct contractual relationship with a subcontractor, but no contractual relationship express or implied with the Principal:

Unless such person shall have given notice to the Principal within ninety (90) days after such person did, or performed the last of the work or labor, or furnished the last of the materials, services, skill, tools, machinery and/or equipment for which claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials, services, skill, tools, machinery and/or equipment were furnished, or for whom the work or labor was done or performed. Such a notice shall be served by mailing the same by registered mail, postage prepaid, in an envelope addressed to the Principal, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State in which the aforesaid project is located, save that such service need not be made by a public officer, and a copy of such notice shall be delivered to the Obligee, to the person and at the address provided for in the Contract, within five (5) days of the mailing of the notice to the Principal.

PROVIDED, FURTHER, that any suit under this bond must be instituted before the expiration of one (1) year after the acceptance of the public works covered by the Contract by the proper authorities.

PROVIDED, FURTHER, that Principal and Surety agree and represent that this bond is executed pursuant to and in accordance with the applicable provisions of the Official Code of

Georgia Annotated, as Amended, including, but not limited to, O.C.G.A. 36-91-1 et seq., and is intended to be and shall be construed as a bond in compliance with the requirements thereof.

ATTEST:

_____
(Principal)

_____
(Principal Secretary)

(SEAL)

By: _____

_____
(Address)

_____
(Witness to Principal)

_____
(Address)

_____
(Surety)

ATTEST:

By: _____
(Attorney-in-Fact)

_____
(Resident Agent)

_____
(Address)

(SEAL)

_____
(Witness as to Surety)

_____
(Address)

NOTE: If Contractor is Partnership, all partners should execute Bond. Surety Companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

BONDING AGENT CONTACT INFO

Print Name_____

Company Name_____

E-Mail_____

Phone_____

LAWRENCEVILLE
GEORGIA

Solicitation Name & No. City of Lawrenceville Pink Parking Lot Project; SB004-27

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(l)

The undersigned contractor ("Contractor") executes this Affidavit to comply with O.C.G.A § 13-10-91 related to any contract to which Contractor is a party that is subject to O.C.G.A. § 13-10-91 and hereby verifies its compliance with O.C.G.A. § 13-10-91, attesting as follows:

a) The Contractor has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program;

b) The Contractor will continue to use the federal work authorization program throughout the contract period, including any renewal or extension thereof;

c) The Contractor will notify the public employer in the event the Contractor ceases to utilize the federal work authorization program during the contract period, including renewals or extensions thereof;

d) The Contractor understands that ceasing to utilize the federal work authorization program constitutes a material breach of Contract;

e) The Contractor will contract for the performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the Contractor with the information required by O.C.G.A. § 13-10-91(a), (b), and (c);

f) The Contractor acknowledges and agrees that this Affidavit shall be incorporated into any contract(s) subject to the provisions of O.C.G.A. § 13-10- 91 for the project listed below to which Contractor is a party after the date hereof without further action or consent by Contractor; and

g) Contractor acknowledges its responsibility to submit copies of any affidavits, drivers' licenses, and identification cards required pursuant to O.C.G.A. § 13-10-91 to the public employer within five business days of receipt.

_____ _____
Federal Work Authorization User Identification Number Date of Authorization

_____ _____
Name of Contractor Name of Public Employer

_____
Street Address

_____
City/State/Zip Code

Executed on _____, _____, 20_____ in _____ (city), _____ (state).

_____
Signature of Authorized Officer or Agent

_____
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME
ON THIS THE _____ DAY OF _____, 20_____.

NOTARY PUBLIC
My Commission Expires: _____

STATE OF GEORGIA
CITY OF LAWRENCEVILLE

GENERAL CONDITIONS
FOR CITY OF LAWRENCEVILLE CONSTRUCTION CONTRACTS

GC-1 FAMILIARITY WITH SITE

Execution of this agreement by the Contractor is a representation that the Contractor has visited the site, has become familiar with the local conditions under which the work is to be performed, and has correlated personal observations with the requirements of this agreement.

GC-2 CONTRACT DOCUMENTS

This agreement consists of City of Lawrenceville's request for proposals, instructions to bidders, Contractor's proposal, construction contract, Performance Bond, Payment Bond, general conditions, special provisions, specifications, plans, drawings, addenda, and written change orders.

GC-3 DEFINITIONS

The following terms as used in this agreement are defined as follows:

Change Order - a written order to the Contractor, prepared by the Engineer and issued by the City for changes in the work within the general scope of the contract documents, adjustment of the contract price, extension of the contract time, or reservation of determination of a time extension.

City - Lawrenceville, Georgia, a Georgia Municipal Corporation, duly organized and existing under the laws of the State of Georgia.

Day - a calendar day of twenty-four hours lasting from midnight of one day to midnight the next day.

Notice to Proceed - written communication issued by the City to the Contractor authorizing it to proceed with the work and establishing the date of commencement and completion of the work.

Substantial Completion - the date certified by the engineer when all or a part of the work, identified in the engineer's certification, is sufficiently completed in accordance with the requirements of the contract documents so that the identified portion of the work can be utilized for the purposes for which it is intended.

Work - all of the services specified, indicated, shown or contemplated by the contract documents, and furnishing by the Contractor of all materials, equipment, labor, methods, processes, construction and manufacturing materials and equipment, tools, plans, supplies, power, water, transportation and other things necessary to complete such services in accordance with the contract documents to insure a functional and complete facility.

GC-4 CODES

All codes, specifications, and standards referenced in the contract documents shall be the latest additions, amendments and revisions of such referenced standards in effect as of the date of the request for proposals for this contract.

GC-5 REVIEW OF CONTRACT DOCUMENTS

Before making its proposal to the City, and continuously after the execution of the agreement, the Contractor shall carefully study and compare the contract documents and shall at once report to the engineer any error, ambiguity, inconsistency or omission that may be discovered, including any requirement which may be contrary to any law, ordinance, rule, or regulation of any public authority bearing on the performance of the work. By submitting its proposal, the Contractor agrees that the contract documents, along with any supplementary

written instructions issued by or through the engineer that have become a part of the contract documents appear accurate, consistent and complete insofar as can be reasonably determined. If the Contractor has reported in writing any error, inconsistency, or omission to the City, has properly stopped the effected work until instructed to proceed, and has otherwise followed the instructions of the engineer, the Contractor shall not be liable to the City for any damage resulting from any such error, inconsistency, or omission in the contract documents. The Contractor shall not perform any portion of the work without the contract documents, approved plans, specifications, products and data, or samples for such portion of the work.

GC-6 STRICT COMPLIANCE

No observation, inspection, test or approval of the City or engineer shall relieve the Contractor from its obligation to perform the work in strict conformity with the contract documents.

GC-7 APPLICABLE LAW

All applicable State laws, City ordinances, and rules and regulations of all authorities having jurisdiction over the construction of the project shall apply to this agreement. All work performed within the right of way of the Georgia Department of Transportation shall be in accordance with DOT regulations, policies and procedures. The Contractor shall comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as specified and the Contractor agrees to indemnify and hold harmless the City, its officers, agents and employees, as well as the engineer, against any claim or liability arising from or based on the violation of any law, ordinance, regulation, order or decree affecting the conduct of the work, whether occasioned by the Contractor, his agents or employees.

GC-8 PERMITS & LICENSES

All permits and licenses necessary for the work shall be secured and paid for by the Contractor. If any permit, license or certificate expires or is revoked, terminated, or suspended as a result of any action on the part of the Contractor, the Contractor shall not be entitled to additional compensation or time.

GC-9 TAXES

The Contractor shall pay all sales, retail, occupational, service, excise, old age benefit and unemployment compensation taxes, consumer, use and other similar taxes, as well as any other taxes or duties on the materials, equipment, and labor for the work provided by the Contractor which are legally enacted by any municipal, city, state or federal authority, department or agency at the time bids are received, whether or not yet effective. The Contractor shall maintain records pertaining to such taxes and levies as well as payment thereof and shall make the same available to the City at all reasonable times for inspection and copying.

GC-10 DELINQUENT CONTRACTORS

The City shall not pay any claim, debt, demand or account whatsoever to any person firm or corporation who is in arrears to the City for taxes. The City shall be entitled to a counterclaim and offset for any such debt in the amount of taxes in arrears, and no assignment or transfer of such debt after the taxes become due shall affect the right of the City to offset any taxes owed against said debt.

GC-11 LIEN WAIVERS

The Contractor shall furnish the City with evidence that all persons who have performed work or furnished materials pursuant to this agreement have been paid in full prior to submitting its demand for final payment pursuant to this agreement. In the event that such evidence is not furnished, the City may retain sufficient sums necessary to meet all lawful claims of such laborers and materialmen. The City assumes no obligation nor in any way undertakes to pay such lawful claims from any funds due or that may become due to the Contractor.

GC-12 MEASUREMENT

All items of work to be paid for per unit of measurement shall be measured and certified by the Engineer.

GC-13 ASSIGNMENT

The Contractor shall not assign any portion of this agreement or moneys due therefrom without the prior written consent of the City. The Contractor shall retain personal control and shall provide personal attention to the fulfillment of its obligations pursuant to this agreement.

GC-14 FOREIGN CONTRACTORS

In the event that the Contractor is a foreign corporation, partnership, or sole proprietorship, the Contractor hereby irrevocably appoints the Secretary of State of Georgia as its agent for service of all legal process for the purpose of this contract only.

GC-15 INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall, at his sole cost and expense, indemnify, defend, satisfy all judgments, and hold harmless the City, the engineer, and their agents and employees from and against all claims, damages, actions, judgments, costs, penalties, liabilities, losses and expenses, including, but not limited to, attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, action, judgment, cost, penalty, liability, loss or expense (1) 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 (2) is caused in whole or in part by any 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 whether such claim is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or otherwise reduce any of the rights or obligations of indemnity which would otherwise exist as to any party or person described in this agreement. In any and all claims against the City, the engineer, or any of their agents or employees by any employee 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, the indemnification obligation contained herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any subcontractor under Worker's Compensation Acts, disability benefit acts, or other employee benefit acts.

GC-16 SUPERVISION OF WORK

The Contractor shall supervise and direct the work using the Contractor's best skill and attention. The Contractor shall be solely responsible for all construction methods and procedures and shall coordinate all portions of the work pursuant to the contract subject to the overall coordination of the engineer. All work pursuant to this agreement shall be performed in a skillful and workmanlike manner.

GC-17 RESPONSIBILITY FOR WORK

The Contractor shall not be relieved from the Contractor's obligations to perform the work in accordance with the contract documents by the activities or duties of the engineer, including inspections, tests or approvals required or performed pursuant to this agreement.

GC-18 RESPONSIBILITY FOR ACTS OF EMPLOYEES

The Contractor shall be responsible to the City for the acts and omissions of its employees, subcontractors, and agents as well as any other persons performing work pursuant to this agreement. All areas within the limits of the Project which are determined by the Engineer to be unnecessarily damaged, due either directly or indirectly to the process of construction, shall be responsibility of the Contractor to correct and repair. This is not a payment item and shall be done without additional compensation.

GC-19 PAYMENT FOR LABOR AND MATERIALS

Unless otherwise provided in this agreement, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the execution and completion of the work.

GC-20 DISCIPLINE ON WORK SITE

The Contractor shall enforce strict discipline and good order among its employees and subcontractors at all times during the performance of the work. The Contractor shall not employ any subcontractor who is not skilled in the task assigned to it. The engineer may, by written notice, require the Contractor to remove from the work any subcontractor or employee deemed by the engineer to be incompetent.

GC-21 HOURS OF OPERATION

All work at the construction site shall be performed during regular business hours, except upon the engineer's prior written consent to other work hours.

GC-22 FAMILIARITY WITH WORK CONDITIONS

The Contractor shall take all steps necessary to ascertain the nature and location of the work and the general and local conditions, which may affect the work or the cost thereof. The Contractor's failure to fully acquaint itself with the conditions which may affect the work, including, but not limited to conditions relating to transportation, handling, storage of materials, availability of labor, water, roads, weather, topographic and subsurface conditions, other separate contracts to be entered into by the City relating to the project which may affect the work of the Contractor, applicable provisions of law, and the character and availability of equipment and facilities necessary prior to and during the performance of the work shall not relieve the Contractor of its responsibilities pursuant to this agreement and shall not constitute a basis for an equitable adjustment of the contract terms. The City assumes no responsibility for any understandings or representations concerning conditions of the work made by any of its officers, agents, or employees prior to the execution of this agreement.

GC-23 RIGHT OF ENTRY

The City reserves the right to enter the site of the work by such agent as it may elect for the purpose of inspecting the work or installing such collateral work as the City may desire.

GC-24 NOTICES

Any notice, order, instruction, claim or other written communication required pursuant to this agreement shall be deemed to have been delivered or received as follows:

(1) Upon personal delivery to the Contractor, it's authorized representative, or the engineer on behalf of the City. Personal delivery may be accomplished by in-person hand delivery or bona fide overnight express service.

(2) Three days after depositing in the United States mail a certified letter addressed to the Contractor, the City, or the engineer. For purposes of mailed notices, the City's mailing address shall be 70 S. Clayton St., P.O. Box 2200, Lawrenceville, Georgia 30046-2200. The Contractor's mailing address shall be the address stated in its proposal, and the engineer's mailing address shall be its address listed in the Notice to Begin Work.

GC-25 SAFETY

The Contractor shall take all reasonable precautions for the safety of all persons and property associated with the work, and the Contractor shall erect and maintain, as required by existing conditions and the progress of the work, all reasonable safeguards for the safety and protection of persons in the vicinity of the project.

GC-26 BLASTING AND EXCAVATION

The Contractor acknowledges that it is fully aware of the contents and requirements of O.C.G.A. 25-9-1 through 25-9-12 concerning blasting and excavation near underground gas pipes and facilities and shall fully comply therewith.

GC-27 HIGH VOLTAGE LINES

The Contractor acknowledges that it is fully aware of the contents and requirements O.C.G.A. 46-3-30 through 46-3-40 concerning safeguards against contact with high voltage lines, and the Contractor shall fully comply with

said provisions.

GC-28 SCAFFOLDING AND STAGING

The Contractor acknowledges that it is the person responsible for employing and directing others to perform labor within the meaning of O.C.G.A. 34-1-1 and agrees to comply with said provisions.

GC-29 CLEAN-UP

The Contractor shall clean up all refuse, rubbish, scrap materials, and debris caused by its operations to the end that the site of the work shall present a neat, orderly and workmanlike appearance at all times.

GC-30 PROTECTION OF WORK

The Contractor shall be responsible for maintenance and protection of the work until final completion of this agreement and acceptance of the work as defined herein. Any portion of the work suffering injury, damage or loss shall be considered defective and shall be corrected or replaced by the Contractor without additional cost to the City.

GC-31 REJECTED WORK

The Contractor shall promptly remove from the project all work rejected by the engineer for failure to comply with the contract documents and the Contractor shall promptly replace and re-execute the work in accordance with the contract documents and without expense to the City. The Contractor shall also bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.

GC-32 DEFECTIVE WORK

If the Contractor defaults or neglects to carry out any portion of the work in accordance with the contract documents, and fails within three days after receipt of written notice from the City or the engineer to commence and continue correction of such default or neglect with diligence and promptness, the City or the engineer may, after three days following receipt by the Contractor of an additional written notice and without prejudice to any other remedy the City may have, make good such deficiencies and complete all or any portion of any work through such means as the City may select, including the use of a new Contractor. In such case, an appropriate change order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies. In the event the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the City on demand.

GC-33 NEW MATERIALS

The Contractor warrants to the City that all materials and equipment furnished under this contract will be new unless otherwise specified, and the Contractor further warrants that all work will be of good quality, free from faults and defects, and in conformance with the contract documents. The warranty set forth in this paragraph shall survive final acceptance of the work.

GC-34 CONTRACTOR'S WARRANTY

If within one year after the date of substantial completion and final acceptance of the work by the City, or within such longer period of time as may be prescribed by law or by the term of any applicable special warranty required by the contract documents, any of the work is found to be defective or not in accordance with the contract documents, the Contractor shall correct such work promptly after receipt of written notice from the City to do so. This obligation shall survive both final payment for the work and termination of the contract.

GC-35 ASSIGNMENT OF MANUFACTURERS' WARRANTIES

Without limiting the responsibility or liability of the Contractor pursuant to this agreement, all warranties given by manufacturers on materials or equipment incorporated in the work are hereby assigned by the Contractor to the City. If requested, the Contractor shall execute formal assignments of said manufacturer's warranties to the City. All such warranties shall be directly enforceable by the City.

GC-36 WARRANTIES IMPLIED BY LAW

The warranties contained in this agreement, as well as those warranties implied by law, shall be deemed cumulative and shall not be deemed alternative or exclusive. No one or more of the warranties contained herein shall be deemed to alter or limit any other.

GC-37 STOP WORK ORDERS

In the event that the Contractor fails to correct defective work as required by the contract documents or fails to carry out the work in accordance with contract documents, the City, or the engineer, in writing, may order the Contractor to stop work until the cause for such order has been eliminated. This right of the City or engineer to stop work shall not give rise to any duty on the part of the City or the engineer to execute this right for the benefit of the Contractor or for any other person or entity.

GC-38 TERMINATION FOR CAUSE

If the Contractor is adjudged bankrupt, makes a general assignment for the benefit of creditors, suffers the appointment of a receiver on account of its insolvency, or fails to supply sufficient properly skilled workers, materials, fails to make prompt payment to subcontractors or materialmen, disregards laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction, or is otherwise guilty of a material violation of this agreement and fails within seven days after receipt of written notice to commence and continue correction of such default, neglect, or violation with diligence and promptness, the City may, after ten days following receipt by the Contractor of an additional written notice and without prejudice to any other remedy the City may have, terminate the employment of the Contractor and take possession of the site as well as all materials, equipment, tools, construction equipment and machinery thereon. The City may finish the work by whatever methods the City deems expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is completed. If the unpaid balance of the contract price exceeds the cost of completing the work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the City on demand. This obligation for payment shall survive the termination of the contract. Termination of this agreement pursuant to this paragraph may result in disqualification of the Contractor from bidding on future City contracts.

GC-39 TERMINATION FOR CONVENIENCE

The City may, at any time upon 30 days written notice to the Contractor, terminate the whole or any portion of the work for the convenience of the City. Said termination shall be without prejudice to any right or remedy of the City provided herein. In addition, in the event this agreement has been terminated due to the default of the Contractor, and if it is later determined that the Contractor was not in default pursuant to the provisions of this agreement at the time of termination, then such termination shall be considered a termination for convenience pursuant to this paragraph.

GC-40 TERMINATION FOR CONVENIENCE - PAYMENT

In the event that the City terminates this agreement for the convenience of the City, the City shall only be liable to the Contractor for those costs reimbursable to the Contractor plus a mark-up of ten percent on the actual fully accounted cost recovered pursuant to this paragraph. In the event that it appears that the Contractor would have sustained a loss on the entire contract had it been completed, no profit shall be included or allowed hereunder and an appropriate adjustment shall be made reducing the amount of settlement to reflect the indicated rate of loss. In the event of termination for the convenience of the City, the City shall pay the Contractor the following amounts determined by the engineer:

A. An amount for supplies, services, or property accepted by the City for which payment has not previously been made. The price to be paid for these items shall be equivalent to the aggregate price for such supplies or services computed in accordance with the price specified in this agreement appropriately adjusted for any saving of freight or other charges; and

B. The total of:

(1) The costs incurred in the performance of the work terminated, including initial costs and preparatory expenses allocable thereto, but exclusive of any costs attributable to supplies or services previously paid;

(2) The costs of settling and paying claims arising pursuant to the termination of the work under said contracts or orders which are properly chargeable to the terminated portion of the contract (exclusive of the amounts paid or payable on account of completed items or equipment delivered or services furnished by a subcontractor or vendor prior to the effective date of the notice of termination, which amounts shall be included in the costs payable pursuant to (A); and

(3) The reasonable costs of settlement, including accounting, legal, clerical, and other expenses reasonable and necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of the contract and for the termination and settlement of subcontracts thereunder, together with reasonable storage, transportation, and other costs incurred in connection with the protection or disposition of property allocable to this agreement.

GC-41 TERMINATION FOR CONVENIENCE - PAYMENT LIMITATIONS

In the event of termination for the convenience of the City, the total sum to be paid to the Contractor shall not exceed the contract price as reduced by the amount of payments otherwise made, by the contract price for work not terminated, and as otherwise permitted by the contract. Except for normal spoilage, and except to the extent that the City shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the Contractor the fair value, as determined by the engineer, of property which is destroyed, lost, stolen or damaged so as to become undeliverable to the City or to another buyer.

GC-42 COST TO CURE

If the City terminates the whole or any part of the work pursuant to this agreement, then the City may procure upon such terms and in such manner as the engineer may deem appropriate, supplies or services similar to those so terminated, and the Contractor shall be liable to the City for any excess costs for such similar supplies or services. The Contractor shall continue the performance of this agreement to the extent not terminated hereunder.

GC-43 ATTORNEY'S FEES

Should the Contractor default pursuant to any of the provisions of this agreement, the Contractor and its surety shall pay to the City such reasonable attorney's fees as the City may expend as a result thereof and all costs, expenses, and filing fees incidental thereto.

GC-44 CONTRACTOR'S RESPONSIBILITIES UPON TERMINATION

After receipt of a notice of termination from the City, and except as otherwise directed by the engineer, the Contractor shall:

1. Stop work under the contract on the date and to the extent specified in the notice of termination;

2. Place no further orders or subcontracts for materials, services or facilities, except as may be necessary for completion of such portion of the work under the agreement as is not terminated;

3. Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the notice of termination;

4. Assign to the City in the manner, at the times, and to the extent directed by the engineer, all of the rights, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the City shall have the right, at its discretion, to settle or pay any and all claims arising out of the termination of such orders or subcontracts;

5. Settle all outstanding liabilities and all claims arising out of such termination of orders and

subcontracts, with the approval or ratification of the engineer, to the extent the engineer may require, which approval or ratification shall be final for all purposes;

6. Transfer title and deliver to the entity or entities designated by the City, in the manner, at the times, and to the extent, if any, directed by the engineer, and to the extent specifically produced or specifically acquired by the Contractor for the performance of such portion of the work as has been terminated:

   (a) The fabricated or unfabricated parts, work, and progress, partially completed supplies, and equipment, materials, parts, tools, dyes, jigs, and other fixtures, completed work, supplies, and other material produced as a part of or acquired in connection with the performance of the work terminated by the notice of termination; and

   (b) The completed or partially completed plans, drawings, information, and other property to the work.

7. Use its best efforts to sell in the manner, at the times, to the extent, and at the prices directed or authorized by the engineer, any property described in Section 6 of this paragraph, provided, however, that the Contractor shall not be required to extend credit to any buyer and further provided that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the City to the Contractor pursuant to this agreement.

8. Complete performance of such part of the work as shall not have been terminated by the notice of termination; and

9. Take such action as may be necessary, or as the engineer may direct, for the protection and preservation of the property related to the agreement which is in the possession of the Contractor and in which the City has or may acquire an interest.

GC-45 RECORDS

The Contractor shall preserve and make available to the City all of its records, books, documents and other evidence bearing on the costs and expenses of the Contractor and any subcontractor pursuant to this agreement upon three days advance notice to the Contractor.

GC-46 DEDUCTIONS

In arriving at any amount due the Contractor pursuant to the terms of this agreement, there shall be deducted all liquidated damages, advance payments made to the Contractor applicable to the termination portion of the contract, the amount of any claim which the City may have against the Contractor, the amount determined by the engineer to be necessary to protect the City against loss due to outstanding potential liens or claims, and the agreed price of any materials acquired or sold by the Contractor and not otherwise recovered by or credited to the City.

GC-47 REIMBURSEMENT OF THE CITY

In the event of termination, the Contractor shall refund to the City any amount paid by the City to the Contractor in excess of the costs reimbursable to the Contractor.

GC-48 TERMINATION FOR CONVENIENCE - DELAY

The Contractor shall be entitled to only those damages and that relief from termination by the City as specifically set forth in this agreement. The City or the engineer may issue a written order requiring the Contractor to suspend, delay or interrupt all or any part of the work for such period of time as the City may determine to be appropriate for the convenience of the City. If the performance of the work is interrupted for an unreasonable period of time by an act of the City or engineer in the administration of this agreement, an equitable adjustment shall be made for any increase in the Contractor's costs of performance and any increase in the time required for performance

of the work necessarily caused by the unreasonable suspension, delay, or interruption. Any equitable adjustment shall be reduced to writing and shall constitute a modification to this agreement. In no event, however, shall an equitable adjustment be made to the extent that performance of this agreement would have been suspended, delayed or interrupted by any other cause, including the fault or negligence of the Contractor. No claim for an equitable adjustment pursuant to this paragraph shall be permitted before the Contractor shall have notified the engineer in writing of the act or failure to act involved, and no claim shall be allowed unless asserted in writing to the engineer within ten days after the termination of such suspension, delay or interruption.

GC-49 COMMENCEMENT AND DURATION OF WORK

The Contractor shall commence work pursuant to this agreement within ten days of mailing or delivery of written notice to proceed by the City. The Contractor shall diligently prosecute the work to completion within the time specified therefore. The capacity of the Contractor's construction and manufacturing equipment and plan, sequence and method of operation and forces employed, including management and supervisory personnel, shall be such as to insure completion of the work within the specified time. The Contractor and City hereby agree that the contract time for completion of the work is reasonable taking into consideration the average climatic conditions prevailing in the locality of the work.

GC-50 TIME OF THE ESSENCE

All time limits stated in this agreement are of the essence of this contract.

GC-51 IMPACT DAMAGES

Except as specifically provided pursuant to a stop work order or change order, the Contractor shall not be entitled to payment or compensation of any kind from the City for direct or indirect or impact damages including, but not limited to, costs of acceleration arising because of delay, disruption, interference or hindrance from any cause whatsoever whether such delay, disruption, interference or hindrance is reasonable or unreasonable, foreseeable or unforeseeable, or avoidable, provided, however, that this provision shall not preclude the recovery of damages by the Contractor for hindrances or delays due solely to fraud or bad faith on the part of the City its agents or employees. The Contractor shall be entitled only to extensions in the time required for performance of the work as specifically provided in the contract.

GC-52 DELAY

The Contractor may be entitled to an extension of the contract time, but not an increase in the contract price, for delays arising from unforeseeable causes beyond the control and without the fault or negligence of the Contractor or its subcontractors for labor strikes, acts of God, acts of the public enemy, acts of the state, federal or local government in its sovereign capacity, by acts of another separate contractor, or by an act of neglect of the City with the engineer.

GC-53 INCLEMENT WEATHER

The Contractor shall not be entitled to an extension of the contract time due to normal inclement weather. Unless the Contractor can substantiate to the satisfaction of the engineer that there was greater than normal inclement weather considering the full term of the contract using a ten year average of accumulated mean values for climatological data complied by the U.S. Department of Commerce for Atlanta, Georgia and that such greater than normal inclement weather actually delayed the work, the Contractor shall not be entitled to an extension of time therefor.

GC-54 NOTICE OF DELAY

The Contractor shall not receive an extension of time unless a notice of a claim is filed with the City and the engineer within ten days of the first instance of such delay, disruption, interference or hindrance and a written statement of the claim is filed with the engineer and the City within 20 days of the first such instance. In the event that the Contractor fails to comply with this provision, it waives any claim, which it may have for an extension of time pursuant to this agreement.

GC-55 NOTICE OF DELAY - CONTENTS

The notice of delay referenced in the preceding paragraph shall include specific information concerning the nature of the delay, the date of commencement of the delay, the construction activities affected by the delay, the person or organization responsible for the delay, the anticipated extent of the delay, and any recommended action to avoid or minimize the delay.

GC-56 PROGRESS OF WORK

To the extent that the Contractor is entitled to additional compensation for delay, an absolute condition precedent to such entitlement shall be strict compliance with all requirements and procedures for entitlement to an extension of time herein. If the work actually in place falls behind the currently updated and approved project network schedule, and it becomes apparent from the current schedule that work will not be completed within the contract time, the Contractor agrees that it will, as necessary, or as directed by the engineer, take action at no additional cost to the City to improve the progress of the work, including increasing manpower, increasing the number of working hours per shift or shifts per working day, increasing the amount of equipment at the site, and any other measure reasonably required to complete the work in a timely fashion.

GC-57 DILIGENCE

The Contractor's failure to substantially comply with the requirements of the preceding paragraph may be grounds for determination by the City or engineer that the Contractor is failing to prosecute the work with such diligence as will insure its completion within the time specified. In such event, the City shall have the right to furnish such additional labor and materials as may be required to comply with the schedule after 48 hours written notice to the Contractor, and the Contractor shall be liable for such costs incurred by the City.

GC-58 SET-OFFS

Any monies due to the City pursuant to the acceleration provisions of this agreement may be deducted by the City against monies due from the City to the Contractor.

GC-59 ACCELERATION - REMEDIES

The remedies of the City concerning acceleration are in addition to and without prejudice to all of the rights and remedies of the City at law, in equity, or contained in this agreement.

GC-60 TITLE TO MATERIALS

No materials or supplies shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sales contract or other agreement by which any interest is retained by the seller. The Contractor hereby warrants that it has good and marketable title to all materials and supplies used by it in the work, and the Contractor further warrants that all materials and supplies shall be free from all liens, claims, or encumbrances at the time of incorporation in the work.

GC-61 INSPECTION OF MATERIALS

All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards and in accordance with the requirements of the contract documents. Additional tests performed after the rejection of materials or equipment shall be at the Contractor's expense.

GC-62 ENGINEER'S PRESENCE DURING TESTING

All tests performed by the Contractor shall be witnessed by the engineer unless the requirement therefor is waived in writing. The engineer may perform additional tests on materials previously tested by the Contractor, and the Contractor shall furnish samples for this purpose as requested.

GC-63 MATERIALS INCORPORATED IN WORK

The Contractor shall furnish all materials and equipment to be incorporated in the work. All such materials or equipment shall be new and of the highest quality available. Manufactured materials and equipment shall be obtained from sources, which are currently manufacturing such materials, except as otherwise specifically

approved by the engineer.

GC-64 STORAGE OF MATERIALS

Materials and equipment to be incorporated in the work shall be stored in such a manner as to preserve their quality and fitness for the work and to facilitate inspection.

GC-65 PAYROLL REPORTS

The Contractor shall be required to furnish weekly payroll reports to the engineer certifying conformance with the wage rates listed in the specifications.

GC-66 CONTRACTORS' REPRESENTATIVE

Before beginning work, the Contractor shall notify the engineer in writing of one person within its organization who shall have complete authority to supervise the work, receive orders from the engineer, and represent the Contractor in all matters arising pursuant to this agreement. The Contractor shall not remove its representative without first designating in writing a new representative. The Contractor's representative shall normally be present at or about the site of work while the work is in progress. When neither the Contractor nor its representative is present at the work site, the superintendent, foreman, or other employee in charge of the work shall be an authorized representative of the Contractor.

GC-67 SPECIALTY SUB-CONTRACTORS

The Contractor may utilize the services of specialty subcontractors on those parts of the project which, under normal contracting practices, are performed by specialty subcontractors. Neither the Contractor nor any subcontractor shall award work to any subcontractor without the prior written consent of the City. The Contractor shall not award more than seventy-five percent of the work to subcontractors.

GC-68 INSPECTION BY ENGINEERS

All work pursuant to this agreement shall be subject to inspection by the engineer for conformity with contract drawings and specifications. The Contractor shall give the engineer reasonable advance notice of operations requiring special inspection of a portion of the work.

GC-69 WORK COVERED PRIOR TO ENGINEER'S INSPECTION

In the event that work is covered or completed without the approval of the engineer, and such approval is required by the specifications or required in advance by the engineer, the Contractor shall bear all costs involved in inspection notwithstanding conformance of such portion of the work to the contract drawings and specifications.

GC-70 ENGINEER'S AUTHORITY

The engineer shall have the authority to decide all questions concerning interpretation and fulfillment of contract requirements, including, without limitation, all questions concerning the prosecution, progress, quality and acceptability of the work. Any oral decision or instruction of the engineer shall be confirmed in writing. All communications between the City and the Contractor shall be made through the engineer. The Contractor shall submit to the engineer a complete schedule of values of various portions of the work, including quantities and unit prices, aggregating the contract price. The schedule shall subdivide the work into component parts in sufficient detail to serve as the basis for progress payments during construction. Each item in the schedule of values shall include its proper share of overhead and profit. The schedule of values, when approved by the engineer, shall be used only as a basis for the Contractor's monthly request for payment and shall not be used for additions to or deductions from the contract amount.

GC-71 PROGRESS ESTIMATES

The Contractor shall also prepare a written report for the engineer's approval, on City forms, of the total amount of value of work performed to the date of submission. No progress estimate or payment shall be considered an approval or acceptance of any work performed, and all estimates and payments shall be subject to correction in subsequent estimates. Progress payments shall be made for all completed activities and for suitably stored

materials.

GC-72 PROGRESS PAYMENTS

Upon completion of each monthly estimate of work performed and materials furnished, the engineer shall recommend payment to the Contractor for the estimated value of such work, materials, and equipment, less the amount of all prior payments and all liquidated damages. The Contractor will be paid 100 percent of the cost of materials received and properly stored but not incorporated into the work. Payments for materials or equipment stored on the site shall be conditioned upon submission by the Contractor of bills of sale to establish the City's title to such materials or equipment. No progress estimate or payment need be made when, in the engineer's judgment, the increment in the estimated value of work performed and materials furnished since the preceding estimate is less than $10,000.00.

GC-73 TIME OF PAYMENT

When the contractor has performed in accordance with the provisions of this Agreement, the City shall pay to the contractor, within 30 days of receipt by the City of any payment request based upon work completed or service provided pursuant to the contract and the sum so requested in this Agreement. In the event that the City fails to pay the contractor within 60 days of the City's receipt of a pay request based upon work completed or service provided pursuant to the contract, the City shall pay the contractor interest at the rate of 1/2 percent per month or pro rata fraction thereof beginning the 61st day following the City's receipt of the pay request. The contractor's acceptance of progress payments or final payment shall release all claims for interest on said payments. The provisions of this agreement are intended to supersede all provisions of the Georgia Prompt Pay Act as provided by law.

GC-74 PAYMENT OF SUBCONTRACTORS

The Contractor shall promptly pay each subcontractor upon the receipt of payment from the City. Such payment shall be made from the amount paid to the Contractor pursuant to the subcontractor's work. The Contractor shall also maintain the records of the percentage retained from payments to the Contractor pursuant to such subcontractor's work. The Contractor shall procure agreements from each subcontractor requiring each subcontractor to pay their subcontractors, agents and employees in a similar manner.

GC-75 CITY'S RESPONSIBILITIES TO SUBCONTRACTORS

Neither the City nor the engineer shall have any obligation to pay any subcontractor except as otherwise required by law.

GC-76 PROGRESS PAYMENTS - ACCEPTANCE OF WORK

Certification of progress payments, as well as the actual payment thereof, shall not constitute the City's acceptance of work performed pursuant to this agreement.

GC-77 PAYMENTS IN TRUST

All sums paid to the Contractor pursuant to this agreement are hereby declared to constitute trust funds in the hands of the contractor to be applied first to the payment of claims of subcontractors, laborers, and suppliers arising out of the work, to claims for utilities furnished and taxes imposed, and to the payment of premiums on surety and other bonds and on insurance for any other application.

GC-78 JOINT PAYMENTS

The City reserves the right to issue any progress payment or final payment by check jointly to the Contractor and any subcontractor or supplier.

GC-79 RIGHT TO WITHHOLD PAYMENT

The engineer may decline to approve payment and may withhold payment in whole or in part to the extent reasonable and necessary to protect the City against loss due to defective work, probable or actual third party claims, the Contractor's failure to pay subcontractors or materialmen, reasonable evidence that the work will not

be completed within the contract time or contract price or damage to the City or any other contractor on the project.

GC-80 CERTIFICATE OF SUBSTANTIAL COMPLETION

Upon the Contractor's submission of a request for a certificate of substantial completion, the engineer shall inspect the work and determine whether the work is substantially complete. If the work is substantially complete, the engineer shall issue a certificate of substantial completion of the work which shall establish the date of substantial completion, shall state the responsibilities of the City and the Contractor for security, maintenance, heat, utilities, damage to the work and insurance, and shall fix the time within which the Contractor shall complete the items submitted by the Contractor as requiring correction or further work. The certificate of substantial completion of the work shall be submitted to the City and the Contractor for their written acceptance of the responsibilities assigned to them pursuant to such certificate.

GC-81 FINAL PAYMENT

Upon substantial completion of the work and upon application by the Contractor and approval by the engineer, the City shall make payment reflecting adjustments for the work as provided in this agreement.

GC-82 COMMENCEMENT OF WARRANTIES

Warranties required by this agreement shall commence on the date of final completion of the project unless otherwise provided in the certificate of substantial completion.

GC-83 FINAL PAYMENT - WAIVER OF CLAIMS

The acceptance of the substantial completion payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of application for payment at substantial completion. Following the engineer's issuance of the certificate of substantial completion and the Contractor's completion of the work pursuant to this agreement, the Contractor shall forward to the engineer a written notice that the work is ready for final inspection and acceptance and shall also forward to the engineer a final application for payment. When the engineer finds the work acceptable and determines that the contract has been fully performed, the engineer shall issue a certificate for payment which shall approve final payment to the Contractor.

GC-84 DOCUMENTATION OF COMPLETION OF WORK

The final payment shall become due until the Contractor submits the following documents to the engineer:

A. An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work have been paid other otherwise satisfied;

B. The surety's consent to final payment; and

C. Any other data reasonably required by the City or engineer establishing payment or satisfaction of all such obligations, including releases, waivers of liens, and documents of satisfaction of debts.

In the event that a subcontractor refuses to furnish a release or waiver as required by the City or engineer, the Contractor may furnish a bond satisfactory to the City to indemnify the City against such loss. In the event that any lien or indebtedness remains unsatisfied after all payments are made, the contractor shall refund to the City all moneys that the City may become compelled to pay in discharging such lien or other indebtedness, including all costs and reasonable attorney's fees.

GC-85 GOVERNING LAW

Each and every provision of this agreement shall be construed in accordance with and governed by Georgia law. The parties acknowledge that this contract is executed in Lawrenceville, Georgia and that the contract is to be

performed in Lawrenceville, Georgia. Each party hereby consents to the Gwinnett Superior Court's sole jurisdiction over any dispute which arises as a result of the execution or performance of this agreement, and each party hereby waives any and all objections to venue in the Gwinnett Superior Court.

GC-86 CHANGES AND EXTRA WORK

GC-86.1 AUTHORITY FOR CHANGES

The City may make changes in the Drawings or Specifications and in the quantities of Work to be done under the Contract

C-86.2 CHANGE ORDERS

Without invalidating the Contract, the City may at any time or from time to time, by written order, order additions, deletions, or revisions in the Work related to the original scope of the Work. Change Orders will authorize these. Upon receipt of the Change Order, Contractor shall promptly proceed with the work involved. If any price or scope of the Work or an extension or shortening of the Contract Time is involved, an equitable adjustment will be made within the Change Order. In the event the Change Order increases the contract price, the penal amount of the Payment and Performance Bonds shall be increased as provided for in Section GC-15. All changes in the Work authorized by Change Order shall be performed under the applicable Conditions of the Contract Documents.

GC-86.3 WRITTEN NOTICE

The City may, at the request of the Contractor, issue interpretations, clarifications and other instructions as to the intent of the Contract Documents, in the form of Written Notices. The City may also, at any time, make changes in the details of the Work by issuance of a Written Notice. Upon receipt of such a Written Notice containing interpretations, clarifications and other instructions, Contractor shall proceed with the Work and comply with the Written Notice unless Contractor believes that such Written Notice entitles him to a Change in Contract Price or Time or both.

Should Contractor believe that such Written Notice entitles him to change in Contract Price or Time, or both, he shall give the City notice in writing thereof within seven (7) days after receipt of the Written Notice. Thereafter within thirty (30) days, Contractor shall document the basis for the change in Contract Price or Time. The City shall render a timely, written decision on the Contractor's request for a change in Contract Price or Time. Should the City determine that the Contractor is not entitled to a change in Contract Time or Price, the Contractor shall proceed as directed upon receipt of the City's decision. Failure to proceed shall constitute a breach of Contract and shall be a cause for the termination of the Contract. Request for a Change Order arising out of a Written Notice will not be considered without the attachment thereto of a copy of the referenced Written Notice. No claim by Contractor will be allowed if asserted after Final Payment under this Contract.

GC-86.4 EXTRA WORK

Extra work consists of new and unforeseen work determined by the City not to be covered by any of the various items for which there is a bid price or by combination of such items.

GC-86.5 VARIATION IN QUANTITIES

Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents including the Proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deem reasonably necessary or desirable by City to complete the Work contemplated by this Contract, and such increase or diminution shall in no way vitiate this Contract, nor shall any such increase or diminution give cause for claims or liability for damages.

GC-87 CHANGE ORDERS

GC-87.1 GENERAL

The Contract Price may only be changed by a Written Change Order. Each change will be set forth in a Change Order prepared by the City and approved by City. Change Orders will specify (a) all additional work to be done and work to be omitted, if any, in connection with the change; (b) the basis of compensation to the Contractor for additional or omitted work; and (c) any adjustment of the time of completion of the Work. If the City determines that a change requiring additional work will cause delay in completion of Work, he will grant an equitable time extension for the changed work, or a subsequent Change Order may be issued at such time as the extent of such delay can be determined.

Upon receipt of a Change Order, Contractor shall comply therewith and perform each item of work set forth therein, furnishing all labor, material, and equipment necessary therefore, in the same manner as if such work were originally included in the Contract. In the absence of a Change Order, Contractor shall not be entitled to payment or an extension of the time of completion on account of any changes made.

GC-87.2 METHODS OF PAYMENT

The value of any work covered by a Change Order or any claim for an increase or decrease in the Contract Price shall be determined by the following method which is most advantageous to City, as determined by the City:

A. Where the work involved is covered by unit prices contained in Contract Documents, by application of unit prices to the quantities of the items involved.

B. By mutual acceptance of a lump sum, based on a detailed breakdown of anticipated costs plus Contractor's fee for overhead, small tools, and profit.

C. On the basis of the actual cost of the work plus a Contractor's fee for overhead, small tools and profit. This method of payment is herein referred to as force account work. Contractor's fee for force account work performed by his own forces shall be twenty percent (20%) for direct labor and payroll burdens; five percent (5%) for all purchased material; and Contractor's fee for subcontracted work shall be as defined hereinafter.

GC-87.3 LUMP SUM CHANGE ORDER WORK

Contractor shall prepare an estimate of all extra and deleted work as described by Written Notice, using established unit prices where they are stated in the Bidding Documents. Estimates for labor, bonds, insurance, materials, and equipment required shall otherwise be based on the provisions set forth hereinafter.

GC-87.4 CHANGE ORDERS LIMITED

Except as provided herein, no order, statement or conduct of the City or the Construction Program Manager shall be treated as a "Change Order" or entitle the Contractor to any adjustment hereunder of the Contract Price or Contract Time.

GC-87.5 NO WORK STOPPAGE

Nothing in this Article shall excuse the Contractor from proceeding with the Contract as changed.

GC-87.6 CONTRACT AMENDMENT

The amount payable to the Contractor under the Contract, the Contract Time, and the date required for performance of any part of the Work may be changed only by a Change Order to the Contract.

GC-88 FORCE ACCOUNT WORK

Force account work is an Owner-defined emergency, a sudden or unforeseen failure or malfunction of an existing system, which results in the Contractor being obligated to respond to the site of the emergency as Owner-directed. Contractor may perform work on a force account basis and will be paid for properly allocated charges which may include labor, bond premium, supplies and materials, equipment and subcontract billings, incurred in the performance of such force account work as more particularly described below:

A. Labor: All labor shall be billed at the hourly rates specified in the bid. Regular rates will apply during normal business hours, defined as Monday through Friday, 7a.m.–5p.m. Overtime rates will apply during non-normal business hours. If premium rates apply, then overtime rates shall be defined as Monday through Friday, 5p.m.–8p.m. Accordingly, premium rates, if applicable, shall be defined as Monday through Saturday, 8p.m.–7a.m., all hours on Sundays and all City recognized holidays. A foreman shall not be used where there are fewer than two (2) laborers employed, except with the written consent of the City. Subsistence and travel allowance where required by collective bargaining agreements shall be included.

The charges for labor shall include all classifications through foremen when engaged in the actual and direct performance of the Work. They shall not include charges for such overhead personnel as assistant superintendents, superintendents, office personnel, timekeepers, and maintenance mechanics.

B. Bonds and Insurance: For bonds and insurance premiums or increases thereto necessitated by the force account work, Contractor shall receive the actual cost to which no percent shall be added. Contractor shall furnish satisfactory evidence of the rate or rates paid for such bond and insurance.

C. Materials: For materials accepted by the City and used as an integral part of the finished Work, Contractor shall receive the actual cost of such materials delivered on the Work, including transportation charges paid by him, exclusive of machinery rentals as hereinafter set forth.

If materials are procured by Contractor by a method which is not a direct purchase from and a direct billing by the actual supplier, the cost of such materials shall be deemed to be the lowest current wholesale price at which such materials are available in the quantities concerned and delivered to the site of the Work.

For other materials used in the construction which are not an integral part of the finished Work, such as, but not limited to, sheeting, false work and form lumber, Contractor shall be reimbursed in the amount agreed upon by the City before such work is begun. The salvage value of such material will be taken into consideration in determining the amount of reimbursement.

D. Equipment: Contractor will be paid for the use of Contractor owned or rented equipment at seventy percent (70%) of the suggested monthly rental rates listed for such equipment in the Blue Book Rental Rates for Construction Equipment (published by Equipment Guide-Book Company of Palo Alto), except as modified below, which edition shall be the latest edition in effect at the time of commencement of the force account work. Hourly rental rates shall be calculated by dividing the listed monthly rates as modified above by 176 hours. The rental rate for equipment used in excess of eight (8) hours per day, shall be at the rate of fifty percent (50%) of the hourly rates as calculated above. The rental rates for standby equipment, when authorized by the City, shall be at the rate of fifty percent (50%) of the hourly rate for equipment in use eight (8) hours per day. No payment of rentals for standby equipment will be made for more than eight (8) hours per working day and no payment will be made for weekend days or holidays. If it is deemed necessary by Contractor to use equipment not listed in the applicable edition of the Blue Book Rental Rates, Contractor shall furnish the necessary cost data and paid invoices to the City for its use in establishment of such rental rate(s). Equipment must be in good operating condition. The rental rates paid as above provided shall include the cost of fuel, oil, lubricants, supplies, small tools, necessary attachments, repairs

and maintenance of all kinds, depreciation, storage and insurance. Equipment operators will be paid for as stipulated herein.

The rental time to be paid for equipment on the Work site shall be the time the equipment is required for the force account work being performed. The time shall include the time required to move the equipment to the location of the force account work and return it to the original location or to another location requiring no more time than that required to return it to its original location. Moving time will not be paid if the equipment is used at the site of the force account work on other than such force account work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power. No payment for loading and transporting will be made if the equipment is used at the site of the force account work on other than such force account work. Compensation will not be allowed while equipment is inoperative due to breakdown.

For the use of equipment moved in on the work and used exclusively for work paid for on a force account basis, providing the City has agreed to said move, Contractor will be paid the equipment use rates provided for in this clause, for the cost of transporting the equipment to the location of the work and its return to its original location, and for the cost of loading and unloading the equipment, all in accordance with the following provisions:

1. The cost of transporting equipment shall not exceed the applicable minimum established rates by the State of Georgia Public Service commission.

2. The equipment use period shall begin at the time the equipment is unloaded at the site of the force account work, shall include each day that the equipment is at the site of the force account work, excluding Saturdays and Sundays and other legal holidays unless the force account work is performed on such days, and shall terminate at the end of the day on which the City instructs Contractor to discontinue the use of such equipment. The maximum time to be paid per day will not exceed eight (8) hours unless the equipment is in operation for a longer time.

E. Subcontract Work: Where the Change Order applies to work being performed under a subcontract, reimbursement, including the fee for small tools, overhead and profit for the subcontractor's work performed on a force account basis shall be computed in precisely the same manner as if performed by Contractor as indicated herein. One additional allowance of five percent (5%) of the subcontractor's total costs will be granted to Contractor for overhead and profit regardless of the tier of the subcontractor. If the subcontractor elects to contract out change order work to a third (or lower) level contractor or supplier of purchased equipment, he shall not be entitled to fees, overhead or profit for such third (or lower) level work or materials. The City reserves to right to direct the Contractor to contract directly with third (or lower) level subcontractors and suppliers of purchased equipment in order to avoid paying multiple fees, overhead and profit for such third (and lower level) subcontractors and suppliers of purchased equipment. If similar work is not being performed at the Work site, and if required by City, Contractor shall obtain three (3) competitive bids for the requirements of the Change Order and the Contract Documents from Subcontractors acceptable to the City. Selection of the Subcontractor shall be subject to the approval of the City.

F. Compensation: The compensation as set forth above shall be received by Contractor as payment in full for work done on a force account basis. At the end of each day, Contractor's Representative and Inspector shall compare records of the Work performed including classification of all laborers, ordered on a force account basis.

G. Statements: No payment will be made for work performed on a force account basis until Contractor furnishes the City itemized statements of the cost of such force account work detailed as to the following:

1. Labor - name, classification, date, daily hours, total hours, rate, and extension of each laborer and foreman.

2. Equipment - size, type, identification number, dates, daily hours, total hours, rental rate, and extension of each unit of machinery and equipment.

3. Materials - quantities of supplies and materials, prices, including transportation cost and extensions.

4. Bonds and insurance premiums.

5. Subcontract work - force account detail as above, or progress quantities and prices of unit price or lump sum subcontracts.

6. Payments for items under paragraphs (a) to (f) inclusive shall be conditioned upon Contractor's presentation of original receipted invoices for materials used and transportation charges. If, however, the materials used in the force account work are not specially purchased for such work but are taken from Contractor's stock, then in lieu of the original invoices, the statements shall contain or be accompanied by an affidavit of Contractor which shall certify that such materials were taken from his stock, that the price and transportation of the material as claimed represent actual cost.

H. If, in the City's opinion, Contractor or any of his subcontractors, in performing force account work, are not making efficient use of labor, material, or equipment and/or are proceeding in a manner which is expensive to the City, the City may request the Contractor to make more efficient use of labor, material and equipment. Contractor shall in good faith comply with such requests as are reasonable. If the Contractor fails to comply with such requests, the City may independently determine the reasonable cost of the work and the Contractor will be entitled only to the reasonable cost so estimated by the City.

GC-89 DISAGREEMENT WITH ORDERS FOR CHANGE

Contractor's written acceptance of a Change Order or other order for changes shall constitute his final and binding agreement to the provisions thereof and a waiver of all claims in connection therewith, whether direct or consequential in nature. Should Contractor disagree with any order for changes, he may submit a notice of potential claim to the City, at such time as the order is set forth in the form of a Change Order. Disagreement with the provisions of an order for changes shall not relieve Contractor of his obligation under Clause GC-88, Change Orders.

GC-90 CHANGED CONDITIONS

Contractor shall notify the City in writing of the following conditions, hereinafter called "changed conditions," promptly upon their discovery and before they are disturbed:

A. Subsurface or latent physical conditions at the site of Work differing materially from those represented in this Contract; or

B. Unknown physical conditions at the Site of the Work of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract.

The City will promptly investigate conditions of which it is so notified or conditions discovered by it which appear to be changed conditions, and will, as soon as practicable, issue appropriate orders or instructions. If the City determines that the conditions materially differ and that they will materially increase or decrease the costs of any portion of Work, it will issue a Change Order adjusting the compensation for such portion of Work.

I N D E X

SECTION 00800

SUPPLEMENTAL GENERAL CONDITIONS

The provisions of the City of Lawrenceville Supplemental General Conditions as described herein change, amend, or supplement the General Conditions and shall supersede any conflicting provisions of this CONTRACT. All provisions of the General conditions that are not changed, amended, or supplemented, remain in full force.

- Certificate for Payment Forms
- Conflict of Interest
- Protection of Lives and Property
- Remedies
- Gratuities
- Audit and Access to Records
- Small, Minority and Women's Businesses
- Anti-Kickback
- Violating Facilities
- State Energy Policy
- Equal Opportunity Requirements

1.01 CERTIFICATE FOR PAYMENT FORMS

A. Section 00900, "Certificate for Payment", or similar form approved by the City of Lawrenceville shall be used when estimating monthly payments due to the CONTRACTOR.

B. The CITY may after consultation with the ARCHITECT withhold or, on account of subsequently discovered evidence, nullify the whole or part of any approved partial payment estimate to such extent as may be necessary to protect the CITY from loss on account of:

   A. Defective work not remedied.

   B. Claims filed.

   C. Failure of CONTRACTOR to make payments properly to subcontractors or suppliers.

   D. A reasonable doubt that the WORK can be completed for the balance then unpaid.

   E. Damage to another CONTRACTOR.

   F. Performance of WORK in violation of the terms of the CONTRACT DOCUMENTS.

C. Where WORK on unit price items is substantially complete but lacks testing, clean up and/or corrections, amounts shall be deducted from unit prices in partial payment estimates to amply cover such testing, clean-up and/or corrections.

D. When the items in B and C are cured, payment shall be made for amounts withheld because of them.

E. Payments will not be made that would deplete the retainage nor place in escrow any funds that are required for retainage nor invest the retainage for the benefit of the CONTRACTOR.

1.02 CONFLICT OF INTEREST

A. Unacceptable bidders. An ARCHITECT or CITY ARCHITECT (individual or firm including persons they employ) who has prepared plans and specifications will not be considered an acceptable bidder. Any firm or corporation in which such ARCHITECT or CITY ARCHITECT (including persons they employ) is an officer, employee, or holds or controls a substantial interest will not be considered an acceptable bidder. Contracts or purchases by the CONTRACTOR shall not be awarded or made to a supplier or manufacturer. Bids will not be awarded to firms or corporations who are owned or controlled wholly or in part by a member of the governing body of the CITY or to an individual who is such a member.

B. The CITY'S officers, employees, or agents shall not engage in the award or administration of this CONTRACT if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (a) the employee, officer or agent; (b) any member of their immediate family; (c) their partner of (d) an organization which employs, or is about to employ, any of the above has financial or interest in the CONTRACTOR. The CITY'S officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything or monetary value from the CONTRACTOR or subcontractor.

1.03 PROTECTION OF LIVES AND PROPERTY

A. In order to protect the lives and health of its employees under the CONTRACT, the CONTRACTOR shall comply with all pertinent provisions of the Occupational Safety and Health Administration (OSHA) and any State Safety and Health agency requirements.

B. The CONTRACTOR alone shall be responsible for the safety, efficiency, and adequacy of its plant, appliances, and methods, and for any damage that may result from their failure or their improper construction, maintenance or operation.

1.04 REMEDIES

Unless otherwise provided in this CONTRACT, all claims, counterclaims, disputes, and other matters in question between the CITY and the CONTRACTOR arising out of or relating to this CONTRACT or the breach thereof will be heard in the Superior Court of Gwinnett County, Georgia. All parties hereby waive any defenses of lack of personal or subject matter jurisdiction or lack of venue in the Superior Court of Gwinnett County and agree to have all disputes heard in the Superior Court of Gwinnett County.

1.05 GRATUITIES

A. If the CITY finds after a notice and hearing that the CONTRACTOR, or any of the CONTRACTOR'S agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, agent of the CITY, the State, or City of Lawrenceville officials in an attempt to secure this CONTRACT or favorable treatment in awarding, amending, or making any determinations related to the performance of this CONTRACT, the CITY may, by written notice to the CONTRACTOR, terminate this CONTRACT. The CITY may also pursue other rights and remedies that the law or this

CONTRACT provides. However, the existence of the facts on which the CITY bases such findings shall be an issue and may be reviewed in proceedings under the Remedies clause of this CONTRACT.

B. In the event this CONTRACT is terminated as provided in paragraph A the CITY may pursue same remedies against the CONTRACTOR as it could pursue in the event of a breach of the CONTRACT by the CONTRACTOR. As a penalty, in addition to any other damages to which it may be entitled by law, the CITY may pursue exemplary damages in an amount (as determined by the CITY) which shall be not less than three nor more than ten times the costs the CONTRACTOR incurs in providing any such gratuities to any such officer or employee.

1.06 AUDIT AND ACCESS TO RECORDS

For all negotiated contracts (except those of $10,000 or less), the City of Lawrenceville, the Comptroller General, the CITY or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the CONTRACTOR, which are pertinent to the CONTRACT, for the purpose of making audits, examinations, excerpts and transcriptions. The CONTRACTOR shall maintain all required records for three years after final payment is made and all other pending matters are closed.

1.07 SMALL, MINORITY AND WOMEN'S BUSINESSES

If the CONTRACTOR intends to let any subcontracts for a portion of the work, the CONTRACTOR shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of (1) including qualified small minority, and women's businesses on solicitation lists; (2) assuring that small, minority and women's businesses are solicited whenever they are potential sources; (3) dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority and women's businesses; (4) establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women's businesses; (5) using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) CONTRACTORS are encouraged to procure goods and services from labor surplus area firms.

1.08 ANTI-KICKBACK

The CONTRACTOR shall comply with the Copeland Anti-kickback Act (18 USC 874) as supplemented in Department of Labor regulations (29 CFR, Part 3). This act provides that each CONTRACTOR shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. The CITY shall report all suspected or reported violations to FmHA.

1.09 VIOLATING FACILITIES.

CONTRACTOR shall comply with all applicable standards, orders or requirements issued under section 306 of the Clean Water Air Act (42 U.S.C. 1857 (h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations 40 CFR Part 15 which prohibit the awarding of non-exempt federal contracts, grants, or loans to facilities included on EPA's list of violating facilities, The CONTRACTOR will report violations to the EPA.

1.10 STATE ENERGY POLICY

The CONTRACTOR shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in the State Energy Conservation Plan, shall be utilized.

1.11 EQUAL OPPORTUNITY REQUIREMENTS

For all contracts, the CONTRACTOR shall comply with Executive Order 11246, entitled "Equal Employment Opportunity," as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Part 60).

END OF SECTION 00800

SECTION 00805

SPECIAL ASSURANCES
FOR UTILITY CONTRACT WORK
WITHIN PUBLIC RIGHT-OF-WAY

All work under this contract, which is to be performed on property under control and permit of the City of Lawrenceville shall be done in compliance with the terms and conditions of the City of Lawrenceville Right of Way permit, including its utility installation standards and specifications. The City of Lawrenceville shall have the right to inspect the work and to require any action necessary to correct all deviations from said terms and conditions.

Contractor agrees that the City of Lawrenceville shall not be held liable for any extra expenses or damages to the contractor as a result of the requirement for compliance with the City of Lawrenceville standards and specifications or any corrective action which the City of Lawrenceville may order in enforcement thereof.

_____
Company

_____
Contractor's Authorized Representative

_____
Printed Name

_____
Title

_____
Date

END OF SECTION

PARTIAL PAYMENT ESTIMATE **City of Lawrenceville Pink Parking Lot Project**	Contract No.
	Partial Payment Estimate No.
	Page 1

OWNER: CITY OF LAWRENCEVILLE, GA	CONTRACTOR:	PERIOD OF ESTIMATE FROM _____ TO _____

CONTRACT CHANGE ORDER SUMMARY

No.	CITY Approval Date	Additions	Deductions
11			
Totals Net Charge	_____	_____	_____

ESTIMATE

1. Original Contract
2. Change Orders
3. Revised Contract (1+2)
4. Work Completed*
5. Stored Materials *
6. Subtotal (4+5)
7. Retainage
8. Previous Payments
9. Amount Due (6-7-8) _____

* Detailed breakdown attached

CONTRACT TIME

Original (days) _____ Revised _____ Remaining _____	On Schedule ___ yes ___ no	Starting Date _____ Projected Completion _____

CONTRACTOR'S CERTIFICATION:

The undersigned Contractor certifies that to the best of their knowledge, information and belief that work covered by this payment estimate has been completed in accordance with the contract documents, that all amounts have been paid by the Contractor for work for which previous payment estimates were issued and payments received from the Owner, and the current payment shown herein is now due.

Contractor_____

Name_____

By _____

Date_____

CERTIFIED AND APPROVED BY CITY OF LAWRENCEVILLE:

Name_____

By_____

Date_____

END OF SECTION

TYPICAL UNIT PRICE BREAKDOWN

ITEM	DESCRIPTION	CONTRACT (REVISED) QUANTITY	UNIT PRICE	AMOUNT	THIS PERIOD QUANTITY	AMOUNT	TOTAL TO DATE QUANTITY	AMOUNT	% COM-PLETE
	TOTALS								

TYPICAL LUMP SUM PRICE BREAKDOWN

ITEM	DESCRIPTION	SCHEDULED VALUE	WORK COMPLETED THIS PERIOD	TO DATE	% COM-PLETE
	TOTALS				

TYPICAL STORED MATERIAL AND RETAINAGE BREAKDOWN

MATERIALS STORED AT END OF THIS PAYMENT PERIOD DESCRIPTION	QUANTITY	UNIT VALUE	AMOUNT
		$	$
	THIS ESTIMATE $	PERCENT %	RETAINED
WORK COMPLETED:			
STORED MATERIALS:			
OTHER (explain)			
TOTAL			

END OF SECTION

SECTION 01 01 00

SUMMARY OF WORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specifications Sections apply to this Section.

1.02 SUMMARY

A. Section Includes:
   1. Project description
   2. Summary by reference
   3. Other contracts

1.03 PROJECT DESCRIPTION

A. Briefly and without force and effect on other requirements of the Contract Documents, the Project of the Contract can be described in summary as follows:

   The project is located along the west side of Culver Street between West Pike Street and West Crogan Street in Lawrenceville, GA. The project address is 232 W Pike Street and 245 W Crogan Street, Lawrenceville, GA 30046. The work includes the demolition, removal, hauling, and disposal of existing buildings (with asbestos and lead paint removal), utility services, landscaping, pavement, concrete, existing retaining wall, and other features; as well as, improvements to provide additional downtown parking; including the installation of proposed curb and gutter and concrete sidewalks, base and asphalt pavement, new modular block retaining wall, storm drain piping, storm structures, stormwater underground detention, site grading, erosion control, striping, pavement markings, signage, ADA pedestrian ramps, landscaping, and installation of site lighting.

B. Work Included: The intent and meaning of the Contract Documents is that the Contractor, under the General Conditions and other terms of the Contract, shall take all actions necessary and required to provide all labor, plant, materials, supplies, equipment, transportation, facilities, and appurtenances which are indicated or implied by each drawing within the Drawings and each section of the Specifications, all of which are collectively necessary and required for the construction of the described Project.

1.04 SUMMARY BY REFERENCE

A. The Work can be summarized by reference to the requirements of all of the various elements of the Contract Documents, which in turn make references to the requirements of other applicable provisions which control or influence the Work; and these references can be summarized by but are not necessarily limited to the following:
   1. Executed Owner & Contractor Agreement
   2. General Conditions
   3. Drawings as listed on the Index of Drawings located on the first sheet of Drawings prepared by Precision Planning, Inc.
   4. Specifications in Project Manual.
   5. All Addenda to the Contract Documents issued prior to bid.
   6. All Modifications to the Contract Documents made in accordance with the General Conditions and Specifications.
   7. Statutory requirements and governing regulations which have a bearing on the performance of the Work.
   8. Contractor submittals required by the Contract Documents.

1.05 OTHER CONTRACTS

A. Separate prime contracts are not anticipated on this project, but may be awarded for other work on the Project or the Owner may undertake such work directly. The Contractor should be prepared to coordinate with the Owner if such work does occur. Work expected to run concurrently with the Owner & Contractor Agreement for general construction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 01 00

SECTION 01 12 00

CONTRACT RESPONSIBILITIES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division Specification Sections apply to this Section.

1.02 SUMMARY

A. This Section itemizes known coordination items. Project Coordination Section indicates Contractor's responsibilities under these conditions.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 SCHEDULES

Construction Item	Contractor Responsibilities	Owner Responsibilities
A. Soil and Materials Testing	Coordinate and schedule the various testing procedures at the appropriate times in accordance with Section 01 45 00 and the applicable Technical Specifications Sections All retests are the Contractor's responsibility in accordance with Section 01 45 00.	Pay for Soil and Materials Testing.
B. Permits and Fees	Permit fees payment and Coordination of permit pick-up, maintenance and inspections.	None.
C. Utilities	Pay for, coordinate and schedule utility connections and meter fees.	None.

END OF SECTION 01 12 00

SECTION 01 25 00

PROCEDURES FOR CONTRACT MODIFICATIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Change Proposal Request

B. Change Proposal

C. Change Order/Supplemental Agreement

D. Time and Materials Work

E. Architect's Field Directives

1.03 DEFINITIONS

A. Change Proposal Request: Any written request from the Owner or Architect to the Contractor for a quotation, material and labor cost breakdown on a change that is proposed but not yet ordered.

B. Change Proposal: Any written proposal from the Contractor to the Owner or Architect setting forth a change in the Scope of Work and the effect of such change on Contract Time and/or Contract Sum. This document shall identify the scope of work performed by the Contractor and/or subcontractor(s) and be broken down into quantities and cost of material along with the corresponding labor hours and rates.

C. Change Order: A written order to the Contractor, prepared by the Architect and issued by the Owner for directing changes in the Scope of Work of the Contract, adjustments in the Contract Sum or extensions of Contract Time. When executed by all parties, this item, also referred to herein as a Supplemental Agreement to the Contract, is an amendment to the Contract.

D. Modifications: Include Change Orders (Supplemental Agreements to the Contract) prepared by the Architect and signed by the Owner and Contractor; written field directives issued by the Architect to the Contractor, which change the Scope of Work and may affect Contract Sum, but are necessary because of situations described elsewhere in this section; and written orders issued by the Architect for minor changes in the Work with no cost or schedule implications.

E. Time and Material Work: Work which will be paid for on the basis of the actual costs, including materials, labor, equipment and other expenses defined elsewhere herein; and documented by detailed records. This effort is only related to Architect directed Work that is safety related or is determined by the Architect that is time sensitive.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 CHANGE PROPOSAL REQUEST

A. The Change Proposal Request is the method by which Owner directed changes in the Scope of work are initiated. These requested changes may originate with the Owner or Architect, may be responses to unexpected site conditions, or may be responses to issues raised by the Contractor through its requests for information or document clarifications.

B. Change Proposal Requests are not directions to change the Work.

C. Unless specified differently on the Change Proposal Request, the Contractor will be expected to respond to all requests within ten (10) calendar days of receipt.

3.02 CHANGE PROPOSAL

A. The Contractor will submit Change Proposals in response to Change Proposal Requests, in response to Architect's field directives as applicable, in accompaniment of substitution requests, and as follow up to previously filed claims for extra cost or time.

B. Every Change Proposal shall include the following information as applicable:
   1. The amount of change in the Contract Sum, if any.
   2. The amount of change in the Contract Time, if any. The change in Contract Time shall be explained relative to the approved Construction Schedule and shall be justified in terms of the critical path of the Work and the requirements of the Contract. Changes in time shall not be allowed for Work that does not affect the critical path of project completion.
   3. Cost breakdowns detailing the applicable work items and inclusive of quantities and unit prices for labor, materials, products, equipment usage, expenses for bonds, insurance and taxes; and overhead and profit. Subcontractor(s) and second tier subcontractor(s) expenses shall be presented at the same level of detail.
   4. The period of time within which the proposed changes in Contract Sum or Time will be valid.
   5. A statement describing the effect the change may have on the work of other prime contractors or the Owner.

C. Fees for administration, overhead and profit shall be limited to 10% for the Contractor or subcontractor performing the work. On work performed by a subcontractor, the Contractor may mark up said work for purposes of administration, overhead and profit by no more than 10%. On work performed by a second tier subcontractor the subcontractor mark-up said work for purposes of administration, overhead and profit by no more than 10%; the prime Contractor shall not mark up the work of second tier subcontractors by more than 10%.

D. The Contractor shall not place a reservation on a Change Proposal that holds open the Contractor's right to claim additional costs for indirect or impact damages related to the change such as alleged costs for disruption, interference, delay, acceleration or remobilization.

E. If the Change Proposal is related to a claim for additional cost or time, Contractor shall indicate the origin and date of the initial claim notice and detail the basis of the claim and the associated costs.

3.03 CHANGE ORDER/SUPPLEMENTAL AGREEMENT

A. A Change Order or Supplemental Agreement is the only instrument by which the Contract can be modified to increase or decrease the Contract Sum or Contract Time. For a Change Order to be effective it must be executed by the Owner and Contractor. The cost basis of a Change Order may be a lump sum, unit prices, or time and materials, also referred to as force account. Lump sum changes must be supported by the cost breakdowns required by the Change Proposal.

3.04 TIME AND MATERIALS WORK

A. When no agreement is reached for extra work to be done at lump sum or unit prices, such work may be authorized by the Owner to be done on a Time and Material basis. A Time and Materials estimate that identifies all anticipated costs shall be prepared by the Contractor on forms provided by the Architect. Work shall not begin until the Time and Materials account is approved by the Architect. Payment for Time and Materials work will be in accordance with the following:

1. Labor: For all labor, equipment operators and supervisors, excluding superintendents, in direct charge of the specific operations; the Contractor shall receive the rate of wage agreed to for all hours the designated labor, equipment operators and supervisors are actually engaged in the work. The Contractor shall receive the actual costs paid to the workers inclusive of wages, allowances, health and welfare benefits and pension fund benefits.
2. Bond, Insurance and Tax: For property damage, liability, and worker's compensation insurance premiums, unemployment, insurance contributions, and social security taxes on the Time and Materials work, the Contractor shall receive the actual cost.
3. Materials: For materials and products incorporated in the Work and accepted by the Architect, including Contractor paid freight or shipping expenses; the Contractor shall receive the actual cost.
4. Equipment: For any machinery or special equipment (other than small tools), the use of which is essential to the work and approved by the Architect, the Contractor shall receive fair market rental rates for the actual time that such equipment is in operation on the Work or required to stand by.
5. Overhead and Profit: On the total of all costs described above, the Contractor will be allowed to add 10% of that value as compensation for administration, overhead and profit.
6. Miscellaneous: No additional allowance will be made for general requirements costs, superintendence, use of small tools or other costs for which no specific allowance is herein provided.
7. Subcontract Time and Material Work: For work performed by a subcontractor or second-tier subcontractor, all provisions of this section that apply to the Contractor in respect to labor, materials and equipment shall govern. The prime Contractor shall coordinate the work of its subcontractors and will be allowed an amount to cover administrative costs and profit equal to 10% of the subcontractor's amount earned. Mark-up for second-tier subcontractor work will be limited to 10% of the amount earned.
8. Compensation: The Contractor shall maintain records on the cost of all work done each day as ordered on a Time and Material basis and shall provide such records to the Architect.
9. Statements: No payment will be made on work performed on a Time and Material basis until the Contractor has furnished the Architect with itemized statements of the cost of such Time and Materials work detailed as follows:
    a. Name, classification, date, daily hours, rate and extension for each laborer, equipment operator and supervisor.
    b. Cost of property damage, liability and worker's compensation insurance premiums, unemployment insurance contributions and social security tax.
    c. Quantity of materials, prices and extensions.
    d. Designation, dates, daily hours, total hours, rental rate and extension for each unit of machinery and equipment.

Statements shall be accompanied and supported by invoices for all materials used, including evidence of transportation charges and taxes. However, if materials used on Time and Materials work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices, the Contractor shall furnish an affidavit certifying that such materials were taken from stock, that quantity claimed was actually used and price claimed represents actual cost to the Contractor.

3.05 ARCHITECT'S FIELD DIRECTIVES

A. The Architect may issue written field directives to the Contractor, which may change the Scope of Work and may affect Contract Sum but are necessary because of any of the following reasons: 1) situations that threaten life and safety, 2) the need to address unknown conditions at the site of the Work, or 3) the need to maintain the timely and orderly sequencing of the Work.

B. The Contractor shall proceed with the work requested in such field directives and if there is a cost associated with such work, Contractor shall submit a Change Proposal as described herein. These costs, when mutually acceptable to the Owner and Contractor, shall be incorporated into the Contract by Change Order.

END OF SECTION 01 25 00

SECTION 01 27 00

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE OF WORK

A. This Section describes the methods by which measurement will be made of the quantities for which payment will be made for the PROJECT.

B. The project is to be bid as a unit price contract.

1.02 MEASUREMENT OF WORK

A. WORK shall be measured by the ENGINEER or his representative, with assistance from the CONTRACTOR prior to preparation of a payment request by the CONTRACTOR.

B. Unit quantities that are measured in place shall be measured monthly. The CONTRACTOR shall give the ENGINEER a minimum of two days notice for making all required measurements.

C. Materials that must be measured as delivered shall be measured at the time of delivery by the ENGINEER or his representative; the CONTRACTOR shall provide sufficient advance notice so that such measurements can be made.

D. WORK completed shall be measured for completion against the schedule of values provided by the CONTRACTOR in accordance with the General Conditions. Related work necessary for a complete and operational job, such as relocation of mail boxes removal of trees, relocation of utilities, field engineering, clearing and grubbing, traffic control, etc., not specifically identified as a pay item shall be included in the unit price bid. No additional payments will be made for such activities.

1.03 PROGRESS PAYMENTS

A. Progress payments shall be based on the quantity of units installed.

B. All items of WORK not specifically listed in the Bid Schedule shall be considered incidental to the construction, and the cost of all such work and material shall be included in the prices bid for various items listed.

C. All items listed for measurement and payment shall include all machinery, plant, materials and labor, etc., to successfully and satisfactorily complete WORK specified.

D. Payment: The CONTRACTOR will receive payment only for the items listed in the Bid Schedule of his contract, and no separate payments will be made for the work under any section of the CONTRACT DOCUMENTS except as provided for in the Bid Form. Where measurements are required to be made by the ENGINEER, for the payment of a pay item, the failure of the CONTRACTOR to give the adequate notification or failure of the CONTRACTOR to give the ENGINEER assistance for the measurement shall result in the forfeiture of payment for the work or item which was not measured.

E. WORK to be paid for as a "Lump Sum" shall be measured for completion against the "Schedule of Values" provided by the CONTRACTOR. The "Schedule of Values" shall be submitted at the preconstruction conference and shall include quantities and prices of items aggregating the total "Lump Sum" and will subdivide the work into component parts in sufficient detail to serve as the basis for progress payments during construction.

PART 2 PRODUCTS

2.01 STORED MATERIALS

No partial payment shall be made for approved materials stored at the project site, provided invoices for said materials are furnished in accordance with payment request submittal.

PART 3 EXECUTION

3.01 DEMOLITION

The basis of payment for this item shall be lump sum; including mobilization, preconstruction photographs, demolition, removal, transport and disposal of existing structures, utility connections, and other features in accordance with the construction plans and specifications. Asbestos and lead paint abatement & removal shall be per square feet, including removal, transport and disposal.

3.02 GRADING

The basis of payment for this item shall be lump sum; including mobilization, site earthwork, hauling and disposal of surplus material, excavation of unsuitable soils, site compaction and fine grading in accordance with the construction plans and specifications.

3.03 MODULAR CONCRETE RETAINING WALL AND FOOTINGS

The basis of payment for this item shall be per lump sum; including excavation, slope and/or shoring per OSHA guidelines, subgrade preparation, compaction, graded aggregate base, formwork, steel placement, finishing, expansion and/or contraction joints, and all incidental labor, equipment, and materials incidental to installation as shown or indicated in the CONTRACT DOCUMENTS.

3.04 , 3.06, 3.07 RCP STORM DRAIN

The basis of payment for this item shall be per linear foot by pipe size; including RCP pipe materials, excavation, pipe installation, backfill and compaction; all labor, equipment, protection of existing utilities (both overhead and underground); and all other work incidental to install the storm sewer lines as shown or indicated in the CONTRACT DOCUMENTS.

3.08, 3.09, 3.10 STORM STRUCTURES

The basis of payment for this item shall be per each to include furnishing all labor, equipment and materials necessary to provide, install and put into service the storm structure including the specified grate inlet and top, double wing and single wings catch basin throats and tops per GaDOT Standards. WORK under this item shall include, but not be limited to, earthwork required for excavation, all dewatering, providing and installing storm structure, top, all interconnecting piping, annular grouting, connections to existing storm sewers, backfill and compaction, cleanup and removal of debris, and all incidental work required to complete each structure as identified in the CONTRACT DOCUMENTS.

3.11 LIGHT POLE AND LUMINAIRE

The basis of payment for Pedestrian Light Poles shall be per each, including pole foundations, breakaway base plates, complete lighting installation with photocell controls, and installation of the UV2 pull box 1’ behind the pole foundation.

3.12 BORED ELECTRICAL CONDUIT AND WIRING

The basis of payment for electrical conduit and wirings shall be per linear foot or lump sum, including materials, installation from the service pole to the junction box and each UV2 pull box. Installation of conduit under roadways or existing driveways shall be completed via directional drilling.

3.13 CONCRETE WHEELSTOPS

The basis of payment for Concrete Wheelstops shall be per each payment to include furnishing all labor, equipment and materials necessary to provide and install concrete wheelstops as specified on sheet C3.0. See detail on Sheet C6.0. The work shall include placement of the concrete wheelstop and rebar anchors.

3.14 ASPHALT PAVEMENT

The basis of payment for this item shall be per square yard; including subgrade preparation and compaction, graded aggregate base, 19mm Binder Course, tack coat, placement of 9.5 mm Superpave topping, compaction and finishing in accordance with GaDOT Standards. The unit price shall include all incidental labor, equipment and materials necessary.

3.15 CONCRETE CURB & GUTTER

The basis of payment for this item shall be per linear foot, by type, including subgrade preparation, formwork, finishing, expansion joints, and all incidental labor, equipment, and materials required for installation as shown or indicated in the CONTRACT DOCUMENTS.

3.16 CONCRETE SIDEWALK

The basis of payment for this item shall be per square yard, by type, including subgrade preparation, formwork, finishing, expansion and/or contraction joints, and all incidental labor, equipment, and materials required for installation as shown or indicated in the CONTRACT DOCUMENTS.

3.17 4’ STEEL FENCE ‘MONTAGE MAJETIC 3/4 RAIL

The basis of payment for this item shall be per linear foot to include furnishing all labor, equipment and materials necessary to provide and install steel fencing as specified in the site series. See detail in site detail series, include anchors and hardware for installation along top of the concrete retaining wall.

3.18 GROUNDCOVER, MULCH, SOD

The basis of payment for Groundcover shall be per square yard (SY). The basis of payment for mulch shall be per each bale of pine straw. The basis of payment for sod shall be per square yard. Payment shall include all labor, materials, tools, and equipment necessary to complete the Work as specified. The quantity to be paid under this item shall include ground preparation, lime, fertilizer, seed, and mulch as specified, as indicated on the Drawings, or as directed by the City.

3.19 TREES

The basis of payment for trees shall be per each for all specified trees to be planted, including all

necessary tools, equipment, labor and materials to complete the Work.

3.20 PAVEMENT STRIPING (THERMOPLASTIC)

The basis of payment for this item shall be Lump Sum; including thermoplastic striping of all pavement markings, parking spaces, arrows, and crosswalks. Payment shall include all labor, equipment, and materials incidental to installation as shown or indicated in the CONTRACT DOCUMENTS.

3.21 TRAFFIC CONTROL (Section 01 57 00)

The basis of payment for this item shall be lump sum. The price bid shall include all labor, equipment, and materials necessary to provide the traffic control along W Pike ST, Culver St, W and Crogan St during construction as specified in the Contract Documents including, but not limited to: all required signage and methods conforming to MUTCD (latest edition), maintaining traffic flow along the roadway, and all other incidental work and materials required to complete the work as part of this project.

3.22 WAYFIND/PARKING SIGN

The basis of payment for this item shall be per each to include furnishing all labor, equipment and materials necessary to provide and install specified signage per detail C6.2.

3.23 VERTICAL SIGNS

The basis of payment for this item shall be per each to include furnishing all labor, equipment and materials necessary to provide and install specified signage per GaDOT Standards.

3.24 SEDIMENT AND EROSION CONTROL

The basis of payment for Erosion Control, including the installation and maintenance of all required BMP's, shall be lump sum. Payment for erosion control shall include all labor, materials and equipment required for installation, maintenance and replacement during the course of construction.

END OF SECTION 01 27 00

SECTION 01 29 00

PROCEDURES FOR PAYMENT APPLICATIONS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

A. The Contractor's Application for Payment shall break out the project into component scope for all trades.

B. Section specifies administrative and procedural requirements governing Contractor's Applications for Payment and includes:
1. Schedule of Values
2. Applications for payment
3. Procedures for first payment
4. Procedures for payment application at Substantial Completion
5. Procedures for payment application at Final Completion

1.03 DEFINITIONS

A. Schedule of Values: A detailed breakdown of the Contract Sum into individual cost items that will serve as the basis for evaluation of applications for progress payments made during construction.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 SCHEDULE OF VALUES

A. Use only the Schedule of Values as the basis for the Contractor's Application for Payment.

B. Correlate the Schedule of Values with other administrative schedules and submittals including:
1. Contractor Schedule.
2. List of subcontractors.
3. Schedule of alternates.
4. List of principal suppliers and fabricators.
5. Schedule of submittals.

C. Prepare a Schedule of Values on AIA Document G-703 "Continuation Sheet," and submit it to the Architect for review no later than ten (10) days prior to the submission of the first Contractor's Application for Payment. Submit three (3) copies and identify with the names of the Project, Architect, Owner, and Contractor and the date of submittal.

D. In preparing the Schedule of Values, break down costs into line items for which the Contractor wishes to receive payment in the application for payment. Schedule of Values shall include sufficient detail to allow the Architect to estimate % complete. Coordinate the line items in the schedule of values with the units or subdivisions of work identified in the Specifications and reference those section numbers from the Specifications. Further divide major work subdivisions

and subcontractors into individual cost items. Include in each line item its proportional share of overhead and profit.

E. Costs for General Requirements shall be identified separately and shall be itemized so that costs are identified for the following general items at a minimum:
   1. Performance and Payment Bonds
   2. Field Supervision
   3. Engineering and Layout
   4. Temporary Facilities and Services
   5. Final Cleaning

F. Where applications for payment are likely to include products purchased or fabricated but not yet installed, provide individual line items for material cost, installation cost and other applicable phases of completion. Place cost of production materials delivered and unloaded at Project site with taxes paid under Column F, G-703. List total installed cost, with overhead and profit under Column C, G-703.

G. For each line item indicate the dollar value to the nearest whole dollar. Indicate the proportion of the Contract Sum represented by this item to the nearest one-hundredth percent.

H. Unit Price Values: Submit a sub-schedule of unit prices and quantities for items of Work identified in the Bid Form under Unit Prices. The form of submittal shall parallel that of the Schedule of Values, and the installed unit value multiplied by the quantity listed shall equal the cost of that item in the Schedule of Values. The standards and procedures for payment of Unit Price Items are described in Specification Section 01 27 00.

I. The Architect will review the Schedule of Values and determine its acceptability. Contractor shall revise and resubmit an acceptable schedule.

J. Submit a revised Schedule of Values when modifications change the Contract Sum or individual line items. Make each modification a new line item and show all information for that line item required for the original submittal.

3.02 APPLICATIONS FOR PAYMENT

Detailed requirements for processing Applications for Payment are outlined below and will be discussed in further detail at the preconstruction conference.

A. Prepare and submit Applications for Payment on Application and Certification for Payment, AIA Document G-702. Include the Schedule of Values modified in format to enable indications of the value of work completed in the application period and for the Contract period. Base the initial application on the accepted Schedule of Values and make all other applications consistent with previous applications as certified and paid.
   1. Submit one initial draft of the pay application to the Owner and Architect electronically before the site visit. The Application for Payment shall coincide with the monthly project meeting for initial review.
   2. Include amounts of Contract modifications fully executed before end of application period. Do not bill for claims or proposals that have not been officially accepted by the Owner.
   3. If billing for materials stored on site, attach legible copies of relevant receipts and documentation. Billing for materials stored off-site, shall not be allowed unless approved by the Owner.
   4. The Contractor shall prepare and submit an Interim Release of Lien with each Application for Payment.

B. Provide the following information with every application for payment which involves work completed on a time and material basis:
   1. Detailed records of work done, including:
      a. Dates and times work was performed, and by whom.
      b. Time records and wage rates paid.
      c. Invoices and receipts for products.
   2. Provide similar detailed records for subcontracts.

C. No later than five (5) days prior to the date of the Application for Payment, submit a draft of the application for review by the Architect. Coordinate this submission and subsequent review with Architect's monthly inspection of the Work in place to determine the acceptability of the proposed application. Make any changes if requested by Architect in his review and resubmit the Application for Payment, to the Architect signed, notarized and with a transmittal form itemizing attached documentation.

3.03 PROCEDURES FOR FIRST APPLICATION FOR PAYMENT

A. The first Application for Payment will not be reviewed until the following submittals from the Contractor have been received and accepted by the Architect or Owner as applicable.
   1. Schedule of values.
   2. Contractor's construction schedule.
   3. Submittal schedule
   4. List of subcontractors and principal suppliers and fabricators.

3.04 PROCEDURES FOR PAYMENT APPLICATION AT SUBSTANTIAL COMPLETION

A. Administrative actions and submittals that shall precede or coincide with the Application for Payment include:
   1. Occupancy permits and similar approvals.
   2. Issuance and execution of Certificate of Substantial Completion inclusive of list of incomplete Work recognized as exceptions to the Certificates.
   3. Evidence that operations and maintenance training has been provided to Owner.
   4. Final report on testing, adjusting and balancing HVAC system.
   5. All submittals specified in the Contract Documents to be completed before Substantial Completion.

3.05 PROCEDURES FOR PAYMENT APPLICATION AT FINAL COMPLETION

A. Administrative actions and submittals that shall precede or coincide with this Application for Payment include:
   1. Completion of Closeout Procedures in Section 01 77 00.

END OF SECTION 01 29 00

SECTION 01 31 00

PROJECT COORDINATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and other general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This section specifies administrative and supervisory requirements necessary for coordination of the Work for the duration of construction, but not necessarily limited to:
   1. Coordination
   2. Administrative and supervisory personnel
   3. General installation provisions
   4. Cleaning and protection

1.03 COORDINATION

A. Coordination Among Trades: Contractor shall coordinate construction activities included under the Drawings and various sections of these Specifications to insure efficient and orderly construction operations included under different sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
   1. If necessary, inform each party involved, in writing, of procedures required for coordination; including requirements for giving notice, submitting reports, and attending meetings.
   2. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
   3. Where availability of space is limited, coordinate installation of different components to insure maximum accessibility for later installations and for required maintenance, service and repair.
      a. Where limited available space may cause conflicts in the locations of installed products, and where required to coordinate installation of products and materials, prepare coordination drawings. Said coordination drawings shall show plan and cross-section dimensions of the available space and include obstructions caused by structural and systems elements.
      b. Coordinate shop drawings and other submittals prepared by subcontractors, suppliers and other entities to facilitate installation of products and systems and avoid field conflicts in the Work.
      c. Prepare plans or schedules describing installation sequences and provide said documents to affected parties.
   4. Make adequate provisions to accommodate items scheduled for later installation.
   5. Inform the Owner when coordination of Owner's work under separate contracts is required. Inform the Owner when Owner's work under separate contracts is incomplete, in non-compliance or prohibits efficient and orderly completion of work under this Contract.
   6. Coordinate dissemination of information between subcontractors or suppliers when information from one is needed by or is of assistance to the other. Distribute interrelated shop drawings between subcontractors or suppliers prior to shop drawing submittal to Architect.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of schedules
   2. Installation and removal of temporary facilities.
   3. Delivery and processing of submittals.
   4. Progress meetings.
   5. Project close-out activities.

C. Continue coordination procedures by actively controlling Project conditions as follows:
   1. Verify and insure that products and materials of all trades are stored in an orderly fashion, under conditions complying with manufacturers' instructions and at planned locations.
   2. Verify and insure execution of the Work is in compliance with environmental conditions established by manufacturers' instructions and specific requirements of relevant Sections of these Specifications.
   3. Verify and insure adherence to tolerances required by these Specifications as the Work progresses.
   4. Inspect job conditions before one trade follows another in compliance with these requirements:
      a. Plan and conduct joint inspections involving the affected trades.
      b. Notify Architect at least one week in advance of such inspections and provide opportunity for Architect's participation in the inspection.
      c. While the Architect may confine his observations and inspections to only limited areas, the Contractor shall be responsible for similar inspections in all involved areas.
      d. Review of job conditions, in whole or in part, by Architect in no way relieves Contractor of his obligation to provide various stages of the Work as well as finished Work complying with Contract Documents.
      e. Allow no work to proceed over unsatisfactory conditions that would prevent execution of new work as specified.

1.04 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. Contractor shall designate a Project Manager for the Project who shall be the primary point of contact and communication for the Owner and Architect the project site. The Project Manager shall be assigned full time to the Project until completion of Final Contract Close-Out. All written communications to the Architect shall be by or through the Project Manager. Architect shall address all his written communications to the Contractor to the Project Manager, unless authorized by Project Manager to communicate directly to others.

B. Contractor shall provide adequate supervision at the Project site at all times.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION PROCEDURES

A. Inspection of Conditions: Require the installer of each component to inspect both the substrate and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturers' Instructions: Comply with manufacturers' installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Connection: Provide attachment and connection devices and methods necessary for securing work. Secure work true to line and level. Allow for expansion and building movement.

D. Visual Effects: Provide uniform joints widths in exposed work. Arrange joints in exposed work to obtain the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

E. Temporary Enclosures: Provide and coordinate placement of temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

F. Mounting Height: Where mounting heights are not indicated, contact the Architect for direction prior to proceeding with the work.

G. Joints: Plan and coordinate work to provide caulk joints at all junctions of dissimilar materials, even if such joints are not called for on Drawings or elsewhere in these Specifications.

H. Costs for Adherence to all specified installation procedures are included in the Contract Sum.

3.02 CLEANING & PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective coverings where required to insure protection from damage or deterioration prior to Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to insure operability without damaging effects.

C. Supervise construction activities to insure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessive high or low temperatures.
4. Excessive high or low humidity.
5. Water or ice.
6. Solvents.
7. Chemicals.
8. Light.
9. Puncture.
10. Abrasion.
11. Heavy traffic.
12. Soiling, staining, and corrosion.
13. Rodent and insect infestation.
14. Combustion.
15. Unusual wear or other misuse.
16. Contact between incompatible materials.

17. Destructive testing.
18. Misalignment.
19. Excessive weathering.
20. Unprotected storage.
21. Improper shipping or handling.
22. Vandalism.

END OF SECTION 01 31 00

SECTION 01 31 20

PROJECT MEETINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and other general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
1. Contractor's duties
2. Preconstruction conference
3. Progress and coordination meetings
4. Pre-installation conferences

1.03 CONTRACTOR'S DUTIES

A. Scheduling and Notification: Contractor will notify Owner, Architect and other invited parties of meeting time and place at least five (5) days prior to the date of every progress and coordination meeting or special called meeting. The progress and coordination meetings shall be conducted once every two weeks.

B. Administration: The Contractor will prepare a meeting agenda for the progress and coordination meetings, record and promptly distribute copies of minutes of significant proceedings and decisions of the meetings to each participant no later than five (5) days after each meeting. The Contractor shall update construction schedule after each progress meeting to show current progress and documentation of any revisions that have been made or recognized; issue revised schedule, two-week look-ahead with a list of the planned activities, submittal list and RFI list concurrently with report of each meeting.

1.04 PRE-CONSTRUCTION CONFERENCE

A. A pre-construction meeting will be held prior to the start of construction of the project at a time and place designated by the Owner for the purpose of identifying responsibilities of the Contractor, Owner and Architect and explaining administrative procedures.

B. Attendance:
1. Owner’s representatives.
2. Owner’s Project Manager
3. Architect and key subconsultants.
4. Contractor represented by Project Manager and Superintendent
5. Major subcontractors if requested by Owner, Architect or Contractor

C. Minimum Agenda:
1. Identification and designation of responsible personnel from all parties.
2. Tentative construction progress schedule (to be distributed by Contractor), with discussion of critical work sequencing and staging.
3. Procedures for correspondence and other communications, field decisions, requests for information, design bulletins, requests for changes in the work and claims.
4. Procedures for submittals, including shop drawings, samples and product data.

5. Procedures for preparing and maintaining required Record Documents and Operations & Maintenance Manuals.
6. List of major subcontractors and material suppliers.
7. Use of Project Site, including temporary offices, project staging, storage areas, parking, site use limitations or restrictions, and erosion control.
8. Material and equipment deliveries, storage, protection and priorities.
9. Safety procedures and responsibilities.
10. Security procedures and methods.
11. Housekeeping procedures and methods.
12. Special project requirements or conditions.

1.05 PROGRESS AND COORDINATION MEETINGS

A. Scheduling: Unless otherwise requested by Owner or Architect, a progress and coordination meeting shall be held once every two weeks at the Project Site or other location as determined by the Owner.

B. Attendance:

1. Owner's Project Manager
2. Architect and consultants if determined necessary by progress of the Work.
3. Contractor as represented by Project Manager and Superintendent.
4. Sub-contractors and material suppliers as requested by Owner or Architect or as applicable to progress of the Work.

C. Minimum Agenda (topics to be covered as applicable):
1. Review minutes of previous meeting.
2. Status of submittals and impending submittals.
3. Off-site fabrication and delivery schedules; subcontractor schedules.
4. Actual progress of activities in relation to the schedule. Submit schedule updates as required.
5. Actual and anticipated delays, their impact on the schedule, and corrective actions taken or proposed.
6. Field observations; actual and potential problems affecting construction or job progress; status of RFI's (Requests for Interpretation).
7. Site Utilization; housekeeping, temporary facilities/services.
8. Safety; hazards or risks.
9. Status of corrective work ordered by the Architect; quality and work standards.
10. Change Orders and change order proposals.
11. Documentation of information for payment application (as applicable).

D. Contractor to provide a table for layout of Drawings and chairs for each attendee.

1.06 PROGRESS AND COORDINATION SITE VISITS

A. Scheduling: Unless otherwise requested by Owner or Architect, a progress and coordination site visit shall be held once every week at the Project Site.

B. Attendance:
1. Owner's Project Manager
2. Architect and consultants if determined necessary by progress of the Work.
4. Contractor as represented by Project Manager and Superintendent.

1.07 PREINSTALLATION CONFERENCES

A. Scheduling: Conduct a pre-installation conference at the project site before each construction activity that requires coordination with other construction or existing conditions. Comply with particular requirements elsewhere in the Specifications that describe specific pre-installation or pre-demolition meetings and associated notifications to the Architect and Owner.

B. Attendance: The installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Notify the Architect and Owner of the scheduled meeting dates as required elsewhere in the Specifications.

C. Prior to the work or installations of, at a minimum, the components listed below, hold a pre-installation meeting for review and observation attended by each entity involved or affected by planned work. Schedule these meetings with Architect at least five (5) working days prior to meeting.

D. Agenda:

1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for the following:
   a. Contract Document requirements
   b. Purchases
   c. Deliveries
   d. Shop drawings, product data and samples
   e. Review of mockups
   f. Possible conflicts
   g. Compatibility of materials
   h. Acceptability of substrates
   i. Schedule
   j. Weather limitations
   k. Space and access limitations
   l. Temporary facilities
   m. Safety
   n. Manufacturer's recommendations
   o. Warranty requirements
   p. Inspecting and testing requirements
   q. Required performance results
   r. Recording requirements
   s. Protection
2. The Contractor will record significant discussions and agreements and disagreements of each conference and the agreed to schedule for the work. The Contractor will promptly distribute the record to everyone concerned, including the subconsultants as required.
3. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene conference at earliest feasible date.
4. Regardless of whether the Specifications explicitly require a particular pre-installation conference, the Contractor is responsible for said conferences as an element of his coordination of the Work. Information that can be obtained through a consideration of the items in Paragraph C. of this sub-section is the responsibility of the Contractor and must be included in implementation of the Work.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 01 31 20

SECTION 01 32 00

CONSTRUCTION SCHEDULES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and other general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
   1. General description
   2. Form and content of schedules
   3. Updating of schedules

1.03 GENERAL DESCRIPTION

A. The Construction Schedule is a required submittal, which is subject to the approval of the Architect and which shall be revised periodically as specified herein. The Construction Schedule shall be in a bar-chart or network type form that shall provide complete sequence of construction by activity and allow for up-dating and revisions. Schedule shall be based on critical path method (CPM), and shall be prepared with input and cooperation of all subcontractors.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 FORM AND CONTENT OF SCHEDULES

A. Submit Construction Schedule as described above within ten (10) days after Notice to Proceed.

B. Provide Construction Schedule with the following format and content:
   1. Provide schedule in the form of a bar chart with individual horizontal lines representing the duration of each major activity. Use vertical lines to scale the schedule at one week intervals.
   2. Use the same items of work as shown on schedule of values or in accordance with Section numbers of Specifications.
   3. Where related activates must be performed in sequence, show relationship graphically.
   4. Incorporate the submittal schedule specified elsewhere.
   5. In developing the schedule, take into account administrative reviews.
   6. Show dates for the following:
      a. Each major activity that influences the construction time (critical path items).
      b. Specified pre-installation meetings and progress review meetings.
      c. Procurements and delivery dates for products requiring long lead time.
      d. Start and completion dates of all major work elements.
      e. Time frame for substantial and final completion procedures, including inspections, reviews and punch list activities.
   7. Use the same terminology as that used in Contract Documents and provide legend of symbols or abbreviations used.

8. Submit Construction Schedule in clear, legible, reproducible format and with a minimum of three (3) opaque copies.

C. Architect will advise Contractor if originally submitted Construction Schedule is not satisfactory. If so, Contractor shall revise and resubmit within five (5) days.

D. Prepare and distribute copies of approved Schedule to Architect, Owner, subcontractors and other entities whose work will be influenced by schedule dates. Maintain a copy of approved Construction Schedule at Project site office.

3.02 UPDATING OF CONSTRUCTION SCHEDULES

A. Update the Construction Schedule whenever changes occur or are made, or when new information is received, but not less often than at the same intervals at which progress meetings are conducted.

B. In revising the Schedule show all changes **by saving the original schedule as a base line**. Indicate the actual progress or delay of each activity and show revised completion dates. Highlight the activities modified since previous submittal and indicate major changes in scope or revised projections due to changes in the Work (if applicable).

3.03 SCHEDULE AND CONTRACTOR'S REQUESTS FOR CHANGES TO CONTRACT SUM OR TIME

A. The Contractor shall indicate in his Change Proposals for all Contract modifications, if the durations of activities are affected, or if activities are added or activities deleted. The effect shall be indicated for each activity in cost and time as applicable. The Change Proposal shall indicate all additional costs and time impacts of whatever nature; reservations for future determination of impacts will not be allowed or considered. The Contractor shall submit a diagram of that portion of the Construction Schedule affected by the change showing the activities and their costs, man loading, durations and subcontractor or trade responsibility. While changes of a minor nature may require little or no documentation of schedule impact, the Contractor shall be aware that in cases where time is involved, failure to submit such a diagram with the Change Proposal shall constitute a waiver of any claims for time extensions associated with the subject of that Change Proposal. When modifications in the Work are necessitated by Field Directives or other Architect's authorizations prior to Change Proposal submissions to avoid delay, the Contractor shall furnish the Architect within ten (10) days of receipt of the authorizations which changed the Work the same information required for Change proposals. Failure to do so shall constitute a waiver of any claims for time extensions associated with the subject of the work authorization or directive.

B. As applicable, the Contractor shall adjust the Schedule monthly to reflect any adjustments in time related to negotiated or approved Contract modifications. The updated Schedule shall provide revised completion dates by incorporation of approved change order work and excusable delays, and re computation of all dates, durations and float in accordance with the newly incorporated dates. Such revised completion dates shall be the sole basis for time extensions and adjustments to the Contract completion date. Modified activity times to be used to determine the revised Project completion dates shall be agreed to by the Contractor, Architect and Owner.

END OF SECTION 01 32 00

SECTION 01 32 20

CONTRACT REPORTING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. General: This Section specifies administrative and procedural requirements for reports required for proper performance of the Work.

B. Reports required include:
1. Daily construction reports.
2. Field correction reports.
3. Special reports.

1.03 REPORTS

A. Daily Construction Reports: Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Architect at weekly intervals:
1. List of subcontractors at the site.
2. List of separate contractors at the site.
3. Approximate count of personnel by trade at the site.
4. High and low temperatures, precipitation, and general weather conditions.
5. Accidents (refer to Special Reports).
6. Meetings and significant decisions.
7. Unusual events (refer to Special Reports).
8. Stoppages, delays, shortages, losses.
9. Emergency procedures.
10. Orders and requests of governing authorities.
11. Field Directives, or Change Proposal Requests received; Change Proposals implemented.
12. Services connected, disconnected.
13. Equipment or system tests and start-ups.

B. Field Correction Report: When the need to take corrective action that requires a departure from the Contract Documents arises, prepare a detailed report including a statement describing the problem and recommended changes. Indicate reasons the Contract Documents cannot be followed. Submit a copy to the Architect immediately.

C. Special Reports: When an event of an unusual and significant nature occurs at the Project site, prepare and submit a special report. List the chain of events, persons participating, response by the Contractor's personnel, an evaluation of the results or effects and similar pertinent information. Advise the Owner in advance when such events are known or predictable.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 32 20

SECTION 01 33 00

SUBMITTALS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
   1. Definitions
   2. General requirements
   3. Submittal schedule
   4. Submittal coordination
   5. Submittal format and preparation
      a. Shop drawings
      b. Samples
      c. Product data
   6. Contractor review and responsibilities
   7. Architect's review
   8. Return, resubmission and distribution

B. Refer to individual Specification Sections for identified equipment and material for which submittals are required.

C. Do not submit on equipment or materials not requested in the Specifications.

1.03 DEFINITIONS

A. Submittals: General term including samples, shop drawings and product data, as applicable.

B. Samples: Physical examples prepared to illustrate materials, equipment or workmanship to be installed in the Project and to establish standards by which work will be judged as complying with Contract requirements.

C. Shop Drawings: Drawings, diagrams, illustrations, schedules and performance charts, prepared by the entity that is to do the work to illustrate that portion of the Work in detail.

D. Product Data: Dated, printed literature of a product manufacturer which describes product and installation procedures. Product data may include test and performance data, illustrations, standard brochures and special details.

E. Informational Submittals: Submittals indicated in the Contract Documents as to be submitted for information only.

1.04 GENERAL REQUIREMENTS

A. Submittals shall be in orderly sequence and timed to cause no delay in the Work.

B. Contractor shall commence no portion of the Work requiring submittals until submittal has been reviewed and accepted by Architect.

C. Do not utilize submittal review process as a means of requesting substitutions or changes in the scope of the Work.

D. Job delays occasioned by requirement of re-submission of samples, shop drawings and product data not in accordance with Contract Documents are Contractor's responsibility, and will not be considered valid justification for extension of Contract time.

E. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's review of shop drawings, product data, samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in shop drawings, product data, samples or similar submittals by the Architect's review thereof.

D. The Contractor shall direct specific attention, in writing or on resubmitted shop drawings, product data, samples or similar submittals to revisions other than those requested by the Architect on previous submittals.

E. Resubmitted shop drawings, product data, samples or similar submittals shall be complete and shall cloud or highlight the changes.

1.05 SUBMITTAL SCHEDULE

A. Submit to the Architect a list of all required submittals organized and referenced by the sections of these Specifications. On the list, indicate the timing for submission of the required submittals and relationship to the construction sequence. Submit the schedule to the Architect within the date required for establishment and submission of Contractor's Construction Schedule.

B. Following approval by the Architect of the submittal schedule, print and distribute copies to the Architect, Owner, subcontractors, suppliers and others required to comply with the submittal dates indicated. Maintain a copy in the field. When revisions are made, distribute to same parties that received initial document.

C. Maintain updated submittal schedule during course of the Work that shows status of all submittals. Provide copies for Architect at progress meetings and when requested.

1.06 SUBMITTAL COORDINATION

A. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal well in advance of performance of related construction activities to avoid delay.

B. Coordinate each submittal with other submittals and related activities--purchasing, fabrication, testing, delivery, etc.--that require sequential activity. Coordinate transmittal of different types of submittals for related elements of the Work so submittals can be reviewed concurrently. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

C. Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals. If submittal must be reviewed within a certain time in order to maintain the progress of the Work, state so

clearly on the submittal. Nevertheless, allow a minimum of one (1) week for the first processing of each submittal and allow even more time if the submittal must be coordinated with later submittals. Allow a minimum of one (1) week for processing of resubmittals. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 SUBMITTAL FORMAT AND PREPARATION

A. Transmittals:
1. Submittals will be accepted only through transmittal from the Contractor. Submittals received from other entities will be returned without review or action.
2. Submittals must be accompanied by a transmittal form containing the following information:
   a. Project name.
   b. Submittal date.
   c. Transmittal number.
   d. Applicable Specifications Section number.
   e. To: Architect's name and address.
   f. From: Contractor's name and address.
   g. Name of applicable subcontractor(s), supplier(s) or manufacturer(s).
   h. Submittal type (shop drawing, sample, product data, informational submittal).
   i. Description of submittal.
   j. Record of distribution.
   k. Action marking.
   l. List of any deviations from Contract Document requirements.
   m. Comments.

B. Form, Size and Quantity:
1. Label each submittal with the following information:
   a. Project name.
   b. Date of submittal.
   c. Contractor's name and address.
   d. Architect's name and address.
   e. Subcontractor's name and address.
   f. Supplier's name and address.
   g. Manufacturer's name.
   h. Specification section where the submittal is specified.
   i. Numbers of applicable drawings and details.
   j. Other necessary identifying information.
2. Provide a space on each submittal for approval stamp and notations.
3. For Shop Drawing or Product Data submittals larger than 8½” x 14” four (4) copies of blue or black-line prints.
4. For Shop Drawing or Product Data submittals on smaller sheets (minimum size acceptable: 8½” x 11”; maximum size acceptable 8½” x 14”) submit four (4) opaque copies.
5. For Samples submit three (3) sets.
6. Contractor shall stamp and sign in red ink on all copies.

C. Shop Drawing Preparation and Format:
   1. Shop Drawings shall conform to the following content requirements:
      a. Number drawings consecutively
      b. Indicate working and erection dimensions and relationship to adjacent work at accurate scale.
      c. Show arrangements and sectional views, where applicable.
      d. Show compliance with specific referenced standards, such as materials, gauges, thickness, finishes, and characteristics.
      e. Name specific products or materials used.
      f. Indicate anchoring and fastening details, including information for making connections to adjacent work.
      g. Contractor shall make any and all modifications in red ink and shall sign in red ink.
   2. Reference applicable details, sections and similar information from Drawings from which shop drawing data was developed; include applicable Specification Section numbers and names.
   3. Do not reproduce Contract Documents or copy standard information as basis of shop drawings. Standard information prepared without specific reference to the Project is not considered shop drawings.

D. Sample Preparation:
   1. Required samples shall be submitted for the Architect's selection and review so as to maintain construction progress. Acceptance and color selections will not be made unilaterally where selections regarding adjacent materials must be made for purpose of aesthetics. Submit samples for adjacent and inter-related materials concurrently.
   2. Prepare samples in sizes, shapes and finishes in accordance with provisions of individual Specification sections; attach documentation showing compliance. Where samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product. Submittals will be reviewed and returned with Architect's selection indicated and other action as appropriate.
   3. Samples furnished under this section are not to be confused with full-size, on- the-site "mock-ups," which may be specified in certain sections of the Specifications.
   4. Keep final approved samples or sample sets at Project site for use during progress of the Work.

E. Product Data Preparation and Format:
   1. When Product Data submittals are prepared specifically for the Project (in the absence of standard printed information) submit such information as Shop Drawings.
   2. Content:
      a. Submit manufacturer's standard printed data sheets.
      b. Identify the particular product being submitted; submit only pertinent pages.
      c. Show compliance with properties specified.
      d. Identify which options and accessories are applicable.
      e. Include recommendations for application and use.
      f. Show compliance with the specific standards referenced.
      g. Show compliance with specified testing agency listings; show the limitations of their labels or seals, if any.
      h. Identify dimensions which have been verified by field measurement.
      i. Show special coordination requirements for the product.

3.02 CONTRACTOR'S REVIEW AND RESPONSIBILITIES

A. Review submittals and stamp with approval prior to submission to the Architect. Contractor's stamp shall bear the Contractor's name and word "Approved," date of the approval, and shall be initialed by the individual responsible for reviewing submittals. Enter stamp on a blank, unmarked area on the submittal.

B. By approving submittals, Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

C. Where work is indicated "By others," Contractor shall indicate responsibility for providing and coordinating such work; whether by subcontractor or under separate contracts.

D. Contractor agrees that submittals processed by Architect are not substitutions or changes in scope of the Work; that purpose of submittals by Contractor is to demonstrate that Contractor understands design concept; that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing fabrication and installation methods he intends to use.

E. Contractor represents by submitting samples, shop drawing and product data that he has complied with provisions specified above. Submissions made without Contractor's approval indicated thereon will be returned without being reviewed for compliance with these requirements.

F. Accompany submittal with transmittal letter containing Project name, Contractor's name, number of samples or drawings, titles and other pertinent data. Transmittal shall outline deviations, if any, in submittals from requirements of Contract Documents.

G. No portion of the Work requiring submission of a shop drawing, product data or sample shall be commenced until the submittal has been reviewed and accepted by the Architect as specified herein. All such portions of the Work shall be executed in accordance with accepted submittals bearing the Architect's stamp.

3.03 ARCHITECT'S REVIEW AND ACCEPTANCE

A. Architect's review and acceptance is only for conformance with design concept of Project and with information in Contract Documents. Architect's acceptance of a specific item shall not indicate acceptance of an assembly in which item is a component. The Architect’s review is not conducted for the purpose of determining the accuracy and completeness of details such as dimensions and quantities, or for substantiating instructions for installation of equipment or systems, which remain the responsibility of the Contractor. When professional certification of performance characteristics of materials, systems, or equipment is required by the Construction Documents, the Architect shall be entitled to rely upon such certifications to establish the materials, systems or equipment will meet performance criteria required by the Construction Documents.

B. Architect will review each submittal, mark it with appropriate action, and return it to Contractor with reasonable promptness, except where it must be held for coordination, and the Contractor is so advised. Submittals will be marked by Architect as follows:
   1. "Reviewed" indicates the drawings have been reviewed for conformance with design and no exceptions are taken. Proceed with the work.

2. "Make Corrections as Noted" indicates Contractor may proceed with the work as noted.
3. "Amend and Resubmit" indicates drawings to be revised and resubmitted for review prior to proceeding with the work.
4. "Rejected, See Remarks" indicates that the submittal does not comply with Contract Documents.
5. The Architect shall make any and all comments in green ink and shall sign in green ink.

C. Submittals required to be submitted "for Architect's information only" are required to demonstrate that the Work complies with performance requirements of the Contract Documents. Such submittals, if acceptable to Architect, will not be returned to Contractor.

3.04 SUBMITTAL RETURN, RESUBMISSION AND DISTRIBUTION

A. Architect will return the reviewed and accepted submittals electronically for distribution by Contractor.

B. Resubmissions: In making resubmissions, follow the same procedures and formats required for original submissions. Make corrections and changes indicated by Architect on unacceptable submissions. In resubmission transmittals, identify clearly and direct specific attention to any revisions other than corrections requested by Architect on previous submissions.

C. Distribution:
1. Contractor is responsible for obtaining and distributing submittals to his subcontractors and material suppliers after final acceptance. Reviewed shop drawings shall carry the Architect's appropriate stamp.
2. Contractor shall maintain a file of accepted submittals bearing the Architect's stamp for duration of project, which shall be delivered to Owner as a part of the Project's Record Documents.
3. The Contractor's superintendent also shall maintain an orderly file of all accepted submittals at the Project site. In the event that the Architect or Owner should question the installation of any aspect of the Work requiring accepted submittal data, the inability of the superintendent to produce the required accepted submittal data upon demand shall constitute cause for a "stop work" order to be issued on that particular questioned aspect of the Work and all relevant appurtenant work. The cause shall be equal to the Contractor's not having received required acceptance of the submittal data. If so issued, such "stop orders" shall not be considered valid justification for extensions of Contract time or claims for additional monetary compensation.

END OF SECTION 01 33 00

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Regulatory Requirements

1.03 REGULATORY REQUIREMENTS

A. The following regulations are applicable to the Work:

1. Refer to drawing cover sheet for a list of current codes standards.

2. The Contractor shall have copies of these above referenced regulations at the Project site and said documents shall be readily available to all parties involved in the Project.

3. Other statutory requirements and regulations may affect the Work and the performance of the Contractor. Many of these requirements are referenced or described elsewhere in the Contract Documents, but their absence from the Contract Documents does not relieve the Contractor of the responsibility to perform in accordance with said requirements.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 41 00

SECTION 01 42 00

DEFINITIONS AND EXPLANATIONS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
1. Definitions
2. Specifications format and content explanation
3. Drawing symbols
4. Industry standards

1.03 DEFINITIONS

A. Certain terms used repetitiously in these Specifications and elsewhere in the Contract Documents are defined generally in this section. The definitions and explanations of this section are not necessarily either complete or inclusive, but are general for the Work to the extent such definitions or explanations are not stated more explicitly in another provision of the Contract Documents.

B. Approve: The terms "approve," "review," "inspect" and their variations, where used in conjunction with the Architect's actions on the Contractor's submittals, applications and requests, are limited to the responsibilities and duties of the Architect stated in the General Conditions and elsewhere in these Specifications. Such approvals shall not release the Contractor from his responsibility to fulfill the requirements of the Contract Documents, unless otherwise provided in the Contract Documents.

C. Directed, Requested, etc: Where nor otherwise explained, terms such as "directed," "requested," "authorized," "selected," "required," and "permitted," mean directed by the Architect, requested by the Architect, and similar phrases. However, no such implied meaning shall be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.

D. Indicated: The term "indicated" is a cross reference to details, notes or schedules on the Drawings, other paragraphs or schedules in the Specifications, and similar means of recording requirements in the Contract Documents. Where other terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.

E. Refer: Used to indicate that the subject is defined or specified in further detail at another location in the Contract Documents, or elsewhere as indicated.

F. Furnish: The term "furnish" is used to mean supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations, as applicable in each instance.

G. Install: Except as otherwise defined in greater detail, the term "install" is used to describe operations at Project site including the unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable to a material, product or system in each instance.

H. Provide: Except as otherwise defined in greater detail, the term "provide" means to furnish and install, complete and ready for the intended use as applicable in each instance.

1.04 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. General: This section is provided to help the user of the Specifications understand the format, language, implied requirements, and similar conventions. None of the explanations shall be interpreted to modify the substance of the Contract.

B. Specifications Production: Portions of these Specifications have been edited by the Owner and Architect and may contain minor deviations from traditional formats. Such deviations are a normal result of the production technique, and no other meaning will be implied or permitted. References to Specifications or Technical Specification, shall mean the same.

C. Specification Format: Although not all portions may fully comply, the format of these Specifications is principally as described below. No meaning or significance is attached to such compliance or non-compliance.

1. Sections and Divisions: For convenience, the basic unit of the Specifications is a "section," each unit of which is named and numbered. These sections are organized into related families of sections which are categorized as "divisions." These divisions are recognized as present construction industry practice on uniform organization and sequencing of specifications. Section titles are not intended to limit the meaning or content of a section, to be fully descriptive of the requirements therein, or to be an integral part of the text.
2. Section Numbering: Sections are given a numeric sequence to assist in cross referencing information in the Contract Documents. The numbering sequence, however, is not complete.
3. Parts: Each section has been divided into three or fewer "parts" (Part 1 - General, Part 2 - Products, and Part 3 - Execution). These titles do not limit the meaning of and are not an integral part of the text of the Specification requirements.

D. Specifications Content: The Specifications have been produced employing conventions in the use of language and in the intended meaning of certain words, terms and phrase when used in particular situations or circumstances. These conventions are explained as follows:

1. Language used in the Specifications is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the full context of the Contract Documents so indicates.
2. Specifying Methods: The techniques or methods of specifying requirements vary throughout the Specifications text, and may include "prescriptive," "open generic-descriptive," "compliance with standards," "performance," "proprietary," or a combination of these. The method used for specifying one unit of work has no bearing on requirements for another unit of work. Except for cases of overlapping or conflicting requirements as described in the following paragraph 3, where more than one set of requirements are specified for a

particular unit of work, the option is intended to be Contractor's regardless of whether specifically indicated as such.

3. Overlapping and Conflicting Requirements: Where compliance with two (2) or more industry standards or sets of requirements is specified, and overlapping of those different standards or requirements is specified, and overlapping of those different standards or requirements establishes two (2) different or conflicting levels of quality, the most stringent requirement is intended and will be enforced, unless specifically detailed language written into the Contract Documents clearly indicates that the less stringent requirement is to be fulfilled. Refer uncertainties as to which of the two (2) levels of quality is more stringent to the Architect for a decision before proceeding.
4. Imperative Language is generally used throughout the Specifications. Requirements expressed imperatively are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.

E. Minimum Quality/Quantity: In every instance, the quality level or quantity shown or specified is intended as the minimum for work to be performed or provided. Except as otherwise specifically indicated, the actual work may either comply exactly with that minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with requirements, the indicated numeric values are either minimum or maximums as noted or as appropriate for the context of the requirements. Refer instances of uncertainty to the Architect for decision before proceeding.

F. Assignment of Specialists: The Specifications require (or at least imply) that certain specific construction activities shall be performed by specialist or expert entities who must be engaged for the performance of those units of work. These must be recognized as special requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

1. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
2. Trade Names: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.

1.05 DRAWING SYMBOLS

A. Graphic symbols used on the Drawings are those recognized in the construction industry for purposes indicated. Where not otherwise noted, symbols are defined by "Architectural Graphic Standards", published by John Wiley & Sons, Inc., Tenth edition. Any symbol or graphic hatch pattern shown on the drawings not specifically labeled as to the material indicated shall be interpreted as follows:

1. Written Clarification by the Architect prior to Bid
2. Industry Standards
3. Drawing Symbol and Hatch Legends

B. Clarifications shall be requested in writing by the proposer where written direction and clarification will be provided by the Architect in the Addenda issued prior to bid.

C. Under no circumstances will additional compensation be considered for uncertainty and lack of clarification on the part of the Contractor regarding drawing symbols and hatch patterns, not clarified during the bid period.

D. Mechanical/Electrical Drawings: Graphic symbols used on mechanical and electrical Drawings are generally aligned with symbols recommended by ASHRAE. They are supplemented by more specific symbols indicated in legends and, where appropriate, are further supplemented by technical associations including ASME, ASPE, IEEE and similar organizations. Refer instances of uncertainty to the Architect for clarification before proceeding.

1.06 INDUSTRY STANDARDS

A. Applicability of Standards: Except where Contract Documents include explicit and more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference. Individual sections indicate which codes and standards apply and which the Contractor must keep available at the Project Site for reference.
   1. Referenced standards (referenced directly in Contract Documents or by governing regulations) have precedence over non-referenced standards.
   2. Non-referenced Standards: Except as otherwise limited by the Contract Documents, standards not referenced but recognized in the construction industry as applicable will be enforced for performance of the Work. The Architect shall decide whether a code or standards is applicable or which of several are applicable.

B. Publication Dates: Where compliance with an industry standard is required, comply with standard in effect as of the date of the Contract Documents.

C. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
   1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
   2. Although copies of standards needed for enforcement of requirements may be part of required submittals, the Architect reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.

D. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the publication provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 42 00

SECTION 01 45 00

QUALITY CONTROL PROCEDURES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
1. Contract conditions.
2. Reference standards.
3. Procedures for submittal of quality control documentation.
4. Quality assurance provisions.
5. Coordination, sequencing and scheduling.
6. General quality control activities and requirements.
7. Procedures for specific quality control activities:
a. Testing
b. Inspecting
c. Pre-installation review and inspection
d. Manufacturers' field services
8. Repair and Protection.

1.03 CONTRACT CONDITIONS

A. Certifications and inspections and testing services are required to verify compliance with requirements specified or indicated. These services whether provided by the Contractor or the Owner do not relieve the Contractor of responsibility for compliance with requirements of the Contract Documents.
1. Certifications, inspections, tests and related requirements specified are not intended to limit the Contractor's other quality control procedures that facilitate compliance with Contract Document requirements.
2. Requirements for the Contractor to provide certifications, inspections, testing and related services by the Architect, Owner and other authorities having jurisdiction are not limited by the provisions of this section.

B. Testing Agencies, whether employed by the Owner or Contractor, shall not approve any portion of the Work and shall not change requirements of the Contract Documents.

C. The Contractor is responsible for geotechnical and materials testing services required by the Contract Documents and will employ and compensate a Testing Agency for that purpose. Cost of these services shall not be included in the Contract Sum.

1.04 DEFINITIONS

A. Certificate: A written statement that a particular product or a portion of the Work as accomplished conforms to the requirements of the Contract Documents.

B. Installer: Any entity that performs a construction activity, whether an employee, subcontractor, or sub-subcontractor of the Contractor.

C. Testing Agency: Any independent testing and inspection agency employed by the Owner or Contractor to perform certain quality control activities.

D. Reference Standard: Any document incorporated unto the Specifications by reference rather than inclusion of text; including, but not limited to, voluntary specifications prepared by standards and industry organizations.

E. Reports: Certified written documentation of inspections, tests or similar services.

1.05 REFERENCE STANDARDS

A. General: Comply with edition of standards indicated; if date is not indicated, comply with edition in effect as of date of Contract Documents. Compliance with standards that are revised or reissued after that date will not be required unless incorporated into the Contract Documents by modification. When applicable codes, laws or regulations require editions of different dates, obtain instructions from the governing authorities as to which edition is required.

B. The requirements of reference standards are binding on Contractor, just as if they were copied into the Contract Documents, but no provisions of reference standards shall alter the contractual relationship of the parties to the Contract.

C. Maintain at the Project site each reference standard that is indicated elsewhere as to be kept at the site.

1.06 SUBMITTALS

A. Reports: The Testing Agency shall submit certified written reports of each inspection, test or similar service to the Owner, Architect and Contractor as applicable. If the Contractor is responsible for an inspection, test or similar services and has employed a Testing Agency for such, his reports shall comply with the following:
   1. Reports shall be submitted for informational purposes through the Contractor under cover to the Architect.
   2. Submit other copies of reports to governing or regulatory authorities if so directed.
   3. Submit the report within three (3) working days after date of inspection or test if practicable.
   4. Reports of inspections, tests or similar services shall include, but not limited to the following data:
      a. Date of issue.
      b. Project name.
      c. Name, address and telephone number of testing agency.
      d. Dates and locations of samples and tests or inspections.
      e. Names of individuals making inspections or tests.
      f. Name and signature of reviewing registered engineer and laboratory inspector if applicable.
      g. Related Specifications section(s).
      h. Test method or basis of evaluation.
      i. Ambient conditions at time of sample-taking and testing.
      j. Observations, comments or professional opinions regarding compliance with requirements of Contract Documents.
      k. Recommendations on re-testing if required.

B. Certificates: Submit for information only unless otherwise directed.
   1. Certificates should be signed by the product manufacturer, unless otherwise specified or not applicable.

2. Include the following information:
   a. Date of certificate.
   b. Project name.
   c. Description of the product or system certified.
   d. Specification section(s) involved.
   e. When actual materials to be used are to be certified, include lot identification markings, destination or shipment, and quantity in shipment.
   f. Title, name, and signature of person authorized to make certification.

C. Qualifications Statements: Submit for information only unless otherwise directed.

D. Manufacturers' Instructions: Submit for information only unless otherwise directed. Contractor shall identify to Architect any conflicts between manufacturers' instructions and Contract Documents prior to proceeding with affected work.

1.07 QUALITY ASSURANCE.

A. Qualifications of manufacturers and installers shall be as indicated in individual sections of the Specifications.

B. Manufacturer’s field personnel shall be employed directly by the manufacturers and normally perform the activities specified.

C. Qualifications of a Testing Agency, if utilized by Contractor, shall include the following criteria:
   1. Testing Agency shall meet "Recommended Requirements for Independent Laboratory Qualification" latest edition, published by The American Council of Independent Laboratories.
   2. Testing Agency shall be acceptable to Architect and shall have been regularly engaged in services specializing in types of inspections and tests to be performed for a minimum of five years. If requested by Engineer, submit evidence of satisfactory completion of services performed on projects of similar type and scope within specified period.
   3. Testing Agency shall be authorized to perform services by authorities having jurisdiction in State of Georgia.
   4. Testing Agency's on-site personnel shall be qualified and certified in the fields of testing required for the Project.

D. Testing Equipment shall be calibrated at reasonable intervals with devices of an accuracy traceable to the National Bureau of Standards (NBS) standards or to accepted values of actual physical constants.

1.08 COORDINATION, SEQUENCING AND SCHEDULING

A. Contractor shall coordinate its sequence of activities with any Testing Agency engaged to perform inspections, tests and similar services to accommodate required work with a minimum delay. Contractor shall schedule and coordinate activities to avoid removing and replacing construction to accommodate inspections and tests. Other responsibilities of Contractor for testing are indicated elsewhere in this section.

PART 2 –PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 GENERAL

A. Provide work of the specified quality level; where quality level is not indicated, provide work of quality customary in similar types of work.
   1. Where codes, laws, or regulations require work of higher quality or performance, provide work complying with those codes, laws, and regulations.
   2. Where two or more quality provisions of the Contract Documents conflict, comply with the most stringent requirement; where requirements are different but apparently equal, and where it is uncertain which requirement is most stringent, obtain clarification from the Architect before proceeding.
   3. Actual quality may exceed the specified quality; verify that such differences are acceptable to the County (other criteria may make excessive quality undesirable).

B. Manage and control products, subcontractors, suppliers, manufacturers, site conditions, installers, and workmanship in such a manner as to produce work of the specified quality. Use installers who are capable of producing work of specified quality.

C. Perform all quality control activities specified unless indicated to be performed by other entities.

3.02 TESTING

A. The requirements indicated below in this section are the Contractor's responsibilities relative to testing performed by Testing Agency as well as testing under the direct supervision of the Contractor.

B. Cooperate with Testing Agency personnel. Provide access to the Work and to material supplier's plant and operations.

C. Provide representative samples of materials proposed for use in the Work, in quantities sufficient for accurate testing and as specified.

D. As necessary for performance of the testing, furnish incidental labor and facilities including but not limited to the following:
   1. Providing access to the Work to facilitate inspections and tests.
   2. Obtaining and handling samples at the Project site under the direction of the Testing Agency or assisting the Testing Agency in taking samples.
   3. Provide facilities for storage and caring of test samples on-site and security and protection of samples and test equipment at site.
   4. Provide preliminary design mixes for materials mixes that require control by Testing Agency.

E. Notify Testing Agency sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests. Notify Testing Agency three (3) working days prior to the date of inspection or testing.

F. Where the Owner has engaged a Testing Agency or other entity for testing and inspection of a part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless otherwise agreed in writing with the Owner.

G. Contractor shall notify the Architect in writing and receive a written reply prior to proceeding with additional testing beyond that specified in the Contract Documents.

H. Re-testing and Cancellation of Testing:
   1. Contractor shall be responsible for re-testing where results of required inspections, test or similar services are unsatisfactory and do not comply with requirements of Contract Documents, regardless of whether the original test was the Contractor's responsibility.
   2. Costs for correction of deficient work or construction and re-testing shall be borne by the Contractor.
   3. If the Testing Agency is scheduled by the Contractor to perform tests or monitor activities on-site and testing or work to be monitored gets cancelled by the Contractor after the on-site arrival of the Testing Agency, the cost of the Testing Agency from arrival on-site until they are sent back or utilized for another activity including the cost for travel time shall be borne by the Contractor.

I. Materials and work covered without testing and approval, if required, shall be uncovered and subsequently recovered at the Contractor's expense.

3.03 INSPECTING

A. Perform inspections specified. When inspections reveal unsatisfactory work, make whatever changes or repairs are necessary and re-inspect. Submit a report of each original inspection and each re-inspection.

3.04 MANUFACTURERS' FIELD SERVICES

A. Manufacturers' field services are specified in other sections of the Specifications.

B. If Architect should be present, provide Architect with a timely notice of site visit so Architect may be present. After site visit, submit a report that records 1) site conditions, installer procedures, and related activities that are not as recommended by the manufacturer; and 2) instructions and recommendations provided by the representative that differ from manufacturer's standard printed instructions.

3.05 REPAIR AND PROTECTION

A. Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities or exposed finishes. Comply with requirements of any references to cutting and patching in other divisions of the Specifications.

B. Contractor shall be responsible for repair and protection of Work regardless of assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01 45 00

SECTION 01 50 00

TEMPORARY FACILITIES, CONTROLS AND SERVICES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 and 0 Specifications, apply to this Section.

1.02 SUMMARY

A. Section Includes:
1. Definitions
2. Project conditions and scheduling
3. Temporary construction support facilities
4. Temporary utilities and services
5. Special protection requirements
6. Security – Also refer to Division 0 for detailed requirements
7. Vehicular access and parking
8. Termination and removal

1.03 DEFINITIONS

A. Temporary Construction Support Facilities: Construction, structures, fixtures and other built items required to accomplish the Work but which are not incorporated into the finished Work. Included are field offices, storage sheds, temporary roads and paving, temporary enclosures, hoists, dewatering facilities, temporary signs, construction aids and miscellaneous facilities.

B. Temporary Utilities: Sources of electric power, water, natural gas, etc. obtained from public utilities, other main distribution systems or temporary sources that support the Contractor's activities but are not a part of the permanent construction or are not yet incorporated into the permanent construction.

C. Temporary Services: Activities and services required during construction that do not directly accomplish the Work. Included are waste disposal services, rodent and pest control, security and miscellaneous services.

1.04 PROJECT CONDITIONS AND SCHEDULING

A. Comply with requirements of regulations, governing authorities and public utilities as to type, quantity, location and use of temporary facilities, utilities and services. Secure and maintain copies of permits, inspection reports or approvals for installation and use of temporary facilities and utilities.

B. Use of permanent facilities prior to date of Substantial Completion is subject to Owner's conditions. During said approved use, Contractor shall maintain and protect completed work. Specific warranties shall not be reduced or voided by Contractor's use of permanent facilities and systems.

C. Maintain required temporary facilities until not needed or until Substantial Completion. Exceptions to this requirement may be made by Owner as indicated in above paragraph.

1.05 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
   1. Building code requirements. Latest IBC.
   2. Health and safety regulations.
   3. Utility company regulations.
   4. Police, fire department, and rescue squad rules.
   5. Environmental protection regulations.

B. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
   1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

PART 2 – PRODUCTS

2.01 TEMPORARY CONSTRUCTION FACILITIES

A. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical or aerated recirculation. Provide units properly vented and fully enclosed with a glass-fiber- reinforced polyester shell or similar nonabsorbent material. Toilet facilities at the City Hall building, or adjacent government owned properties is strictly prohibited.

B. Traffic Barriers: The Contractor shall provide all traffic control on streets or drives adjacent to or on the Project site that is needed to facilitate the Contractor's Work and protect the public from activities associated with such work. These controls shall include signs, signals, barricades and flagmen, as necessary. The Contractor shall comply with all local, state, federal rules and regulations concerning the placement and use of traffic control devices

C. Temporary Fencing: Provide temporary fencing around the perimeter of the project site with privacy fabric to screen activity on the construction site to enhance site security and to minimize distractions to pedestrian and vehicular traffic.

C. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.

D. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

E. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, pilot light for connection of power tools and equipment.

F. Tarpaulins: Provide waterproof fire-resistant UL labeled tarpaulins with flame spread rating of 15 or less.

G. Fire Extinguishers: Provide hand-carried portable UL-rated Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated Class ABC, dry chemical extinguishers or a combination of extinguishers of NFPA recommended classes for the exposures. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION

A. Use qualified personnel or services for installation of temporary facilities. Provide each facility ready to use when needed to avoid delay. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as needed. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 CONSTRUCTION SUPPORT FACILITIES

A. Temporary Storage Facilities: Provide weather tight storage facilities with raised floors and of types and sizes required by storage demands at the project site. Locations of temporary storage facilities shall be subject to Owner's acceptance. All material storage and staging shall be within the designated limits of the Project site. Contractor is responsible for identifying Project site boundaries and insuring that staging and material storage does not occur outside of the site.

B. Provide a dedicated area for the storage of tools and equipment within each phased work area. The Contractor will be required to secure all tools at the conclusion of each work day and maintain a log of equipment and tools located on site. Combustibles and hazardous materials shall not be stored inside the building overnight or at any time when construction personnel are not present. The Contractor shall notify the Owner and all such materials shall be approved prior to bringing items into the building.

C. Temporary Enclosures: As required by the progress and sequencing of the Work, provide temporary enclosures for protection of construction in progress or completed, from exposure to foul weather or other construction operations.
1. Maintain protective barriers, vehicular barriers, temporary fencing, dust control barriers and sound control devices as needed for all phases of construction until final completion of the Project. Contractor shall be responsible for replacing established protective barriers and devices damaged or removed during construction and shall install any additional protection devices as required to perform the Work under this Contract.
2. Provide temporary signs as required. Install signs where needed to inform personnel, vendors and public seeking entrance to the Project.
3. Security, access and working requirements will be discussed at length during the preconstruction meeting and are outlined in Division 0 of these specifications.
4. The Contractor is responsible for all temporary construction, phasing, scheduling, material deliveries, and other items that affect the sequence of construction or scheduling of the project.

D. Sanitary Facilities: Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs. Provide applicable paper goods in support of each facility. Provide covered waste containers for used materials.
1. Toilets: Provide and maintain temporarily sited and self-contained toilet units until Substantial Completion on all Work. Do not allow employees to use permanent toilet facilities of the new construction.

2. Wash Facilities: Provide and maintain a safety shower/eye wash facility with potable water at a location convenient for personnel.
3. Drinking Water Facilities: Provide drinking water canisters or fixtures at convenient locations on the Project site. Include cup supply.

3.03 TEMPORARY UTILITIES AND SERVICES

A. General: Engage the appropriate local utility companies to install temporary services or connect to existing services. Where company will not be responsible for full operation of service, Contractor shall provide remainder with matching, compatible materials and equipment and comply with company recommendations. Contractor shall provide adequate capacity at each stage of construction. Costs for temporary utility connection are borne by the Contractor. **The utility usage cost for all utilities shall be included in the bid.**

B. Telecommunications Services: Maintain cell phones for Project Manager and Superintendent.

C. Water Services: Temporary water shall be provided and paid for by the Contractor.

D. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere on Project site. **Dedicated dumpsters for construction debris shall be provided by the contactor.** Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold waste materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.04 VEHICULAR ACCESS AND PARKING

A. Haul Routes: The Contractor shall be responsible for insuring that trucks providing delivery and/or hauling services to or from the Project site shall properly cover loads. Contractor shall keep the roads to the Project site and the project site clear, free of mud, dirt, debris, or other materials that are deposited as a result of Contractor's hauling and delivery services. The Contractor is responsible for coordinating and scheduling hauling activities so that the traffic flow on the access road to the project site is not disrupted at any time.

B. Parking Areas: All parking for Contractor's employees, subcontractors' employees, and for vendors, delivery men, and visitors shall be in areas designated by the Owner. Contractor forces that park in private parking lots or adjacent businesses assume any and all risk and liability associated with such actions.

C. Traffic Control: The Contractor shall provide all traffic control on streets or drives adjacent to or on the Project site that is needed to facilitate the Contractor's Work and protect the public from activities associated with such work. These controls shall include signs, signals, barricades and flagmen, as necessary. The Contractor shall comply with all local, state, federal rules and regulations concerning the placement and use of traffic control devices

3.05 TEMPORARY PROTECTION AND CONTROL

A. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Maintain protective barriers, tree protection and erosion control devices until Final Completion of the Project. Contractor shall be responsible for replacing established protective barriers, tree protection and erosion control devices damaged or removed during construction and shall install any additional protection devices as required to perform the Work under the Contract.

3.06 MAINTENANCE, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintenance: Maintain facilities in good operating condition until project completion.

C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference from the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.
   2. Remove all trash and debris and restore areas to conditions required by the Contract.

END OF SECTION 01 50 00

SECTION 01 60 00

PRODUCT REQUIREMENTS AND SELECTION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this section.

1.02 SUMMARY

A. Section Includes:
   1. Administrative and procedural requirements for Contractor's selection of products.

B. Related Sections: The following sections contain requirements that relate to this Section:
   1. Division 1, Section Explanations and Definitions, specifies the applicability of industry standards to products specified.
   2. Division 1, Section Product Substitutions, specifics administrative procedures for handling requests for substitutions made after award of the Contract.

1.03 DEFINITIONS

A. Definitions used in this section are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.
   1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material, "equipment," "system," and terms of similar intent. "Named Products" are item identified by manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
   2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
   3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.04 QUALITY ASSURANCE

A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.
   1. When specified products are available only from sources that do not, or cannot, produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect to determine the most important product qualities before proceeding. Qualities may include attributes, such as visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources producing products that possess these qualities, to the fullest extent possible.

B. Compatibility of Options: When the Contractor is given the option of selecting between two (2) or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

C. Name Plates: Except for required labels and operating date, do not attach or imprint manufacturer or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
    a. Name of product and manufacturer.
    b. Model and serial number.
    c. Capacity.
    d. Speed.
    e. Ratings.

PART 2 – PRODUCTS

2.01 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.

1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Product Selection Procedures: The Contract Documents and standards, codes and regulations govern product selection. Procedures governing product selection include the following:
    a. Proprietary Specification Requirements: Where Specifications name only a single product or manufacturer, provide the product indicated. No substitutions will be permitted, except when the product is unavailable, and then the substitution must be under the terms provided in Section 016300 Product Substitution Procedures.
    b. Descriptive Specification Requirements: Where Specifications described a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
    c. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and that are recommended by the manufacturer for the application indicated.
    d. Manufacturer's recommendation may be contained in published product literature or by the manufacturer's certification of performance.
4. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.
5. Visual Matching: Where Specifications require matching an established sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.
    a. Where no product available within the specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents concerning "Substitutions" for selection of a matching product in another product category.
6. Visual Selection: Where specified product requirements include the phrase "…as selected from manufacturer's standard colors, patterns, textures…" or a similar phrase,

select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern, and texture from the product line selected.

7. Contractor Option: Where several products or manufacturers are specified as being acceptable, Contractor has the option of choosing among these named.
8. Comparable or Equal: Where one or more products or manufacturers are specified by name and accompanied by the term "or approved equal," or "or equal", "equal to", or "comparable to", the Contractor may submit a request for substitution prior to bid in accordance with Section 016300 Product Substitution Procedures for any equivalent product or manufacturer that is not specifically named.

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 60 00

SECTION 01 63 00

PRODUCT SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this section.

1.02 SUMMARY

A. Section Includes:
1. Procedures for substitution requests during bidding.
2. Substitution requests outside of bidding period.
3. Product evaluations.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 PROCEDURES FOR SUBSTITUTION REQUESTS DURING BIDDING

A. If Contractor wishes to use products different from those indicated in the Contract Documents, the Contractor shall make a written application as described herein. The burden of proving equality of proposed substitutions shall rest with the Contractor. Substitution requests submitted directly by subcontractors or suppliers will NOT be considered. Substitutions will not be considered for acceptance when acceptance will require substantial revision of Contract Documents.

B. Except as described elsewhere herein, requests for substitution will be considered only during the bidding period. Requests for substitutions must reach the Architect by the deadline established in the Instructions to Bidders for the receipt of questions and interpretations. Requests received by the Architect after this date will not be considered. Acceptable substitutions will be added to the Contact Documents by addendum; no verbal approvals will be valid.

C. Contractor shall submit written request with complete data substantiating compliance of the proposed product with requirements of Contract Documents. Submit request to Architect on a standard form, with three (3) copies of each request and supporting data. Only one request for each product will be considered. Include the following data with the request:
1. Project name.
2. Contractor name.
3. Date of request.
4. Identification of product by Specification reference.
5. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
a. Product identification, including manufacturer's name and address.
b. Manufacturer's literature; identify:
1) Product description.
2) Reference standards.
3) Performance and test data.
4) Manufacturer's recommendations for use and installation.
5) Dimensions and space requirements.

c. Samples, as applicable.
d. Drawings, as applicable.
e. Name and address of similar projects on which product has been used, and date of each installation.
f. Reports from independent testing laboratories, verified experience records from previous users and other printed or written information valid in the circumstances will be considered.

6. Provide an itemized comparison between proposed substitution and product specified; list all variations AND a detailed explanation of how the proposed product meets or exceeds the requirements of the specifications. Website addresses are NOT an acceptable means of compliance with this requirement. The Architect will not perform ANY research in connection with product substitutions. It is the responsibility of the proposer/ contractor to demonstrate full compliance with these specifications and basis of design products.
7. Net amount of change in Contract Sum (if applicable)
8. Information on any changes caused in construction schedule.
9. Description of any changes that will be required in other work or products if substitute product is accepted.
10. Designation of availability of maintenance services and sources of replacement materials.

NOTE: SUBMISSIONS THAT DO NOT INCLUDE ALL INFORMATION WILL BE DEEMED INCOMPLETE AND NOT CONSIDERED.

D. Architect's determination of acceptability of proposed submissions will be made based only on data submitted. In accepting a substitution, the Architect does not warrant that the product meets all express requirements of the Contract Documents. The approved substitution is subject to the same subsequent review and approval procedures as the products originally specified.

E. Contractor shall coordinate all required components and accessories required to make any substitution complete and operable as intended by the basis of design product indicated in the contract documents including all work required for installation of accepted substitutions with interfacing work. The contractor shall bear any and all design costs required to make approved changes in the Work to properly incorporate substitutions. The contractor shall waive all claims for time and additional costs related to use of acceptable substitutions which become apparent following acceptance, including electrical, structural, mechanical, and plumbing requirements associated with the proposed substitution.

F. Substitute products shall not be ordered or installed without written acceptance by the Architect. Unless substitutions are received and approved as described above, the Contractor shall be responsible for furnishing materials or products in accordance with the Contract Documents.

3.02 SUBSTITUTION REQUESTS OUTSIDE OF BIDDING PERIOD

A. Substitutions will be accepted prior to the bid date and award of the Contract.

B. In the event that specified items cannot be delivered to the Project site and incorporated into the Work at such times and in such quantities as to cause no delay, provided timely orders are placed, then Contractor may request a substitution in the manner described in this section. Should the accepted substitution provide a cost savings, the contract sum will be adjusted by Supplemental Agreement with Owner receiving the benefit of the net savings. No increase in the Contract Sum will be allowed on substitutions made after the receipt of bid except where the Contractor can verify a timely placement of orders

appropriate to the materials and conditions involved. Contractor's inability to obtain specified items due to failure to place timely orders will not be considered reason for authorizing substitutions. Also substitutions will not be considered when they are indicated or implied on shop drawings or product data submitting without a separate written request.

C. A substitution also may be considered after contract award when the proposed substitution provides a definitive reduction in the Contract Sum. Submittal and consideration of said substitutions shall be at the direction and discretion of the Owner. The process for review of such substitutions will be as described in this section.

3.03 PRODUCT EVALUATIONS

A. In making a formal request for a substitution the Contractor represents that:
   1. He has investigated the proposed product and has determined that it is equal to or superior in all respects to that specified.
   2. He shall provide the same warranties for substitutions as for product specified.
   3. He shall be responsible for determining that materials requested for substitution are free of known hazardous substances.
   4. He shall coordinate installation of accepted substitution into the Work, and will make such changes as may be required for the Work to be completed in all respects.

END OF SECTION 01 63 00

SECTION 01 65 00

MATERIAL AND EQUIPMENT HANDLING AND STORAGE

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this section.

1.02 SUMMARY

A. Section Includes:
1. Procedures for transportation and handling.
2. Procedures for delivery and receiving.
3. Procedures for storage.

1.03 DESCRIPTION

A. Requirements of this Section are general in nature. Refer to individual sections of the Specifications for additional, specific requirements.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 PROCEDURES FOR TRANSPORTATION AND HANDLING

A. Require suppliers to deliver manufactured Products to project site in manufacturers' original packaging with labels and seals intact. Labels shall indicate manufacturer, product name, application instructions and fire resistive classifications.

B. Require suppliers to package products and materials in a manner that will protect them from damage during shipping, handling and storage. Arrange to transport products and materials by methods that avoid damage.

3.02 PROCEDURES FOR DELIVERY AND RECEIVING

A. Provide labor and equipment adequate to handle delivery of products and materials by methods that prevent damage. Provide additional protection as necessary during handling to prevent damage to products and packaging. Lift large and heavy components at designated lift points only.

B. Schedule deliveries to minimize long-term storage at the Project site and prevent over-crowding of construction spaces. Coordinate deliveries with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged or sensitive to deterioration, theft and other losses.

C. Promptly inspect all materials and products upon delivery to ensure proper material, color, type and quantity, and to ensure that materials are undamaged and properly protected. Verify compliance with requirements of Contract Documents and approved submittals.

D. Clearly mark partial deliveries to identify contents, permit easy accumulation of entire delivery and facilitate assembly.

3.03 PROCEDURES FOR STORAGE

A. Store materials and equipment in a safe and protected manner. Observe manufacturer's recommendations for positioning, separation and ventilation, as applicable.

B. Store materials at the Project site in a manner that will facilitate inspection, measurement, or counting of units. Store unpacked or loose products on shelves, in bins, or in neat groupings of like items.

C. Where materials are required to be stored in protected conditioned environments, maintain temperatures and humidity within ranges required by manufacturer's instructions unless otherwise specified.

D. Store heavy materials in manner that will not endanger supporting construction.

E. Prevent corrosion, soiling, damage, deterioration, or breakage of materials or contact with deleterious materials.

F. Deliver finish materials only to enclosed and conditioned spaces and where adequate indoor storage facilities are available.

G. Store and handle paints and similar products subject to spillage in areas where spills will not deface finished surfaces or other work.

H. Flammable or Hazardous Materials:
1. Store minimum quantities in protected areas.
2. Provide appropriate type fire extinguisher near said storage areas.
3. Observe manufacturer's precautions and applicable ordinances and regulations.
4. Flammable and Hazardous Materials shall not be stored inside the building.

I. Comply with manufacturer's product data in all aspects of basic material storage, usage, handling, and installation, except where more stringent requirements are specified.

J. Provide Material Safety and Data (MSDS) Sheets for all items, materials and products as required by laws, rules, regulations, ordinances or codes.

END OF SECTION 01 65 00

SECTION 01 72 00

FIELD ENGINEERING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. General: This Section specifies administrative and procedural requirements for field-engineering services including, but not limited to, land survey work.

B. Related Sections: The following Sections contain requirements that relate to this Section:
1. Section 01 31 00, Project Coordination, for procedures for coordinating field engineering with other construction activities.
2. Section 01 81 00, Project Record Documents, for submitting Project record surveys.

1.03 SUBMITTALS

A. Certificates: Submit a certificate signed by the land surveyor or professional engineer certifying the location and elevation of improvements.

B. Project Record Documents: Submit a record of Work performed and record survey data as required under provisions of Project Record Documents and Project Closeout Sections and as required to obtain Certificates of Occupancy.

1.04 QUALITY ASSURANCE

A. Surveyor Qualifications: Engage a land surveyor registered in the state of Georgia to perform required land-surveying services as required.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 EXAMINATION

A. Identification: The Owner will furnish a survey of the Project site that identifies existing control points.

B. Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks, before proceeding to lay out the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.
1. Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points or requirements to relocate reference points because of necessary changes in grades or locations.
2. Promptly replace lost or destroyed Project control points. Base replacements on the original survey control points.

C. Establish and maintain a minimum of two (2) permanent benchmarks on the site, referenced to data established by survey control points.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Drawings.

D. Existing Utilities and Equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction.
   1. Prior to construction, verify the locations and invert elevations at points of connection of storm sewer piping.
   2. Owner will not be responsible for costs of rework incurred because of Contractor's failure to verify said points.

3.02 PERFORMANCE

A. Work from lines and levels established by the property survey. Establish benchmarks and markers to set lines and levels at each stage of construction and elsewhere as needed to locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.
   1. Advise all entities engaged in construction activities of marked lines and levels provided for their use.
   2. As construction proceeds, check every major element for line, level, and plumb.

B. Surveyor's Log: Maintain a surveyor's log of control and other survey work. Make this log available for reference.
   1. Record deviations from required lines and levels, and advise the Architect when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.

C. Site Improvements: Locate and lay out site improvements, including pavements, stakes for grading, detention pond construction, fill and topsoil placement, utility slopes, invert elevations, and exterior lighting locations.

D. Building Lines and Levels: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels, and control lines and levels required for mechanical and electrical work.

E. Existing Utilities: Furnish information necessary to adjust, move, or relocate existing structures, utility poles, utility lines, utility services, or other appurtenances located in or affected by construction. Coordinate with local authorities having jurisdiction.

END OF SECTION 01 72 00

SECTION 01 73 00

CONSTRUCTION EXECUTION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
1. General examination requirements.
2. General installation procedures and requirements
3. Installation requirements for building components.
4. Hot work permit and Safety Requirements
5. Safety precautions and requirements
6. Phasing Requirements

1.03 DEFINITIONS

A. Concealed Spaces: Spaces not accessible after completion of construction.

B. Damage: Any sort of deterioration whether due to weather, normal wear and tear, accident, or abuse; resulting in soiling, marring, breakage, corrosion, rotting or impairment of function.

C. Debris: Rubbish, waste materials, litter, volatile wastes, and similar materials.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 GENERAL EXAMINATION REQUIREMENTS

A. Prior to performing work, examine the applicable substrates and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding.

B. Contractor shall be responsible for verifying and obtaining proper substrate conditions, tolerances and material alignments to receive applied or attached materials and construction.

C. Conditions that could have been discovered by examination of Project site and Drawings will not be allowed as cause for claims for extra work. In particular these conditions include:
1. Underground utilities.
2. Existing facilities, structures and appurtenances, on the site of the Project with which the Contractor must coordinate during construction and that can be reasonably discerned.
3. Space requirements of items shown diagrammatically on Drawings.
4. Limitations on transport and storage of materials and equipment.
5. Locations of points of connections to utilities.

3.02 GENERAL PREPARATION REQUIREMENTS

A. Take field measurements as required to fit work properly and recheck measurements prior to installing each product. Notify Architect promptly of any discrepancy in dimensions between Drawings and field measurements that will affect a current or anticipated installation.

3.03 WORKING TIMES

A. The basic hours of work for the Contractor shall be 7:30 a.m. through 5:00 p.m. daily unless otherwise directed by the Owner.

3.03 GENERAL INSTALLATION PROCEDURES

A. All construction shall be in accordance with all applicable federal, state, and local codes and regulations.

B. Accurately locate the work and components of the work; make vertical work plumb; make horizontal work level. Align materials to give smooth uniform surface planes within specified tolerances.

C. The Contractor is responsible for all temporary construction, phasing, scheduling, material deliveries, and other items that affect the sequence of construction or scheduling of the project and shall coordinate with the Owner's facility operations.

D. Shut down of some utilities will be required in order to construct this project. These shut down activities may need to be performed after business hours and are to be coordinated with the Owner in advance.

E. All mechanical, electrical and plumbing sub-contractors shall submit affidavits for each building permit to the building permits section at least two (2) days before requesting inspections. Affidavit forms are available at building permits department.

F. The Contractor shall verify location of existing utilities before commencing work, and care shall be taken to protect all utilities which are to remain.

G. Where space is limited, install components to maximize space available for maintenance and to maximize ease of removal for replacement.

H. Install work in such manner and sequence as to preclude cutting and patching wherever possible.

I. Install products only at the time and sequence, and under the environmental conditions that will insure best possible results.

J. In finished areas, conceal pipes, ducts, and wiring within construction, unless otherwise indicated.

3.04 INSTALLATION OF COMPONENTS

A. Install all products in accordance with manufacturer's instructions and recommendations, whether conveyed in the Contract Documents or not.

B. Where mounting heights are not indicated, and there is no guidance for mounting, obtain Architect's instructions before proceeding.

C. Separate incompatible materials with suitable materials or spacing. Prevent cathodic corrosion.

D. Provide all anchors and fasteners required and use methods necessary to securely fasten work. In assemblies and installation, allow for thermal expansion and contraction, and for building movement.

E. After installation, adjust operating components to provide for proper operation.

F. The site shall remain secured for the duration of the project.

3.05 CLEANING AND PROTECTION OF INSTALLATIONS

A. Keep the work site free of waste materials and debris.

B. Maintain level of cleanliness necessary for proper execution of the work. Where dust would impair execution of work, or adjacent roadways and visibility, provide water as necessary to keep dust down to a minimum.

C. Keep adjacent roadways and sidewalks clear of dirt and debris at all times.

D. Do not allow dirt and debris to enter the existing storm water management system. Employ and maintain best management practices at all times.

E. Remove debris from project site at intervals that will minimize waste buildup.

F. Keep installed work clean, and clean again when soiled by other operations. Protect installed work from damage.
1. Provide protective coverings for work that may be damaged by subsequent operations. Where heavy abuse is expected, use minimum of plywood for protection.
2. Maintain protective coverings until Date of Substantial Completion.

3.06 SAFETY PRECAUTIONS AND REQUIREMENTS

A. Take precautions to prevent fires and to facilitate fire-fighting operations.
1. Store flammable materials in non-combustible containers, store away from potential fire sources; remove flammable waste regularly; provide adequate ventilation when using flammable or explosive substances.
2. Carefully supervise the operation of potential fire sources including on-site welding and cutting.
3. Keep temporary and permanent fire fighting facilities readily accessible; keep fire fighting routes open.

B. Take precautions to prevent accidents due to physical hazards.
1. Provide barricades, signs and warning lights as required to protect personnel and public from hazards and inform them thereof. Barricades and temporary safety railings shall comply with applicable safety regulations.
2. Provide and require use of safety equipment, clothing and accessories as required by the construction activity and applicable safety regulations. This is a hard hat job; protective headgear must be worn at all times in the construction period.
3. Do not leave roadways open. Provide adequate safety measures for vehicular and pedestrian traffic.

C. Take precautions to prevent pollution of air, water and soil.

1. Comply with government regulatory requirements for disposal of waste.
2. Do not dispose of volatile wastes such as petroleum products or other chemicals in storm or sanitary drains or on the grounds surrounding the Project site.
3. Do not handle or dispose of waste materials, debris, cleaning compounds or other chemicals in a manner that will be harmful to plant life on grounds adjacent to the Project site.
4. Comply with regulations and authorities having jurisdiction over safety and environmental standards affecting the Project.
5. Do not bury debris or material on the project site.

D. Take precautions not to allow noxious fumes, gases, or excessive amounts of dust to leave the work area. Notify the Owner at least 24 hours in advance of any scheduled activities that might lead to such emissions.

E. Provide temporary supports and construction as required to prevent movement, collapse, or structural failure of the building, site work or any elements thereof.

END OF SECTION 01 73 00

SECTION 01 74 00

CLEANING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for cleaning during construction and final cleaning prior to Substantial Completion.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 01 73 00 Construction Execution.
2. Special cleaning requirements for specific construction elements are included in appropriate Sections of Divisions 2 through 33.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 – EXECUTION

3.01 CLEANING DURING CONSTRUCTION

A. During construction period, Contractor shall keep the building, Project site, and adjacent properties free from accumulation of debris and waste materials at all times. The Contractor shall execute all cleaning procedures necessary to maintain these conditions.

B. Provide adequate on-site containers for waste collection. Place all waste materials and debris in said containers in an expeditious manner to prevent accumulation. Remove waste from Project site when containers become full. Legally dispose of all such waste and debris off Project site. Dispose of no materials in adjacent waterways.

C. Control windblown dust and materials subject to blowing. Wet down materials as necessary to prevent such occurrences.

D. Allow no accumulation of food scraps or organic debris that may contribute to spread of rats, roaches, and other vermin. Contractor shall be responsible for securing services of any pest extermination during construction through Substantial Completion.

E. Allow no graffiti or similar distasteful comments or illustrations to be authored on building materials or on any temporary or permanent construction on the Project site. Contractor shall monitor the Project for violations of this item, and shall take action to clean, cover, or replace subject materials as necessary.

3.02 FINAL CLEANING

A. Prior to Date of Substantial Completion, clean all finished surfaces in accordance with manufacturers' product data and requirements of applicable sections of Specifications. All said cleaning shall be performed prior to Contractor's request that the Project or portion thereof be inspected for Substantial Completion. For the "final cleaning" employ experienced workers or professional cleaners. Quality of cleaning work shall be as expected in standard commercial building cleaning and maintenance programs.

B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project or a portion of the Project.

1. Clean the Project Site, yard and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and foreign substances.
2. Sweep paved areas and concrete surfaces broom clean. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
3. Remove petrochemical spills, stains, and other foreign deposits.
4. Remove tools, construction equipment, machinery, and surplus material from the site.
5. Clean exposed exterior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
6. Remove labels that are not permanent labels.
7. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
   a. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
8. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
9. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs and defective and noisy starters in fluorescent and mercury vapor fixtures.
10. Leave the Project clean and ready for occupancy.

C. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.

D. Compliances: Comply with governing regulations and safety standards for cleaning operations. Make Material Safety Data Sheets (MSDS) available as required by applicable legal requirements for all cleaning agents used on the Project site. Remove waste materials from the site and dispose of lawfully. Comply fully with federal, state and local environmental and antipollution regulations.

3.03 GENERAL SITE MAINTENANCE

A. Take precautions to prevent pollution of air, water and soil.

1. Do not burn or bury waste materials or debris on Project site. Comply with government regulatory and legal requirements for disposal of waste.

2. Do not dispose of volatile wastes such as paint, mineral spirits, oils or paint thinner in storm or sanitary drains, on pavements or in gutters of Project site.
3. Do not handle or dispose of waste materials, debris, cleaning compounds or other chemicals in a manner that will contaminate the soil or be harmful to plant life on the Project site.
4. Comply with laws, rules regulations, ordinances, codes and authorities having jurisdiction over safety and environmental standards affecting the Project.

B. Minimize discharge of rainwater and effluent into sewer and adjacent waterways.

1. Provide temporary means of drainage to prevent flooding and ponding on the Project site.
2. Prevent site erosion due to stormwater runoff.
3. Control sediment discharges; filter out soil, debris and contaminants.
4. Comply with all laws, rules, regulations, ordinances, codes and other legal requirements governing erosion control and stormwater runoff both on the Project site and leaving the Project site.

C. Keep adjacent public ways free of debris, hazardous and unsanitary conditions and nuisances. Provide adequate traffic control by means of signs, signals and flagmen, as necessary.

END OF SECTION 01 74 00

SECTION 01 77 00

CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Substantial Completion Procedures
2. Final Completion Procedures

1.03 DEFINITIONS

A. Substantial Completion: The time at which the Work is sufficiently complete in accordance with the Contract Documents so that the owner can occupy or use the Work for it intended purpose.

B. Final Completion: The stage at which all the Work has been satisfactorily completed in accordance with the Contract Documents.

C. List of Incomplete Work: A comprehensive list of items to be completed or corrected, prepared by the Contractor for the purpose of obtaining certification of Substantial Completion. This list is also referred to as a "punch list."

1.04 SUBSTANTIAL COMPLETION PROCEDURES

A. The Architect will perform one (1) inspection for Substantial Completion upon the request of the Contractor. One (1) Certificate of Substantial Completion will be issued for the project; this certificate will include all of the Work and not a portion or portions. If the Architect is unable to issue the Certificate of Substantial Completion because the Work is not considered to be substantially complete, the Contractor shall pay all subsequent inspection costs, including compensation for the Architect's services.

B. Prior to requesting Architect's inspection for Certificate of Substantial Completion, complete the following activities and list all known exceptions in the request:

1. Obtain and submit the Certificate of Completion and any applicable operating permits from authorities having jurisdiction. Said certificates and permits (if applicable) shall enable City shall have full and unrestricted use of the Work, and unrestricted access to services and utilities.
2. Touch up and otherwise repair and restore marred exposed finishes and conduct the final cleaning of the Project as directed elsewhere in these Specifications.
3. Inform Owner of necessary procedures for changing over utilities and services and other operational and maintenance responsibilities.
4. Conduct for the Owner's personnel the demonstrations of equipment and systems and provide the operations and maintenance training required by the Contract Documents.
5. Complete all graphics and signage, paving marking, and traffic control signage.
6. Remove all temporary facilities from the Project site.

7. Deliver to the Owner all tools, spare parts, extra stocks of materials, and similar physical items as required by the Contract Documents.
8. Complete all other activities specified by the Contract Documents to be completed before Substantial Completion.

C. Prior to requesting Architect's inspections for Substantial Completion, complete the following submittals (in triplicate unless specified otherwise):

1. List of incomplete work.
2. Reports on operations and maintenance training for Owner's personnel.
3. All submittals specified in the Contract Documents to be completed before Substantial Completion.

D. On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following the inspection or advise the Contractor of construction that must be completed or corrected before the Certificate will be issued. In the latter case, any follow-up inspections that must occur prior to granting Substantial Completion will be considered additional services by the Architect and will be compensated by the Contractor. The Certificate of Substantial Completion will be accompanied as necessary by a list of deficient work items (a Punch list) that must be completed or corrected by the Contractor prior to his requesting an inspection by the Architect for final acceptance and final completion of the Project.

E. Upon completion of the inspection and determination that the Work is substantially complete; the Architect's shall prepare a Certificate of Substantial Completion (on AIA Form No. G704, 2000 edition, or its equivalent) establishing a date when the Project is sufficiently complete and suitable for the use it is intended, and identifying a Punch list. The Architect and City shall execute said Certificate.

1.05 FINAL COMPLETION PROCEDURES

A. The Contractor's request for final inspection and final application for payment may coincide. The Architect will perform only one inspection for Final Completion, upon the request of the Contractor. The Contractor should take care that all requirements for Final Completion as indicated in the paragraphs below have been completed prior to submitting their request. If the Architect is unable to issue the certificate for final payment because the Work is not complete, the Contractor shall pay all subsequent inspection costs, including compensation for the Architect's services.

B. Prior to requesting Architect's final inspection for certificate of Final Completion and Final Payment, complete the following items and list any known exceptions in the request:

1. Submit a copy of the Punch list of itemized work to be completed or corrected, stating that each item has been completed, corrected or otherwise resolved for acceptance.
2. Submit final pay application accounting for all changes in Contract Sum, with final releases and support not previously submitted and accepted, including Consent of Surety to Final Payment.
3. Submit special warranties, workmanship bonds, maintenance agreements, final certifications and similar documents required by Contract Documents or related to installed equipment and materials. Submit required closeout submittals listed herein.

C. Closeout Submittals:

1. Warranties: In accordance with Contract Documents, Contractor shall furnish his one- year warranty in writing, on the form bound hereinafter. Warranties for a longer period of time may be required by the Specifications. These warranties of a longer period also shall

be assembled and submitted. Unless otherwise specified, all warranties shall commence on the Date of Substantial Completion. The warranties shall state the date on which they expire.

2. Statutory Affidavit: Before final closeout of the Work, the Contractor and Subcontractors shall furnish a Statutory Affidavit in the form attached to this section.

3. Inspection Reports: Secure and submit to the Owner, through the Architect, a certification from the local government agency or agencies having jurisdiction that the construction has been inspected as required by laws or ordinances, and that the Project is acceptable to the following authorities:
   Local Building Inspector
   Local Plumbing Inspector
   Local Electrical Inspector
   Local Dept. of Public Utilities

4. Certificate of Substantial Completion and Certificate of Final Completion: A Certificate of Substantial Completion including an accompanying Punch list for the Project will be prepared by the Architect for the purpose of establishing a date when the Project is sufficiently complete and suitable for the use it is intended. On final inspection of the Project, submit a Certificate of Final Completion verifying that Punch list items are complete and that all closing documents and payments are in order (as shown by the accompanying project close-out check list), and establishing a Date of Final Acceptance.

5. Project Record Documents: Submit to the Owner through the Architect the Project Record Documents (Drawings and Project Manual) specified elsewhere in these Specifications.

6. Maintenance & Operations Manuals: Submit to the Owner through the Architect the Operations and Maintenance Manuals specified elsewhere in these Specifications.

7. Materials and Services List: In addition to the Maintenance and Operations Manuals, prepare and submit to the Owner through Architect a list of all subcontractors and major suppliers who provided products, materials and services for the Project. Indicate company names, addresses, phone numbers, and personnel to contact for information or in case of problems. The list shall be typed in legible and organized format.

8. Close Out Documents:
   1. Special Warranties in excess of one (1) year sections 2 to 33
   3. Operations and Maintenance Data
   4. Project Record Documents

PROJECT CLOSE-OUT

CHECK OFF LIST

DOCUMENTS	NO. OF COPIES	DATE RECEIVED
Contractor's Warranty	_____	_____
Statutory Affidavit (Contractor's)	_____	_____
Statutory Affidavit (Sub-contractors')	_____	_____
Inspection Reports:		
Local Building Inspector	_____	_____
Local Plumbing Inspector	_____	_____
Local Electrical Inspector	_____	_____
Local Dept. of Public Utilities	_____	_____
Fire Marshal Occupancy Certificate	_____	_____
Planning & Development Occupancy Certificate	_____	_____
Record Drawings and Specifications	_____	_____
Operations and Maintenance Manuals & related Submittals	_____	_____
Certificate of Receipt of Keys and Schedule	_____	_____

PROJECT CLOSE-OUT
CHECK-OFF LIST
(Continued)

	NO. OF COPIES	DATE RECEIVED
Special Warranties (beyond one-year limit): (List appropriate warranties)		

PROJECT CLOSE-OUT

CHECK OFF LIST
(Continued)

	NO. OF COPIES	DATE RECEIVED
DOCUMENTS		
Punch List Items Completed	_____	_____
Certificate of Substantial Completion	_____	_____
Certificate of Final Completion	_____	_____
Consent of Surety of Final Payment	_____	_____

I certify that, being familiar with the Contract Documents for this Project, to the best of my knowledge, the items checked off hereinabove constitute all that are applicable to this Project.

Date Submitted to the Architect: _____

Date Submitted to the Owner: _____

_____ Contractor:

_____ Architect: Precision Planning, Inc.

STATUTORY AFFIDAVIT

STATE OF Georgia, COUNTY OF Gwinnett

FROM: _____
TO: _____

RE: Contract entered into the _____ day of _____ 20 ___, between the above mentioned parties for the construction of _____ _____ at _____

KNOW ALL MEN BY THESE PRESENTS:

1. The Undersigned hereby certifies that all work required under the above contract has been performed in accordance with the terms thereof, that all material, men, subcontractors, mechanics, and laborers have been paid and satisfied in full, and that there are no outstanding claims of any character arising out of the performance of the contract which have not been paid and satisfied in full.

2. The undersigned further certifies that to the best of his knowledge and belief there are no unsatisfied claims for damages resulting from injury or death to any employees, subcontractors, or the public at large arising out of the performance of the contract, or any suits or claims for any other damage of any kind, nature, or description which might constitute a lien upon the property of the County.

   The undersigned makes this affidavit as provided by law and for the purpose of receiving final payment in full settlement of all claims arising under or by virtue of the contract, and acceptance of such payment is acknowledged as a release of the County from any and all claims under or by virtue of the contract.

IN WITNESS WHEREOF, the undersigned has signed and sealed this instrument this day of _____, 20 ___.

Personally appeared before the undersigned, _____ who, after being duly sworn, depose(s) and say(s) that the facts stated in the above affidavit are true.

_____
Notary Public

This _____ date of _____, 20___.

My commission expires_____

CERTIFICATE OF FINAL COMPLETION

OWNER: **City of Lawrenceville** CONTRACTOR: _____

ARCHITECT: _____ BONDING CO.: _____

PROJECT NAME: **City of Lawrenceville Pink Parking Lot**

CONTRACTOR: _____

(Name, Address) _____

_____

TO (OWNER): **City of Lawrenceville**

THIS CERTIFICATE COVERS THE ENTIRE PROJECT

By execution of this document, the Contractor and Architect each certify that the work performed under this Contract has been reviewed at a final inspection on _____, and found to be complete as verified by the attached project Close-Out Check-Off list, and the County accepts the Project as complete on the last date of this Certificate. Final payment to the Contractor is authorized. Execution and acceptance of this Certificate by the County, shall in no way waive or void any conditions of the Contract Documents.

A certificate of Substantial Completion has been issued establishing _____, as the date of beneficial use and the commencement of all Warranties and Guarantees required by the Contract Documents.

_____

ARCHITECT BY DATE

_____

CONTRACTOR BY DATE

City of Lawrenceville

OWNER BY DATE

END OF SECTION 01 77 00

SECTION 01 78 20

OPERATIONS AND MAINTENANCE DATA

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for operation and maintenance manuals, including the following:
   1. Preparing and submitting operation and maintenance manuals for building operating systems and equipment.
   2. Preparing and submitting instruction manuals covering the care, preservation, and maintenance of architectural products and finishes.
   3. Instruction of the Owner's operating personnel in the operation and maintenance of building systems and equipment.

B. Related Sections: The following sections contain requirements that relate to this section:
   1. Division 1, Section Submittals, specifies preparation of Shop Drawings and Product Data.
   2. Division 1, Section Contract Closeout, specifies general closeout requirements.
   3. Division 1, Section Project Record Documents, specifies record document requirements.
   4. Appropriate Sections of Divisions 2 through 33 specify special operation and maintenance data requirements for specific pieces of equipment or building operating systems.

1.03 QUALITY ASSURANCE

A. Maintenance Manual Preparation: In preparation of maintenance manuals, use personnel thoroughly trained and experienced in operation and maintenance of equipment or system involved.
   1. Where maintenance manuals require written instructions, use personnel skilled in technical writing where necessary for communication of essential data.
   2. Where maintenance manuals require drawings or diagrams, use draftsmen capable of preparing drawings clearly in an understandable format.

B. Instructions for the Owner's Personnel: Use experienced instructors thoroughly trained and experienced in operation and maintenance of equipment or system involved to instruct the Owner's operation and maintenance personnel.

1.04 SUBMITTALS

A. Submittal Schedule: Comply with the following schedule for submitting operation and maintenance manuals:
   1. Before Substantial Completion, when each installation that requires operation and maintenance manuals is nominally complete, submit a draft copy of each manual to the Architect for review. Include a complete index or table of contents of each manual. The Architect will return the draft with comments within 15 days of receipt.

2. Contractor must incorporate all of Architect's revisions and comments and submit final acceptable operations and maintenance manuals to Architect prior to requesting Final Completion on the Project.

B. Form of Submittal: **Prepare operation and maintenance manuals in the form of an instructional manual for use by the Owner's operating personnel [one (1) hard copy and one (1) electronic version in PDF format].** Organize into suitable sets of manageable size. Where possible, assemble instructions for similar equipment into a single binder.

1. Binders: For each manual, provide heavy-duty, commercial-quality, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to receive 8-1/2-by-11- inch paper. Provide a clear plastic sleeve on the spine to hold labels describing contents. Provide pockets in the covers to receive folded sheets.
   a. Where 2 or more binders are necessary to accommodate data, correlate data in each binder into related groupings according to the Project Manual table of contents. Cross-reference other binders where necessary to provide essential information for proper operation or maintenance of the piece of equipment or system.
   b. Identify each binder on front and spine, with the printed title "Operation and Maintenance Manual," Project title or name, and subject matter covered. Indicate volume number for multiple volume sets of manuals.
2. Dividers: Provide heavy paper dividers with celluloid-covered tabs for each separate Section. Mark each tab to indicate contents. Provide a typed description of the product and major parts of equipment included in the section on each divider.
3. Text Material: Where maintenance manuals require written material, use the manufacturer's standard printed material. If manufacturer's standard printed material is not available, provide specially prepared data, neatly typewritten, on 8-1/2-by-11-inch white bond paper.
4. Drawings: Where maintenance manuals require drawings or diagrams, provide reinforced, punched binder tabs on drawings and bind in with text.
   a. Where oversize drawings are necessary, fold drawings to the same size as text pages and use as a foldout.
   b. If drawings are too large to be used practically as a foldout, place the drawing, neatly folded, in front or rear pocket of binder. Insert a typewritten page indicating drawing title, description of contents, and drawing location at the appropriate location in the manual.

1.05 MANUAL CONTENT

A. In each manual include information specified in the individual Specification Section and the following information for each major component of building equipment and its controls:

1. General system or equipment description.
2. Design factors and assumptions.
3. Copies of applicable shop drawings and product data.
4. System or equipment identification, including:
   a. Name of manufacturer.
   b. Model number.
   c. Serial number of each component.
5. Operating instructions.
6. Emergency instructions.
7. Wiring diagrams.
8. Inspection and test procedures.

9. Maintenance procedures and schedules.
10. Precautions against improper use and maintenance.
11. Copies of warranties.
12. Repair instructions including spare parts listing.
13. Sources of required maintenance materials and related services.
14. Manual index.

B. Organize each manual into separate sections for each piece of related equipment. As a minimum, each manual shall contain a title page; a table of contents; copies of product data, supplemented by drawings and written text; and copies of each warranty, bond, and service contract issued.

1. Title Page: Provide a title page in a transparent, plastic envelope as the first sheet of each manual. Provide the following information:
   a. Subject matter covered by the manual.
   b. Name and address of the Project.
   c. Date of submittal.
   d. Name, address, and telephone number of the Contractor.
   e. Name and address of the Architect.
   f. Cross-reference to related systems in other operation and maintenance manuals.
2. Table of Contents: After title page, include a typewritten table of contents for each volume, arranged systematically according to the Project Manual format. Include a list of each product included, identified by product name or other appropriate identifying symbol and indexed to the content of the volume.
   a. Where a system requires more than one volume to accommodate data, provide a comprehensive table of contents for all volumes in each volume of the set.
3. General Information: Provide a general information section immediately following table of contents, listing each product included in the manual, identified by product name. Under each product, list the name, address, and telephone number of the subcontractor or installer and the maintenance contractor. Clearly delineate the extent of responsibility of each of these entities. Include a local source for replacement parts and equipment.
4. Product Data: Where the manuals include manufacturer's standard printed data, include only sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation. Where the Project includes more than one item in a tabular format, identify each item, using appropriate references from the Contract Documents. Identify data that is applicable to the installation, and delete references to information that is not applicable.
5. Written Text: Prepare written text to provide necessary information where manufacturer's standard printed data is not available, and the information is necessary for proper operation and maintenance of equipment or systems. Prepare written text where it is necessary to provide additional information or to supplement data included in the manual. Organize text in a consistent format under separate headings for different procedures. Where necessary, provide a logical sequence of instruction for each operation or maintenance procedure.
6. Drawings: Provide specially prepared drawings where necessary to supplement manufacturer's printed data to illustrate the relationship of component parts of equipment or systems or to provide control or flow diagrams. Coordinate these drawings with information contained in Project Record Drawings to assure correct illustration of the completed installation.
   a. Do not use original Project Record Documents as part of operation and maintenance manuals.
7. Warranties, Bonds, and Service Contracts: Provide a copy of each warranty, bond, or service contract in the appropriate manual for the information of the

Owner's operating personnel. Provide written data outlining procedures to follow in the event of product failure. List circumstances and conditions that would affect validity of warranty or bond.

1.06 MATERIAL AND FINISHES MAINTENANCE MANUAL

A. **Submit two (2) copies of each manual and one (1) electronic PDF**, in final form, on material and finishes to the Architect for distribution. Provide one section for architectural products, including applied materials and finishes. Provide a second section for products designed for moisture protection and products exposed to the weather.
   1. Refer to individual Specification Sections for additional requirements on care and maintenance of materials and finishes.

B. Architectural Products: Provide manufacturer's data and instructions on care and maintenance of architectural products, including applied materials and finishes.
   1. Manufacturer's Data: Provide complete information on architectural products, including the following, as applicable:
      a. Manufacturer's catalog number.
      b. Size.
      c. Material composition.
      d. Color.
      e. Texture.
      f. Reordering information for specially manufactured products.
   2. Care and Maintenance Instructions: Provide information on care and maintenance, including manufacturer's recommendations for types of cleaning agents to be used and methods of cleaning. Provide information on cleaning agents and methods that could prove detrimental to the product. Include manufacturer's recommended schedule for cleaning and maintenance.

C. Moisture Protection and Products Exposed to the Weather: Provide complete manufacturer's data with instructions on inspection, maintenance, and repair of products exposed to the weather or designed for moisture-protection purposes.
   1. Manufacturer's Data: Provide manufacturer's data giving detailed information, including the following, as applicable:
      a. Applicable standards.
      b. Chemical composition.
      c. Installation details.
      d. Inspection procedures.
      e. Maintenance information.
      f. Repair procedures.

D. Schedule: Provide complete information in the materials and finishes manual on products specified in the following sections:

1.07 EQUIPMENT AND SYSTEMS MAINTENANCE MANUAL

A. **Submit two (2) copies of each manual and one (1) electronic PDF**, in final form, on equipment and systems to the Architect for distribution. Provide separate manuals for each unit of equipment, each operating system, and each electric and electronic system.
   1. Refer to individual Specification Sections for additional requirements on operation and maintenance of the various pieces of equipment and operating systems.

B. Equipment and Systems: Provide the following information for each piece of equipment, each building operating system, and each electric or electronic system.

1. Description: Provide a complete description of each unit and related component parts, including the following:
   a. Equipment or system function.
   b. Operating characteristics.
   c. Limiting conditions.
   d. Performance curves.
   e. Engineering data and tests.
   f. Complete nomenclature and number of replacement parts.
2. Manufacturer's Information: For each manufacturer of a component part or piece of equipment, provide the following:
   a. Printed operation and maintenance instructions.
   b. Assembly drawings and diagrams required for maintenance.
   c. List of items recommended to be stocked as spare parts.
3. Maintenance Procedures: Provide information detailing essential maintenance procedures, including the following:
   a. Routine operations.
   b. Troubleshooting guide.
   c. Disassembly, repair, and reassembly.
   d. Alignment, adjusting, and checking.
4. Operating Procedures: Provide information on equipment and system operating procedures, including the following:
   a. Startup procedures.
   b. Equipment or system break-in.
   c. Routine and normal operating instructions.
   d. Regulation and control procedures.
   e. Instructions on stopping.
   f. Shutdown and emergency instructions.
   g. Summer and winter operating instructions.
   h. Required sequences for electric or electronic systems.
   i. Special operating instructions.
5. Servicing Schedule: Provide a schedule of routine servicing and lubrication requirements, including a list of required lubricants for equipment with moving parts.
6. Controls: Provide a description of the sequence of operation and as-installed control diagrams by the control manufacturer for systems requiring controls.
7. Coordination Drawings: Provide Contractor's coordination drawings.
   a. Provide as-installed, color-coded, piping diagrams, where required for identification.
8. Valve Tags: Provide charts of valve-tag numbers, with the location and function of each valve.
9. Circuit Directories: For electric and electronic systems, provide complete circuit directories of panelboards, including the following:
   a. Electric service.
   b. Controls.
   c. Communication.

C. Schedule: Provide complete information in the equipment and systems manual on products specified in the following sections:

1.08 INSTRUCTIONS FOR THE OWNER'S PERSONNEL

A. Refer to Spec Section 01 81 50 System Demonstration and Training for additional requirements.

B. Prior to the Date of Substantial Completion, instruct personnel designated by the Owner in the operation and maintenance of equipment and systems:

1. Systems shall include but not necessarily be limited to:
   a. Electrical power and lighting
   b. Irrigation System
2. For equipment and operable systems, explain all modes of operation. Demonstrate all functions, including startup, operation, control, adjustment, shutdown, servicing, and maintenance..
3. Review terms of warranties and procedures for obtaining warranty service.
4. Have operating and maintenance data available for use during instruction. Review contents with Owner's personnel. Prepare and insert additional data when need becomes apparent during instruction.

C. Arrange times and places for instruction with Owner. Provide instruction by qualified personnel of Contractor, their subcontractor, or applicable manufacturer's representative.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 01 78 20

SECTION 01 78 40

WARRANTIES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.

B. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 1, Section Contract Closeout, specifies contract closeout procedures.
2. Divisions 2 through 33 Sections for specific requirements for warranties on products and installations specified to be warranted.
3. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.03 DEFINITIONS

A. Contractor's Warranty: Contractor shall provide a warranty on the Project that warrants that all labor and materials furnished and work performed are in accordance with the Contract Documents and will be free from defects due to defective materials and/or workmanship for a period of one year from the Date of Substantial Completion. Warranty shall be provided on the form provided in this Specification Section.

B. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

C. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.04 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.

D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

E. Where the Contract Documents require a special warranty, or similar commitment on the work or part of the work, the Owner reserves the right to refuse to accept the work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.05 SUBMITTALS

A. Submit written warranties to the Architect effective on the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.

B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect, for approval prior to final execution. Refer to Specifications Divisions 2 through 33 for specific Contract requirements and particular requirements for submitting special warranties.

C. Form of Submittal: **Compile two (2) hard copies and one (1) electronic copy PDF** of each required warranty properly executed by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

D. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the installer.
2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.

3. Provide additional copies of each required warranty, as necessary, for inclusion in each required Operations and Maintenance Manual.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION

3.01 LIST OF WARRANTIES

A. Schedule: Provide warranties on products and installations as specified in the following Sections:

All utilized Sections 1 through 33 as indicated.

3.02 CONTRACTOR'S WARRANTY

A. The format of submission of the Contractor's Warranty is included on the subsequent page in this Specification Section.

CONTRACTOR WARRANTY FORM

PROJECT:

LOCATION:

OWNER:

We, _____, Contractor
(Contractor's Name)

for the above referenced project, do hereby warrant that all labor and materials furnished and work performed are in accordance with the Contract Documents and authorized modifications thereto, and will be free from defects due to defective materials and/or workmanship for a period of one year from the Date of Substantial Completion. This Warranty commences on:

_____
(Date of Substantial Completion)

and expires on:

_____
(One Year from Commencement Date)

Should any defect develop during the warranty period due to improper materials, workmanship or arrangement; the same, including adjacent work displaced, shall be made good by the undersigned at no expense to the Owner.

The Owner will give the Contractor written notice of defective work. Should Contractor fail to correct defective work within sixty (60) days after receiving notice, the Owner may at its option, correct defects and charge Contractor costs for such correction. Contractor agrees to pay such charges upon demand.

Nothing in the above shall be deemed to apply to work that has been abused or neglected by the Owner or that was installed by another contractor.

For:_____
(Company Name)

By:_____

Title:_____

Date:_____

END OF SECTION 01 78 40

SECTION 01 81 00

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Maintenance of project record documents
2. Record drawings or "as-builts".
3. Record specifications
4. Operations and Maintenance manuals.

1.02 SUBMITTALS

A. Project Record Documents: Project record documents consist of three (3) submittals: Record Drawings, Record Specifications, and Operations and Maintenance Manuals. These submittals shall be provided to the Owner through the Architect after the Date of Substantial Completion inspection:

1. Record Drawings: Submit one (1) electronic set to the Architect in form PDF, marked and altered as required in this Section. Submit all drawings, whether or not they have been modified.
2. Record Specifications: Submit to Architect one (1) legible set marked or altered as required in this Section.
3. Operations and Maintenance Manuals: Submit to Architect two (2) complete hard copy sets and one (1) electronic PDF prepared in the manner described herein.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 MAINTENANCE OF PRODUCT RECORD DOCUMENTS

A. Assign a person responsible for preparing and maintaining all record documents. Maintain the record documents in a secure location at the Project site but insure that they are accessible to Contractor and Architect during normal working hours. Do not use the record documents for any type of construction purposes in the field.

B. Record information on record documents as soon as possible after it is obtained. Mark Drawings and Specifications with a red pencil; make certain all notations are clearly legible. Incorporate into existing sets all new Drawings or Specifications issued by Architect. Mark shop drawings if better suited to show the actual work.

3.02 RECORD DRAWINGS

A. Maintain a complete set of opaque prints of the Drawings, including all sheets issued by Architect for addenda, clarifications or modifications. Record all information that indicates how the actual work differs from the Drawings and shows the details of installation that will not be obvious upon completion of construction, including:

1. Existing conditions in variance with Contract Documents.
2. Locations and depths of underground utilities.
3. Actual equipment locations.
4. Changes made by Change Order.

5. Changes made following the Architect's written order or directives.
6. Details not on original Contract Drawings.
7. Dimensional or location changes.
8. New and revised details for assemblies, attachments, fittings, adjacencies, etc.
9. Actual routings of plumbing piping and electrical conduits.
10. Revisions to electrical circuits.
11. Locations particular on other critical system elements concealed in construction.
12. Changes made by Contract modifications, cross-referenced to applicable modification.
13. New information that may be useful to the Owner, which was not shown in Contract Documents or subsequent product submittals, including details or clarifications issued by Architect as responses to Contractor's requests.

B. Where a record drawing also is required as part of Operations and Maintenance Manuals, copy notations and marks to another copy of applicable drawings for said purpose. Also mark shop drawings as may be necessary for use in such manuals.

C. Responsibility for Markup: The individual or entity who obtained record data, whether the individual or entity is the installer, subcontractor, or similar entity, shall prepare the markup on Record Drawings. Contractor has responsibility to insure that this record is maintained.

1. Accurately record information in an understandable drawing technique.
2. Record data as soon as possible after obtaining it. Record and check the markup prior to enclosing concealed installations.
3. At time of Final Completion, submit Record Drawings to the Architect for the Owner's records.

3.03 RECORD SPECIFICATIONS

A. Maintain a complete set of Specifications, including all pages issued by Architect for addenda, clarifications, and modifications. Record all information that indicates how the actual work differs from the Specifications, including:

1. Product substitutions.
2. Changes made by Contract modifications, cross-referenced to applicable modifications.
3. New information that may be useful to the Owner, which was not shown in Contract Documents or subsequent product submittals, including details or clarifications issued by Architect as responses to Contractor's requests.

3.04 RECORD PRODUCT DATA

A. During the construction period, maintain one (1) copy of each Product Data submittal for Project Record Document purposes.

1. Mark Product Data to indicate the actual product installation where the installation varies substantially from that indicated in Product Data submitted. Include significant changes in the product delivered to the site and changes in manufacturer'' instructions and recommendations for installation.
2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
3. Note related Change Orders and markup of Record Drawings, where applicable.
4. Upon Final Completion, submit a complete set of Record Product Data to the Architect for the Owner's records.
5. Where Record Product Data is required as part of maintenance manual, submit marked- up Product Data as an insert in the manual instead of submitting as Record Product Data.

3.05 MISCELLANEOUS RECORD SUBMITALS

A. Refer to other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Immediately prior to Final Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the Architect for the Owner's records.

1. Categories of requirements resulting miscellaneous records include, but are not limited to, the following:
   a. Field records on excavations and foundations.
   b. Field records on underground construction in similar work.
   c. Survey showing locations and elevations of underground lines.
   d. Surveys establishing building lines and levels.
   e. Ambient and substrate condition tests.
   f. Certifications received in lieu of labels on bulk products.
   g. Batch mixing and bulk delivery records.
   h. Testing and qualification of tradesmen.
   i. Documented qualification of installation firms.
   j. Load and performance testing.
   k. Inspections and certifications by governing authorities.
   l. Final inspection and correction procedures.

3.06 OPERATIONS AND MAINTENANCE MANUALS

A. Assemble and submit two (2) sets of hard bound, loose-leaf operations and maintenance manuals for the systems, equipment, finishes and other building components listed below in this section and otherwise provided for in the Specifications and one (1) electronic PDF. Bind in individual heavy-duty, two-inch, three-ring binders, with pocket folders for folded sheet information and dividers with labeled index tabs. Label each manual on front and spine, indicating the project name and the nature of the information included in the manual. All text, drawings and diagrams shall be legible and presented in an organized and coherent fashion.

B. The Operations and Maintenance Manuals shall include information on the following building components:

1. Electrical power system, including equipment, distribution, receptacles and connections.
2. Electrical lighting.
3. Electrical powered equipment purchased and installed by Contractor.
4. Miscellaneous equipment purchased and installed by Contractor.
5. Irrigation System

C. For each of these components provide the following information as applicable to the component:

1. Responsible subcontractor with address and phone number.
2. Local supplier(s) with address and phone number.
3. Nearest service organization (if applicable) with address and phone number.
4. Operating instructions.
5. Emergency instructions.
6. Spare parts/stock list.
7. Warranties
8. Preventive maintenance requirements.
9. Cleaning requirements and instructions.
10. Product data and shop drawings (referenced if maintained elsewhere.)
11. Wiring diagrams.
12. Fixture schedule.

END OF SECTION 01 81 00

SECTION 01 81 50

SYSTEM DEMONSTRATION AND TRAINING

PART 1 – GENERAL

1.1 The work of this section consists of demonstrating systems and equipment to operating personnel. It also includes training of personnel.

1.2 COORDINATION

A. Schedule demonstrations and training periods with Owner. Conduct training sessions after the equipment or system has been fully completed and operational, approved by inspections of manufacturer and/or authorities having jurisdiction as required. Schedule and provide training by manufacturer's representatives where required and as requested at no additional cost to the Owner.

B. Training Schedule: This schedule lists the minimum system requirements for training and demonstration.

1. Electrical and Lighting Equipment and Controls Systems

1.3 CLOSEOUT SUBMITTALS

A. As specified in Section 01 77 00.

B. For each training session, the Contractor shall submit for approval a proposed outline of the subjects to be covered. The training shall not be conducted until the outline is approved.

C. Recordings of demonstrations and training sessions:

1. Provide original and one copy of each DVD or Digital Video File
2. Label each DVD or Digital Video File with the date of demonstration or training, the instructor's name, and provide an index of the contents. The index shall list the start and end time of each subject covered during the training session. The sequence of the training subjects shall follow the sequence listed in the approved training outline or as actually conducted.
3. Provide a separate DVD or Digital Video File for each separate training session.

PART 2 – PRODUCTS

2.1 MEDIA REQUIREMENTS

A. DVD format or Digital Video File on Flash Drive.

PART 3 – EXECUTION

3.1 TRAINING

A. As specified herein and in individual sections, furnish the services of instructors to train designated personnel in adjustment, operation, including seasonal and emergency operations, if applicable, maintenance, and safety requirements of equipment and systems. Instructors shall be thoroughly trained in operating theory as well as practical operation and maintenance work for each type of equipment or system. The sequence of the training shall follow the approved training outline.

B. Individual sections specify the duration of training required. If no duration is listed, provide training of sufficient duration to adequately cover the subjects. When more than four days of instruction are specified, use approximately one-half of the time for classroom and the other half for hands-on instruction with the equipment or system.

C. Use Operating and Maintenance Data as a training guide.

3.2 TAPING/RECORDING

A. Document all of the above sessions at the recording speed which produces the highest resolution picture. The instructor's voice shall be clearly audible and understandable on the recording. Utilize a supplemental microphone worn by the instructor.

B. DVD’s or Digital Video Files with poor video or audio quality will be rejected and the training Re-recorded.

END OF SECTION 01 81 50

SECTION 02 17 00

PAVING

PART 1

1.1 MATERIALS

All materials shall meet the requirements referred to in the various sections of the Specifications covering the type of plant mix being constructed.

1.2 LOCATION AND SITE

a) All quantities shown in the Bid Proposal were estimated.

1.3 GENERAL

a) All work under this contract shall be performed under the Georgia Department of Transportation's (GDOT) Standard Specifications for Highway Construction of Transportation Systems (latest editions) specifications and as shown on the drawings specified in this document.

b) The contractor shall be solely responsible for all construction sequencing and shall incorporate the requirements of this section into the Construction Schedule required elsewhere in this document.

c) The contractor shall maintain progress until completion.

d) The contractor shall submit to owner for approval a detailed Overall Project schedule of the Contractor's proposed operations for the duration of the project

e) The contractor shall accept the site in its present condition and carry out all work in accordance with the requirements in this document and specifications and as indicated on the drawings or as directed by the Engineer.

f) The contractor shall remove all loose sand and foreign materials from surface immediately before paving.

g) Paving machinery and equipment will be via the existing site and needs to take extreme care not to damage private property or existing utilities. All construction work shall be within the ROW and or property boundaries.

h) The Contractor shall provide, erect and maintain all traffic control during construction as describe under TRAFFIC CONTROL until completion.

i) The Contractor will designate a traffic control supervisor who has the Contractor's authority to respond to traffic control requirements and who will provide surveillance of traffic conditions through the Work Zone. This person or qualified designate will be available at all times, when the Contractor is working.

j) The Contractor shall be responsible for adjusting Manholes if any. The contractor to ensure well in advance to arrange with Gwinnett County.

k) The contractor shall be responsible for all traffic control during paving operations and is responsible for the location of above and below-ground utilities and structures, which may be affected by the work.

l) A traffic control person shall be provided at each paver during asphalt mix lay-down operations. This individual's sole duty during asphalt mix lay-down operations shall be to ensure safe conditions.

1.4 QUALITY

a) All construction joints, longitudinal joints and street edges to be straight, to have the same texture, density and smoothness as adjacent section of asphalt concrete course to ensure a smooth ride especially over Manholes and existing utility cuts.

b) Transition must be smooth between the existing pavement and new pavement at the start and end of each street and also on side streets.

c) Surface course shall be of uniform quality throughout and conform to the requirements of Section 828, "Type" (as specified) in the Georgia Department of Transportation for Standard specifications on all "Type" asphalt as specified in this document.

d) Test finished surface of the new asphalt surface course shall be conducted for smoothness using a 10 foot straightedge.

e) Intervals of test shall be directed by the Engineer.

f) Surfaces exceeding ¼ inch in 10 feet will not be acceptable and shall be milled out at the contractor's expense.

g) No paving operations will start when surface is wet, temperatures too low, frozen or contain excess moisture.

h) Check crown, grade and smoothness after breakdown rolling.

i) The contractor must ensure that after paving that NO water is trapped on the road – all storm water surface water to drain completely off the road.

j) Each surface course after compaction shall conform to the indicated grade, cross-section, finish thickness, and density as specified.

k) Areas showing segregation shall be fixed immediately before the breakdown roller break's it down

l) When terminating paving operations for the day, the Contractor shall construct temporary hot-mix ramps at all vertical joints which are greater than (1-1/2 inches) in height and transverse to through traffic.

1.5 PAVING

a) Place mixture in as continuous an operation as possible and at a min. temperature of 260° degrees F and at a rate that will ensure handling and compaction before mixture becomes cooler than acceptable working temperature. Compact mixtures as soon as it will bear the weight of the roller without being displaced and hair-cracked. Spread mixture immediately after it has been dumped into the hopper.

b) No asphalt will be put down that's below required temperature and will be hauled off and not be paid for by the owner.

c) Each truckload shall be covered with a suitable tarpaulin while in transit and while waiting to be unloaded to prevent unnecessary heat loss.

d) Cut back edge of previously placed course to expose an even, vertical surface for full course thickness.

e) Check crown, grade and smoothness after breakdown rolling.

f) Repair areas by losing at once with lutes or rakes and filling, if required with hot loose material before continuing rolling.

g) The overlay surface course shall be uniform quality throughout and shall conform to the requirements of Section 400 & 828 of the Georgia Department of Transportation Standard Specifications latest addition.

h) All existing asphalt surface shall be dry, sweep clean and free of grass/wheat before apply tack.

i) Tack coat shall conform to the requirements of Section 413 of the Georgia Department of Transportation Standard Specifications latest addition. Application CRS-2h 140°F. - 180°F with existing street asphalt surface above 45 °F.

j) Some driveways may require the curb to be filled in after milling and/or after resurfacing as directed by the Engineer. This work shall be accomplished at no expense to the owner.

k) The asphalt shall have a temperature of not less than 260° degrees Fahrenheit.

l) Any longitudinal edge that has been damaged by traffic or equipment shall be trimmed to provide a vertical abutting face.

m) Vertical surfaces of roadway appurtenances shall be tack coated to the top of the new pavement.

n) The contact edge of abutting cooled asphalt pavement shall be thoroughly painted with a uniform coat of emulsified asphalt.

o) When paving an adjoining parallel mat there shall be at least a 2" overlap onto the previously paved surface. This overlap shall be properly constructed to form a homogeneous bond between the two mats.

p) Disposal of Raking Material, any raked material from the joints shall NOT be placed on the new mat or placed in or in front of the paver. The Contractor shall dispose of the material in a manner acceptable to the Engineer.

q) Along curbs, manholes, headers and similar structures which are not accessible to rollers, through compaction shall be obtained, by use of vibrating tampers and hand rollers or other suitable methods.

1.6 TRANSPORTATION OF BITUMINOUS MIXTURE

a) The mixture shall be transported from the mixing plant to the point of use in vehicles that have tight, clean, smooth metal beds that have been sprayed with a lime solution, a soap and oil solution, or other approved material, to prevent the mixture from adhering to the beds.

b) Lubrication of the truck boxes, pavers, rollers or other equipment in contact with asphalt mix with diesel fuel will NOT be permitted. A list of potential alternative products evaluated by industry is available on the BC Safety network web page, "Resources"- "Diesel Alternative Committee":

c) Vehicles for transporting and delivering mixtures shall conform to GDOT Section 400.2.01- Hot mix asphalt. Each vehicle shall be covered with a canvas or other suitable material.

d) All covers shall be so constructed and secured as to prevent the entrance of moisture and the rapid loss of temperature.

e) A 3/8 inch diameter hole shall be provided on each side of the vehicle body near the center of the body and 6 inches above the bed of the vehicle for the purpose of inserting a thermometer.

f) The temperature of the mixture immediately prior to discharge from the hauling vehicle shall be within a tolerance of plus 15° degrees F. to minus 25° degrees F. of the specified job mix temperature.

1.7 SPREADING AND FINISHING

a) Tack coat shall be applied in accordance with the provisions and specifications of Section 413 of the Georgia Department of Transportation Standard Specifications latest addition.

b) The bituminous mixture shall be spread and struck off to the required grades, cross-sections, and thickness by self-contained, power-propelled pavers.

c) The pavers shall be equipped with an activated screed or strike-off assembly which is designed to be preheated and shall have a sliding shoe attachment that will form a slope on the edge of the mixture which will prevent edge raveling when the mixture is compacted.

d) A string line shall be placed by the Contractor for the first lane of each layer of mixture placed to provide alignment control for the paver, except that a string line will not be required when the first layer is placed adjacent to a curb section.

e) Pavers shall be operated at forward speeds consistent with satisfactory laying of the mixture and plant production in order to provide a uniform and continuous laydown operation.

f) Should unevenness of texture, tearing, or shoving occur during the paving operation due to unsatisfactory methods or equipment, the Contractor shall immediately take such action as may be necessary to correct such unsatisfactory work.

g) When placing adjacent lanes of the same course, pavers shall be equipped with a joint matching device which will automatically provide control of the depth of the mixture being placed so that, when compacted, it will match the depth of the existing lane.

h) When required by the Engineer, pavers shall be equipped with a joint matching device which will automatically

provide control of the depth of the mixture being placed so that, when compacted, it will match the depth of the existing lane.

i) When required by the Engineer, pavers shall be equipped with a control system which will automatically control the longitudinal profile and cross slope of the pavement by the use of either a mobile string line or fixed string line. When a fixed string line is required, the Engineer will furnish grade stakes for the finished pavement grade and the Contractor shall furnish and erect the necessary guideline for the equipment.

j) The Engineer will waive the requirement for automatic paver controls in areas where the use of such equipment is impractical due to irregular cross-section or shape. In the case of malfunction of the automatic control equipment, the Contractor may manually operate the paver for the remainder of the workday only.

k) The Engineer will waive the requirement for use of pavers for spreading and finishing where irregularities or obstacles make their use impractical and the Contractor shall spread, rake, and lute the mixture by hand methods.

l) Roadway paving shall be as continuous as possible.

m) Intersections and irregular areas shall be paved after the adjacent roadway has been paved.

1.8 JOINTS

Transverse Joints:

- When the laying of the mixture is to be suspended long enough to permit the mixture to become chilled, transverse joints shall be constructed.
- At the end of the day's operation the Contractor shall construct a sloped wedge ahead of the end of the full depth pavement to provide for proper compaction and protection of the full depth pavement.
- When directed by the Engineer, the Contractor shall place a paper parting strip beneath this wedge to facilitate joint construction.
- Before paving operations are resumed, the Contractor shall remove the sloped wedge and cut back into the previously constructed pavement to the point of full pavement depth. The exposed edge of the previously constructed pavement shall then be lightly coated with tack coat.
- When laying of the mixture is resumed at the joint, the construction of the joint shall be completed while the mixture is still in a workable condition. Test finished surface of the new joint asphalt surface course shall be conducted for smoothness using a 10 foot straightedge.

Longitudinal Joints:

- Longitudinal joints shall be formed by allowing the paver to deposit the mixture adjacent to the joint to such depth that maximum compaction can be obtained along the joint. The joint shall be pinched by rolling immediately behind the paver.
- When multi-lane multi-layer construction is required, the longitudinal joint in each layer shall offset that in the layer immediately below by approximately 6 inches. The joint in the top layer shall be constructed, where possible, between design travel lanes.

1.9 PAVEMENT SAMPLES

a) Samples of the mixture shall be taken from the full depth of the course at locations designated by the Engineer.

b) Where samples have been taken, new material shall be immediately placed and compacted to conform to the surrounding area by the Contractor.

1.10 SURFACE REQUIREMENTS

a) The surface of the plant mix base or pavement after compaction shall be smooth and true to the required cross section and grade.

b) Any defective areas shall be corrected with satisfactory material which shall be immediately compacted to conform to the surrounding area.

c) Any area showing an excess of asphalt cement shall be removed and replaced.

d) The surface will be tested by the Engineer at all joints and at other selected locations using a 10-foot straightedge.

e) The finished pavement shall be homogeneous, free from segregation and shall be uniform with respect to surface texture.

f) A segregated area is defined as an area within the driving lanes of the pavement wherein the texture differs visually from the texture of the surrounding pavement.

g) The variation of the surface from the testing edge of the straightedge, when applied parallel to the centerline of the surface, shall not exceed 1/8 inch between any two contact points.

h) Areas found to exceed this tolerance shall be corrected by the Contractor by removal of the defective work and replacement with new material unless other corrective measures are permitted by the Engineer. The work and materials required in the correction of defective work shall be provided by the Contractor at no cost.

1.11 TACK COAT

a) For tack coat applications, CRS-1 or CSS-1 cationic emulsified asphalt will be acceptable.

b) Tack coat shall not be applied on sections of roadway longer than will be covered by one day of asphalt plant production.

c) Tack shall be applied at a spray rate of 0.06 gallons/square yard (GDOT Section 413) or as directed by the Engineer.

d) Traffic shall not be permitted on tack coat until it has cured and on prime coat until the primer has been absorbed into the granular surfacing.

e) Where it is not possible to keep the traffic off the treated surface, the surface shall be blinded with sand or fine aggregate, at no expense to the Owner, prior to allowing traffic on.

1.12 ASPHALT LEVELING COURSE

a) Asphalt Leveling Course shall be placed in one or more Lifts, with a maximum thickness of ¾" per lift.

b) All asphalt mix shall be paver laid.

c) The amount of Leveling Course placed shall not exceed the quantity unless otherwise authorized by the Engineer.

d) Leveling course shall be Recycled Asphalt 9.5 mm SP or as specified in the Bid Proposal and shall be of uniform quality throughout and shall conform to the requirements of Section 400 of the Georgia Department of Transportation Standard Specifications.

1.13 DISPOSAL OF SURPLUS MATERIALS (Millings):

a) The contractor shall legally dispose of the site all surplus materials and haul off to a suitable off-site disposal site or utilize a site designated by the Owner.

PART 2

2.1 SCOPE

2.2 EQUIPMENT MINUMUM REQUIERMENTS:

All equipment shall be kept in satisfactory good condition at all times as per GDOT requirements and shall satisfy the approval of the Engineer.

2.3 BROOMS:

Mechanical brooms shall be of the revolving type and be so constructed that the revolutions may be adjusted to its progression.

2.4 ASPHALT DISTRIBUTOR:

a) The distributor shall be capable of uniformly distributing the bituminous material at the desired rate.

b) It shall be equipped with a pressure pump and gauges capable of maintaining uniform and adequate pressure throughout the length of the spray-bar.

c) The distributor shall have a system to evenly heat and circulate the material and be equipped with adjustable full circulation spray-bars with cut off valves or other means of starting and stopping the flow of bitumen quickly and uniformly over the length of the spray-bar.

d) The contractor shall make available data showing the manufacturer's recommendation for spray bar height above the surface, nozzle size, and the angle of the spray fan with the spray bar axis.

e) The truck shall be equipped with a tachometer, operated by a wheel independent of the truck wheels, to accurately measure the truck speed in feet per minute.

f) A bitumeter and tachometer chart shall be kept in the truck at all times. These charts shall be readily available.

g) The spray bars shall produce double coverage at one pass, with uniform spray and even pressure with application rates controlled to within ±25% of the specified application rate.

h) Spray bar nozzles shall be of the same type and size, set to produce uniformly fan-shaped sprays without atomization.

2.5 SELF-PROPELLED PNEUMATIC TIRED ROLLERS (traffic roller):

a) Each roller shall be equipped with not less than seven wheels, with pneumatic tires of equal size and ply.

b) The wheels shall be staggered on the front and rear axles to provide complete coverage of the area over which the roller travels.

c) These rollers shall be equipped with smooth-faced tires, scrapers for each wheel.

d) The tires shall be uniformly inflated so that the air pressure of the several wheels does not vary by more than five (5) pounds per square inch.

e) Rollers shall be operated with tire inflation pressures and wheel loads within the manufacturer's recommendation for the tire being used, as approved by the engineer.

f) Lubrication of the pavers, rollers or other equipment in contact with asphalt mix with diesel fuel will NOT be permitted.

2.6 STEEL DRUM ROLLERS:

a) Steel Drum rollers shall be self-propelled, capable of starting, stopping, or reversing direction smoothly, without jerking or backlash.

b) Each wheel shall be self-cleaning and equipped with a system to uniformly moisten the full width of the roller.

c) It shall be of the two-axle tandem design with capability of exerting two hundred fifty (250) pounds per lineal

inch on width of the roller.

d) The roller shall not be more than ten (10) tons or less than five (5) tons. The empty and ballast weights shall be determined from the manufacturer's rating unless the roller has been modified or if non-uniform ballast is used. In that case, the contractor shall provide a certified scale for weighing the roller.

e) Rollers used to compact the mixture shall be in good condition, capable of reversing without backlash.

f) The rollers shall be operated with the drive wheels nearest the paver and at speeds slow enough to avoid displacement of the mixture.

g) Steel wheel rollers shall be equipped with wetting devices to prevent the mixture from sticking to the roller wheels.

h) The number and weight of rollers shall be sufficient to compact the mixture to the required density while it is still in a workable condition.

i) Rolling for open-graded asphalt friction course shall consist of one coverage with a tandem steel wheel roller weighing a maximum of 10 tons, with additional rolling limited to one coverage with the roller where necessary to improve riding surface.

j) The use of rolling equipment with results in excessive crushing of the aggregate or excessive displacement of the mixture will not be permitted.

k) In areas inaccessible to equipment, the mixture shall be thoroughly compacted by the use of hand tampers or hand-operated mechanical tampers.

l) Immediately after the bituminous mixture has been spread, struck off, and surface and edge irregularities adjusted, it shall be thoroughly and uniformly compacted. The degree of compaction required shall be in accordance with the applicable section of the specifications for the type of mixture being placed.

2.7 BITUMINOUS PAVING MACHINE (Paver):

a) The hot-mix asphalt surface course shall be placed with a self-powered asphalt paver capable of operating at variable speeds and spreading and finishing the mix without segregation, and to the depth, as shown on the bid form.

b) The screed or strike-off assembly shall be adjustable to the required crown and shall have a minimum screed width of 10' and shall be designed to lay the pavement mixture in widths from 10 feet to 12 feet in increments of one foot or less without use of forms.

c) Placing the mix shall be in continuous operation and the paver shall place the mix to a smooth surface that is uniform in density and texture.

d) The bituminous paver shall be self-powered, provided with an activated screed or strike-off assembly, heated if necessary, and capable of spreading and finishing courses of bituminous material in lane widths applicable to the specified section and thickness shown on the plans or as directed by the Engineer.

e) The receiving hopper shall have sufficient capacity for a uniform spreading operation.

f) The hopper shall have a distribution system capable of spreading the bituminous mixture uniformly in front of the screed.

g) The screed or strike-off assembly shall effectively produce a finished surface of the required evenness and texture without tearing, shoving or gouging the surface.

h) The paver shall have adequate speed to lay the mixture satisfactorily, and be equipped with an approved system of automatically controlling the elevation and slope of the screed and a manual control-to-control screed height.

i) The pavers shall be equipped with an activated screed or strike-off assembly which is designed to be preheated, and shall have a sliding shoe attachment that will form a slope on the edge of the mixture which will prevent edge raveling when the mixture is compacted.

PART 3

3.1 TESTING:

Asphalt Mix Design Submittals

i. The Contractor shall submit asphalt mix designs from a GDOT certified supplier of all hot-mix asphalt concrete, verifying compliance with GDOT (Section 828) standards. A GDOT Representative and or Engineer shall review all mix designs for it compliance with GDOT (Section 828) standards and the Contract, and Contractor shall not proceed until the review is received and approve in writing from the GDOT representative and or Engineer. No paving will start prior to GDOT and or Engineers approval of the mix design.

ii. The Contractor's submissions shall include the following information or as per GDOT specifications Section 02130 attached.

a. The gradation of each aggregate to be used in each mixture.

b. The percentage by mass of each aggregate to be used in each mixture.

c. The design gradation of the combined aggregate for each mixture for each of the sieve sizes applicable to the mix.

d. The estimated dry sieve gradation corresponding to the JMF gradation.

e. All asphalt mix design data used in arriving at the final mix designs.

f. The Design Asphalt Content expressed as a percentage of the dry weight of the aggregate.

g. The recommended compaction temperature.

b) The contractor shall submit a mix design for all asphalt prior to start. Any subsequent change in the asphalt cement supplied by the Contractor will require a new asphalt mix design.

c) If the contractor decided to pull asphalt from another asphalt plant for any reason the Engineer will require a new asphalt mix design.

d) Asphalt content and Maximum Theoretical Density (MTD) shall be determined from this mix design for optimum performance.

e) The Engineer may, at his discretion, require the contractor to submit representative samples of the materials as he proposes to use prior to the delivery of the materials to the site of the work, and may, during the progress of the work, take samples and make tests to assure that the work is being performed in accordance with these specifications of the approved mix design.

f) The contractor shall cooperate in the making of such tests to the extent of allowing free access to the work, for the selection of samples.

g) Samples shall be obtained and tested in accordance with the latest ASTM methods of tests.

h) All asphalt ticket shall be stamped and certified.

i) An ant strip additive shall be added to all asphalt as specified in the Bid Proposal, all costs associated with supplying, storing, and blending the additive into the asphalt mixes shall be incidental to the prices bid for the varying classes of asphalt mix.

3.2 CORING:

If and when the Engineer requires:

a) The Contractor shall be responsible for providing all core samples for quality assurance and payment adjustment purposes. The location of the cores shall be randomly selected and provided to the Contractor by the Engineer.

b) The Contractor shall provide 6” diameter cores for these purposes.

c) The minimum core thickness shall be 2 ½".

d) The Contractor shall prepare the cores prior to submission by removing all material not representative of the pavement lift to be tested.

e) The Contractor shall deliver these cores to the engineer on-site, within 24 hours of being provided the locations for the coring. In the case of a core sample location falling in an obvious non-representative area, such as a previously patched area, at the sole discretion of the Engineer, a new random core location will be chosen for that sample.

f) All costs associated with obtaining the cores, including the filling and compaction of the core holes, are considered incidental to the contract and are the responsibility of the Contractor.

SECTION 02 17 00

SECTION 02 18 00

STRIPING

PART 1

1.1 SCOPE

- This work shall consist of furnishing all labor, materials and equipment necessary for the installation of temporary and or permanent traffic striping as per the drawing.
- During the application of the thermoplastic material, the pavement shall be clean and completely dry, the temperature of the pavement shall be between 60º F - 140º F. The temperature of the thermoplastic material shall be as recommended by the manufacturer. The minimum thickness shall be 0.12 inches.

1.2 MATERIALS

a) Use thermoplastic products and materials in width and colors designated in accordance with GDOT Section 653 latest addition.

b) Thermoplastic Traffic Striping - All striping shall be placed to match the drawings or as per the existing traffic patterns and lane widths as currently existing on the streets, if any. The location of the traffic striping shall be as shown on the plan or as per existing street or as directed by the Engineer. All striping shall conform to GDOT Standard Specifications.

c) All striping pavement markings, including stop lines shall be thermoplastic. All stop bars shall be twenty-four (24) inches wide and crosswalks (8) inches wide. The location of the stop bars shall be as shown on the plan or as per existing street or as directed by the Engineer. All stopping condition intersections shall receive a thermoplastic stop bar. Thermoplastic striping shall conform to GDOT Standard Specifications.

d) Glass beads shall be applied to the surface of the molten thermoplastic material in 2 equal applications at a combined total rate not less than 150 lb/3300 Feet of 4” wide solid stripe.

e) Pavement marker if any shall have a tempered reflector(s) which is highly resistant to scratching and abrasive (3-M SERIES 290 or equal). Installation of pavement markers shall consist of firmly inserting a marker into a 5” diameter bed of an approved adhesive compound (max. cooling time 20 sec.) Allow marker installation to set up so as not do displace under traffic.

f) All pavement markings shall be laid out with spray paint and approved by the Engineer before they are installed. Approval shall require advance notice of ten working days to have field layout approved by the Engineer or to make arrangements to meet the Engineer or his designee on site during the installation.

1.3 PAINT APPLICATION EQUIPMENT

a) The equipment required to apply pavement marking paint and glass beads shall be a self-propelled, pneumatic spraying machine with atomizing nozzles capable of applying three 4-inches to 8-inches wide lines at one time.

b) The spray mechanism shall be operated by quick opening and closing valves.

c) The applicator shall apply the materials at a rate specified in an even and uniform thickness with clearly defined edges.

d) The applicator shall have reservoirs or tanks equipped with agitators capable of keeping the material in a smooth, even mixture.

e) Tanks shall have sufficient capacity to apply the materials as specified.

f) The applicator shall be equipped with an automatic skip control device capable of applying a stripe of specified length with a linear tolerance of 3 inches.

g) The applicator shall be capable of retracing and applying materials to traffic markings in place.

h) Adequate hand-operated equipment will be required to accomplish the pavement markings for areas not readily accessible to the pavement marking applicator.

i) The machine shall be equipped with a glass bead dispenser adjusted and synchronized with the paint applicator to distribute the reflectorizing spheres uniformly on the painted line(s) using air pressure.

j) The bead dispenser shall be equipped with an automatic cutoff control, synchronized with the cutoff of the striping material.

k) The applicator truck (striper) shall have a permanently mounted, direction variable early warning arrow board visible to approaching traffic.

l) Truck equipment shall be capable of accumulating the footage applied by each gun individually each day.

m) Only material application shall activate the footage accumulators.

n) The read out shall be digital and not adjustable.

o) Thermoplastic pavement markings shall not be applied to new asphalt for min. of 30 days after pavement installation.

p) Temporary pavement markings utilizing latex base traffic paint in accordance with GDOT section 652 latest edition or temporary striping tape shall be installed to establish the pavement markings configuration that was removed by the milling/paving operations until the thermoplastic pavement markings can be permanently installed.

1.4 PREFORMED THERMOPLASTIC PAVEMENT MARKINGS

a) The markings must be a resilient white or yellow thermoplastic product with uniformly distributed glass beads throughout the entire cross sectional area.

b) Lines, legends and symbols are capable of being affixed to bituminous and/or Portland concrete pavements by the use of the normal heat of a propane type of torch.

c) Other colors shall be available as required.

d) The markings must be capable of conforming to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures.

e) The markings shall have resealing characteristics, such that it is capable of fusing with itself and previously applied thermoplastic when heated with the torch.

f) The markings must be able to be applied in temperatures down to 32 degrees F. without any special storage, preheating or treatment of the material before application.

g) Must be composed of ester modified resin resistant to degradation by motor fuels, aggregates, pigments, binders and glass beads which have been factory produced as a finished product and meets the requirements of the current edition of the Manual on

h) Uniform Traffic Control Devices for Streets and Highways.

i) The thermoplastic material conforms to AASHTO designation M249-79(86), with the exception of the relevant differences due to the material is supplied in a preformed state.

j) Graded Glass Beads: The material must contain a minimum of thirty percent (30%) intermixed graded glass beads by weight.

k) The intermixed beads shall be clear and transparent. Not more than twenty percent (20%) consist of irregular fused spheroids, or silica. The index of refraction shall not be less than 1.50.

l) The material must have factory-applied coated surface beads in addition to the intermixed beads at a rate of 1 lb. (±10%) per 11 sq. ft.

m) Pigments: White: Sufficient titanium dioxide pigment is used to ensure a color similar to Federal Highway

White, Color No. 17886, as per Federal Standard 595.

n) Yellow: Sufficient yellow pigment is used to ensure a color similar to Federal Highway Yellow, Color No. 13655, as per Federal Standard 595. The yellow pigment must be of an organic nature only and contain no lead chromate.

o) Skid Resistance: The surface, with proper applied and embedded surface beads, must provide a minimum resistance value of 50 BPN when tested according to ASTM E 303.

p) Thickness: The material must be supplied at a minimum thickness of 125 mils (3.15 mm).

q) Environmental Resistance: The material must be resistant to deterioration due to exposure to sunlight, water, oil, gasoline, salt or adverse weather conditions.

PART 2

2.1 CONSTRUCTION - PAVEMENT SURFACE PREPARATION

a) At the time of applying the marking material, the application area shall be free of all contamination, including oil, dirt, grease, curing compound and other matter that might adversely affect the adhesion or durability of the marking material.

b) The contractor's equipment shall be capable of cleaning the pavement surface of loose dirt, sand, gravel, etc. by the application of compressed air immediately ahead of the marking application.

c) Areas with heavy accumulation of contaminants, which cannot be removed with compressed air, shall not be painted until the pavement surface has been cleaned and shall be painted within 1 hour of the cleaning operation.

d) The engineer will determine which pavement surfaces are too contaminated for painting.

e) The paint marking application shall immediately follow the pavement cleaning.

f) Glass beads shall be applied within 3 seconds after application of the painted line.

g) Pavement markings shall only be applied in seasonable weather when the air temperature is 50 degrees F. or higher, and a relative humidity of 85% or lower.

h) Pavement markings shall not be applied when the wind or other conditions cause a film of dust to be deposited on the pavement surface after cleaning and before the marking material can be applied, or if in the opinion of the engineer the pavement surface is too wet to apply markings.

2.2 TRAFFIC CONTROL

a) The contractor shall furnish and place, without any extra compensation, all necessary warning and direction signs to maintain traffic.

PART 3

3.1 ACCEPTANCE

a) Painted markings that are discolored, damaged by wind-blown dirt, or are ineffective at night will be rejected.

b) Unsightly markings with uneven edge lines, overspray, poor longitudinal alignment, uneven adherence, missing portions or other objectionable faults will be rejected.

c) The contractor shall repair or replace all rejected markings at his expense.

d) Removal of unacceptable work shall be accomplished with suitable blasting or grinding equipment unless other means are authorized by the engineer.

e) Plastic markings that are damaged due to improper placement, placed in the wrong locations, exhibit poor

adhesion when tested in accordance to the manufacturer's recommendations, have visibly moved or slid due to improper use of adhesives, display poor reflectance or color shall be properly removed and replaced by the contractor at his expense.

f) Thermoplastic markings that are damaged due to improper placement, placed in the wrong locations, exhibit poor adhesion when tested in accordance to the manufacturer's recommendations, have visibly moved or slid due to improper use of adhesives, display poor reflectance or color shall be properly removed and replaced by the contractor at his expense.

g) The contractor shall be responsible for enforcing the manufacturer’s warranty on markings.

h) No reduction in pay for long line striping shall be made for reduced thickness and/or width AS IT WILL BE CONSIDERED AS UNACCEPTABLE.

i) Where the deficiency in material usage exceeds 10 percent the City may require restriping to the satisfaction of the engineer.

SECTION 02 18 00

SECTION 02 41 00

DEMOLITION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Demolition and removal of buildings, including removal of foundations.
2. Demolition and removal of structures.
3. Demolition and removal of site improvements.
4. Demolition and removal of capped and abandoned site utilities.

B. Related Sections include the following:

1. Division 1, Section "Summary of Work" for use of premises and Owner-occupancy requirements.
2. Division 1, Section "Temporary Facilities, Controls and Services" for temporary construction and environmental-protection measures for demolition operations.
3. Division 1, Section "Contract Closeout" for record document requirements.

C. Refer to Civil Drawings for requirements related to grading, acceptable fill materials, topsoil and landscaping.

1.03 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.

C. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled. Protect against damage and soiling during demolition and construction activities.

1.04 MATERIALS OWNERSHIP

A. Except for items or materials indicated to remain property of Owner, demolished materials shall become the Contractor's property and shall be removed, recycled or disposed from Project site in an appropriate and legal manner.

1. Arrange a meeting no less than ten (10) days prior to demolition with the Owner and other designated representatives to review any salvageable items to determine if Owner wants to retain ownership.

1.05 SUBMITTALS

A. Qualification Data: For demolition firm and refrigerant recovery technician.

B. Schedule of Demolition Activities: Indicate the following:

1. Detailed sequence of demolition and removal work, with starting and ending dates for each activity and phase.
2. Detailed method of identifying and removal of equipment and items that contain hazardous materials including but not limited to CFCs (HVAC refrigerants), mercury (light bulbs, etc.), PCBs (transformers, elevator hydraulic fluids, etc.), lead (batteries, exit signs, etc.).
3. Interruption of utility services. Indicate how long utility services will be interrupted and phasing of utility services.
4. Coordination for shutoff, capping, and continuation of utility services.

C. Pre-demolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Show locations on plan where photographs were taken. All non- documented damage shall be replaced or repaired at no expense to the Owner.

D. As-built drawings: Identify and accurately locate capped and remaining subsurface utility lines.

E. If hazardous materials are encountered and disposed of, landfill records indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

F. Obtain demolition permits from City of Lawrenceville.

G. Environmental protection agency permits (Georgia Department of Natural Resources Online Permitting & Reporting - confirmation of submittal) are required for all properties containing hazardous materials

1.06 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction. Obtain and pay for all permits required.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

D. Pre-demolition Conference: Conduct conference at Project site to comply with requirements in Division 1, Section 01 31 00 Project Meetings.

1.07 PROJECT CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

B. Notify Owner of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Confirm with Owner if any items will be salvaged and returned to Owner prior to beginning demolition operations.Storage or sale of removed items or materials on-site will **not** be permitted.

D. Utility Service: Mark all utilities. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

E. Conduct demolition so that traffic flow around sites will not be disrupted.

F. Owner assumes no responsibility for actual condition of items to be demolished.

G. Take all actions necessary to protect existing trees indicated to remain. Replace any tree that is damaged during the Work. Owner shall approve replacement tree species and size.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that all utilities in nearby area have been properly marked and disconnected and capped as required in areas to be demolished.

B. Survey existing conditions and correlate with requirements indicated to determine extent of demolition required.

C. Survey condition of the site to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during demolition operations.

D. Perform surveys as the Work progresses to detect hazards resulting from demolition activities. Take immediate action to protect all personnel working in and around the project site.

3.02 UTILITY SERVICES

A. Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.

1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.
   a. Provide not less than 48 hours' notice to Owner if shutdown of service is re- quired during changeover.

B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services to be demolished.

C. Utility Requirements: Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

D. The location of all overhead power lines shall be determined and marked for equipment clearance during demolition operations.

3.03 PREPARATION

A. The Contractor shall obtain all government agency approvals and permits required for demolition activities.

B. Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.

1. Recover refrigerants in strict accordance with EPA regulations.
2. Remove all hazardous materials encountered including, but not limited to; fluorescent light bulbs, transformers, elevator hydraulic fluids, batteries, exit signs, etc. and any other items that contain hazardous substance in strict accordance with EPA regulations.

C. Conduct demolition and debris-removal operations to ensure minimum interference with and damage to trees, roads, streets, curbs, curb inlets, drains, walks, walkways, landscaping and other adjacent occupied and used facilities. All damage shall be repaired at Contractor's expense.

1. Do not close or obstruct streets, walks, or other adjacent occupied or utilized facilities without permission from Owner. Provide alternate routes around closed or obstructed traffic ways if required.

D. Temporary Facilities: Provide temporary fencing and other protection required to prevent injury to people and damage to adjacent trees, buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around demolition area.

E. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area.

1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by Owner.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Fencing shall be provided around all areas of demolition to prevent entry to area and injury to people.

3.04 EXPLOSIVES

A. Explosives: Use of explosives will **not** be permitted.

3.05 ENVIRONMENTAL CONTROLS

A. Comply with federal, state and local regulations pertaining to water, air, solid waste, recycling, chemical waste, sanitary waste, sediment and noise pollution.

B. Protection of Natural Resources: Preserve the natural resources within the project boundaries or restore to an equivalent condition.

1. Confine demolition activities to areas defined by public roads, easements, and work area limits.
   a. Temporary Construction: Remove indications of temporary construction facilities, such as haul roads, work areas, structures, stockpiles or waste areas.

2. Water Resources: Comply with applicable regulations concerning the direct or indirect discharge of pollutants to underground and natural surface waters.
    a. Oily Substances: Prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water in such quantities as to affect normal use, aesthetics, or produce a measureable ecological impact on the area.
        1. Store and service construction equipment at areas designated for collection of oil wastes.
        2. Prevent water, dirt, pollutants or any other materials from entering storm drains.

3. Dust Control, Air Pollution, and Odor Control: Prevent creation of dust, air pollution and odors.
    a. Use water mist, temporary enclosures and other appropriate methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing environmental protection regulations.
        1. Do not use water when it may create hazardous or objectionable conditions, such as ice, flooding, and pollution.
    b. Store volatile liquids, including fuels and solvents, in closed containers.
    c. Properly maintain equipment to reduce gaseous pollutant emissions.

4. Noise Control: Perform demolition operations to minimize noise for surrounding property owners as much as practical.

C. Disposal Practices and Waste Hauling

1. Legally transport and dispose of materials.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces, streets and areas or dusting being emitted into the atmosphere.
3. Do not burn, bury or otherwise dispose of rubbish and waste materials on project site.
4. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing before start of demolition.

D. Revenue

1. Revenues or other savings obtained from recycled or salvaged materials shall accrue to Contractor.

E. Asbestos & Lead Paint Abatement
1. The Work under this Section includes all of the testing for the entire project.
2. If applicable, before the structure is demolished or removed, the successful bidder shall document that the requirements of USEPA 40 CFR 61 subpart M have been met. An asbestos abatement permit will be required.
3. A notice to proceed to demolish or remove the structure shall not be issued until the bidder notifies in writing to the project Engineer that all friable asbestos or asbestos-containing material that will become friable during demolition or removal has been or will be properly abated prior to demolition of structure.
4. It is the responsibility of the contractor to determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. The Contractor must comply fully with these regulations and all U.S. Department of Transportation and EPA requirements, and state and local regulations

3.06 DEMOLITION

A. Demolish concrete and masonry in sizes that will be suitable for acceptance at recycling or disposal facilities.

B. Break up and remove concrete slabs on grade in small sizes, suitable for acceptance at recycling or

disposal facilities.

C. Remove all disconnected, abandoned utilities on site.

D. Explosives: Use of explosives is not permitted.

E. Below-Grade Construction: Demolish foundation walls, footings, piping, drainage structures and other below-grade construction as follows:

1. Completely remove below-grade construction, including but not limited to foundation walls, footings, piping, etc.
2. Break up and completely remove below-grade concrete slabs, in small sizes, suitable for acceptance at recycling or disposal facilities.
3. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations to match adjacent natural grade levels with satisfactory soil materials. Soils shall be approved for use by Geotechnical Engineer. Soils shall be properly compacted and approved by Geotechnical Engineer to prevent settlement.

F. Damages: Promptly repair damages to adjacent facilties caused by demolition operations.

G. Site Grading: Uniformly grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades. Soils shall be approved for use by Geotechnical Engineer. Soils shall be properly compacted and approved by Geotechnical Engineer to prevent settlement.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Promptly dispose of demolished materials from Project site.

1. Do not allow demolished materials to accumulate or be stored on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of materials.

3.08 CLEANING

A. Sweep the site clean on completion of demolition operations.

END OF SECTION 02 41 00

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

A. Work Includes: Work under this Section consists of providing reinforced and non-reinforced concrete as indicated on the drawings.

1. Materials shall be free from defects impairing strength, durability or appearance.
2. Exposed surfaces throughout project shall have the same texture and color for like locations.

B. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division One Sections of these Specifications, apply to the work of this Section.

1.02 REFERENCES

A. Codes and Standards: Comply with standards specified in this Section:

1. ACI 301-10, "Specifications for Structural Concrete".
2. ACI 304R-00 (Reapproved 2009), "Guide for Measuring, Mixing, Transporting and Placing Concrete".
3. ACI 305R-10, "Hot Weather Concreting".
4. ACI 306R-10, "Cold Weather Concreting".
5. ACI 309R-05, "Guide for Consolidation of Concrete".
6. ACI 315-99, "Details and Detailing of Concrete Reinforcement".
7. ACI 318-11, "Building Code Requirements for Reinforced Concrete".
8. ASTM A82-02, "Steel Wire, Plain, for Concrete Reinforcement".
9. ASTM A615M-07, "Deformed and Plain Carbon Steel Bars for Concrete Reinforcement".
10. ASTM C31/C31M-10, "Making and Curing Concrete Test Specimens in the Field".
11. ASTM C33-07, "Concrete Aggregates".
12. ASTM C42-10, "Obtaining and Testing Drilled Cores and Sawed Beams of Concrete".
13. ASTM C78/C78M-10e1, "Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading".
14. ASTM C94-11, "Ready Mixed Concrete".
15. ASTM C143-10, "Test Method for Slump of Hydraulic Cement Concrete".
16. ASTM C150-07, "Portland Cement".
17. ASTM C171-07, "Sheet Materials for Curing Concrete".
18. ASTM C172-08, "Sampling Freshly Mixed Concrete".
19. ASTM C173-10, "Test Method For Air Content of Freshly Mixed Concrete by the Volumetric Method".
20. ASTM C192-07, "Making and Curing Concrete Test Specimens in the Laboratory".
21. ASTM C231-09a, "Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method".
22. ASTM C260-10a, "Air-Entraining Admixtures for Concrete".
23. ASTM C309-11, "Liquid Membrane-Forming Compounds for Curing Concrete".
24. ASTM C494-11, "Chemical Admixtures for Concrete".
25. ASTM E329-09, “Agencies Engaged in Construction Inspection and/or Testing”.
26. AWS-D1.4-2005, "Structural Welding Code - Reinforcing Steel".
27. CRSI "Manual of Standard Practice".
28. ASTM C1364-19, “Architectural Cast Stone.”

1.03 SUBMITTALS

A. General: Comply with the provisions of Section 01 33 00 Submittals.

B. Manufacturers' Data: Submit mix designs for each type and class of concrete. Submittal shall include independent lab test verifying the design strength in accordance with ACI 318 Chapter 5. Verify the design mix in accordance with Chapter 4 of ACI 301. Previous Field Experience or Trial Mixtures; Concrete proportions may be established on the basis of previous field experience if sufficient and timely data is available for full compliance with Section 4.2.3 of ACI 301. Where acceptable records are not available, trial mixtures shall be submitted to an approved testing laboratory for proposed mix designs in accordance with Section 4.2.3 of ACI 301.

C. Submittals: Submit complete information for all materials proposed to be provided under this Section. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures." Include:

1. Bar schedules, stirrup spacing, diagrams of bent bars, arrangement and assemblies. Show wall reinforcement in elevation.
2. Special reinforcement required around openings throughout concrete structures.
3. Location of all proposed construction joints, keying, and water stops.
4. Locations of all openings, depressions, construction and control joints, trenches, sleeves, inserts, and other items affecting the reinforcement and placing of concrete.
5. The Contractor shall check shop drawings prior to submittal. Unchecked drawings will be rejected.
6. Fabrication shall not begin until shop drawings have been stamped "No Exceptions" or "Make Corrections Noted" and corrections have been made and corrected file copies delivered to Designer.

D. Mill Certificates: Accompanying the Shop Drawings, submit steel producer's certificates of mill analysis, tensile, and bend tests for reinforcing steel.

E. Placement Schedule: Submit schedule for all pours in project. Number each pour in schedule and cross-reference schedule number to test report submittals indicating location for each pour.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Provide at least one person thoroughly familiar with specification requirements, completely trained and qualified to perform the work, who shall be present at all times on the project site directing the work. Provide additional skilled personnel to ensure installation in strict accordance with design Documents.

B. Quality Control: Sampling during placement shall be accomplished either by an employee of an independent Testing Laboratory or by an individual, approved by the Architect, qualified to perform operations as described herein. Testing shall be accomplished by an independent laboratory as described in Division 1. Testing Agency personnel and procedures shall be qualified in accordance with the requirements of ASTM E329.

1. Sampling and Testing shall include the following:
   a. Slump: ASTM C143; one (1) test for each concrete load at point of discharge.
   b. Air Content: ASTM C173, volumetric method; for lightweight or normal weight concrete.
   c. ASTM C231 Pressure for Normal Weight Concrete; one (1) for each set of compressive test specimens.
   d. Concrete Temperature: Record hourly when air temperature is 40 degrees F. and below, or when 80 degrees F. and above, and each time a set of strength test specimens are made.
   e. Compression Test Specimen: ASTM C31; one (1) set of four (4) standard cylinders for each compressive strength test, unless otherwise directed. Mold, cure and store as directed by the Testing Laboratory.

2. Field Test Specimens: Samples of concrete mixtures shall be taken to determine the adequacy of control of materials, proportioning, consistency, mixing, and air content of the concrete. Sufficient quantities shall also be tested for curing strength as follows:
   a. Compression Test Cylinders: One (1) set of four cylinders shall be made from the same batch for each 50 cubic yards, or fraction thereof, for each type of concrete placed daily, and not less than four (4) cylinders for each day's operation or for each 5000 square feet of surface area placements.
3. Field Sampling Reports: Forward to the Architect, on the same day sampling is performed, one (1) Field Sample Report for each set of field test specimens made or a Daily Summary Report, listing each set of field test specimens, containing the following information:
   a. Project name and number
   b. Name of individual performing sampling
   c. Date
   d. Weather conditions
   e. For each of test specimens:
      1 Time
      2 Temperature
      3 Air Content
      4 Slump
      5 Type and class of concrete
      6 Location of batch in structure
      7 Specimen numbers
4. Of cylinders made in accordance with section 1.04 B.2a, one shall be broken at 7 days for information and two at 28 days for strength compliance. Hold one cylinder for 56 days. All cylinders shall be weighed and unit weight calculated prior to compression test. Information regarding weight shall be included on test report sent to Architect and Structural Engineer.

C. Allowable Tolerances for Concrete Placement:

1. Footings, variations in:
   a. Dimensions in plan ..... 1 inch
   b. Misplacement or eccentricity:
      Two (2%) percent of the footing width in the direction of misplacement,
      but not more than..... 2 inches
   c. Thickness:
      1 Decrease ..... lessor of 5% or 2 inches
      2 Increase ..... No limit

1.05 PRODUCT HANDLING

A. Protection: Use all means necessary to protect materials specified in this Section before, during, and after installation and to protect installed work and materials of other trades.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary, with the Architect's approval, at no additional cost.

1.06 JOB CONDITIONS

A. Cold Weather Concreting: Equipment shall be provided for protection of the concrete during freezing or near-freezing weather. No frozen materials or materials containing ice shall be used. Whenever the temperature is below 40 degrees F., all concrete placed in the forms shall have a temperature of between 70 and 80 degrees F., and means shall be provided for maintaining a temperature of not less than 70 degrees F., for three (3) days, or 50 degrees F. for five (5) days, or for more time to insure curing of the concrete. Work shall be in accordance with ACI 306, "Recommended Practice for Cold Weather Concreting."

B. Hot Weather Concreting: During hot weather when atmospheric temperature rises higher than 90 degrees F., attention shall be given to ingredients, production method, handling, placing, protection and curing to prevent excessive concrete temperatures or water evaporation in accordance with ACI 305, "Recommended Practice for Hot Weather Concreting.

PART 2 – PRODUCTS

2.01 FORMWORK

A. Design of formwork is the Contractor's responsibility. Forms for footings may be cut into earth, provided that earth is dry, level and sound.

2.02 CONCRETE

A. Concrete shall be produced at a central batching plant, mixed in transit, and delivered to the forms.

B. Concrete shall be class, weights, and strength as listed herein, shown in the drawings, and as otherwise directed and specified.

C. Concrete Strength:

Item Description	Minimum Strength at 28 days	Slump	Weight
Foundations	3000 psi	3-5 inches	normal, 145 – 150 pcf
Walls	4000 psi		
Cast stone	6500 psi	3-5 inches	normal, 145 pcf minimum

D. Concrete Materials:

1. Portland cement for concrete shall comply with ASTM C 150, Type I or II. Portland cement for cast stone work shall comply with ASTM C 150, type I or III. Use one brand of cement throughout project for each type of construction.
2. Fine Aggregates: Conform to ASTM C 33, for normal weight.
3. Coarse Aggregate: Crushed stone or gravel conforming to ASTM C 33, maximum size shall be 1" for slabs; 1-1/2" for reinforced footings; or not more than 1/5 the narrowest dimension between the sides of the forms or 3/4 the minimum clear distance between parallel reinforcing--whichever is smaller.
4. Fly Ash meeting ASTM C-648 Class F may be used to replace up to 25% of Portland Cement.
5. Ground Granulated Blast-Furnace Slag (GGBFS): ASTM C989-95, Grade 100 or Grade 120 is permitted to maximum amounts indicated below replacing non-architectural concrete incorporated to replace equivalent cement weight:
   a. Footings: 50%, maximum
   b. Foundation Walls: 40%, maximum
   c. Flatwork: 40%, maximum

2.03 REINFORCEMENT

A. Reinforcing Bars: Comply with ASTM A 615, Grade 60.

B. Steel Wire: Comply with ASTM A 82, plain cold-drawn steel wire.

C. Welded Wire Fabric: Comply with ASTM A 185.

D. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers, and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place.

1. Use wire bar type supports complying with CRSI specifications, or concrete bricks. Do not use wood, brick, and other unacceptable materials.
2. Surfaces exposed-to-view, provide supports contacting forms with either hot-dipped galvanized or plastic protected legs.
3. Rebar stakes shall not be used as supports.

2.04 CURING MATERIAL

A. Curing Compound: Conform to ASTM C309, Type II, Class B curing compound shall be compatible with floor finishes and flooring adhesives. Contractor responsible for verifying material is compatible for all floor finishes and adhesives. Curing and sealing compounds, if used, shall likewise be compatible with floor finishes and flooring adhesives.

B. Sheet materials shall conform to ASTM C 171.

C. Burlap Cloth made from jute or kenaf and weighing approximately 9 oz. per sq. yd. for moist curing. Provide two (2) layers.

2.05 SEALER

A. Sealer shall be wax free, resin free and varnish free compound, which seals and hardens the concrete surface. Submit manufacturer’s data sheet for approval.

2.06 OTHER MANUFACTURERS

A. Acceptable Manufacturers: Other manufacturers for a particular material may be submitted for consideration to the Architect, provided products are of comparable design, quality and accompanied by satisfactory evidence as defined in Division 1. Materials described herein are based on manufacturer's product and industry standards in order to establish standards of design and quality.

B. Provide Manufacturer technical field service during initial pours, at no cost to the Owner by a person experienced in the adjustment of concrete mixes for the particular admixtures being used.

C. Air Entraining Admixtures: Conform to the requirements of ASTM C260 and shall contain no chloride. Submit manufacturer's data for approval.

D. Water Reducing Admixture: ASTM C 494, Type A for normal setting or Type D for retarding admixture; contain no chloride, and free of organic acids, (or salts of organic acids) and compatible with air entraining admixture. Submit manufacturer's data for approval.

E. Retarding or Accelerating Admixtures: Conform to ASTM C 494, Type B or Type D; contain no chloride and free of organic acids or salts; and compatible with air entraining admixture. Submit data for approval.
1. Euclid Chemical Company, Eucon Retarder 75 (Type B or D)
2. Master Builders, Pozzolith
3. Sika 161 R (Type D)

F. Nonshrink Grout:
1. Characteristics: High flow, non-metallic, controlled expansive type grout.

G. Water: Clean, potable and free of deleterious amounts of acids, alkalis, and organic matter.

H. All other materials, not specifically described, but required for a complete and proper installation, shall be as selected by the Contractor subject to the Architect’s approval.

2.07 PROPORTIONING OF CONCRETE MIXTURES

A. Proportion ingredients for concrete by weight when both the air content and slump are the maximum permitted to produce an average compressive strength at 28 days which exceeds by 25% the compressive test strength specified.

B. Air content of freshly mixed air-entrained concrete as determined by the method of ASTM C 173 shall be 5%. A field tolerance of 1% plus or minus is acceptable. Only concrete permanently exposed to possible freezing shall be air entrained.

C. Water reducing admixture may be used in all concrete to reduce the total water requirement per cubic yard of concrete without loss of workability or test strength.

D. Retarding admixture shall be used to retard the setting time when anticipated ambient temperature exceeds 75 degrees F. during placing or finishing operations.

2.08 BATCHING AND MIXING

A. Measure cement by weight on a scale separate from those used for other materials. Cement may be measured in bags of standard weight of 94 pounds; however, no fraction of a bag shall be used in any batch.

B. Measure aggregates by weight. Batch weights shall be based on saturated surface dry materials corrected for the actual moisture condition of the aggregate.

C. Measure water by volume or by weight by devices not subject to variation due to variable pressure in the water supply line. Measuring tanks shall be provided with means for checking their calibration.

D. Devices for measuring quantities of cement, aggregates, water and admixtures shall be accurate within 1% under operating conditions.

E. Furnish delivery ticket for each batch of concrete before unloading at the site. Weights of fine and coarse aggregate, amount of cement, and total water as batches shall be printed on ticket by an automatic printing device. Delivery tickets shall, in addition, include the following:

1. Name of batch plant.
2. Serial number of ticket.
3. Date and truck number.
4. Name of contractor.
5. Job name of location.
6. Class of concrete and slump.
7. Cubic yards of concrete.
8. Time loaded.
9. Amount water added at job.
10. Initials of Job Superintendent.

F. Ready-mixed concrete shall be produced and delivered in accordance with the requirements of ASTM C 94.

2.09 CONCRETE MIXTURES

A. General: The concrete shall be proportioned by one of the following methods: Trial mixtures method or historical data method. Proportioning shall be based on the requirements of a plastic and workable mix within the slump range for class and strength as specified.

2.10 CAST STONE COLOR AND FINISH

A. Match sample on file in architect's office.

B. All surfaces intended to be exposed to view shall have a fine-grained texture similar to natural stone, with no air voids in excess of 1/32 in. and the density of such voids shall be less than 3 occurrences per any 1 in.2 and not obvious under direct daylight illumination at a 5 ft distance.

C. Units shall exhibit a texture approximately equal to the approved sample when viewed under direct daylight illumination at a 10 ft distance.

1. ASTM D2244 permissible variation in color between units of comparable age subjected to similar weathering exposure:
   i. Total color difference – not greater than 6 units.
   ii. Total hue difference – not greater than 2 units.

D. Minor chipping resulting from shipment and delivery shall not be grounds for rejection. Minor chips shall not be obvious under direct daylight illumination from a 20-ft distance.

E. Due to the nature of the work, the occurrence of crazing SHALL constitute a cause for rejection of cast stone material.

F. The occurrence of efflorescence shall not constitute a cause for rejection. However, the cast stone surface shall be cleaned and such efflorescence shall be removed prior to acceptance by the Architect.

G. Remove cement film, if required, from exposed surfaces prior to packaging for shipment.

2.11 CAST STONE CURING

A. Cure units in a warm curing chamber approximately 100ºF (37.8ºC) at 95 percent relative humidity for approximately 12 hours, or cure in a 95 percent moist environment at a minimum 70ºF (21.1ºC) for 16 hours after casting. Additional yard curing at 95 percent relative humidity shall be 350 degree- days (i.e. 7 days @ 50°F (10°C) or 5 days @ 70°F (21°C) prior to shipping. Form cured units shall be protected from moisture evaporation with curing blankets or curing compounds after casting.

2.12. CAST STONE MANUFACTURING TOLERANCES

A. Cross section dimensions shall not deviate by more than ±1/8 in. from approved dimensions.

B. Length of units shall not deviate by more than length/ 360 or ±1/8 in., whichever is greater, not to exceed ±1/4 in.

C. Maximum length of any unit shall not exceed 15 times the average thickness of such unit unless otherwise agreed by the manufacturer.

D. Warp, bow or twist of units shall not exceed length/ 360 or ±1/8 in., whichever is greater.

E. Location of dowel holes, anchor slots, flashing grooves, false joints and similar features: On formed sides of unit, 1/8 in., on unformed sides of unit, 3/8 in. maximum deviation.

PART 3 - EXECUTION

3.01 INSPECTION

A. Examine the substrate and conditions under which work of this Section is to be performed, and correct unsatisfactory conditions which would prevent proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

B. Conduit Work:

1. Electrical conduits may pass vertically through concrete footings but shall not be embedded horizontally. No aluminum or other material which may react with concrete shall be used.

3.02 REINFORCING PLACEMENT

A. General:

1. Comply with the specified standards for details and methods of reinforcement placement and supports, and as herein specified.
2. Clean reinforcement to remove loose rust and mill scale, earth, and other materials which reduce or destroy bond with concrete.
3. Position, support, and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
4. Place reinforcement to obtain the minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports together with 16-gauge wire to hold reinforcement accurately in position during concrete placement operations. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.
5. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh space.
6. Provide sufficient numbers of supports of the strength required to carry reinforcement. Prefabricated accessories shall comply with CRSI Manual of Standard Practice, Class E at exposed surfaces and Class A unexposed. Legs of all accessories used in exposed concrete shall be solid plastic or plastic coated. Footing and slab on ground reinforcement may be supported on solid concrete bricks. Support bars to maintain height for top reinforcement shall be #5 minimum with supports of greater than 4'-0" on center. Do not place reinforcing bars more than 2 inches beyond the last leg of any continuous bar support. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.

B. Splices: Provide standard reinforcement splices by lapping ends, placing bars in contact and tightly wire tie.

3.03 CONCRETE PLACEMENT

A. General:

1. Place concrete in compliance with practices and recommendations of ACI 304, and as herein specified.
2. Provide notification 48 hours before placing concrete in any portion of the structure to permit inspection of the forms and reinforcement. All embedded items of any nature shall be in place prior to inspection.

B. Procedures:

1. Do not place any concrete which does not meet slump requirements for concrete specified.
2. Deposit concrete continuously in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness.
3. If a section cannot be placed continuously, provide construction joints as herein specified.
4. Perform concrete placing at such rate that concrete which is being integrated with fresh concrete is still plastic.

5. Deposit concrete as nearly as practicable in its final location to avoid segregation due to rehandling and flowing.
6. Do not subject concrete to any procedure which will cause segregation.
7. Screed concrete which is to receive other construction to the proper level to avoid excessive skimming and grouting.
8. Do not use concrete which becomes nonplastic and unworkable, or does not meet the required quality control limits, or which has been contaminated by foreign materials.
9. Remove rejected concrete from the site and dispose of it in an approved location.

C. Placement Schedule: Place concrete in conformance with the placement schedule to ensure an even distribution of loads throughout the entire structure.

D. Concrete Conveying:

1. Handle concrete from the point of delivery and transfer to concrete conveying equipment, and to the locations of final deposit, as rapidly as practicable and by methods which will prevent segregation and loss of concrete mix materials.
2. Keep interior surfaces of conveying equipment, including chutes and tremies, free from hardened concrete, debris, water, and other deleterious materials.
3. Use chutes or tremies for placing concrete where a drop of more than 72 inches is required.
4. Where free drop through tremies exceeds 18 inches, use flow checking devices.

E. Placing Concrete in Footings or Forms:

1. Deposit concrete in forms in horizontal layers not deeper than 24 inches, avoiding inclined construction joints.
2. Immediately before placing concrete, ensure that any required subgrade, waterproofing, vapor barriers, bond breaks, and/or joint forms have been properly installed.
3. Install wire mesh and/or steel reinforcement as indicated and specified.
4. Deposit and consolidate concrete in a continuous operation, within the limits of the construction joints, until the placing of a panel or area is complete.
5. Consolidate concrete during placement by use of Contractor approved equipment, thoroughly working concrete around the reinforcement and into corners.
6. Screed to correct level with straightedge to bring surface to the required finish elevation with no coarse aggregate visible.
7. Immediately following screeding finish the surface to a true even plane using bullfloats or darbies.
8. Do not sprinkle water on the plastic surface; do not disturb the slab surfaces prior to start of finishing operations.

3.04 HOT AND COLD WEATHER CONCRETING

A. See Job Conditions, paragraph 1.06 elsewhere herein.

3.05 CONSOLIDATION

A. General:

1. Consolidate all concrete in forms in accordance with provisions of ACI 309.
2. Consolidate each layer of concrete immediately after placing, by use of internal concrete vibrators supplemented by hand spading, rodding, or tamping.
3. Do not use vibrators to transport concrete.
4. Maintain a frequency of not less than 10,000 vibrations per minute for internal vibrators.
5. Do not vibrate forms or reinforcement.

B. Equipment: Provide adequate number of units and power source at all times. Maintain spare units on hand.

C. Procedures:

1. Limit the duration of vibration to the time necessary to produce satisfactory consolidation without causing segregation of aggregate.
2. Insert the vibrator so as to penetrate the lift immediately below the one being placed, and manipulated to blend the two lifts.
3. Use the vibrator to melt force the concrete as it is being placed, and use the vibrator to consolidate concrete masses.

3.06 CAST-IN-PLACE CONCRETE CURING

A. General:

1. All concrete shall be cured by an approved method for the period of time given below:
   Type III cement.....3 days
   Type I, II, IP of IS cement.....7 days
2. Immediately after placement, concrete shall be protected from premature drying extremes in temperatures, rapid temperature change, mechanical injury from rain and flowing water. All materials and equipment needed for adequate curing and protection shall be available and accessible prior to placing concrete. No fire or shall be permitted near or in direct contact with the concrete at any time. Curing shall be accomplished by any of the following methods, or combination thereof, as approved by Contractor.

B. Moist Curing: Concrete to be moist-cured shall be maintained continuously wet for the entire curing period. If water or curing materials used, stains or discolors concrete surfaces which are to be permanently exposed, the concrete surfaces shall be cleaned. When wooden forms are left in place during curing, they shall be kept wet at all times. If the forms are removed before the end of the curing period, curing shall be carried out as on unformed surfaces, using suitable materials. Horizontal surfaces shall be cured by covering with waterproof paper, polyethylene sheet, polyethylene-coated burlap or saturated burlap.

C. Membrane Curing:

1. Membrane curing shall not be used on surfaces that are to receive any subsequent treatment depending on adhesion or bonding to the concrete. Contractor shall verify material is compatible with other floor finishes.
2. Membrane curing compound shall not be used on surfaces that are maintained at curing temperatures with free steam.
3. The curing compound shall be applied to formed surfaces immediately after the forms are removed and prior to any patching or other surface treatment except the cleaning of loose sand, mortar, and debris from the surface.
4. The surfaces shall be thoroughly moistened with water and the curing compound shall be applied to slab surface as soon as the bleeding water has disappeared, with the tops of joints being temporarily sealed to prevent entry of the compound and to prevent moisture loss during the curing period.
5. The compound shall be applied in a one-coat continuous operating, at a uniform coverage in accordance with manufacturer's printed instructions.
6. Concrete surfaces which have been subjected to rainfall within three hours after curing compound has been applied shall be recoated at the same coverage rate and method herein specified. On surfaces permanently exposed to view, the surface shall be shaded from direct rays of the sun for the duration of the curing period. Surfaces coated with curing compound shall be kept free of foot and vehicular traffic and from other sources of abrasion and contamination during the curing period.

3.07 FINISH OF FORMED SURFACES

A. Rough Form Finish:

1. Provide as cast rough form finish to formed concrete surfaces that are to be concealed in the finish work or by any other construction.
2. Standard rough form finish shall be the concrete surface having the texture imparted by the form facing material used, with tie holes and defective area repaired and patched, and all fins and other projections exceeding 1/4" in height rubbed down or chipped off.

3.08 QUESTIONABLE CONCRETE

A. The strength level of the concrete will be considered satisfactory if the averages of three (3) consecutive strength test results equal or exceed the required 28-day strength, and no individual strength test result falls below the required 28-day strength by more than 500 pounds per square inch.

B. Failure to comply with the evaluation procedure shall constitute questionable concrete, and core tests shall be made at no cost to the Owner in accordance with ACI Building Code 318, Chapter 5, ASTM C 42, and as directed by the Architect. If core tests fail to demonstrate the strength required by the contract documents, load tests shall be made in accordance with Chapter 20 of the ACI Building Code 318. If concrete again fails to demonstrate strength required, the materials shall be removed and new materials provided. The Contractor shall pay all costs of the load test and all costs of corrective measures to make the work conform to the Contract Documents.

C. The term "Building Official" in ACI Building Code 318 shall be interpreted to mean the Architect.

3.10 CORRECTIVE WORK

A. Any careless or improper application of curing compounds, variations in finishing, curing, staining, marring or other damage from ensuring construction operations shall be corrected at no cost to the Owner.

B. Corrective work shall be performed in accordance with procedures and utilizing materials recommended by approved manufacturer. Corrective work shall produce a texture, color and finish which will match adjacent accepted surface as approved by the Architect.

END OF SECTION 03 30 00

SECTION 07 92 00

JOINT SEALANTS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:
1. Exterior sealants.

1.2 REFERENCES

A. ASTM International Inc.:
1. ASTM C 510 - Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants.
2. ASTM C 719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
3. ASTM C 794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
4. ASTM C834 - Standard Specification for Latex Sealants.
5. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
6. ASTM C 1193 - Standard Guide for Use of Joint Sealants.
7. ASTM C 1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants.
8. ASTM C 1311 - Standard Specification for Solvent Release Sealants.
9. ASTM D 2203 - Standard Test Method for Staining from Sealants.

1.3 SUBMITTALS

A. General: Submittals shall be in accordance with Specification Section 01 33 00.

B. Shop Drawings:
1. Submit manufacturer’s standard details to show installation and interface between sealants and adjacent work.

C. Product Data:
1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

D. Samples:
1. Submit color charts for each sealant type for initial selection.
2. Submit standard cured color samples for each sealant type illustrating selected colors.

E. Test Reports:
1. Submit results of laboratory pre-construction testing.
2. Submit results of field pre-construction testing.
3. Submit manufacturer's recommendations for joint preparation, priming, and joint accessory materials based on test results.
4. Submit manufacturer's recommended installation procedure modifications resulting from field adhesion tests.

F. Manufacturer's Installation Instructions:
1. Submit manufacturer’s published installation procedures.
2. Include instructions for completing sealant intersections when different materials are joined.

G. Manufacturer's Certificate:
   1. Certify products are suitable for intended use and products meet or exceed specified requirements.
   2. Certify applicator is approved by manufacturer.

H. Qualifications Data:
   1. Submit applicator's qualifications, including reference projects of similar scope and complexity, with current phone numbers and contact names of architects and owners for verification.

I. Manufacturer's Field Reports:
   1. Indicate time present at Project site.
   2. Include observations, indicate compliance with manufacturer's installation instructions, and supplemental instructions provided to the Contractor's Installers.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data:
   1. Submit recommended inspection intervals.
   2. Submit instructions for repairing and replacing failed sealant joints.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with the following:
   1. Building Joints: ASTM C 1193.

B. Laboratory Pre-Construction Testing:
   1. Test sealants, joint accessories, and joint substrates in accordance with the following, before starting work of this section:
      a. Obtain samples of joint substrate products specified in other sections.
      b. Adhesion: ASTM C 794 and ASTM C 719; determine surface preparation and required primer.
      c. Compatibility: ASTM C 1087; determine materials forming joints and adjacent materials do not adversely affect sealant materials and do not affect sealant color.
      d. Staining: ASTM D 2203, ASTM C 510, or ASTM C 1248; determine sealants will not stain joint substrates.
   2. Pre-construction testing is not required when sealant manufacturer can furnish data acceptable to Architect based on previous testing for materials matching those of the Work.

C. Field Pre-Construction Testing:
   1. Test each elastomeric sealant and joint substrate in accordance with the following, before beginning work of this section:
      a. Install sealants in mockups using joint preparation methods determined by laboratory pre-construction testing.
      b. Install field-test joints in inconspicuous location as approved by Architect.
      c. Test Method: Manufacturer's standard field adhesion test to verify joint preparation and primer required to obtain optimum adhesion of sealants to joint substrate.
      d. When test indicates sealant adhesion failure, modify joint preparation, primer, or both and retest until joint passes sealant adhesion test.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.

B. Applicator Qualifications:
   1. Company specializing in performing work of this section with minimum three (3) years documented experience, minimum three successfully completed projects of similar scope and complexity, and approved by manufacturer.
   2. Designate one individual as project foreman who shall be on site at all times during installation.

1.7 MOCKUP

A. Install sealants in mockups specified in other sections including sealant and joint accessories to illustrate installation quality and color.

B. Incorporate accepted mockup as part of Work.
   1. Repair seal joint mockups used for field adhesion testing.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in manufacturers unopened original packaging. Inspect for damage.

B. Store primers and sealants in cool dry location with ambient temperature range of 60 to 80 degrees F (15 to 27 degrees C).

1.9 ENVIRONMENTAL REQUIREMENTS

A. Do not install primers or sealants when atmospheric temperatures or joint surface temperatures are less than 40 degrees F (4 degrees C).

1.10 SCHEDULING

A. Schedule work so waterproofing, water repellents and preservative finishes are installed after sealants, unless sealant manufacturer approves otherwise in writing.

B. Ensure sealants are cured before covering with other materials.

1.11 WARRANTY

A. Submit signed copies of the following warranties against adhesive and cohesive failure of sealant and against infiltration of water and air through sealed joint for period of three (3) years from date of completion.
   1. Manufacturer's standard warranty covering sealant materials.
   2. Applicator's standard warranty covering workmanship.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Tremco Sealant/Weatherproofing Division of RPM International, Inc. (Basis of Design)

B. Pecora Corporation (Acceptable Alternate)

C. Architect approved equal prior to bid.

2.2 SILICONE SEALANTS

A. Single Component Silicone: ASTM C920, Type S, Grade NS, Class 50; Uses NT, M, G, A and O: single component, neutral curing, nonstaining, nonbleeding, color as selected.
   1. Spectrem 1 (Basis of Design)
   2. Spectrem 2
   3. Spectrem 3
   4. Architect approved equal prior to bid.

B. Single Component Silicone: ASTM C920, Type S, Grade NS, Class 25; Uses NT, G, A and O: single component, neutral, nonstaining, nonbleeding, color as selected.
   1. Proglaze (Basis of Design)
   2. Tremsil 200
   3. Tremsil 600
   4. Architect approved equal prior to bid.

2.3 ACCESSORIES

A. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

C. Joint Backing: Round foam rod compatible with sealant; oversized 25 to 50 percent larger than joint width; recommended by sealant manufacturer to suit application

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Masking Tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify substrate surfaces and joint openings are ready to receive work.
   1. Verify joint surfaces are clean and dry.
   2. Ensure concrete surfaces are fully cured.

B. Report unsatisfactory conditions in writing to the Architect;

C. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Prepare joints in accordance with ASTM C 1193 and manufacturer's instructions.

B. Clean joint surfaces to remove dirt, dust, oils, wax, paints, and other contamination capable of affecting primer and sealant bond.
   1. Clean concrete joint surfaces to remove curing agents and form release agents.

C. Protect elements surrounding the Work of this section from damage or disfiguration. Apply masking tape to adjacent surfaces when required to prevent damage to finishes from sealant installation.

3.3 SEALANT INSTALLATION

A. Install primer and sealants in accordance with ASTM C 1193 and manufacturer's instructions.

B. Install joint backing to maintain the following joint ratios:
   1. Joints up to 1/2 inch (13 mm) Wide: 1:1 width to depth ratio.
   2. Joints Greater than 1/2 inch (13 mm) Wide: 2:1 width to depth ratio; maximum 1/2 inch joint depth.

C. Install bond breaker where joint backing is not used.

D. Apply primer where required for sealant adhesion.

E. Install sealants immediately after joint preparation.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

G. Joining Silicone and Polyurethane Sealants:
   1. Install polyurethane sealants first.
   2. Join silicone sealant to polyurethane in accordance with manufacturer's instructions.

H. Tool exposed joint surface concave.

3.4 MANUFACTURER'S FIELD SERVICES

A. Require sealant manufacturer to be present at Project site to:
   1. Observe sealant mockup installation and to issue reports of observations.
   2. Conduct field pre-construction testing.

3.5 CLEANING

A. Remove masking tape.

B. Clean adjacent surfaces soiled by sealant installation.

3.6 SCHEDULE – SEALANT JOINTS

A. Exterior Sealant Joint [Type A]:

   1. Applications:
      a. Control and expansion joints in cast-in-place concrete.
      b. Joints between architectural precast concrete units.
      c. Control and expansion joints in unit masonry.
      d. Joints between different materials listed above.
      e. Perimeter joints between materials listed above and frames of doors, windows, storefronts, louvers and similar openings.
      f. Control and expansion joints in soffits and overhead surfaces.
      g. Other exterior joints in vertical surfaces and non-traffic horizontal surfaces for which no other sealant is specified.
   2. Single Component Silicone Sealants:
      a. Spectrem 1.
      b. Spectrem 2.
      c. Spectrem 3.

B. Concealed Bedding Sealant Joint [Type K]:

1. Applications:
   a. Bedding joints under metal thresholds and saddles.
   b. Bedding joints between sheet metal flashing and other materials.
2. Single Component Silicone Sealants:
   a. Proglaze.
   b. Spectrem 2.
   c. Spectrem 3.

END OF SECTION 07 92 00

SECTION 10 14 00

SIGNAGE

PART 1 – GENERAL

1.01 SCOPE

A. Furnish and install aluminum signage as shown and indicated on the Drawings and as specified in this Section, complete.

B. All formwork, reinforcing, sleeves, inserts, piping, hangers, anchors, frames, and other items to be built into the signage work shall be correctly positioned, secured and inspected by the Contractor and Engineer prior to placing signage.

1.02 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this Section.

1.03 DESCRIPTION

A. This Section covers the metal fence-mounted signs.

1.04 REFERENCES

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc- Iron Alloy Coated (Galvannealed) by the Hot-Dip Process
B. ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
D. ASTM D523 - Test Method for Specular Gloss.
E. ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint
F. ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open- Flame Carbon-Arc Light and Water Exposure Apparatus.
G. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
H. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
I. ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
J. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
K. ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets

1.05 QUALITY ASSURANCE

A. Quality of materials and installation to meet acceptable industry standards.
B. Confirm sign text, graphics and colors with Owner and Architect prior to manufacture.
C. Exterior finish materials shall be high-quality, high-grade materials that can withstand harsh effects of the exterior environment. Materials shall be able to withstand long-term exposure to UV radiation. Materials shall be resistant to fading and chalking.

1.06 SUBMITTALS

A. General: Submittals shall be in accordance with specification section 01 33 00.
B. Final Art:
    1. Included in this bid, Contractor is to provide the creation of ALL final art files necessary for the production of the graphics including modifications of all text, sizes and layouts. Contractor must

provide all graphics to the Architect for approval prior to manufacturing. It will be the responsibility of the Contractor to make all necessary modifications of all files in order to receive approval from the Architect for production.

C. Product Data:

1. Submit manufacturer's construction details relative to materials, dimensions of individual component, profiles and finishes for each type of sign, including methodologies, materials and fasteners for installation of each type of sign.

D. Quality Control Submittals:

1. Provide scaled shop drawings for approval of each type sign prior to manufacture, indicating sizes, materials, finishes, text/graphics for each sign of each type with installation details.
2. Provide substrate material, and color swatches as required for verification and approval prior to manufacture.

E. Contract Closeout Information:

1. Maintenance data.
2. Warranty: Executed warranty indicated below.

1.07 JOB CONDITIONS

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting and mounting when possible.

B. Deliver signs for installation only after designated areas are ready to receive work. Pack signage components to prevent damage.

C. Store materials in secure areas, out of weather and protected from work of other trades.

1.08 WARRANTY

A. The Contractor, by commencing the work of the project, assumes overall responsibility, as a part of their warranty of the work, to assure that all assembled components and parts shown or required within the work of this project comply with the contract documents. The Contractor shall further warrant:

1. That all components specified, or required, to satisfactorily complete the installation, are compatible with each other and with the conditions of installation and expected use.
2. The overall effective integration and correctness of individual parts and the whole of the system.
3. Compatibility with adjoining substrate, materials and work by other trades.
2. There shall be no premature material failure due to improper design or fabrication of the system. All materials shall fully perform to their normal life expectancy.
3. Upon final completion, Contractor and the signage sub-contractor will warrant all work and materials to be in full and complete accordance with the contracts documents and agreement between Owner and Contractor, and requirements appertaining thereto; that all work and materials are free from any and all defects and imperfections, and fully meet the manufacturer's published performance criteria for the use and purposes for which each and every part is specified.
4. The Contractor also agrees that, should any defect develop or appear, which the Architect and/or Owner finds was not caused by improper use, the signage contractor shall promptly, upon demand, fully correct, substitute and make good any such defective material without any cost to the Owner and will save the Owner harmless against any claim, demand, loss or damage by reason of any breach of this warranty.
5. The period of this warranty shall commence on the date on which the Contractor has met all Final Completion requirements. The period of said warranty shall last twelve (12) months unless otherwise specified.

PART 2 – PRODUCTS

2.01 MANUFACTURERS / MATERIALS

A. The basis-of-design Manufacturer is:

2. Architect approved equal prior to bid. Refer to Section 01 63 00.

B. Refer to this Specification and Drawings for sign types.

C. Sign Construction: Production/manufacture of signs shall include no visible seams (fill, grind, smooth, finish).

D. Aluminum: Aluminum used for exposed exterior elements shall be T-5 mill aluminum with acrylic polyurethane two-part catalyzed coating system. All coating applications shall be prepared and spray applied in the factory by skilled mechanics. All surfaces shall be mechanically sanded removing all grain lines, striations, and surface blemishes, cleaned with non-abrasive scouring pads, rinsed, and air dried prior to receiving coatings.

1. Coating shall be prepared as designated by manufactures latest literature for surface preparation and application. All finished surfaces shall be uniform.
2. Colors shall match color designations as indicated on the drawings or as approved by Owner/Architect.

Aluminum material for fence framework (i.e., tubular pickets, rails and posts) shall conform to the requirements of ASTM B221. Accessories: Aluminum castings shall be used for all post caps, scrolls, finials, and other miscellaneous hardware. Hinges and latches shall be fabricated from aluminum, stainless steel or composite materials.

E. Miscellaneous Products:

1. Epoxy:

Two component thermosetting epoxy adhesive with 100% solids content.

PART 3 – EXECUTION

3.01 INSPECTION

A. Owner shall approve a "proof" of each sign before ordering and installing. Examine substrate and conditions which signage is to be mounted to. (Mechanically attached to fence.)

B. Verify substrates are clean, free from moisture, or materials which may affect installation.

C. Carefully examine surfaces for defects and irregularities.

D. Do not proceed with installation until unsatisfactory conditions have been corrected.

E. Installation indicates acceptance of substrates and responsibility for performance.

3.02 INSTALLATION

A. Do not start until work of other trades are complete.

B. Install signs using specified method and materials, level, plumb and true.

C. Furnish inserts and anchoring devices which must be set in concrete or built into masonry, if required, for installation of this work. Provide drawings, templates, instructions and directions for installation of anchorage devices. Provide toothed steeled or lead shield expansion bolt devices for drilled- in -place anchors and inserts for exterior installation. Provide units with exposed surfaces matching the texture and finish of metal item anchored.

3.03 ADJUST AND CLEAN

A. Repair or replace and damaged work prior to date of Substantial Completion.

B. Cover or otherwise protect with non-staining materials or as may be necessary to prevent dirt and damage.

END OF SECTION 10 14 00

SECTION 26 01 00

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Drawings are necessarily diagrammatic by their nature and are not intended to show every connection in detail or every pipe or conduit in its exact location. Carefully investigate structural and finish conditions and coordinate the separate trades in order to avoid interference between the various phases of Work. Organize and lay out Work so that it will be concealed.

B. The intent of the Drawings is to establish the types of systems and functions; not to set forth each item essential to the functioning of the system. Install the Work complete, including minor details necessary to perform the function indicated. Review pertinent Drawings and adjust the Work to conditions shown. Where discrepancies occur between Drawings, Specifications, and actual field conditions, immediately notify the Owner's Project Manager for Owner's interpretations.

C. All dimensional information related to new structures shall be taken from the appropriate Drawings. All dimensional information related to existing facilities shall be taken from actual measurements made by the Contractor on the Site.

1.03 REFERENCE STANDARDS

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

C. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the Contract Documents.

1.04 DEFINITIONS

A. Concealed: Concealed areas are those areas that cannot be seen by occupants.

B. Exposed: Exposed areas are all areas that are exposed to view by occupants, including areas exposed to the outdoors.

1.05 QUALITY ASSURANCE

A. Regulations: Work, materials and equipment shall comply with the latest rules and regulations specified in National Fire Protection Association (NFPA).

B. Discrepancies: The Drawings and Specifications are intended to comply with listed codes, ordinances, regulations and standards. Where discrepancies occur, immediately notify the Owner's Project Manager in writing and ask for an interpretation. Should installed materials or workmanship fail to comply, the Contractor is responsible for correcting the improper installation at no additional cost to the Owner. Additionally, where sizes, capacities, or other such features are required in excess of minimum code or standards requirements, provide those specified or shown.

C. Contractor Qualifications: An acceptable Contractor for the Work under this Division must have personnel with experience, training and skill to provide a practical working system. The Contractor shall furnish acceptable evidence of having installed not less than three systems of size and type comparable to this Project. All personnel installing equipment under this Division shall possess valid State of Georgia licenses for their skill level. Each Journeyman shall supervise no more than two apprentice helpers. Refer also to Owner's Special Conditions.

1.06 SUBMITTALS

A. Product Data: Provide coordination Drawings with submittals as required by Division 01.

B. Record Documents: In addition to hard copy format, all material submitted as final record products, including approved Shop Drawings and submittals, shall be submitted to the Owner in its original electronic file format on memory stick. Material may be scanned into electronic file format where necessary.

1.07 DELIVERY, STORAGE AND HANDLING

A. All equipment and materials shall be delivered to the Project Site clean and sealed for protection.

B. Moisture: During construction, protect panels, equipment, and other items from insulation moisture absorption and metallic component corrosion by appropriate use of storage containers, strip heaters, lamps or other suitable means. Apply protection immediately upon receiving the products and maintain continually.

C. Damage: Take such precautions as are necessary to protect apparatus and materials from damage. Failure to protect materials is sufficient cause for rejection of the apparatus or material in question.

D. Finish: Protect factory finish from damage during construction operations until acceptance of the Project. Restore any finishes that become stained or damaged to Owner's satisfaction.

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

B. Conditions: Provide new products of manufacturers regularly engaged in production of such equipment. Provide the manufacturer's latest standard design for the type of product specified. Products shall be U.S. made. Owner reserves the right to approve or disapprove foreign-made products.

C. NEC and UL: Products shall conform to requirements of the National Electrical Code. Where Underwriters' Laboratories have set standards, listed products and issued labels, products used shall be listed and labeled by UL.

D. Space Limitations: Equipment selected shall conform to the structure features and shall be coordinated with all components. Do not provide equipment that will not meet arrangement and space limitations. Contractor shall submit room layouts with submitted items shown drawn to scale.

E. Factory Finish: Equipment shall be delivered with a hard surface, factory-applied finish so that no additional field painting is required except for touch-up.

2.02 EQUIPMENT AND DEVICE MARKING

A. Designations: Externally mark all equipment, devices, feeders, branch circuits and similar items with nameplates with the same designations as indicated on the Contract Documents.

B. Nameplates shall be black laminated rigid phenolic with white core. Emergency nameplates shall be red laminated phenolic with white cores.

C. Nameplate Fasteners: Fasten nameplates to the front of equipment only by means of stainless steel self-tapping screws. Stick-ons or adhesives are not acceptable unless the NEMA enclosure rating is compromised, then only epoxy adhesive shall be used to attach nameplates.

D. In general, provide the following information for the types of electrical equipment as listed:

1. Panelboards: Identify panelboard designation, voltage characteristics, and source designation.

E. Panelboards: Prepare a neatly typed circuit directory behind clear heat-resistant plastic in a metal frame tack welded to the inside of the door for each panelboard. Identify circuits by equipment served and by building room numbers where room numbers exist. Indicate spares and spaces with light, erasable pencil marking. Adhesive mounted directory pocket is not acceptable. Removing and attaching panel schedules from the Drawings is not acceptable.

F. Panelboards, Pull, Junction and Outlet Boxes:

1. With ½ inch high permanent lettering, identify conduits connected to panelboards, pull, junction and outlet boxes with the complete circuit number of the conductors contained therein. Neutral conductors shall be identified by wire marker tags in the panelboards, pull, junction and outlet boxes. Where multiple circuits are contained in a box, identify the circuit conductors with permanent tags which indicate circuit designation.

G. Power receptacles, wall switches and dedicated outlets.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

B. Installation shall be in accordance with manufacturer’s published recommendations.

C. Cooperation with Other Trades: Cooperate with trades of adjacent, related or affected materials or operations, and with trades performing continuations of this Work in order to effect timely and accurate placing of Work and to coordinate, in proper and correct sequence, the Work of such trades.

D. Workmanship: Work shall be performed by competent workers skilled in their trade. This installation must be complete.

E. Setting of Equipment: Equipment must be leveled and set plumb. Sheet metal enclosures mounted against a wall must be separated from the wall not less than 1/4 inch by means of corrosion-resistant spacers or by 3 inches of air for freestanding units. Use corrosion resistant bolts, nuts and washers to anchor equipment. Provide Drawings and layout Work showing exact size and location of sleeves, openings or inserts for electrical equipment in slabs, walls, partitions and chases in sufficient time to be coordinated with Work under other divisions.

F. Sealing of Equipment: Seal openings into equipment to prevent entrance of animals, birds and insects.

G. Concealed Work: Conceal all electrical Work in walls, and underground.

1. Where shown or specified to be exposed. Exposed is open to view.

2. Where exposure is necessary to the proper function.

3. Where size of materials and equipment preclude concealment.

H. Application: Unless otherwise indicated, power will be utilized as follows:

1. 120 volts, single phase: Lighting.

2. 120 volts, single phase: Lighting equipment.

3. 120 volts, single phase: Convenience outlets.

3.02 TESTING

A. Test Conditions:

1. Place circuits and equipment into service under normal conditions, collectively and separately, as may be necessary to determine satisfactory operation.

B. Test Dates: Schedule final acceptance sufficiently in advance of the Contract date to permit completion of any necessary adjustment or alterations within the number of days allotted for completion of the Contract. Provide written notification to Owner at least fourteen (14) calendar days in advance of Functional Performance Test dates.

C. Retests: If retesting is required due to initial failure, conduct retests of such time duration as may be necessary to assure proper functioning of adjusted or altered parts or items of equipment. Any resultant delay as a result of such necessary retests does not relieve the Contractor of Contractor's responsibility under this Contract.

D. Circuit Verification: All 120-volt single-phase circuits shall be verified to match the Drawings and panel schedules by "ringing out" each circuit in the presence of the Owner's representative(s).

END OF SECTION 26 01 00

SECTION 31 11 00

CLEARING AND GRUBBING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 DESCRIPTION OF WORK

A. This section covers all clearing and grubbing together with the removal and disposal of items.

B. Related Work Specified Elsewhere:

1. Division 31, Section Grading for site excavating, filling, disposal of surplus earth and debris and finishing grading.
2. Division 31, Section Erosion and Sedimentation Control.

1.03 JOB CONDITIONS

A. Condition of Premises:

1. Accept the premises as found and clear the site as specified. The Owner assumes no responsibility for condition of site nor continuation in condition existing at time of proposal or thereafter. Assume risk regarding damage or loss, whether by reason of fire, theft, or other casualty or happening.
2. Assume all risk for downstream adjoiners from damage due to erosion, sediment or pollution.

B. Protection:

1. Existing Vegetation. Thoroughly protect from damage, existing individual trees, groups of trees, shrubbery, lawns and other vegetation to remain. Replace at no cost to the Owner, any trees, shrubs or sod in the same quantity and size as existing to remain which are damaged or destroyed.
2. Public and Property. Accomplish all Work in a manner that provides for the safety of the public and all workmen and provide for the protection of all property.
3. Protect all downstream adjoiners from erosion, sediment and pollution.
4. Contact the Utility Protection at (811) in ample time to have all existing utilities located. Field verify the horizontal and vertical location of all utilities prior to construction operations. Protect all utilities from damage or interruption. Contractor is solely responsible for any damages occasioned due to his failure to verify the location or protection of utilities.

C. Access:

1. Maintain vehicular access throughout the duration of the project to all adjacent or nearby properties.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 INSTALLATION/APPLICATION/PERFORMANCE/ERECTION

A. Clearing and Grubbing:

1. Clearing. Fell trees, dispose of trees and other vegetation designated for removal, together with the downed timber, snags, brush and rubbish, occurring within the construction limits. Trim individual trees and groups of trees designated to be left standing within the cleared areas of all dead branches and of all live branches to such heights and in such manner as are indicated on the Drawings or directed by the Architect. All limbs, branches and roots damaged during construction, together with those required to be trimmed, shall be neatly cut next to the bole of the tree or main branch or root. Cuts more than 2 inches (50 mm) in diameter thus made and any injury to the tree trunk or main branches shall be immediately painted with tree wound paint.
2. Grubbing. Remove and dispose of all stumps, all matted roots and all roots larger than 3 inches (75 mm) in diameter in all construction areas.
3. Removal. Remove all cleared and grubbed materials completely away from the site. Do not store or permit debris to accumulate on the site. If the Contractor fails to remove excess debris promptly, the Owner reserves the right to cause same to be removed at Contractor's expense.
   a. Remove all temporary structures when they are no longer required.
   b. Legally dispose of all cleared and grubbed materials removed from site.

END OF SECTION 31 11 00

SECTION 31 22 00

GRADING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 DESCRIPTION OF WORK

A. This Section covers excavation, fill, disposal of surplus earth and debris, finished grading and rock.

B. Related Work Specified Elsewhere:

1. Division 02, Section Demolition.
2. Division 31, Section Clearing and Grubbing.
3. Division 31, Section Erosion and Sedimentation Control.

1.03 QUALITY ASSURANCE

A. Workmanship:

1. Perform all Work in accordance with requirements of the Drawings and Specifications and in a manner which will insure reasonable accuracy in preserving lines and levels shown.

B. Tests:

1. Sufficient tests to ascertain that the specified density is being obtained, throughout the fill and backfill, will be made by a Geotechnical Engineer selected by the Owner and paid by the Owner.

C. Observations & Instruction:

1. Removal of unsuitable material shall be made at the direction and under the observation of the Geotechnical Engineer.

D. Conform to applicable Local, State and Federal (OSHA) rules and regulations.

E. A Georgia Registered Land Surveyor will lay out all work and survey and maintain all property lines and bench marks throughout construction.

1.04 SUBMITTALS

A. General: Submittals shall be in accordance with Specification Section 01 33 00.

B. Contractor shall submit a detailed time schedule of all earthwork operations to the Architect/ Geotechnical Engineer for review prior to commencing work.

C. Any deviations from earthwork design concept shall be represented by the submittal of detailed engineered Shop Drawings which clearly illustrate the intent and scope of said deviation(s) for review and approval prior to proceeding with same.

1.05 NOTIFICATION

A. Contractor shall notify Architect/Geotechnical Engineer 24 hours prior to commencing grading, excavation, land clearing and removal operations.

B. Contractor shall notify all utilities in ample time for necessary measures to be taken to prevent interruption of service when utility lines which are to be removed, relocated and/or severed are encountered.

1.06 JOB CONDITIONS

A. Contractor shall survey and establish all property lines, property documentation, clearing boundaries, and existing grades and lay out grade stakes for structures and appurtenances. If existing grades are at variance with Drawings, Contractor shall promptly notify Architect and receive instructions prior to proceeding further with the Work. Contractor shall be fully responsible for conditions resulting from his failure to do so. Contractor shall utilize a Registered Land Surveyor currently registered to practice land surveying in the State of Georgia.

B. Contractor, upon becoming aware of subsurface or latent physically changed conditions, shall promptly notify Owner and the Architect verbally to permit verification of the conditions, and follow immediately in writing to describe the nature and extent of the differing conditions. No claim by Contractor for any conditions differing from those anticipated in the Drawings and Specifications shall be allowed, unless Contractor has so notified Owner, verbally and in writing, as required above, of such changed conditions.

D. Contractor is solely responsible for all earth quantities and to render the finished grade elevations of the Project as indicated on the Drawings. Exportation (i.e. "haul off") of "excess" soil materials to achieve final design grade shall be included in the Contract Sum export of unsuitable materials at the direction of Geotechnical Engineer will be compensated at the unit price allowance in the Bid Form.

E. Environmental Requirements:

1. Burning. No burning of waste from clearing or grubbing will be permitted.
2. Newly Graded Areas. Take every precaution and temporary measure necessary, such as temporary seeding, to prevent damage from erosion of freshly graded areas. Repair any settlement or washing that may occur prior to completion of the work and re-establish the grades to the required elevations and slopes at no additional cost to the Owner. This shall apply to damage to the newly graded areas within the construction limits and damage to adjacent properties by eroded materials.
3. Any underground utilities found to exist within the earthwork and not shown on the Drawings shall be removed and/or relocated in accordance with the General Requirements.

F. Utility Location:

1. Notify all utility companies by calling the Utility Protection Center at 811 in ample time for necessary measures to be taken to prevent interruption of service when utility lines which are to be removed are encountered.
2. Move, relocate, reroute any and all said utilities, poles, guys, appliances or appurtenances as required or coordinate said relocation as part of the base bid.

G. Protection:

1. Trees.
   a. General Protection. The Contractor shall be responsible for the protection of tops, trunks and roots of existing trees on project site that are to remain. Box, fence or protect existing trees subject to construction damage before any work is started, remove boxing when directed. Do not permit heavy equipment or stockpiles within branch spread. Remove interfering branches without injury to trunks and cover

scars with tree paint.

b. Grading Around Trees. Where excavating, fill or grading is required within the branch spread of trees that are to remain, the Work shall be performed as follows:

(1) Trenching. When trenching occurs around trees to remain, do not cut the tree roots but tunnel the trench under or around the roots by careful hand digging and without injury to the roots.

(2) Raising Grades. When the existing grade at tree is below the new finished grade, and fill not exceeding 6 inches is required, place clean washed gravel graded from 1 to 2 inch size directly around the tree trunk. The gravel shall extend out from trunk on all sides a minimum of 18 inches and finish approximately 2 inches above the finished grade at tree. Install gravel before any earth fill is placed. New earth fill shall not be left in contact with the trunks of any trees requiring fill.

(3) Trees marked for preservation that are buried in fills over 6 inches deep shall have an open dry well of durable masonry (without mortar) situated at least 12 inches from the tree trunk. Drain all wells properly. Before fills of over 6 inches are made upon the tree root areas, spread at least a 6 inch layer of broken stone or coarse gravel covered by inverted sods to facilitate proper drainage and aeration.

(4) Lowering Grades. Under the drip-line of existing trees in areas where the new finished grade is to be lowered, regrading Work shall be done by hand to elevation as indicated. Cut roots as required cleanly 3 inches below finished grade and cover scars with tree paint.

(5) Trees marked for preservation that are located more than 6 inches above proposed grades shall stand on broad rounded mounds and be graded smoothly into the lower level. Cut exposed or broken roots clean and cover with topsoil.

H. Maintain vehicular access to all properties nearby and adjacent throughout the duration of the Project.

I. Contractor shall provide dewatering and drainage as required to accomplish the Work. No excavation may proceed until a suitable dewatering plan has been provided and approved by the Architect/Geotechnical Engineer and the Owner. Contractor shall take care to ensure that ponding of water does not occur. In the event that ponding of water does occur, Contractor shall immediately take the necessary measures to eliminate said ponding. Submit dewatering procedures to Architect for review. All dewatering shall be included in the Contract Sum.

J. All expenses related to removal, relocation, replacement and/or rerouting of any and all existing utilities or other built, stored, stockpiled items of any kind, surface or subsurface is the responsibility of Contractor and shall be included in the Contract Sum.

PART 2 – PRODUCTS

2.01 TOPSOIL

A. Topsoil shall consist of local, fertile, friable, natural soil of loamy character, free of clay lumps, stones in excess of 3" in greatest dimension, typical of project locality, and containing no chemicals harmful to plant growth.

2.02 UNSUITABLE SOIL

A. Unsuitable soil materials shall consist of materials not capable of being compacted to density required; rock, debris and organic material including muck, which is a wet organic material which cannot support rolling or light trawler tractor type of equipment and requires removal by power shovels or draglines; or material otherwise identified, classified and quantified as unsuitable by the Geotechnical Engineer.

B. Non-organic materials are considered as unsuitable include non-organic debris not capable of being compacted to density required including, but not limited to, metal objects such as appliances, metal fencing, tires, etc.

C. Wet soil is not considered unsuitable soil; Contractor must dry wet soil out to render it usable and must be capable of being compacted to the density requirements.

D. Suitability of materials encountered on site relates only to the utility of said materials within the context of this project, on the subject site. Suitability to be determined by the Geotechnical Engineer.

2.03 FILL

A. Suitable fill material shall consist of local, clean, non-active, organic free subsoil, free from debris, roots, topsoil, frozen material and rock fragments equal to or less than 3". In areas of massive fills or disposal pits, the Geotechnical Engineer shall determine the maximum size of rock. The soil should exhibit a plasticity index of 30 or less and a dry unit weight of at least 90 pcf. Residual material to be used as fill material shall be tested and approved by Geotechnical Engineer for degree of compaction specified for its intended use.

B. For fill soils to be imported, the Contractor is responsible to provide samples of same for laboratory testing by the Geotechnical Engineer to determine moisture/density relationship (Proctor value). Additionally, the Contractor shall identify the location of any "borrow pits" so that the Geotechnical Engineer may inspect same to determine suitability of the general soils which the Contractor intends to import to the project site.

2.04 GRAVEL

A. Gravel fill shall consist of crushed stone or gravel, graded so that 100% passes 1-1/2" sieve, meeting ASTM C33 specification for #57 stone.

2.05 CRUSHED STONE (CRUSHER RUN)

A. Crushed stone shall consist of sound durable particles of crusher run rock, passing a two inch sieve and not more than seven percent passing a No. 200 sieve and free from unsuitable materials.

2.06 GRANULAR BEDDING

A. Granular bedding and backfill material shall consist of a granular soil, sand, chert, crushed stone or mixture of these, all of which passes a 3/4 inch sieve, 80% passing a 3/8 inch sieve and not more than 12% passing a No. 200 sieve. Material shall be free of organic matter and debris.

2.07 ROCK

A. Rock consists of three (3) types: Rippable Weathered Rock, Mass Rock and Trench Rock. Rippable Weathered Rock is part of the Work and shall be included in the Contract Sum. Mass Rock and Trench Rock removal are not included in this Contract. If Mass Rock and Trench Rock are encountered, Contractor shall stop work and notify Owner and Architect immediately. All rock shall be classified, qualified and quantified by Geotechnical Engineer.

1. Rippable Weathered Rock is defined as residual material having a volume greater than one cubic yard that, in the opinion of the Geotechnical Engineer, can be effectively plowed, spaded, or removed with power driven excavating equipment having been first loosened with a track-mounted bulldozer equipped with a ripper shank.
2. Mass Rock and Trench Rock are defined as residual material having a volume greater than 1 cubic yard for mass excavation or ¾ cubic yard for trench or pit excavation that cannot be

removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, or blasting.

a. Mass Rock – Mass Excavation: Late-model, track mounted bulldozer equipped with single-tooth ripper shank; rated at not less than 230 HP flywheel power and developing a min. of 50,000-lbf pryout force; measured according to SAEJ-732.

b. Trench Rock – Excavation of Trenches and Pits: Late-model., track-mounted hydraulic excavator; equipped with a 42-inch wide, short-tip-radius rock bucket; rated at not less than 120-hp flywheel power with bucket-curling force of not less than 25,000 lbf and stick-crown force of not less than 18,700 lbf; measures according to SAEJ-1179.

PART 3 – EXECUTION

1.01 INSTALLATION/APPLICATION/PERFORMANCE/ERECTION

A. Grading.

1. When fills are to be constructed over cultivated or fallowed land, the entire area upon which the fill is to be constructed shall first be cleared of vegetation and then smoothed with a blade grader. When fills are to be constructed over sodded surfaces, strip the sod to a depth of 2 inches. Then roll these smoothed or stripped surfaces to the specified density required for fill prior to the fill material placement. Dispose of stripped material as waste and completely remove from the site.

2. Conservation of Topsoil. Excavate the topsoil as necessary to reach underlying non-organic soils and spread on areas already graded and prepared for topsoil or deposit in storage piles convenient to the areas which are subsequently to receive application of topsoil. All landscape areas to receive 4 inches of topsoil. Stockpile topsoil free of roots, stones and other undesirable material. Keep topsoil, when stored, separate from other excavated materials. Cover storage piles as required to prevent wind blown dust. Topsoil stockpiles are to be contained with at least one row of type 'A' silt fence and are to be seeded and mulched to prevent erosion.

3. Proofrolling. After the site has been properly drained, and all organic surface soils have been removed, the site shall be inspected by a Geotechnical Engineer and proofrolled at that time. Proofrolling shall consist of several overlapping passes of a loaded 25 ton dump truck. The purposes of the proofrolling will be to detect any areas where soft or unstable soils are present, as well as to improve the density of the loose near-surface soils. Proofrolling shall be performed in the presence of the Geotechnical Engineer who can observe any areas where remedial action may be required. Any soft or yielding area shall be thoroughly undercut and replaced with structural fill compacted to meet the requirements of the area being undercut as directed by a Geotechnical Engineer. The groundwater level should be maintained at a depth of at least 2 feet below the depth of vibratory rolling operations. This work should be anticipated. A minimum of four complete overlapping passes shall be made in each of two perpendicular directions.

4. Excavation. Perform excavation of material of every description and of whatever substances encountered within the grading limits of the project to the lines and grades indicated on the Drawings. Any material excavated that is not required to achieve final grade elevations shall be considered excess and is the responsibility of the Contractor. Perform excavation and filling in a manner and sequence that will provide drainage at all times.

a. Rock: If rock is encountered, as described in Article 2.7, clear away earth and expose materials. Notify Architect/Geotechnical Engineer and receive written instructions prior to excavations. Geotechnical Engineer shall identify, qualify and verify quantity and extent of rock to be excavated. Only rock excavation done in accordance with Architect/Geotechnical Engineer's instructions will be paid for by Owner in accordance with Specifications. Contractor shall remove rock in accordance with the following:

i. To a depth of six inches (6") below proposed sidewalks and pavement.

ii. Twenty four inches (24”) on each side of and below footings.
iii. Six inches (6”) below and eight inches (8”) to each side, conduits, ducts and pipes installed in utility trenches, with minimum width of thirty six inches (36”).
iv. Twelve inches (12”) below finished design level in areas to receive landscaping and seeding.

b. Suitable Soils: Transport to and place all suitable excavated material in the fill areas within the limits of the work as specified and as shown on the Drawings.

c. Unsuitable Material: If unsuitable materials are encountered, notify Architect/ Geotechnical Engineer and receive written instructions prior to excavations. Geotechnical Engineer shall identify, qualify and verify quantity and extent of unsuitable materials to be removed. Only unsuitable materials excavation done in accordance with Architect/Geotechnical Engineer’s instructions will be paid for by Owner in accordance with Specification Section 01 27 00 Unit Prices of the Contract.

5. Preparation of Ground Surface for Fill. Sloped ground surfaces steeper than 5 to 1 upon which fill is to be placed shall be plowed, stepped or broken up in such a manner that fill material will bond with the existing surfaces. Wet and compact prepared surfaces as specified.

6. Fills. Construct fills at the locations and to the lines and grades indicated on the Drawings. Make sure that the completed fill corresponds to the shapes shown on the Drawings or meets the requirements of the particular case. Use all suitable material removed from the excavation in forming the necessary fill. All fill material shall be reasonably free from logs, stumps, sod, weeds, or other perishable material, trash, frozen material and from all stones having a maximum dimension greater than 6 inches. No stones shall be permitted in the top 12 inches of fills. Place the material in successive horizontal layers to a depth that will allow required compaction to be achieved throughout the full depth of the lift and in no case exceeding 12 inches in loose depth. Keep fill material spread uniformly. Remove any soft sections, and fill holes or depressions to required grades with approved material and shape the entire area to line, grade, and cross section and thoroughly compact as specified. The Contractor is responsible for adjustment of the moisture content of the fill material if necessary so that the specified compaction can be obtained. The rough grade for the entire site or portion thereof shall be approved by the Architect before placement of any topsoil.
   a. Subgrade Preparation. Shape, dress, moisten and compact as specified subgrades for all drives, parking areas, sidewalks and other structures. Test the subgrade for crown, elevation and density in advance of placing pavement.
   b. Spreading of Topsoil. Upon completion of rough grading, spread the stockpiled topsoil for a uniform depth of 4 inches, after settlement, over all areas graded under this Contract not receiving other surfacing, just prior to the seeding or landscaping operation. Before spreading the topsoil, scarify the graded areas for a depth of 3 inches and repair all settlements and washes.

7. Finished Grading. Accomplish uniformly smooth grading of all areas covered by the Project, including excavated and filled sections and adjacent transition areas so that the finished surface is smooth, compacted and free from irregular surfaces changes. The degree of finish shall be that ordinarily obtainable from blade-grader operations except as otherwise specified. The finished surface shall be not more than 2 inches above or below the established grade or approved cross section. Finish all swales so as to drain readily.

8. Backfill material shall be the same as specified for fill and shall be placed and compacted as specified for fill unless otherwise noted.

9. Granular Fill.
   a. Construct granular fill material when called for on the Drawings on the previously prepared subgrade to the lines and grades and thicknesses and dimensions shown on the Drawings.
   b. Place and spread materials on previously prepared subgrade that has been moistened sufficiently to prevent moisture loss in foundation materials but not enough to cause soft spots. Place sufficient material so that when spread, struck off

by an approved template and compacted as required herein, the resulting granular fill shall be of the required thickness and shape.

c. After compaction, check the surface with template and straightedge and correct and recompact all high or low spots.

10. Blasting will not be allowed on this project.

1.02 FIELD QUALITY CONTROL

A. Compaction.

1. Compact each layer of fill by rolling with approved rollers to at least the following percentages of maximum density at a moisture content no less than 3 percent above to 3 percent below optimum moisture as determined by ASTM D 698.

MINIMUM PERCENT OF MAXIMUM DENSITY

Material	Percent
Fill	95% of Standard Proctor
Subgrade – top 24 inches beneath pavements, slabs and footings	98% of Standard Proctor

2. In cut sections, compact top 12 inches of subgrade under pavements and top 6 inches of subgrade under sidewalks to the same density as required for fill hereinbefore.

3. Crushed stone is to be placed in maximum 18” lifts and consolidated with hand compaction equipment.

B. Testing. A Geotechnical Engineer selected and compensated by the Owner shall make the following tests:

1. Soil compaction testing frequencies as follows:
   a. (1) test per 2’ depth per 2000 sf. under wall footings.
   b. (1) test per 2’ depth per 5000 sf. under paved areas.
   c. (1) test per 2’ depth per 10000 sf. elsewhere.
   d. (1) test per 2’ depth per 50 lf. of trench backfill.

END OF SECTION 31 22 00

SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROL

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SCOPE

A. Submittals and Permits:

1. General: Submittals shall be in accordance with Specification Section 01 33 00.
2. The Owner will obtain Land Disturbance Permits from the appropriate authority and shall pay any fees for said permits. All fines imposed for improper erosion, sedimentation and pollution control shall be paid by the Contractor.
3. Land disturbance activity shall not commence until the Land Disturbance Permit is issued.
4. Submit with the required Schedule of Values a monthly monetary figure for maintenance of all erosion, sediment and erosion controls and Best Management Practices (BMP's) controls.
5. Include within the overall project schedule all erosion, sediment and pollution control operations. Illustrate understanding that all said measures are to be continuously maintained throughout the duration of the project until vegetation is stabilized and all sources of pollution are rendered non-active.
6. All replacement of measures as operations progress or are sequenced are part of the scope of this contract.
7. The Contractor shall adhere to all NPDES measures and requirements.
8. The extent of all erosion, sediment, and pollution control measures are the Contractor's responsibility.

B. Basic Principles:

1. Contain all erosion, sediment and pollution on the project sites.
2. Conduct the earthwork and excavation activities in such a manner to fit the topography, soil type and condition.
3. Minimize the disturbed area and the duration of exposure to erosive elements.
4. Stabilize disturbed areas immediately.
5. Safely convey run-off from the site to an outlet such that erosion will not be increased off site.
6. Do not encroach upon watercourses or any downstream properties.
7. Treat the first 1.2" of rainfall for 80% TSS removal with the effective use of Best Management Practices (BMP's).
8. Install and/or replace erosion, sediment and pollution control measures concurrent with or prior to any land disturbance activities.

C. Temporary Erosion and Sedimentation Control: In general, temporary erosion and sedimentation control procedures shall be directed toward:

1. Preventing soil erosion at the source.
2. Preventing silt and sediment from entering any waterway if soil erosion cannot be prevented.
3. Preventing silt and sediment from migrating downstream in the event it cannot be prevented from entering the waterway.

D. Permanent Erosion Control: Permanent vegetative cover shall be established on all non-paved disturbed areas and permanent erosion control measures shall be implemented to prevent sedimentation of the waterways and to prevent erosion of the Project site.

1.03 QUALITY ASSURANCE

A. General: Perform all work under this Section in accordance with all pertinent rules and regulations including, but not necessarily limited to, those stated herein and these Specifications.

B. All work shall conform to the "Manual for Erosion and Sediment Control in Georgia published by the Georgia Soil and Water Conservation Commission.

C. Acquire a copy of "Field Manual for Erosion and Sediment Control in Georgia, Vegetation and Structural Best Management Practices (BMP's) for Land Disturbing Activities" as published by the Georgia Soil and Water Commission, latest edition.

D. Conflicts: Where provisions of pertinent rules and regulations conflict with these Specifications, the more stringent provisions shall govern.

PART 2 – PRODUCTS

2.01 TEMPORARY EROSION AND SEDIMENTATION CONTROL MATERIALS

A. Silt Fence: Silt fence shall meet the requirements of Section 171 - Temporary Silt Fence of the Department of Transportation, State of Georgia, Standard Specification, latest edition. Silt fence fabric must be on the Georgia DOT qualified Product List.

B. Erosion Control Blanket:

1. Slopes > 3:1 (33% or greater) as shown on the Drawings
   a. Biodegradable netting impregnated with excelsior woodfiber such as manufactured by "Curlex".
   b. "Ero-Mat" by Verdyol
   c. "Bon Terra CS2" (slopes > 3:1)
   d. Or Equal as approved by Architect or Architect's engineer
2. Slopes < 3:1 (33% of less) as shown on the Drawings
   a. "Bon Terra CS1"

C. Filter stone shall be crushed stone conforming to Georgia Department of Transportation Table 800.01H, Size Number 3.

D. Colloidal Polymer applied as a liquid such as silt stop APS 600 series as manufactured by Applied Polymer Systems, Norcross, GA or approved equal.

E. Colloidal Polymer applied in a dry form such as Silt Stop 700 Series as manufactured by Applied Polymer Systems, Norcross, GA or approved equal.

2.02 RIP RAP

A. Stone Rip Rap: Use sound, tough, durable stones resistant to the action of air and water. Slabby or shaley pieces will not be acceptable. Specific gravity shall be 2.0 or greater. Rip rap shall have less than 66 percent wear when tested in accordance with AASHTO T-96. Unless shown or specified otherwise, stone rip rap shall be Type 3 rip rap.

1. Type 1 Rip Rap: The largest pieces shall have a maximum volume of two cubic feet. At

least 35 percent of the mass shall be comprised of pieces which weigh 125 pounds or more. The remainder shall be well graded down to the finest sizes. Rock fines shall comprise a maximum of 10 percent of the total mass. Rock fines are defined as material passing a No. 4 sieve. Rip rap size shall conform to Georgia Department of Transportation Section 805.01 Stone Dumped Rip Rap, Type 1.

2.03 FILTER FABRIC

A. The filter fabric for use under rip rap shall be a monofilament, polypropylene woven fabric meeting the specifications as established by Task Force 25 for the Federal Highway Administration. The filter fabric shall have an equivalent opening size (EOS) of 70.

B. Filter fabric under rip rap shall be equal to Mirafi, Amoco or Exxon.

C. Filter fabric shall not be used under rip rap at stream crossings.

2.04 CONCRETE

A. Concrete shall have a compressive strength of not less than 3,000 psi, with not less than 5.5 bags of cement per cubic yard and a slump between 3 and 5 inches. Ready-mixed concrete shall be mixed and transported in accordance with ASTM C 94. Reinforcing steel shall conform to the requirements of ASTM A 615, Grade 60.

B. Provide a concrete mix design for job mixed concrete for the Architect's approval.

PART 3 – EXECUTION

3.01 GENERAL

A. Standards: Provide all materials and promptly take all actions necessary to achieve effective erosion and sedimentation control in accordance with the Georgia Erosion and Sedimentation Act of 1975 as amended in 1989, local enforcing agency guidelines and these Specifications.

B. Implementation: The work shown on the Drawings shall be considered a minimum requirement. What is shown does not relieve the Contractor of the responsibility to actively take all steps necessary to control soil erosion, sedimentation and pollution.

3.02 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Temporary erosion and sedimentation control procedures should be initially directed toward preventing silt and sediment from departing the site boundaries or enter any drainage ways.

B. Silt dams, silt fences, traps, barriers, rock, check dams, appurtenances and other temporary measures and devices shall be installed as indicated on the Drawings, shall be maintained until no longer needed, and shall then be removed. Deteriorated hay bales and dislodged filter stone shall be replaced with new materials.

C. Where permanent grassing is not appropriate, and where the Contractor's temporary erosion and sediment control practices are inadequate, the Architect may direct the Contractor to provide temporary vegetative cover. Such temporary vegetative cover shall be provided by the Contractor in accordance with the Vegetative Schedules shown on the Drawings.

D. All erosion and sedimentation control devices, including check dams, shall be inspected by the Contractor at least weekly and after each rainfall occurrence and cleaned out and repaired by the

Contractor as necessary or as directed by the Architect.

E. Temporary erosion and sedimentation control devices shall be installed and maintained from the initial land disturbance activity until the satisfactory completion and establishment of permanent erosion control measures and permanent vegetative cover is established on all non-paved disturbed areas. At that time, temporary devices shall be removed.

F. For all newly disturbed, graded or exposed soil surfaces, apply 1.5 gals/acre of APS 600 Series Silt Stop as manufactured by Applied Polymer Systems, Norcross, GA or equal in a hydroseeder mix of appropriate seed, fertilizer, lime, and mulch for the same acre. Follow all manufacturer's instructions and recommendations. Do not mechanically disturb treated areas after application. (This does not include foot traffic as necessary to install erosion control blanket). Contractor shall furnish and install as necessary a minimum 200 lbs. of APS 700 Series Silt Stop as manufactured by Applied Polymer Systems, Norcross, GA. or equal for incidental "touch-up" or point source erosion areas.

3.03 PERMANENT EROSION CONTROL

A. Permanent erosion control shall include:

1. Restoring the work site to its original contours, unless shown otherwise on the Drawings or directed by the Architect.
2. Permanent vegetative cover shall be performed in accordance with Article 3.04 Grassing of this Section.

B. Permanent erosion control measures shall be implemented as soon as practical after the completion of pipe installation or land disturbance for each segment of the Project. In no event shall implementation be postponed when no further construction activities will impact that portion or segment of the Project. Partial payment requests may be withheld for those portions of the Project not complying with this requirement.

3.04 GRASSING

A. General:

1. All references to grassing shall relate to establishing permanent vegetative cover as specified herein for seeding, fertilizing, mulching, etc.
2. When final grade has been established, all bare soil, unless otherwise required by the Contract Documents, shall be seeded, fertilized and mulched in an effort to restore to a protected condition. Critical areas shall be sodded as approved or directed by the Architect.
3. Specified permanent grassing shall be performed at the first appropriate moment following establishment of final grading in each section of the site.

B. Where permanent vegetative cover (grassing) cannot be immediately established due to season or other circumstances, the Contractor shall provide temporary vegetative cover. The Contractor shall return to the site at the appropriate season to install permanent vegetation in areas that have received temporary vegetative cover, if not previously provided. If a permanent species was sown at the same time as the temporary species, the Contractor shall return to the site at the appropriate season to inspect the grassing, and if necessary, reseed those areas which are unsatisfactory.

3.05 EROSION CONTROL BLANKET

A. Furnish and install erosion control blanket in coordination with permanent grassing on all disturbed areas.

B. Follow manufacturer's recommendations and instructions relating to installation.

3.06 RIP RAP

A. Rip rap shall be placed as shown on the Drawings and at all points where banks of streams or drainage ditches are disturbed by excavation, or at all points where natural vegetation is removed from banks of the streams or drainage ditches. Carefully compact backfill and place rip rap to prevent subsequent settlement and erosion. This requirement applies equally to construction along side a stream or drainage ditch as well as crossing a stream or drainage ditch.

B. Preparation of Foundations: The ground surface upon which the rip rap is to be placed shall be brought in reasonable close conformity to the correct lines and grades before placement is commenced. Where filling of depressions is required, the new material shall be compacted with hand or mechanical tampers.

C. Placement of Filter Fabric: The surface to receive fabric shall be prepared to a relatively smooth condition free from obstructions, depressions and debris. The fabric shall be placed with the long dimension running up the slope and shall be placed to provide a minimum number of overlaps. The strips shall be placed to provide a minimum width of one foot of overlap for each joint. The filter fabric shall be anchored in place with securing pins of the type recommended by the fabric manufacturer. Pins shall be placed on or within 3 inches of the centerline of the overlap. The fabric shall be placed so that the upstream strip overlaps the downstream strip. The fabric shall be placed loosely so as to give and therefore avoid stretching and tearing during placement of the stones. The stones shall be dropped no more than three feet during construction. The fabric shall be protected at all times during construction from clogging due to clay, silts, chemicals or other contaminants. Any contaminated fabric or any fabric damaged during its installation or during placement of rip rap shall be removed and replaced with uncontaminated and undamaged fabric at no expense to the Owner.

D. Placement of Rip Rap: The rip rap shall be placed on a 6-inch layer of soil, crushed stone or sand overlaying the filter fabric. This 6-inch layer shall be placed to maximize the contact between the soil beneath the filter fabric and the filter fabric. Rip rap shall be placed with its top elevation conforming with the finished grade or the natural slope of the stream bank and stream bottom.

1. Stone Rip Rap: Stone rip rap shall be dumped into place to form a uniform surface and to the thickness specified on the Drawings. The thickness tolerance for the course shall be –6 inches and +12 inches. If the Drawings or the Bid do not specify a thickness, the course shall be placed to a thickness of not less than 18 inches.
2. Grouted Rip Rap: Reference the Drawings for grouted rip rap which is required as a minimum at the outlet headwalls.

END OF SECTION 31 25 00

SECTION 32 13 73

CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and other Division 1 Specifications Sections apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Single-component, polyurethane sealant installed at joint locations including; but not limited to, concrete sidewalks, brick pavers and joints between walk surfaces and walls.

1.03 REFERENCES

A. American Society for Testing Materials (ASTM) List of Applicable Standards:

1. ASTM C 510 - Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants.
2. ASTM C 661 - Standard Test Method for Indentation Hardness of Elastomeric Type Sealants by Means of a Durometer.
3. ASTM C 719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
4. ASTM C 794 - Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
5. ASTM D 412 - Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.

B. Sealant, Waterproofing, and Restoration Institute (SWRI):

1. SWRI Validation Program.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate installation of joint sealants with cleaning of joint sealant substrates and other operations that may impact installation or finished joint sealant work.

B. Preinstallation Conference: Conduct conference at Project Site.

1.05 SUBMITTALS

A. Product Data: For each type of joint sealant product specified, including:

1. Preparation instructions and recommendations.
2. Standard drawings illustrating manufacturer's recommended sealant joint profiles and dimensions applicable to Project.

B. Qualification Data: For qualified applicator.

C. Warranty: Sample of unexecuted installer warranty.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Company with minimum of three years experience specializing in work of this section, employing applicators trained for application of joint sealants required for this Project, with record of successful completion of projects of similar scope, and approved by manufacturer.

B. Single Source Responsibility: Provide exterior joint sealants by a single manufacturer responsible for testing of Project substrates to verify compatibility and adhesion of joint sealants.

C. Preconstruction Manufacturer Laboratory Compatibility, Staining, and Adhesion Testing: Submit samples of each substrate or adjacent material that will be in contact with or affect joint sealants. Current manufacturer test data of products on matching substrates will be acceptable.

1. Pre-construction manufacturer laboratory testing is not required when sealant manufacturer can furnish data acceptable to Architect based on previous testing for materials matching those of the Work.

D. Mockups: Provide joint sealant application within mockups required in other sections identical to specified joint sealants and installation methods.

1.07 DELIVERY, STORAGE AND HANDLING

A. Accept materials on site in manufacturer's unopened original packaging.

B. Store primers and sealants in dry location with ambient temperature range of 60 to 80 deg. F.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not install primers or sealants when atmospheric temperatures or joint surface temperatures are less than 40 deg. F.

1.09 SCHEDULING

A. Schedule installation of sealant after all other activities that could damage sealant are completed.

1.09 WARRANTY

A. Installer's Warranty: Original statement on Installer's letterhead in which Installer agrees to repair or replace joint sealants that demonstrate deterioration or failure within warranty period specified.

1. Warranty Period: One (1) year from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 URETHANE JOINT SEALANTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Tremco, Inc., Commercial Sealants & Waterproofing (Basis of Design); 3735 Green Road, Beachwood, Ohio 44122; www.www.tremcosealants.com, 1-800-321-7906.

2. Architect approved equal prior to bid. Refer to Section 01 63 00.

B. Urethane Joint Sealant shall comply with the following:

1. Basis of Design Product: Tremco, Inc., Dymonic 100.
2. Single-Component, Nonsag, Moisture-Cure, Polyurethane Joint Sealant
3. ASTM C 920, Type S, Grade NS, Class 50, Use NT, T, M, A, O, I.
4. Tensile Strength ASTM D412: 350 to 450 psi
5. Percent Elongation ASTM D412: 800 to 900%
6. Modulus at 100% ASTM D412: 75 to 85 psi
7. Tear Strength ASTM D412: 65 to 75 psi
8. Smoke Development ASTM E84: 5
9. Color: As selected by Architect from manufacturer's standard line of not less than 20 colors.

2.02 JOINT SEALANT ACCESSORIES

A. Cleaners: Chemical cleaners acceptable to joint sealant manufacturer.

B. Masking Tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine joint profiles and surfaces to determine if work is ready to receive joint sealants. Verify joint dimensions are adequate for development of sealant movement capability. Verify joint surfaces are clean, dry, and adequately cured. Proceed with joint sealant work once conditions meet sealant manufacturer's written recommendations.

3.02 PREPARATION

A. Joint Surface Cleaning: Clean joints prior to installing joint sealants using materials and methods recommended by sealant manufacturer. Comply with ASTM C 1193.

1. Remove curing compounds, laitance, form-release agents, dust, and other contaminants.
2. Clean nonporous and porous surfaces utilizing chemical cleaners acceptable to sealant manufacturer.
3. Protect elements surrounding the Work of this section from damage or disfiguration. Apply masking tape to adjacent surfaces when required to prevent damage to finishes from sealant installation.

3.03 SEALANT APPLICATION

A. Sealant and Primer Installation Standard: Comply with ASTM C 1193 and manufacturer's written instructions.

B. Joint Backing: Select joint backing materials recommended by sealant manufacturer as compatible with sealant and adjacent materials. Install backing material at depth required to produce profile of joint sealant allowing optimal sealant movement.

C. Masking: Mask adjacent surfaces to prevent staining or damage by contact with sealant or primer.

D. Joint Priming: Prime joint substrates when recommended by sealant manufacturer or when indicated by preconstruction testing or experience. Apply recommended primer using sealant manufacturer's recommended application techniques.

E. Liquid Sealant Application: Install sealants using methods recommended by sealant manufacturer, in depths recommended for application. Apply in continuous operation from bottom to top of joint vertically and horizontally in a single direction. Apply using adequate pressure to fill and seal joint width.

1. Tool sealants immediately with appropriately shaped tool to force sealants against joint backing and joint substrates, eliminating voids and ensuring full contact.
2. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
3. Tool exposed joint surface concave using tooling agents approved by sealant manufacturer for application.

F. Cleaning: Remove excess sealant using materials and methods approved by sealant manufacturer that will not damage joint substrate materials.

1. Remove masking tape immediately after tooling joint without disturbing seal.
2. Remove excess sealant from surfaces while still uncured.

END OF SECTION 32 13 73

SECTION 32 31 19

STEEL FENCE

PART 1 – GENERAL

1.01 WORK INCLUDED

A. The contractor shall provide all labor, materials and appurtenances necessary for installation of the welded ornamental steel fence system defined herein.

1.02 RELATED WORK

Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and other Division 1 Specifications Sections apply to this Section.

B. Division 3 – Concrete

C. Division 31 – Earthwork

1.03 SYSTEM DESCRIPTION

A. The manufacturer shall supply a total fence system of Montage Plus® standard picket space *Welded and Rackable* (ATF – All Terrain Flexibility) Ornamental Steel Majestic™ 2-rail panels with flush bottom and 2" air gap design. The system shall include all components (i.e., panels, posts, gates and hardware) required.

1.04 QUALITY ASSURANCE

A. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES

- ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
- ASTM D523 - Test Method for Specular Gloss
- ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
- ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
- ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.
- IBC 2018 1607.8.1 Handrails and Guards

1.06 SUBMITTAL

A. The manufacturer's literature shall be submitted prior to installation.

1.07 PRODUCT HANDLING AND STORAGE

Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling.

Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

1.08 PRODUCT WARRANTY

A. All structural fence components (i.e. rails, pickets, and posts) shall be warranted within specified limitations, by the manufacturer for a period of 20 years from date of original purchase. Warranty shall cover any defects in material finish, including cracking, peeling, chipping, blistering or corroding.

B. Reimbursement for labor necessary to restore or replace components that have been found to be defective under the terms of manufactures warranty shall be guaranteed for five (5) years from date of original purchase.

PART 2 – MATERIALS

2.01 MANUFACTURER

A. The fence system shall conform to Montage Plus standard picket space *Welded and Rackable* (ATF – All Terrain Flexibility) Ornamental Steel, Majestic, design, flush bottom rail treatment, 2-Rail style manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma.

B. Architect approved equal prior to bid. Refer to Section 01 63 00.

2.02 MATERIAL

A. Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi (310 MPa) and a minimum zinc (hot-dip galvanized) coating weight of 0.60 oz/ft^2 (184 g/m^2), Coating Designation G-60.

B. Material for pickets shall be 3/4" square x 18 Ga. tubing. The rails shall be steel channel, 1.5" x 1.4375" x 14 Ga. Picket holes in the rail shall be spaced 4.675" o.c. for standard picket space. Fence posts and gate posts shall meet the minimum size requirements of Table 1.

2.03 FABRICATION

A. Pickets, rails and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets.

B. Pickets shall be inserted into the pre-punched holes in the rails and shall be aligned to standard spacing using a specially calibrated alignment fixture. The aligned pickets and rails shall be joined at each picket-to-rail intersection by Ameristar's proprietary fusion welding process, thus completing the rigid panel assembly (Note: The process produces a virtually seamless, spatter-free good-neighbor appearance, equally attractive from either side of the panel).

C. The manufactured panels and posts shall be subjected to an inline electrode position coating (E-Coat) process consisting of a multi-stage pretreatment/wash, followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). The color shall be Black. The coated panels and posts shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2 (Note: The requirements in Table 2 meet or exceed the coating performance criteria of ASTM F2408).

D. The manufactured fence system shall be capable of meeting the vertical load, horizontal load, and infill performance requirements for Commercial weight fences under ASTM F2408.

E. Classic, Majestic, Genesis & Warrior styles with 3 & 4-rail configurations shall meet IBC compliance. Panel, post and bracket assemblies shall be subjected to structural performance testing according to Chapter 17 – Structural Tests and Special Inspections – International Building Code (IBC) 2018. Physical testing to be completed by accredited third party testing facility. Completed assembly shall demonstrate loading capacity of 2.5 times prescribed design loads found in section 1607.8.1, 1607.8.1.1 and 1607.8.1.2 of IBC 2018 for Handrails and

Guards. IBC compliant fence system requirements detailed within Table 4.

F. Gates with an out-to-out leaf dimension less than and including 72 inches shall be fabricated using Montage Plus ornamental panel material and 1-3/4" sq. x 14ga. gate ends. Gate leafs greater than 72 inches shall be fabricated using ForeRunner rails, 17 gauge pickets, intermediate uprights, gussets and 1-3/4" sq. x 14ga. gate ends. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding.

PART 3 – EXECUTION

3.01 PREPARATION

A. All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 INSTALLATION

A. Fence post shall be spaced according to Table 3, plus or minus ¼". For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. Fence panels shall be attached to posts with brackets supplied by the manufacturer. Posts shall be set in concrete footers having a minimum depth of 36" (Note: In some cases, local restrictions of freezing weather conditions may require a greater depth). The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer. Posts setting by other methods such as plated posts or grouted core-drilled footers are permissible only if shown by engineering analysis to be sufficient in strength for the intended application.

3.03 FENCE INSTALLATION MAINTENANCE

A. When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

3.04 GATE INSTALLATION

A. Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.

3.05 CLEANING

The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from post

Table 1 – Minimum Sizes for Montage Plus Posts

Fence Posts	Panel Height	
2-1/2" x 16 Ga.	Up to & Including 6' Height	
Gate Leaf	Gate Height	
	Up to & Including 4'	Over 4' Up to & Including 6'
Up to 4'	2-1/2" x 16 Ga.	2-1/2" x 14 Ga.
4'1" to 6'	3" x 12 Ga.	3" x 12 Ga.
6'1" to 10'	4" x 11 Ga.	4" x 11 Ga.
10'1" to 16'	6" x 3/16" wall	6" x 3/16" wall

Table 2 – Coating Performance Requirements		
Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 1,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60-inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60˚ Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 3 – Montage Plus – Post Spacing By Bracket Type						
Span	For CLASSIC, GENESIS, MAJESTIC, & WARRIOR 8' Nominal (91.95" Rail)					
Post Size	2-1/2"	2-1/2"	2-1/2"	3"	2-1/2"	3"
Bracket Type	Montage Plus Universal (BB112)	Montage Plus Line Blvd. (BB114)	Montage Plus Flat Mount (BB111)		Montage Plus Swivel (BB113)*	
Post Settings ± 1/4" O.C.	95"	95"	95"	95-1/2"	*95"	*95-1/2"
*Note: When using BB113 swivel brackets on either or both ends of a panel installation, care must be taken to ensure the spacing between post and adjoining pickets meets applicable codes. This will require trimming one or both ends of the panel.						

Table 4 – Montage Plus – IBC Compliant System Requirements				
Panel Options		**Post Options**		**Brackets Options**
Styles	Rail Configuration	Steel Post Options	Post Plate Options (anchorage by others)	Line Boulevard Brackets
Classic	3-Rail & 4-Rail	2.5" SQ x 14ga	8" x 8" x 3/8" – for 2.5" posts	End Boulevard Brackets
Majestic		3" SQ x 12ga	10" x 10" x 3/8" – for 3" posts	Corner Boulevard Brackets
Genesis		4" SQ x 12ga		*Flat Mount Brackets
Warrior				**Note: Flat Mount Brackets require a thru-bolt installation*
Panel, post, and bracket assemblies shall be subjected to structural performance testing according to Chapter 17 - Structural Tests and Special Inspections - International Building Code (IBC) 2018. Physical testing to be completed by accredited third party testing facility. Completed assembly shall demonstrate loading capacity of 2.5 times prescribed design loads found in section 1607.8.1, 1607.8.1.1 and 1607.8.1.2 of IBC 2018 for Handrails and Guards.				

END OF SECTION 32 31 19

SECTION 32 91 00

PLANTING PREPARATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and other Division 1 Specifications Sections apply to this Section.

B. Related Work Specified Elsewhere:

1. Refer to Section 32 92 00 Turf and Grasses for seeding for the Project.

1.02 DESCRIPTION OF WORK

A. The Work covered under this Section includes all permit, fees, taxes, insurance, labor, materials, tools, equipment, and expertise to properly execute all work identified or implied by the Drawings and the Specifications.

1.03 QUALITY ASSURANCE

A. The Contractor shall provide, on site, an experienced foreman who shall be present al all times during the execution of the work, and who shall be thoroughly familiar with the type of materials being installed and the proper materials and methods for their installation. The foreman may not be replaced without the written permission of the Owner and Architect.

1.04 SUBMITTALS

A. Contractor shall submit proof of acquisition or securement of plant materials a minimum of sixty (60) calendar days prior to the planned date of commencement of planting.

B. The Contractor shall submit to the Architect Shop Drawings and or samples as required by the Drawings.

C. Submit photographs a minimum of sixty (60) calendar days prior to the planned acquisition of plant materials (not brochure photos) of actual plant material to be installed. Include a legible measuring device in photo so that size of material can be ascertained.

1.05 JOB CONDITIONS

A. The Contractor's attention is directed to the fact that there are active utilities located within the limits of work. Before commencing work, the Contractor shall familiarize himself with the layout and operation of all utility systems and shall protect from damage, all of their parts above and below ground. Any damage resulting from the Contractor's operations shall be immediately reported to the Owner and Architect. The Contractor shall be responsible for the cost of all repairs to utilities damaged by the Contractor

B. The Contractor shall exercise care to protect existing work, buildings, trees, shrubs, lawns, etc. from any and all damage. Damage caused by the execution of the work by the Contractor shall be repaired to the satisfaction of the Owner at the expense of the Contractor.

C. It shall be the Contractor's responsibility to control and establish watering rates for all plant material and to conduct his activities in a clean, neat manner throughout the contract period. Sidewalks, streets, and other paved areas shall be continuously kept clean when planting and maintenance operations are in progress, and the entire area shall be cleaned at the end of each day's work.

D. Contractor will provide watering for all plant material through the installation, maintenance and until landscape is acceptable to Owner (Architect) whether the irrigation system is functioning or not.

1.06 GRADING & BACKFILLING

A. Fill Material: The Contractor will be responsible for achieving the finish grades shown on the grading plan (or as otherwise defined by these Specifications). The Contractor shall be responsible for fine grading (top 4") and preparation for planting. Such earth shall be topsoil, typical of the region, which shall be friable, natural topsoil, reasonably free of roots, rocks, weeds, and foreign matter. It shall not be handled in a muddy or frozen condition. Every effort shall be made to preserve organic matter.

B. Unsatisfactory Materials: If any of the topsoil brought in by the Contractor is determined by the Architect or Contractor to be unsuitable for planting use, the material shall be removed and replaced as directed by the Architect.

C. Raking and Smoothing: The Contractor shall smooth and rake topsoil by machine and hand methods. Surfaces shall be first smoothed with a tractor and or hand drawn screen and then the entire surface shall be raked clean of roots and debris - providing a smooth surface which shall assure surface drainage away from buildings, walks, and curbs to drainage structures. All grading shall be approved by the Architect prior to planting.

PART 2 – PRODUCTS

2.01 PLANTING MATERIALS

A. Planting Soil: Any variation from this specification shall be fully described in writing by the Contractor and a sample approved on-site by the Architect.
1. Topsoil shall be fertile, friable, natural topsoil, brown in color and reasonably free of weeds and foreign matter. It shall not be handled in a muddy or frozen condition. Every effort shall be made to preserve organic matter.
2. Organic matter shall be peat humus (FS Q-P-166) and with texture and pH range suitable for intended use. Above components shall be mixed as follows: 1/3 Topsoil, 1/3 Organic Matter, and 1/3 Existing Soil (if suitable). The components shall be thoroughly mixed to a uniform consistency by hand or machine methods. Note: If existing backfill is deemed unsuitable, the planting soil mix shall consist of 50% topsoil and 50% organic matter.

B. Plants:
1. General: All plant material shall conform to or surpass minimum quality standards as defined by the American Association of Nurserymen, current edition of American Standards for Nursery Stock, 635-636 Southern Building, Washington, D.C. In all instances, specifications outlined in the plant materials schedule take precedent.
2. Certificates of Inspection for Plant Materials: All necessary inspection certificates shall be supplied to the Architect for each shipment of plant material, as required by law. Certificates showing source of origin shall be filed with the Architect prior to acceptance of material.
3. Inspection: All plant material shall be subject to inspection and approval. The Architect reserves the right to reject any an all plant material which fail to meet this specification. All rejected plant material shall be removed from the site by the Contractor within seven days of notification.
4. All plant material furnished shall be nursery grown, freshly dug, of normal habit, well branched, proportioned width to height, healthy and vigorous in growth, and shall have a

well developed root system. All plants shall be true to species and variety. Plants used where symmetry is required shall match as nearly as possible.

5. Height and spread dimensions refer to the main body of the plant and not from branch tip to branch tip. The minimum acceptable sizes for plants measured before pruning with branches in normal position shall conform to measurements specified. Stock furnished in a size range specified shall mean not less than fifty percent and shall be of the maximum size specified within each range. Plants larger than specified may be used with the approval of the Architect at no additional cost to the Owner.
6. All plants shall be of healthy stock - free of diseases, insects, eggs, larvae, and parasites of an objectionable nature.
7. Availability and Substitutions: Substitutions for the plants specified will be accepted only when satisfactory evidence is submitted (in writing) to the Architect, showing that the plant material is not available. Requests for approval of substitutions of at least equivalent size and having essential characteristics similar to the originally specified material will be considered for approval.

C. Materials for Guying and Staking:
1. Stakes for supporting trees under two inch (2") caliper or multi-stem plants, shall be of sound timber, straight, uniform, sized as shown in the details, and of sufficient length to adequately support the plant. All stakes are to be painted dark gray.
2. Stakes for anchoring guy wires in the ground shall be #3 rebars as shown in the planting details and shall be of sufficient length to hold guy taut and maintain tree firmly in upright position.
3. Wire shall be #12 gauge galvanized wire in double twisted strands.
4. Hose shall be suitable lengths of new or used reinforced black rubber or plastic garden hose with a maximum diameter of one-half inch (½").
5. Wrapping material for tree with two inch (2") trunks, or larger, shall be standard crinkled paper cemented together with bituminous material in strips eight to ten inches (8" - 10") wide.
6. Twine for wrapping material shall be lightly tarred, medium coarse sisal yarn.

D. Additional Materials:
1. Mulch shall be clean, fresh, shredded pine bark and shall be free of branches, cones and foreign material, delivered to the site in bales or in bulk.
2. Fertilizer shall be Sta-Green Nursery Special, or equal delivered to the site in unopened containers.
3. Burlap for wrapping earth ball shall be made of jute and weigh not less than 7.2 ounces per square yard.

PART 3 – EXECUTION

3.01 PLANTING OPERATIONS

A. Preparation, Handling, and Digging:
1. Retain as by many fibrous roots as possible. Plants designated B&B shall be adequately balled wit firm natural balls of soils in sizes as specified in American Standards for nursery Stock. Balls shall be wrapped firmly in burlap and secured tied with heavy twine or rope.
2. Handle plants so that root systems and branches are adequately protected at all times from drying out. Plants that cannot be planted immediately on delivery shall be kept in the shade, well protected with soil, wet moss, or other acceptable material, and shall be kept well watered. Plants shall not remain unplanted for longer than three (3) days after delivery.
3. Prepare plants for shipment in a manner that will prevent any damage to the branches, shape, or future development of the plant.
4. Do not remove container grown stock from their containers until planting time.
5. At least one plant of each species and variety specified shall have a securely attached waterproof tag bearing legible designation of botanical name and source.

B. Layout of Major Planting: the Contractor shall stake out all trees, shrubs, and ground cover beds indicated in the Drawings, for approval by the Architect, prior to the installation of Plant material. Plant material installed without approval will be relocated by the Contractor as directed by the Architect at the expense of the Contractor.

C. Planting Operations and Conditions: All plants, deciduous and evergreen, shall be planted at such times of the year as the job may require, with the agreement of the Contractor to guarantee the material as herein specified. Actual planting shall be performed only during periods when weather conditions are suitable.

D. Excavation for Planting Trees and Shrubs:
1. Circular plant pits wit vertical sides shall be dug by machine or hand methods as shown on the Drawings for planting trees and shrubs. Plant pit diameters shall be two (2) times greater than that of the spread of the root mass.
2. All tree pits must be loosened to a depth of two feet (2') below the bottom of the pit to such a depth that any hardpan has been broken up and moisture is allowed to move through freely. The Contractor shall fill each pit with water and observe the pit for a period of twelve (12) hours. If the water has not dissipated by fifty per cent (50%), the pit shall be drilled with a twelve inch (12") auger to a depth of four feet (4') below the bottom of the pit and filled with gravel. If in the opinion of the Contractor the drainage is still insufficient, the Contractor shall notify the Architect in writing prior to installing the plant material. Otherwise, the Contractor is deemed to be totally responsible for the guarantee and livability of the plant material.

E. Excavation for Planting Groundcover, Perennial, and Annual Color Beds:
1. Beds shall be scarified by hand or machine methods to a depth of twelve inches (12"). Two inches (2") of organic matter and twenty (20) pounds per one thousand (1,000) square feet of Sta-Green Nursery Special Fertilizer (or equal) shall be incorporated into the soil unless otherwise specified.
2. Seasonal color beds shall be scarified by hand or machine method to a depth of twelve inches (12"). Two inches (2") of organic matter and four (4) pounds per one hundred (100) square feet of 0-20-20 fertilizer shall be incorporated into the soil.
3. Under existing tree canopy scarification and preparation of groundcover and seasonal color beds shall be by hand methods only with extreme care being exercised to avoid damage to the existing tree roots.
4. Seasonal color beds shall be excavated to a depth of eighteen inches (18") below finish grade. Backfill with 50% topsoil and 50% organic matter and fertilizer (5-10-10, at the rate of ½ cup per square yard) shall be thoroughly worked into the planting soil mix.

F. Setting Trees and Shrubs:
1. All plants shall be set so that when settled they will occur approximately two to three inches (2"-3") above finish grade, (allow an additional two to three inches (2"-3") to compensate for settling). Each plant shall be planted neatly in the center of the pit.
2. Set plants plumb and brace rigidly in position until planting soil has been tamped solidly around the ball and roots.
3. Balled and container plants shall be placed firmly upon scarified subgrade and backfilled with the planting soil mixture. Remove non deteriorating binder from root ball. Hand tamp carefully around and under ball to fill all voids. Water during backfilling. Form saucer from planting soil mix in order to retain water.
4. Repair any disturbed areas as necessary to return them to their original state.

G. Guying, Staking, Wrapping and Mulching:

1. Staking shall be completed immediately after planting. Plant shall be plumb after staking in accordance with the appropriate detail.
2. Guy trees over two inches (2") caliper. Space three (3) guys equally about each tree, attached at approximately two-fifths (2/5) of the trunk height and at a forth-five (45) degree angle and anchored in the ground with deadmen. Guy to trunks with wire loops and rubber hose drawn taut in all directions. Guys shall be equally taut. Safety flags shall be installed on all guy wires as detailed on the Drawings.
3. Trunks of deciduous trees larger than two inches (2") in caliper which are subject to sun scald, shall be wrapped spirally with standard paper or fiber wrapping material from the second branch down to the base of the trunk and the wrapping securely in place (only if required).
4. Stake trees less than two inches (2") in caliper with two (2) wooden stakes driven approximately one half (½) of trunk height. Stake to be one foot (1') from trunk, fastened at approximately two fifths (2/5) of trunk height with wire run through black rubber hose. Do not drive stakes through rootball.
5. Mulch all planting beds and other areas as designated with three inches (3") of fresh mulch. Individual plants are to be mulched as detailed.

H. Maintenance of Planted Areas:

1. Maintenance of new plantings shall consist of pruning, watering, cultivating, weeding, mulching, tightening and repairing guys, re-setting plants to proper grades or upright position, restoration of earth berm saucer, and furnishing, supplying, and applying such sprays as necessary to keep plantings free of insects and disease. If planting is performed after lawn areas have been prepared or installed, proper protection to these areas shall be provided. Any and all damage resulting from planting operations shall be promptly repaired.
2. Maintenance shall begin immediately after each plant is planted and shall be provided until the work is accepted by the Architect and Owner upon completion of all work under the Contract.
3. Planting areas and plants shall be protected at all times against trespassing and damage of any kind for the duration of the maintenance period. If any plants become damaged or injured, they shall be treated or replaced as directed by the Architect at no additional cost to the Owner.
4. The root system of all plants shall be watered at such intervals as will keep the surrounding soil in the best condition for promotion of root growth and plant life.
5. All planting and plant materials required by this Contract shall be in a satisfactory and acceptable condition when the Contractor requests payment.

3.02 FINAL INSPECTION FOR ACCEPTANCE AT COMPLETION

A. A final inspection for acceptance will be made by the Architect within seven (7) days of written notification by the Contractor that in his opinion the work is 98% complete. If the Architect determines that the work is complete and acceptable, notification of the date of acceptance will be sent to the Contractor.

B. Upon acceptance the Contractor's responsibility for maintenance is ended, and adequate maintenance (including watering) becomes the sole responsibility of the Owner.

3.03 GUARANTEE, INSPECTION, AND REPLACEMENT

A. The Contractor's guarantee period begins the date of Substantial Completion by the Architect and the Owner.

B. Guarantee Period: All plant materials, lawn areas and construction covered by the Contract shall be guaranteed by the Contractor for a period of one (1) year from the date of final acceptance.

C. The Contractor shall furnish the Owner with a written detailed maintenance schedule for weeding, pruning, fertilizing, watering, etc. in order to ensure the Owner of the continued success of the planting. This schedule shall include sufficient instructions or each item so that the Owner will have a clear maintenance concept.

D. During the Guarantee Period the Contractor shall make frequent inspections of the Project to satisfy himself that the maintenance by the Owner is adequate. Any methods or products he deems not normal or detrimental to good plant growth shall be reported to the Owner in writing. Should the Contractor fail to inspect and report deficiencies to the Owner, in writing, the Contractor shall be held responsible for any and all necessary replacements and repairs.

3.04 INSPECTION AT THE TERMINATION OF THE GUARANTEE PERIOD

A. At the end of the guarantee period, inspection of the plant material will be made by the Architect upon written notice requesting such inspection submitted by the Contractor at least ten (10) calendar days prior to the Termination Date of the Guarantee Period. The Guarantee Period does not end until the Contractor contacts the Architect for this inspection.

B. The Contractor shall replace, without cost to the Owner, and as soon as the weather conditions permit, all dead plants not in vigorous thriving condition, as determined by the Architect during and at the end of one (1) year Guarantee Period. Replacements shall closely match adjacent specimens of the same species, and shall be subject to the selection in the field by the Architect prior to digging. Replacements shall be subject to the requirements stated in these specifications.

C. Replacement material shall be guaranteed for a period of one (1) year from the date of replacement.

D. The Contractor shall make all necessary repairs to grades, lawn areas, and paving required because of plant replacements. Such repairs shall be done at no cost to the Owner.

END OF SECTION 32 91 00

SECTION 32 92 00

TURF AND GRASSES

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The work covered under this section shall include all permit fees, taxes, insurance, labor, materials, tools, equipment and expertise to properly execute all work identified or implied by the Drawings and Specifications for the implementation of all lawn areas.

B. Establish full vegetative cover on all lawn areas.

C. Related Work Specified Elsewhere: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

1.02 QUALITY ASSURANCE

A. The Contractor shall provide, on site, an experienced foreman who shall be present at all times during the execution of all work, and who shall be thoroughly familiar with the type of materials being installed and the proper materials and methods for their installation. The foreman may not be replaced without the written permission of the Owner and Architect.

1.03 JOB CONDITIONS

A. Services for Construction:
1. Water shall be available at the site and is furnished by the Owner at no cost to the Contractor. Water Transportation will be furnished by the Contractor.
2. The Contractor's attention will be directed to the fact that there are active utilities within the limits of work. Before commencing work, the Contractor shall familiarize himself with the layout and operation of all utility systems and shall protect from damage, all of their parts above and below ground. Any damage resulting from the Contractor's operations shall be immediately reported to the Owner and Architect. The Contractor shall be responsible for the cost of all repairs to utilities damaged by the Contractor.

B. The Contractor shall exercise care to protect existing work, buildings, trees, shrubs, trees, TURF AND GRASSES, etc. from any and all damage. Damage caused by the execution of the work by the Contractor shall be repaired to the satisfaction of the Owner at the expense of the Contractor.

C. It shall be the Contractor's responsibility to conduct his activities in a clean, neat manner throughout the contract period. Sidewalks, streets and other paved areas shall be continuously kept clean when planting and maintenance operations are in progress, and the entire work area shall be cleaned at the end of each day's work.

1.04 GRADING

A. Raking and Smoothing: The Contractor shall smooth and rake topsoil by machine and hand methods. Surfaces shall be first smoothed with a tractor and/or hand drawn screen and then entire surface shall be raked clean of roots and debris- providing a smooth surface which shall assure surface drainage away from buildings, walks, and curbs to drainage structures. All grading shall be approved by the Architect prior to planting.

PART 2 – PRODUCTS

2.01 LAWN MATERIALS

A. Seed for Maintained Lawn Areas shall be "Titan" Fescue Grass, or as otherwise specified on the Drawings. Seed shall be delivered to the site in sealed standard sized containers showing weight, name of vendor, and germination test. Seed shall be certified.

B. Fertilizer shall be Sta-Green Seed & Sod Fertilizer (18-24-10) or equal. It shall be uniform in composition, dry, free flowing, and shall be delivered to the site in the original, unopened containers each bearing the manufacturers guaranteed analysis. Fertilizer shall not have been exposed to weather prior to delivery to the site, and after delivery it shall be completely protected at all times until used. Fertilizer shall not be stored in direct contact with the ground.

C. Lime: Dolomitic lime shall be ground architectural limestone, free of impurities, delivered to the site either bagged or in bulk and protected from the weather. It shall not be stored in direct contact with the ground.

D. Topsoil: Topsoil shall be as defined in Specification Section 32 91 00 Landscape Planting.

E. Wood Fiber Mulch: Shall be virgin wood fiber mulch such as "Hydro-Mulch" by Conwed Fibers, Conover, NC or approved equal. On slopes 2:1 or greater the virgin wood fiber mulch shall be imbedded with tackifiers such as "Hydro Mulch 2000" by Conwed Fibers, Conover, NC or approved equal.

PART 3 – EXECUTION

3.01 PREPARATION

A. Distribution of topsoil shall be as defined in Specification Section 32 91 00 Landscape Planting and have achieved approximate finished grade.

B. Contractor shall prepare a good crumbly seed bed that is tilled four to six inches (4-6") deep, well firmed after tilling, and well leveled. Fine grade lawn areas to achieve proper surface drainage and to finish grade. Where no grades are indicated, areas shall have a smooth and continual grade between fixed controls such as walks, curbs, etc. and elevations shown. Rake level as necessary to obtain true, even lawn surfaces. All finish grades shall meet the approval of the Architect prior to seeding.

C. Approximately two (2) days prior to seeding, apply lime at a rate necessary to provide a neutral pH over the area to be seeded. Work lime into the top four inches (4") of topsoil.

D. Broadcast fertilizer uniformly at the rate of 1200 pounds per acre over newly prepared soil and work into top three quarter inches (3/4") of topsoil.

E. After all materials have been worked in, firm up the soil by rolling to assure that no soft spots remain that will settle in the future.

3.02 SEEDING OPERATIONS

A. Seed shall be sown within 24 hours following application of fertilizer and lime and soil preparation.

B. Seeding Operations:

1. Rake the surface of areas to be seeded with a wide toothed rake or tine-harrow into a crumbly state with about one inch (1") of loose soil at the surface.
2. Seeding rate shall be 10 pounds per 1000 square feet.
3. All seeded lawn areas shall be hydroseeded. Seed and fertilizer, at the specified rates, shall be mixed with virgin wood fiber mulch at the rate of 1200-1500 pounds per acre and shall be evenly distributed over the area to be seeded in the form of a slurry. Equipment for mixing and applying the slurry shall be especially designed for this purpose, and shall be capable of applying a uniform mixture over the entire area to be seeded. The slurry mixture shall be agitated during application to keep the ingredients thoroughly mixed. All materials shall be discharged within one hour after being combined in the hydroseeder. Hydroseeding shall not be performed when winds prevent an even, thorough application.
4. Water lightly to assure good adhesion to the soil. Additional mulch (such as fresh wheat straw 3/4" - 1 1/2") applied lightly and in accordance with GA. DOT specifications shall be at the Contractor's discretion. The Contractor is responsible for insuring 100% coverage in all seeded lawn areas.
5. Water newly seeded area two to three (2-3) times daily until the lawn is well established (approximately 30 calendar days).

3.03 LAWN MAINTENANCE AND REPAIR

A. Maintenance of all lawn areas shall consist of watering, weeding, cutting, repair of any erosion, and re-sodding/seeding as necessary to establish a uniform stand of the specified grass, and shall continue until the work has been accepted by the Owner.

B. All lawn areas shall be protected until accepted (at least through the first mowing). All eroded and damaged areas, regardless of cause, shall be immediately repaired and re-sodded/seeded. Protect all lawn areas from traffic.

C. When TURF AND GRASSES have become established as required above, a final inspection of the lawn work will be made upon completion of the total job. If the work is found to be satisfactory and in accordance with all the requirements of the Drawings and Specifications, the work shall be accepted.

3.04 PLANTING OPERATIONS AND CONDITIONS

All seed and sod shall be planted/installed at such times of the year as the job may require, with the agreement that the Contractor to guarantee the material as herein specified. Actual planting shall be performed only during periods when weather conditions are suitable.

END OF SECTION 32 92 00

SECTION 32 94 00

LANDSCAPE PLANTING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The Work covered under this Section includes all permit, fees, taxes, insurance, labor, materials, tools, equipment, and expertise to properly execute all work identified or implied by the Drawings and the Specifications.

B. Related Work Specified Elsewhere:
1. Refer to all Sections in Division 0, CONTRACT REQUIREMENTS, and Division 1, GENERAL REQUIREMENTS.
2. Refer to Section 32 93 00, LAWNS for seeding for the Project.

1.02 QUALITY ASSURANCE

A. The Contractor shall provide, on site, an experienced foreman who shall be present at all times during the execution of the work, and who shall be thoroughly familiar with the type of materials being installed and the proper materials and methods for their installation. The foreman may not be replaced without the written permission of the Owner and Landscape Architect.

1.03 SUBMITTALS

A. Contractor shall submit proof of acquisition or securement of plant materials a minimum of sixty (60) calendar days prior to the planned date of commencement of planting.

B. The Contractor shall submit to the Architect shop drawings and or samples as required by the Drawings.

C. Submit photographs a minimum of sixty (60) calendar days prior to the planned acquisition of plant materials (not brochure photos) of actual plant material to be installed. Include a legible measuring device in photo so that size of material can be ascertained.

1.04 JOB CONDITIONS

A. Services for construction:
1. Water will be available at the site as part of the construction project.
2. The Contractor's attention is directed to the fact that there are active utilities located within the limits of work. Before commencing work, the Contractor shall familiarize themself with the layout and operation of all utility systems and shall protect from damage, all of their parts above and below ground. Any indicated damage resulting from the Contractor's operations shall be immediately reported to the Owner and Architect. The Contractor shall be responsible for the cost of all repairs to utilities damaged by the Contractor.

B. The Contractor shall exercise care to protect existing work, buildings, trees, shrubs, lawns, etc. from any and all damage. Damage caused by the execution of the work by the Contractor shall be repaired to the satisfaction of the Owner at the expense of the Contractor.

C. It shall be the Contractor's responsibility to control and establish watering rates for all plant material and to conduct his activities in a clean, neat manner throughout the contract period. Sidewalks, streets, and other paved areas shall be continuously kept clean when planting and maintenance operations are in progress, and the entire area shall be cleaned at the end of each day's work.

D. The Contractor will provide watering for all plant material through the installation, maintenance and until landscape is acceptable to owner (landscape architect) whether the irrigation system is functioning or not.

1.05 GRADING & BACKFILLING

A. Fill Material: The Grading Contractor will be responsible for achieving the finish grades indicated on the grading plan (or as otherwise defined by these Specifications). The Contractor shall be responsible for fine grading (top 4") and preparation for planting. Such earth shall be topsoil, typical of the region, which shall be friable, natural topsoil, reasonably free of roots, rocks, weeds, and foreign matter. It shall not be handled in a muddy or frozen condition. Every effort shall be made to preserve organic matter.

B. Unsatisfactory Materials: If any of the topsoil brought in by the General Contractor is determined by the Landscape Architect or Contractor to be unsuitable for planting use, the material shall be removed and replaced as directed by the Landscape Architect.

C. Raking and Smoothing: The Contractor shall smooth and rake topsoil by machine and hand methods. Surfaces shall be first smoothed with a tractor and or hand drawn screen and then the entire surface shall be raked clean of roots and debris - providing a smooth surface which shall assure surface drainage away from buildings, walks, and curbs to drainage structures. All grading shall be approved by the Landscape Architect prior to planting.

PART 2 – PRODUCTS

2.01 PLANTING MATERIALS

A. Planting Soil: Any variation from this specification shall be fully described in writing by the Contractor and a sample approved on-site by the Landscape Architect.
1. Topsoil shall be fertile, friable, natural topsoil, brown in color and reasonably free of weeds and foreign matter. It shall not be handled in a muddy or frozen condition. Every effort shall be made to preserve organic matter.
2. Organic matter shall be peat humus (FS Q-P-166) and with texture and pH range suitable for intended use. Above components shall be mixed as follows: 1/3 Topsoil, 1/3 Organic Matter, and 1/3 Existing Soil (if suitable). The components shall be thoroughly mixed to a uniform consistency by hand or machine methods. Note: If existing backfill is deemed unsuitable, the planting soil mix shall consist of 50% topsoil and 50% organic matter.

B. Plants:
1. General: All plant material shall conform to or surpass minimum quality standards as defined by the American Association of Nurserymen, current edition of American Standards for Nursery Stock, 635-636 Southern Building, Washington D.C. In all instances, specifications outlined in the plant materials schedule take precedent.
2. Certificates of Inspection for Plant Materials: All necessary inspection certificates shall be supplied to the Landscape Architect for each shipment of plant material, as required by law. Certificates showing source of origin shall be filed with the Landscape Architect prior to acceptance of material.
3. Inspection: All plant material shall be subject to inspection and approval. The Landscape Architect reserves the right to reject any an all plant material which fail to meet this specification. All rejected plant material shall be removed from the site by the Contractor within seven days of notification.
4. All plant material furnished shall be nursery grown, freshly dug, of normal habit, well branched, proportioned width to height, healthy and vigorous in growth, and shall have a well developed root system. All plants shall e true to species and variety. Plants used where symmetry is required shall match as nearly as possible.
5. Height and spread dimensions refer to the main body of the plant and not from branch tip to branch tip. The minimum acceptable sizes for plants measured before pruning with branches

in normal position shall conform to measurements specified. Stock furnished in a size range specified shall mean not less than fifty percent and shall be of the maximum size specified within each range. Plants larger than specified may be used with the approval of the Landscape Architect at no additional cost to the Owner.

6. All plants shall be of healthy stock - free of diseases, insects, eggs, larvae, and parasites of an objectionable nature.
7. Availability and Substitutions: Substitutions for the plants specified will be accepted only when satisfactory evidence is submitted (in writing) to the Landscape Architect, showing that the plant material is not available. Requests for approval of substitutions of at least equivalent size and having essential characteristics similar to the originally specified material will be considered for approval.

C. Materials for Guying and Staking:
1. Stakes for supporting trees under two inch (2") caliper or multi-stem plants, shall be of sound timber, straight, uniform, sized as shown in the details, and of sufficient length to adequately support the plant. All stakes are to be painted dark gray.
2. Stakes for anchoring guy wires in the ground shall be #3 rebars as indicated in the planting details and shall be of sufficient length to hold guy taut and maintain tree firmly in upright position.
3. Wire shall be #12 gauge galvanized wire in double twisted strands.
4. Hose shall be suitable lengths of new or used reinforced black rubber or plastic garden hose with a maximum diameter of one-half inch (½").
5. Wrapping material for tree with two inch (2") trunks, or larger, shall be standard crinkled paper cemented together with bituminous material in strips eight to ten inches (8" - 10") wide.
6. Twine for wrapping material shall be lightly tarred, medium coarse sisal yarn.

D. Additional Materials:
1. Mulch shall be clean, fresh, shredded pine bark and shall be free of branches, cones and foreign material, delivered to the site in bales or in bulk.
2. Fertilizer shall be Sta-Green Nursery Special, or equal delivered to the site in unopened containers.
3. Burlap for wrapping earth ball shall be made of jute and weigh not less than 7.2 ounces per square yard.

PART 3 – EXECUTION

3.01 PLANTING OPERATIONS

A. Preparation, Handling, and Digging:
1. Retain as many fibrous roots as possible. Plants designated B&B shall be adequately balled with firm natural balls of soils in sizes as specified in American Standards for nursery Stock. Balls shall be wrapped firmly in burlap and secured tied with heavy twine or rope.
2. Handle plants so that root systems and branches are adequately protected at all times from drying out. Plants that cannot be planted immediately on delivery shall be kept in the shade, well protected with soil, wet moss, or other acceptable material, and shall be kept well watered. Plants shall not remain unplanted for longer than three (3) days after delivery.
3. Prepare plants for shipment in a manner that will prevent any damage to the branches, shape, or future development of the plant.
4. Do not remove container grown stock from their containers until planting time.
5. At least one plant of each species and variety specified shall have a securely attached waterproof tag bearing legible designation of botanical name and source.

B. Layout of Major Planting: the Contractor shall stake out all trees, shrubs, and ground cover beds indicated in the Drawings, for approval by the Landscape Architect, prior to the installation of Plant material. Plant material installed without approval will be relocated by the Contractor as directed by

the Landscape Architect at the expense of the Contractor.

C. Planting Operations and Conditions: All plants, deciduous and evergreen, shall be planted at such times of the year as the job may require, with the agreement of the Contractor to guarantee the material as herein specified. Actual planting shall be performed only during periods when weather conditions are suitable.

D. Excavation for Planting Trees and Shrubs:
1. Circular plant pits with vertical sides shall be dug by machine or hand methods as indicated on the Drawings for planting trees and shrubs. Plant pit diameters shall be two (2) times greater than that of the spread of the root mass.
2. All tree pits must be loosened to a depth of two feet (2') below the bottom of the pit to such a depth that any hardpan has been broken up and moisture is allowed to move through freely. The Contractor shall fill each pit with water and observe the pit for a period of twelve (12) hours. If the water has not dissipated by fifty per cent (50%), the pit shall be drilled with a twelve inch (12") auger to a depth of four feet (4') below the bottom of the pit and filled with gravel. If in the opinion of the Contractor the drainage is still insufficient, the Contractor shall notify the Landscape Architect in writing prior to installing the plant material. Otherwise, the Contractor is deemed to be totally responsible for the guarantee and livability of the plant material.

E. Excavation for Planting Groundcover, Perennial, and Annual Color Beds.
1. Beds shall be scarified by hand or machine methods to a depth of twelve inches (12"). Two inches (2") of organic matter and twenty (20) pounds per one thousand (1,000) square feet of Sta-Green Nursery Special Fertilizer (or equal) shall be incorporated into the soil unless otherwise specified.
2. Seasonal color beds shall be scarified by hand or machine method to a depth of twelve inches (12"). Two inches (2") of organic matter and four (4) pounds per one hundred (100) square feet of 0-20-20 fertilizer shall be incorporated into the soil.
3. Under existing tree canopy scarification and preparation of groundcover and seasonal color beds shall be by hand methods only with extreme care being exercised to avoid damage to the existing tree roots.
4. Seasonal color beds shall be excavated to a depth of eighteen inches (18") below finish grade. Backfill with 50% topsoil and 50% organic matter and fertilizer (5-10-10, at the rate of ½ cup per square yard) shall be thoroughly worked into the planting soil mix.

F. Setting Trees and Shrubs:
1. All plants shall be set so that when settled they will occur approximately two to three inches (2"-3") above finish grade, (allow an additional two to three inches (2"-3") to compensate for settling). Each plant shall be planted neatly in the center of the pit.
2. Set plants plumb and brace rigidly in position until planting soil has been tamped solidly around the ball and roots.
3. Balled and container plants shall be placed firmly upon scarified subgrade and backfilled with the planting soil mixture. Remove non deteriorating binder from root ball. Hand tamp carefully around and under ball to fill all voids. Water during backfilling. Form saucer from planting soil mix in order to retain water.
4. Repair any disturbed areas as necessary to return them to their original state.

G. Guying, Staking, Wrapping and Mulching:
1. Staking shall be completed immediately after planting. Plant shall be plumb after staking in accordance with the appropriate detail.
2. Guy trees over two inches (2") caliper. Space three (3) guys equally about each tree, attached at approximately two-fifths (2/5) of the trunk height and at a forth-five (45) degree angle and anchored in the ground with deadmen. Guy to trunks with wire loops and rubber hose drawn taut in all directions. Guys shall be equally taut. Safety flags shall be installed on all guy wires as detailed on the drawings.

3. Trunks of deciduous trees larger than two inches (2") in caliper which are subject to sun scald, shall be wrapped spirally with standard paper or fiber wrapping material from the second branch down to the base of the trunk and the wrapping securely in place (only if required).
4. Stake trees less than two inches (2") in caliper with two (2) wooden stakes driven approximately one half (½) of trunk height. Stake to be one foot (1') from trunk, fastened at approximately two fifths (2/5) of trunk height with wire run through black rubber hose. Do not drive stakes through rootball.
5. Mulch all planting beds and other areas as designated with three inches (3") of fresh mulch. Individual plants are to be mulched as detailed.

H. Maintenance of Planted Areas:
1. Maintenance of new plantings shall consist of pruning, watering, cultivating, weeding, mulching, tightening and repairing guys, re-setting plants to proper grades or upright position, restoration of earth berm saucer, and furnishing, supplying, and applying such sprays as necessary to keep plantings free of insects and disease. If planting is performed after lawn areas have been prepared or installed, proper protection to these areas shall be provided. Any and all damage resulting from planting operations shall be promptly repaired.
2. Maintenance shall begin immediately after each plant is planted and shall be provided until the work is accepted by the Landscape Architect and Owner upon completion of all work under the Contract.
3. Planting areas and plants shall be protected at all times against trespassing and damage of any kind for the duration of the maintenance period. If any plants become damaged or injured, they shall be treated or replaced as directed by the Landscape Architect at no additional cost to the Owner.
4. The root system of all plants shall be watered at such intervals as will keep the surrounding soil in the best condition for promotion of root growth and plant life.
5. All planting and plant materials required by this Contract shall be in a satisfactory and acceptable condition when the Contractor requests payment.

3.02 FINAL INSPECTION FOR ACCEPTANCE AT COMPLETION

A. A final inspection for acceptance will be made by the Landscape Architect within seven (7) days of written notification by the Contractor that in their opinion the work is 98% complete. If the Landscape Architect determines that the work is complete and acceptable, notification of the date of acceptance will be sent to the Contractor. This date shall coincide with the date of Substantial Completion.

B. Upon acceptance the Contractor's responsibility for maintenance is ended, and adequate maintenance (including watering) becomes the sole responsibility of the Owner.

3.03 GUARANTEE, INSPECTION, AND REPLACEMENT

A. The Contractor's guarantee period begins the date of final acceptance by the Landscape Architect and the Owner.

B. Guarantee Period: All plant materials, lawn areas and construction covered by the Contract shall be guaranteed by the Contractor for a period of one (1) year from the date of final acceptance.

C. The Contractor shall furnish the Owner with a written detailed maintenance schedule for weeding, pruning, fertilizing, watering, etc. in order to ensure the Owner of the continued success of the planting. This schedule shall include sufficient instructions or each item so that the Owner will have a clear maintenance concept.

D. During the Guarantee Period the Contractor shall make frequent inspections of the project to satisfy themselves that the maintenance by the Owner is adequate. Any methods or products they deem not normal or detrimental to good plant growth shall be reported to the Owner in writing. Should the

Contractor fail to inspect and report deficiencies to the Owner, in writing, the Contractor shall be held responsible for any and all necessary replacements and repairs.

3.04 INSPECTION AT THE TERMINATION OF THE GUARANTEE PERIOD

A. At the end of the guarantee period, inspection of the plant material will be made by the Landscape Architect upon written notice requesting such inspection submitted by the Contractor at least ten (10) calendar days prior to the Termination Date of the Guarantee Period. The Guarantee Period does not end until the Contractor contacts the Landscape Architect for this inspection.

B. The Contractor shall replace, without cost to the Owner, and as soon as the weather conditions permit, all dead plants not in vigorous thriving condition, as determined by the Landscape Architect during and at the end of one (1) year Guarantee Period. Replacements shall closely match adjacent specimens of the same species, and shall be subject to the selection in the field by the Landscape Architect prior to digging. Replacements shall be subject to the requirements stated in these specifications.

C. Replacement material shall be guaranteed for a period of one (1) year from the date of replacement.

D. The Contractor shall make all necessary repairs to grades, lawn areas, and paving required because of plant replacements. Such repairs shall be done at no cost to the Owner.

END OF SECTION 32 94 00

SECTION 33 40 00

STORM SYSTEMS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and other Division 1 Specifications Sections apply to this Section.

1.02 DESCRIPTION OF WORK

A. This Section covers the complete installation of all storm systems.

1. All storm systems shall be constructed to the locations shown on the Drawings.
2. All Work shall be in conformance with the requirement of local codes and ordinances.

B. Related Work Specified Elsewhere:

1. Refer to Section 31 22 00, Grading.
2. Refer to Section 31 25 00, Erosion and Sedimentation Control.
3. Refer to Section 33 10 00, Water Utilities, for other exterior utilities.
4. Refer to Section 03 30 00, Cast-In-Place Concrete, for concrete specifications.

1.03 QUALITY ASSURANCE

A. Testing Agency: Samples and tests, as required, are to be made by an independent testing laboratory provided by the Owner.

B. Allowable Tolerances: The allowable dimensional alignment for gravity sewers shall be:

1. Minimum 1% slope, unless otherwise shown on the Drawings.

1.04 SUBMITTALS

A. General: Submittals shall be in accordance with Specifications Section 01 33 00.

B. Shop Drawings: Shop Drawings shall include:

1. Storm sewer pipe and fittings.
2. Manholes.
3. Outlet control structure.
4. Certificates: Provide manufacturer's certified analysis or certificate of compliance shall be furnished for all shipments of pipe, cast iron frames, grates and covers, valves and other miscellaneous material required under this Section of the Specifications.

1.05 JOB CONDITIONS

A. Protection of Existing Utilities Structures:

1. Have all utilities marked, verify horizontal and vertical locations. Call Utility Protection Center at 811. Protect the existing utilities shown on the Drawings or the locations of which are known prior to excavation, from damage during excavation and backfilling of trenches, and if damaged, repair them at no expense to the Owner. Any existing line or utility structure which is not shown on the Drawings or the location of which is not made known in sufficient time to avoid damage, if inadvertently damaged, shall be repaired by the Contractor. In any

event, make repairs under the supervision of the utility concerned.

B. Removal of Utilities:

1. All utilities indicated to be removed or abandoned shall be removed or abandoned in accordance with the regulations and requirements of the governing utility or code authority.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Concrete. All cast-in-place concrete shall have 3,000 psi 28 days compressive strength, air entrained and shall conform to ASTM C 94 for ready mixed concrete.

B. Mortar and Plaster. Mortar and plaster for masonry manholes shall consist of one part Portland cement and two parts fine sand. Lime may be added to the mortar in the amount of not more than 25 percent of the volume of cement.

C. No. 57 stone for pipe bedding and trench backfill.

2.02 FABRICATION AND MANUFACTURE

A. Storm Sewer:

1. Pipe.
   a. Corrugated Metal Pipe (ACCMP) for bituminous coated pipe and base metal conform to AASHTO standard M36 and AASHTO designation M-190 Type A. The gage of the base metal is detailed on the Drawings, or aluminized corrugated pipe.
   b. Polyvinyl Chloride Pipe (PVC) shall be Schedule 40 PVC.
   c. Reinforced Concrete (RCP) shall be centrifugally cast or vibrated prebed, horizontally or vertically cast, or made on a Packer head machine and shall be furnished in lengths not less than four feet. Concrete pipe less than 12 inches in diameter shall be none reinforced with bell and spigot joints conforming to the latest revision of ASTM C 14. All pipe shall be Class III unless shown otherwise on the Drawings. Concrete pipe 12 inches and larger in diameter shall be reinforced concrete culvert, storm drain and sewer pipe conforming to the latest revision of ASTM 76. Reinforced concrete pipe shall have circumferential reinforcement as required for the particular class of pipe furnished. Reinforced concrete pipe shall have tongue and groove joints for mortar joints or bell and spigot joints suitable for the use of a rubber gasket to be provided as a part of this item. Rubber gaskets for bell and spigot joints shall be O-ring gasket joints conforming to the latest revisions of ASTM Standard Specification C 443 for Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Rubber Gaskets. Mortar for tongue and grove joints shall conform to ASTM C 270.

2. Pipe Joints.
   a. Corrugated metal pipe joints shall be made with connecting bands conforming to AASHTO standard M36. In addition, the connecting bands shall be bituminous coated as specified for the pipe.

B. Reinforcing steel. Reinforcing steel to be deformed bars except where otherwise noted on plans and conform to ASTM A 615, Grade 40.

C. Manhole and inlet steps. Where required, provide manholes and inlets with steps equal to M.A. Ind. Inc., #PS-1 or #PS-1-PF, not less than 10 inches in width built into and thoroughly anchored in the walls and spaced uniformly approximately 12 inches apart. Steps will not be required unless the depth from cover of manhole or inlet to invert of main sewer exceeds 4 feet.

D. Manhole and cleanout frames and covers and inlet gratings. Provide cast iron conforming to ASTM A

48, Class 30. All castings to be true to pattern, in forms and dimensions, free from faults, sponginess, cracks, blowholes and other defects affecting their strength. Bearing surfaces between frames and covers to be machined, fitted together, and match-marked to prevent rocking.

E. Precast reinforced concrete manhole sections shall conform to ASTM C 478.

PART 3 – EXECUTION

3.01 EXCAVATION

A. General. Perform all excavation of every description and of whatever substances encountered, to the depths indicated on the Drawings. During excavation, deposit material suitable for backfill in an orderly manner a sufficient distance from the excavation banks to avoid overloading and to prevent slides or cave-ins. Waste material unsuitable for backfill as directed by the Geotechnical Engineer. Grade as necessary to prevent surface water from flowing into trenches or other excavations, and remove any water accumulating therein by pumping or by other acceptable method. Unless otherwise specified, all excavation shall be by open cut. Keep the banks of trenches and excavation for structures as nearly vertical as practicable and where required, properly sheet and brace. Fill any unauthorized excess excavation below the levels indicated for structures or pipe with sand, gravel or concrete.

B. Trench Excavation. Excavate true to line to an elevation a minimum of 3' above the top of pipe to provide a clear space of not less than 6 inches nor more than 8 inches on either side of the pipe. Grade the bottom of the trenches accurately to provide uniform bearing and support for each section of the pipe on undisturbed soil at every point along its entire length, except for the portions of the pipe sections where it is necessary to excavate for the proper sealing of pipe joints. Bell holes and depressions for joints dug after the trench bottom has been graded, and in order that the pipe rest upon the prepared bottom for as nearly its full length as practicable, to be only of such length, depth and width as required for properly making the particular type of joint. Replace any material excavated beneath pipe entering and leaving manholes and inlets with concrete and extend such concrete fill to the center of pipe for a distance of at least 3 feet from face of manhole and inlet and terminate at a joint.

C. Rock Excavation. Where rock is encountered, carry the excavation to a depth of at least 6 inches below the bottom of the pipe. No part of trench excavations shall be carried more than 12 inches below the bottom of the pipe. Backfill the trench with selected loose, moist earth and compact to provide proper bedding for the pipe. Rippable weathered rock removal is part of the work and shall not be considered for additional payment.

D. Unsuitable Material. Where the bottom of the trench is found to be unstable or to include ashes, cinders, all types of refuse, vegetable or other organic material, or large pieces or fragments of inorganic material, which in the judgment of the Geotechnical Engineer, should be removed, excavate and remove such unsuitable material to a minimum depth of 6 inches below the pipe. Backfill the trench with selected bedding material and compact to provide uniform and continuous bearing for the pipe. Dispose of the unsuitable material.

E. Shoring Requirements. Perform all shoring and sheeting that is required to protect the excavation and to safeguard employees. Widen excavation to provide for space occupied by shoring and sheeting.

3.02 INSTALLATION/APPLICATION/PERFORMANCE/ERECTION

A. Pipe:

1. Laying Pipe. Shape the bottom of the trench by hand to give substantially uniform circumferential support to the lower fourth of each pipe. Where applicable, pipe laying shall proceed upgrade with the tongue or spigot ends pointing in the direction of the flow. Each pipe to be laid true to line and grade indicated on the Drawings and in such manner as to

form a close concentric joint with the adjoining pipe and to prevent sudden offsets of the flow line. As the work progresses, clean the interior of the sewer of all dirt and superfluous materials. Where cleaning after laying is difficult because of small pipe size, keep a suitable swab or drag in the pipe and pull forward past each joint immediately after the joining has been completed. If the maximum width of the trench at the top of the pipe as specified is exceeded, install, such concrete cradling, pipe encasement or other bedding as may be required by the Geotechnical Engineer to support the added load of the backfill. Keep trenches for all sections of the sewer free from water until the pipe-jointing material has set and the trench backfilled. Do not lay pipe when the condition of the trench or the weather is unsuitable for such work. At times when the work is not in progress, keep open ends of pipes and fittings securely closed so that no trench water, earth or other substance will enter the pipe or fittings. When conditions are such that the pipe cannot be adequately supported on undisturbed earth or tamped backfill, encase the pipe in concrete or support it on a concrete cradle. Thermoplastic sewer pipes shall be installed in accordance with ASTM D2321.

2. Pipe Joints:
   a. Corrugated metal pipe or smooth interior corrugated metal pipe. Installation and joining or connecting shall be performed in accordance with the recommendations of the pipe manufacturer. Repair all materials on which the coating has been bruised or damaged during shipment or installation by the application of the same bituminous material used for shop coating the pipe or other suitable material.
   b. PVC Pipe. Install in strict accordance with ASTM D 2321.
3. Connection to existing pipe. Make connections to existing pipe by the use of one of the joints described above where possible to do so. Where the end of the existing pipe is broken or a standard joint is otherwise impracticable, install a concrete collar to make the connection.
4. Connection to Existing Manholes. Make pipe connections to existing manholes in such a manner that the finished work will conform as nearly as practicable to the essential applicable requirements for new manholes, including all necessary concrete work, cutting and shaping.
5. Wye Branches. Install commercially manufactured wye branches where indicated on the plans. Cutting into the pipe for connections will not be permitted except in special cases reviewed by the Architect.
   a. Pipe Plugs. Plug all open ends of wye branches with a manufactured stopper installed in accordance with provisions for jointing. Plug open ends of sewer pipe with a manufactured stopper or concrete masonry. Concrete masonry plugs shall have a minimum thickness of 4 inches. Install all plugs in such a manner that the open end of the pipe is permanently sealed but can be removed for future extensions without damaging the pipe.

B. Manholes:

1. General. Construct manholes of precast concrete with cast iron frames and covers, and in accordance with the Drawings. Precast reinforced concrete manholes shall conform to ASTM C 478. The invert channels shall be smooth and semicircular in shape conforming to the inside of the adjacent sewer section. Changes in direction of flow shall be made with a smooth curve of as large radius as the size of the manhole will permit. Make changes in size and grade of the channels gradually and evenly. The invert channels may be formed directly in the concrete of the manhole base, or shall be built up with brick and mortar or may be half tile laid in concrete, or may be constructed by laying full-section sewer pipe through the manhole and breaking out the top half after the surrounding concrete has hardened. The floor of the manhole outside the channels shall be smooth and shall slope toward the channels not less than 1 inch per foot nor more than 2 inches per foot. Any material excavated beneath pipe entering and leaving manholes and inlets shall be replaced with concrete. Such concrete fill shall extend to the center of pipe for a distance of at least 3 feet from face of manhole and inlet and shall terminate at a joint.
2. Jointing and Plastering. Fill mortar joints completely and make them smooth and free from surplus mortar on the inside of the manhole. Plaster brick manholes with half inch of mortar

over the entire outside surface of walls. Lay brick radially with every sixth course laid as a stretcher course. When precast concrete manhole sections are used, set each section in a fresh bed of mortar to make a mortar joint with a minimum thickness of 1/8 inch. Point up all joints inside and out.

3. Frames and Covers. Set the cast iron manhole frame in a bed of mortar and carefully adjust to the elevations shown on the Drawings.
4. Inspection manholes, branch connections and elbows on large diameter pipe shall be built to conform to details indicated on the Drawings.

C. Inlets and Junction Boxes. Construct inlets and junction boxes of the materials and to the exact dimensions and grades shown on the Drawings. Finish surfaces smooth and true. Expansion joint filler shall be preformed bituminous treated fiberboard conforming to ASTM D 994, Type III.

D. Headwalls. Construct headwalls of the materials and to the exact dimensions and grades shown on the Drawings.

E. Rock Riprap. Place Riprap at the ends of pipe and in open ditches at the locations and to the lines and dimensions indicated on the Drawings. Place the riprap material on prepared areas by hand, to form a smooth surface. All pieces shall be in close contact and have a firm and even bearing on the soil and not wholly on the riprap material below. Fill the spaces between the larger stones with stones of suitable size so placed as to leave a surface capable of shedding water to the maximum degree practically obtainable.

F. Backfill:

1. General. Do not backfill until all required inspections are made and tests are performed. Backfill with the excavated materials specified for backfilling, consisting of earth, loam, sandy clay, sand and gravel or other materials, free from large clods or earth or stones. Broken concrete shall not be used as backfill material. No backfilling shall take place in freezing weather, and no backfill shall be made with frozen material. Adjust the moisture content of the backfill material if required for proper compaction. Reopen any trenches improperly backfilled, or where settlement occurs, to the depth required for proper compaction, refill and compact to specified density. Compact all backfill for structures to the specified density.
2. Around Pipe. Deposit suitable backfill material under the haunches of the pipe in 6 inch layers and thoroughly compact. Backfill to at least 90 percent of maximum density at optimum moisture content determined by ASTM D 698 until the pipe has a minimum cover of 2 feet. The moisture content of the soil at time of compaction shall be not more than 3 percent above or 3 percent below the optimum. Be careful not to disturb the pipe. Carry backfilling on simultaneously on both sides of the pipe to eliminate the possibility of lateral displacement.
3. Remainder of Trench. Deposit the remainder of the suitable backfill material in layers not exceeding 12 inches in loose depth and thoroughly compact them to at least 95 percent of maximum density at optimum moisture content determined by ASTM D 698, except compact the top one foot of backfill below the paving base or subgrade in areas to be paved to at least 98 percent of maximum density at optimum moisture content determined by ASTM D 698. The moisture content of the soil at the time of compaction shall be not more than 4 percent above or 4 percent below the optimum.
4. Crushed Rock Bedding. Where selected bedding material is required by the Drawings or by the Geotechnical Engineer during construction to replace unsuitable foundation material, crushed rock bedding shall be used. The bedding material shall consist of crushed rock mechanically or naturally combined with screenings from crusher operations or other finely divided mineral matter having similar physical properties. The composite material to be free from organic or other objectionable matter and to consist of angular, sound and durable

fragments, reasonably uniform in density and quality, and reasonably free from thin and elongated pieces. The minimum depth between the bottom of the trench and the lowest point of pipe shall be 4 inches or one eighth of the outside diameter of pipe, whichever is greater.

5. The crushed rock shall be well graded with a maximum size of 2 inches. Not more than 20 percent by weight shall pass a No. 4 sieve and shall not contain more than 3 percent by weight of particles smaller than 20 micrometre grain size as determined by ASTM Standard D 422.

6. Improved bedding where required by the Drawings shall consist of granular material (sand, crushed rock, etc.) or a concrete cradle as indicated by the Drawings. Granular material shall be free from organic or other objectionable material and shall conform to the grading requirements for either fine or coarse aggregate as set out in Section 03 30 00, Cast-In-Place Concrete. Concrete shall conform to requirements of Section 03 30 00, Cast-In-Place Concrete, except that the cement content may be reduced to 5 sacks per cubic yard (300 kg per cubic m) and may be either Type I or Type II.

3.03 FIELD QUALITY CONTROL

A. Testing and Inspection:

1. Storm Sewers:
   a. General: Inspect all storm sewer lines by checking each section between manholes for alignment. A full circle of light shall be seen by looking through the pipe at a light held at the opposite end of the Section of sewer line being inspected. The Contractor shall furnish materials for testing. Costs for tests shall be included in Contract Sum.
   b. Concrete and materials for concrete shall be tested in accordance with the requirements of Section 03 30 00, Cast-In-Place Concrete.
   c. Infiltration. Contractor shall coordinate with authority having jurisdiction for storm sewer leakage testing.
2. Backfill:
   a. Compaction Tests: Take compaction or in-place density tests as required by Geotechnical Engineer. Backfill not meeting the test requirements shall be removed, replaced, recompacted and retested for compaction at the expense of the Contractor. Findings of these tests shall be filed with the Architect in triplicate.

3.04 ADJUSTMENT AND CLEANING

A. Pavement Repair:

1. Where necessary to cut pavements, drives, sidewalks or other permanent surfaces, the cuts shall be made with neat lines at least 1 foot wider than the trench. Cut material shall be disposed of by the Contractor.
   a. The surfaces that are cut shall be restored to a condition at least equivalent to the condition existing before the cut was made. The Contractor shall cooperate at all times to keep streets open for use and also shall cooperate to keep portions of driveways open for use.
   b. Concrete for repair work shall be as specified in Section 03 30 00, Cast-In-Place Concrete. Concrete shall be finished to match surrounding surfaces as nearly as possible.
   c. Asphalt for repair work shall be as indicated on Drawings for new work.

END OF SECTION 33 40 00