EXHIBIT 1

TECHNICAL SPECIFICATIONS

FOR

DECATUR WATER STORAGE TANK DEMOLITION
DEKALB COUNTY, GEORGIA

ITB: 18-100944

DeKalb County
Department of Watershed Management
4572 Memorial Drive
Decatur, Georgia 30032

June 14, 2018

Technical Specifications Table of Contents

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SECTION 01001
SUMMARY OF WORK

PART 1 – GENERAL

1.1 SCOPE

A. The Work to be performed under this Contract shall consist of furnishing plants, tools, equipment, materials, supplies, and manufactured articles and furnishing labor, transportation, and services, including fuel, power, water, and essential communications, and performing work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The Work shall be complete, and any work, materials, and services not expressly indicated or called for in the Contract Documents that may be necessary for the complete and proper construction of the Work in good faith, shall be provided by the **Contractor** as though originally so indicated, at no increase in cost to the **County**.

B. The quantities shown on the bid form are estimates for the Work, including the intended construction method based upon the available information. The assigned means, methods, and quantities described herein are subject to revision by the **County** for various reasons including but not limited to, unforeseen utility conflicts/ground water, discovery of subsurface rock strata, unforeseen pipeline encasement, etc. As such, a unit price contract type has been selected to prosecute the Work and is not intended to be a guarantee for a minimum amount of work.

1.2 PROJECT LOCATION

The Work is required at the locations shown on the Approved Drawings.

1.3 WORK COVERED BY THE CONTRACT DOCUMENTS

Work shall be performed according to the requirements of the Contract Documents.

1.4 WORK COORDINATION

A. The **Contractor** shall coordinate the Work with third parties (such as public utilities and the telephone company) in areas where such parties may have rights to underground property or facilities; and request maps or other descriptive information as to the nature and location of such underground facilities or property.

B. The **Contractor** shall coordinate the Work with owners of private and public property where access is required for the performance of the Work.

C. The **County** will work with the **Contractor** to assign and schedule the Work in a logical and efficient format. However, the items in this contract shall be priced such that each item may be assigned independently or combined with other items at the **County**'s sole discretion in regard to both quantity and scope. The **Contractor** shall perform only those work items directed by the **County** at the prices specified herein. (For example, if the **County** determines that a line segment shall be cleaned but not televised, the same unit price for cleaning shall apply.)

1.5 CONDITIONS AT THE SITES

A. The **Contractor** shall make necessary investigations to determine the existence and location of underground utilities.

B. The **Contractor** shall be responsible for damage to and for maintenance and protection of existing utilities, structures, and personal property.

C. These Contract Documents do not guarantee such utilities are in the location indicated or that they actually exist, or that other utilities are not within the area of the operations.

D. The **Contractor** is responsible for safety at no additional cost to the **County**.

E. The **Contractor** shall report hazardous conditions to the **County**.

+++ END OF SECTION 01001 +++

SECTION 01010 - PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

Section includes:

A. Lands and Rights-of-Way/Easements, and Permits
B. Access to and **Contractor's** use of the site
C. Coordination requirements
D. Construction procedures

1.2 LANDS AND RIGHTS-OF-WAY: EASEMENTS AND PERMITS

A. **Contractor** shall, within 30 days of Notice to Proceed, submit to the **County** an Easement and Permit Plan listing easements and permits obtained, permits and easements yet to be obtained, the timing for obtaining required easements and permits, and conditions and mitigations associated with the easements and permits. The **Contractor** shall coordinate the acquiring of easements and permits within the accepted Construction Schedule.

The timing of acquiring easements and permits is the responsibility of the **Contractor**. Delays and rescheduling of the Work to maintain the Construction Schedule shall be mitigated by the **Contractor** at the **Contractor's** sole cost and expense.

B. Access to the Work shall be limited to the right-of-way or easement area provided for execution of the Work. The **Contractor** shall not enter any adjacent private property without prior written approval from the property owner. Proof of such approval shall be furnished to the **County** upon request. Additional permitting and easements required shall be obtained by the **Contractor** and the **Contractor** shall bear the cost.

C. If the **Contractor** performs any work or service for any property owner outside the specified scope of the **Contractor's** agreement with the **County** or has any agreements with a private property owner for access to or for temporary use of property outside of the right-of-way or easement area, a written agreement shall be entered into with the private property owner(s) prior to any work or service being performed or prior to any use by **Contractor** of the private property and such agreement shall be provided to the **County**. The agreement shall contain the following language, in addition to the terms agreed to between the **Contractor** and the property owner:

"The Property Owner understands that DeKalb **County** is not a party to this Agreement, exercises no control over the means, methods, and execution of this agreement, and that DeKalb **County** assumes no responsibility for the **Contractor's** compliance with the terms of this agreement. The **Contractor** shall be solely liable for any and all claims, demands, and judgments related to loss or damage to property or person (including death) arising from or in any way related to the **Contractor's** acts or omissions related to the agreement."

1.3 ACCESS TO AND CONTRACTOR'S USE OF THE SITE

A. The space available to the **Contractor** for the performance of the Work, either exclusively or in conjunction with others performing other construction as part of the project, is shown on the drawings.

B. The **County** shall continue to utilize the existing wastewater collection system and water system during assessment and construction.

1. The **County** will endeavor to cooperate with the **Contractor's** operations when the **Contractor** has notified the **County** in advance of need for changes in operations in order to accommodate construction operations.
2. The **Contractor** shall conduct the Work to cause the least interference with the **County's** operations.

C. Equipment and vehicles used by the **Contractor** on the project shall be marked with the **Contractor's** name and telephone number.

1.4 COORDINATION REQUIREMENTS

A. Coordination with **County**:

1. Limit access through occupied areas to those days and times the **County** approves. Occupied areas include areas in which the **County's** regular operations will be going on or to which the **County** requires access during the construction period.
2. When the following must be modified, provide alternate facilities acceptable to the **County**:

    a. Emergency means of egress
    b. Utilities that must remain in operation
    c. Informational signage

3. The **Contractor** shall notify the **County** immediately of any circumstances that may jeopardize or that have interrupted utility service.

B. Security Procedures:

1. Limit access to the site to persons involved in the work.
2. Provide secure storage for materials.
3. Secure completed work as required to prevent loss.

C. Coordination of Construction:

1. Inform each party involved, in writing, of procedures required for coordination of the Work; include requirements for giving notice, submitting reports, and attending meetings.
2. Inform the **County** in advance, with ample time, when coordination of Work is required.

D. Utilities Notification Prior to Construction:

1. Georgia law mandates that, before beginning mechanical digging or excavation work, **Contractor** shall contact Georgia 811 by using eRequest on www.Georgia811.com or by calling 811 or 1-800-282-7411.

2. **Contractor** may utilize EDEN (Excavation Digging Event Notification) web application that enables Members and Professional Excavators to create, manage, respond to, and edit Georgia 811 Locate Request Tickets.

3. **Contractor** shall retain records of notification and responses during the course of the project until final Payment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. General Examination Requirements:

1. Prior to performing work, examine the applicable substrates and the conditions under which the work is to be performed.
2. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding.
3. Notify the **County** promptly of type modifications required.
4. Before starting work that might affect existing construction, verify the existence and location of underground utilities and other underground construction.

B. General Preparation Requirements:

1. The **Contractor** shall obtain, maintain, and pay for required permits.
2. The **Contractor** shall take field measurements as required to properly conduct the work.

C. Cleaning and Protection: Keep installed work clean, and clean again when soiled by other operations.

D. Final Cleaning:

1. Remove materials and equipment that are not part of the work and any debris from the site prior to substantial completion.
2. Dispose of debris in a lawful manner.
3. Perform final cleaning after substantial completion has been certified, but before final payment.
4. Clean entire project site and grounds.

E. Final Completion:

1. Requirements for the **Contractor** achieving Final Completion are defined in the Contract Documents in GR-9 of the General Requirements.
2. After Substantial Completion, **Contractor** shall meet additional requirements for Final Completion and release of final payment. These requirements will be defined in the Contract and typically include:

a. Completion of punch list items by the **Contractor**
b. Demobilization from the project site
c. Submittal of warranties
d. Release of subcontractor or vendor liens
e. Turnover of remaining project documents required by the Contract, including final as-built drawings by the Design Consultant

3.2 CHANGE MANAGEMENT

A. Contract Change Process

Any firm under contract with the **County** may submit a Change Request (CR) to the **County** following the requirements of the contract. A CR may address requested changes in cost and/or schedule, as well as contract terms or scope that do not result in cost or schedule impacts.

Changes may also be initiated by the **County** in the form of a Field Order (FO). The **Contractor** shall proceed with the change unless they believe the FO entitles them to a change in contract price, time, and/or term. If so, the **Contractor** shall submit a CR within 15 days of receiving the FO.

The CR from the **Contractor** is to be accompanied by a detailed proposal describing the **Contractor**'s opinion of the CR's cost, schedule, and/or contract term impacts.

If the CR is acceptable to the **County**, the **Contractor** will be directed to submit a CO to the **County** to process. If the CR is not acceptable to the **County** then the **Contractor** may negotiate the CR. If the cost and/or schedule impacts cannot be agreed, then the **County** will either instruct the **Contractor** to proceed with the change using a Unilateral Change Directive (UCD), if the change is deemed by the

County to be needed, or the change can be terminated if the change is deemed to be not needed. If the **County** issues a UCD after failing to agree on the price of a CO, then the pricing of the change is per the contract terms.

A UCD can be initiated by the **County** only when there is an imminent threat to public safety or health, or a potential shutdown of a vital **County** function.

B. Amendment to the Contract

If the approval of a CO requires a written, formal amendment to the contract, the **County** will process the formal amendment.

C. Project Scope Change Impacts

A change to the scope of the project, including greater impact on the construction scope than the design scope. A design scope change may also materially impact the project configuration even if it is a no-cost change. Additionally, a change to one project's scope may have impacts to another project's scope.

So that a CO is not approved without understanding its full impacts beyond the affected contract scope, project scope change impacts shall be approved by the **County**. These must consider changes through every phase of the project, and/or impacts to other projects.

D. Baseline

If a CO is approved, the **Contractor** will prepare a Project Baseline Change Instruction Form to formally change the project scope, baseline schedule, and baseline budget.

E. Change Monitoring

The **Contractor** is responsible for monitoring changes to the contract. The **Contractor** will maintain a Design Change Log for each project, and will maintain a Construction Change Log that includes the change description, change status, category of change, contract, estimate of cost, estimate of schedule impact, and current process step. Change logs are updated each month and included with the Project Progress Report.

Responding to and processing changes in a timely manner is a priority. Change backlogs will be vigorously monitored and managed. Change status reports will be developed by the **Contractor** from the Change Logs to provide current status of each open change, which process step is active, and how many days remain in the process step. "Overdue" reports will be elevated to the **County** for follow-up and closure.

F. Change Status

Changes will be identified by one of the four following status descriptions: Proposed Change is a change that has been submitted as a CR or FO, but has not yet been negotiated. Proposed changes require closure if they are deemed to be

not required, or must be resolved in a timely manner if they are deemed required. The cost estimate and/or schedule impact of a proposed change will usually change as it goes through the contract change process. These changes must be reflected in the Change Log as they occur and included in monthly cost and schedule forecasts.

Pending Change is a change that has been negotiated, but has not yet received final **County** approval. These changes must be included in monthly cost and schedule forecasts.

Approved Change is a change that has received final **County** approval. The contract scope, budget, and/or schedule will be amended to include approved changes. Approved changes will be included in monthly cost and schedule forecasts until a formal re-baselining of the project schedule and/or budget is approved.

Closed Change is a change that has been formally rejected and closed by the **County**, or withdrawn by the originator.

G. Category of Change

Changes will be categorized as follows to track the types of changes that occur over the life of the project:

- **County** Requests: any change initiated by the **County**.
- Differing Site Conditions: new information not reasonably available during design, or considered "unforeseeable" through due diligence on the part of the **Contractor**.
- Design Errors: changes due to errors or deficiencies in the design.
- Design Omissions: items omitted from the design that would have been included in the original bid, had they been known.
- Regulatory Requirements: changes mandated by regulatory agencies that are different from approved permit conditions at the time the contract was approved.
- Other: changes required for all other reasons, including emergency work, adjustment of bid quantities, force majeure events, incentive payments, accepted substitutions, and changes identified during value engineering.

3.3 HEALTH AND SAFETY CONSIDERATIONS

A. Take precautions to prevent fires and to facilitate firefighting operations.

B. Take precautions to prevent accidents due to physical hazards.

C. Maintain working conditions in order to keep the site and adjacent public ways free of hazardous and unsanitary conditions and public nuisances.

D. Maintain working conditions to control rodents and other pests; prevent infestation of adjacent sites and buildings due to pests on this site.

E. Keep public streets free of debris from this Work.

F. Provide adequate traffic control in accordance with current MUTCD standards and the approved traffic permit.

G. When using trenches/excavations, follow OSHA standards 29 CFR 1926.650, 29CFR 1926.651, and 29 CFR 1926.652.

3.4 ENVIRONMENTAL PROTECTION

A. General

Contractor shall conduct its operation in a manner to prevent pollution of the environment surrounding the area of work and shall be responsible for furnishing necessary items for fulfilling the work described herein.

B. Material Transport

Contractor shall comply with the Official Code **County** of DeKalb Georgia pertaining to the duties of the **Contractor** in hauling material over **County**-owned rights-of-way. This includes, but is not limited to, approval of proposed haul routes, prevention of dropping of materials or debris on the streets from trucks arriving and leaving the site, providing a suitable vehicle inspection and cleaning installation with permanent crew, and the removal of material spilled in public areas at no additional cost to the local government agency.

C. Waste Materials

No waste or erosion materials shall enter natural or manmade water, wastewater collection systems, or stormwater drains. Erosion materials from excavations, borrow areas, or stockpiled fill shall be contained within the work area. **Contractor** shall develop methods for control of waste and erosion, which shall include filtration, settlement, and manual removal to satisfy the above requirements.

D. Burning

No burning of waste shall be allowed.

E. Dust Control

The **Contractor** shall control the generation of dust by its operations. Control of dust shall be accomplished by water sprinkling or by other methods approved by the **County.**

F. Noise Control

The **Contractor** shall minimize the noise caused by its operations.

When required by agencies having jurisdiction, noise-producing work shall be performed in less sensitive hours of the day or week as directed by the **County**.

The **Contractor** shall provide equipment that operates with the least possible noise. The use of noisy equipment is prohibited. Hoists and compressor plants shall be electrically operated unless otherwise

permitted. The air intake of compressors shall be equipped with silencers, and machinery operated by gearing shall be provided with a type of gearing designed to reduce noise. Internal combustion engines shall be equipped with mufflers in good order.

Noise generated by mobile construction equipment, stationary construction equipment, and other equipment involved in the construction of the Work shall not exceed the decibel levels indicated below. Noise generated by mobile and stationary construction equipment will be measured 3 to 6 feet from building lines, and on the A-weighting network of Type 2 general purpose sound level meter set at fast response.

	Combined Residential and Commercial
Allowable sound levels of mobile construction equipment: - From 7 a.m. to 10 p.m., Monday thru Saturday, except legal holidays - At times other than those listed above	85 dBA 70 dBA
Allowable sound levels of stationary construction equipment: - From 7 a.m. to 10 p.m., Monday thru Saturday, except legal holidays - At times other than those noted above Night work from 10 p.m. until 7 a.m. shall require an approved special permit from the **County**.	70 dBA 60 dBA The dBA level will be included in the approved permit.

G. Use of Chemicals

Chemicals used during construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, shall show approval of either EPA or FDA. Use of such chemicals and disposal of residues shall be in conformance with instructions.

H. Bypassing During Construction

No wastewater shall be bypassed at sewage collection or treatment facilities during project construction unless a bypassing schedule has been approved by the **County.** It shall be the responsibility of the **Contractor** to prepare and secure the approval of bypassing not specifically identified in the Contract Documents.

I. Responsibility for Spills and Accidental Discharges

In the event the **Contractor** causes or has a spill or accidental discharge for which the **County** is fined by the State of Georgia Department of Natural Resources Environmental Protection Division (EPD), the **Contractor** agrees to remediate the spill or discharge immediately in accordance with current EPD regulations and to pay fines assessed against the **County** and/or **Contractor**, and pay for the **County**'**s** cost associated with efforts to remediate the situation. The **County** shall be notified immediately of such an event.

3.5 PROTECTION OF THE WORK

A. Conduct construction operations so no part of the Work is subjected to damaging operations or influences that are in excess of those to be expected during normal occupancy conditions.

B. Execute work and stockpile spoils and materials to prevent flooding of excavations, below grade construction, and adjacent properties due to rainwater runoff.

C. Protect existing property not indicated to be removed.

D. Provide temporary supports as required to prevent movement and structural failure as designed by a Registered Professional Engineer in the state of Georgia at the **Contractor's** cost.

E. Equipment and vehicles used on DWM projects shall be clearly marked with the **Contractor's** name and telephone number. The identifying markings may be in the form of magnetic signs, decals, or painted lettering and shall be located on both sides of the equipment/vehicle. The lettering shall be legible, of a contrasting color to the background surface, and at least two inches in height. Markings shall be in place upon initiation of the work on the project site.

F. A copy of the Project Notice to Proceed letter issued by the **County** shall be available on the job site as proof of the contractual relationship of the **Contractor** with the **County**. The letter shall be presented for review upon request by regulatory agencies or other **County** departments that visit the job site.

G. If removal and replacement of a paved private driveway is required, the replacement shall be performed within 2 weeks of removal. The required permanent pavement replacement for public roadways shall be performed within 30 days or within 7 days if the roadway is a state highway or major **County** arterial roadway. Temporary surface maintenance is the **Contractor's** responsibility and shall be

adequate for the volume and type of traffic loads imposed. Temporary asphalt cold mix application, steel traffic plates, etc. shall be utilized as necessary.

H. The **Contractor** shall always maintain copies of permits and approved plans on the project site.

3.6 WORK HOURS

DeKalb County work hours are generally Monday through Frida from 8:30a.m. through 5:00 p.m. DeKalb County observes the following holidays; **New Year's Day, Martin Luther King, Jr. Day, Presidents Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, day after Thanksgiving, and Christmas**. The Contractor will not perform Work outside of DeKalb County work hours without the County's written consent given after prior written notice to the DWM Project Manager, which shall be submitted at least seven (7) days in advance.

++++END OF SECTION 01010++++

SECTION 01200
PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

A. The **County** shall schedule and administer a preconstruction meeting, and may schedule periodic progress meetings, and specially called meetings throughout progress of the Work. The **County** shall set the agenda for the meetings and preside at the meetings. The **Contractor** shall make physical arrangements for the meetings pursuant to the **County's** requirements. Meetings are not a pay item.

B. Representatives of the **Contractor**, subcontractors, and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.2 PRECONSTRUCTION MEETING

A. The **County** shall schedule a Preconstruction Meeting prior to the start of construction.

B. The Preconstruction Meeting shall be attended by the following:

1. **County's** representative(s)
2. **Contractor's** Project Manager and Superintendent
3. Others as appropriate or required by the **County**

C. The Preconstruction Meeting will generally have the following agenda:

1. Designation of responsible personnel
2. Distribution and discussion of list of major subcontractors and suppliers
3. Projected construction schedule with critical Work sequencing
4. Major equipment deliveries and priorities
5. Procedures and processing of:

    a. Submittals
    b. Requests for Information (RFIs)
    c. Change Documents
    1. Requests for Proposals (RFPs)
    2. Work Authorizations
    3. Proposed Change Order Requests (CORs)
    d. Field Decisions and Clarification Memos
    e. Applications for Payment
    f. Change Orders

6. Procedures for maintaining Record Documents (Section 01350 - Project Document Tracking and Control Systems)

7. Periodic Meeting Schedule

8 Mobilization Form Submittal – **Contractor** shall complete and submit a Mobilizations Request form after the following have been completed:

a. NTP Received
b. Preconstruction Meeting completed and minutes reviewed and accepted
c. Safety Plan, Construction Quality Plan, and Permit/ Easement Plan submitted to and approved by **County**

1.3 PERIODIC PROGRESS MEETINGS

A. Project Progress Meetings shall be held monthly throughout the project duration. The **County** may alter the timing of, or add supplemental, scheduled periodic progress meetings, at its discretion.

B. The Project Progress Meetings shall be attended by the following:

1. **County's** representative(s)
2. **Contractor's** Project Manager, Superintendent, and other appropriate representative(s)
3. Others as appropriate or required by the **County**

C. The Progress Meetings will generally have the following agenda:

1. Review Work progress since last meeting
2. Discussion of Construction Schedule for next period
3. Status of major equipment and material deliveries
4. Construction problems affecting progress
5. Field observations, including Safety Report(s)
6. Status of pending RFIs and changes
7. Stakeholder complaints/public outreach
8. Status of permits and easements
9. Status of invoicing
10. Other business

1.4 OTHER MEETINGS

A. Schedule Progress Meetings

As per Section 01310 - Construction Schedule, during weekly progress meetings, the **Contractor** shall submit a Look-Ahead Schedule. This schedule shall cover four weeks: the immediate past week, the current week, and the forthcoming two weeks. This schedule shall include activities that are complete, started, incomplete or underway, or scheduled to be performed during this four-week timeframe. Results of the Progress meetings shall be reported in the Project Progress Meetings.

B. Specially-called meetings may be requested by either party or by other affected entities. Requests shall be made through the **County**, which shall coordinate the meeting schedule. Specially-called meetings shall be held as warranted by:

1. Unforeseen developments during construction or as needed to coordinate special events, such as tie-ins or system shutdowns

2. Concerns regarding individual project performance and adherence to the schedule of construction

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01200

SECTION 01310 - CONSTRUCTION SCHEDULE
(To be used for small linear type projects)

PART 1 - GENERAL

1.1 SUMMARY

Section includes progress documentation requirements.

1.2 SUBMITTALS

The Initial Baseline Construction Schedule shall be submitted to the **County** at the Pre-construction meeting. The final baseline schedule is to be submitted to the **County** within 14 calendar days following the pre-construction meeting. The updated baseline construction schedule shall be submitted to the **County** with the **Contractor's** Monthly Application for Payment.

1.3 FORM OF SUBMITTALS

A. Schedules - General:
1. Provide legend of symbols and abbreviations for each schedule.
2. Use the same terminology as that used in the contract documents.

B. Format - Bar Chart:
1. Provide individual horizontal bars representing the duration of each major activity.
2. Coordinate each element on the schedule with other construction activities.
3. Show activities in proper sequence, including submittals, equipment delivery, materials delivery, installation, and testing.
4. Include cost bar at top of chart showing estimated cost of Work performed at the date of each application for payment.
5. Use vertical lines to mark the time scale at not more than 1-week intervals.
6. Use sheets of sufficient number and width to show the full schedule clearly.
7. Use of Critical Path Methodology while developing the schedule. Tasks on the critical path shall be indicated in RED.

C. Copies: Submit a minimum of two copies.

PART 2 – PRODUCTS

2.01 SOFTWARE / PROGRAMS

Schedules shall be prepared in Primavera P6 or, with **County** approval, Microsoft Project.

PART 3 - EXECUTION

3.1 CONSTRUCTION SCHEDULE

A. Prepare and submit construction schedule.

B. Provide construction schedule in the form of bar charts.

C. The **County** will promptly review the schedule and notify the **Contractor** of acceptability. If schedule is not satisfactory, the **Contractor** shall revise and resubmit within 3 days.

D. Make and distribute copies of accepted schedule to the **County**, to subcontractors, and to other entities whose Work will be influenced by schedule dates.

E. Update the schedule whenever changes occur or are made, or when new information is received, but not less often than at the same intervals at which applications for payment are made. Payments may be withheld if schedule updates are not submitted as required.

F. The initial schedule and update information shall be provided by the **Contractor.** This information is a representation of the best efforts of the **Contractor** and its subcontractors as to how they envision the Work to be accomplished. Similarly, progress information to be provided by and through the **Contractor** shall be an accurate representation of its or its subcontractors' or suppliers' actual performance. The schedule shall remain an accurate reflection of the **Contractor's** actual or projected sequencing of Work. Once accepted, adherence to the established schedule shall be obligatory upon the **Contractor** and its subcontractors for the Work under this Contract. The **County** may require the **Contractor** to revise the schedule if, in its judgment, the schedule does not accurately reflect the actual execution of the Work, or is in violation of any provision on this scheduling specification. The **Contractor** shall revise the schedule as often as is required or necessary during the course of performance of the Work without additional cost to the **County.**

3.2 PROGRESS OF WORK

A. The Work shall be started on the date indicated in the Notice to Proceed coinciding with the baseline construction schedule and shall be executed with such progress as may be required to prevent delay to other contractors or to the general completion of the project. The Work shall be executed at such times and in or on such parts of the project, and with such forces, material, and equipment, as to assure completion of the Work in the time established by the Contract. Additionally, the **Contractor** shall schedule and direct Work so to provide an orderly progression of the Work to completion within the specified Contract Time.

B. The **Contractor** agrees that whenever it becomes apparent from the current accepted monthly schedule update, that delays to the project have resulted and these delays are through no fault of the **County,** and hence, that the Contract completion date will not be met, or when so directed by the **County,** the **Contractor** shall take some or all of the following actions at no additional cost to the **County.**

1. Increase construction Work force in such quantities and crafts as shall substantially eliminate the backlog of Work.
2. Increase the number of working hours per shift; shifts per working day, or days per week; the amount of construction equipment, etc., or any combination of the foregoing to substantially eliminate the backlog of Work.
3. Schedule activities to achieve maximum practical concurrence of accomplishment of activities, and comply with the revised schedule.

4. The **Contractor** shall submit for reviewing a written statement of the steps it intends to take, to remove, or arrest the delay to the schedule. If the **Contractor** fails to submit a written statement of the steps it intends to take or fails to take such steps as required by the Contract, the **County** may direct the level of effort in workforce (trades), equipment, and Work schedule (overtime) to remove or arrest the delay to the project in the accepted schedule, and the **Contractor** shall promptly provide such level of effort at no additional cost to the **County**. In addition, should schedule delays persist; the **Contractor's** bond agent shall be asked to attend meetings to update the schedule.

C. Failure of the **Contractor** to comply with the requirements of this provision shall subject it to, at the **County's** sole discretion, withholding, in partial or in total, payments otherwise due the **Contractor** for Work performed under this Contract. The **Contractor** agrees that any withholding of moneys is not a penalty for noncompliance, but is an assurance for the **County** that funds shall be available to implement these requirements should the **Contractor** fail to do so, since failure of the **Contractor** to comply with these requirements shall mean that the **Contractor** failed to execute the Work with such diligence as to ensure its completion within the time for completion.

+++END OF SECTION 01310+++

SECTION 01350
PROJECT DOCUMENT TRACKING AND CONTROL SYSTEM

1.1 SCOPE

A. The **Contractor** shall utilize the **County**'s Project Document Tracking and Control System (DTCS). SharePoint will be utilized and the **Contractor** shall request access permission from the DWM Project Manager. The primary function of the system is to facilitate timely processing and approval of contract documentation in coordination with the overall Project Schedule established by these Specifications and the **Contractor**. The **Contractor** shall utilize this system for document tracking and control, including use of Lynx Photo Management software. The software will:

1. Facilitate communication between the **County** and **Contractor**.

2. Support turnaround time with regard to responses and approvals.

3. Provide a central location for Project information to support Project participants in performing their tasks based on the latest Project data.

4. Provide a standard system of project administration with accountability.

B. The **Contractor** shall utilize the web-based system that resides on the DWM server to generate documents in the proper format for submission to the **County**. The **Contractor** shall access the system using a compatible web browser from the **Contractor's** administrative field office location, and/or other locations where Work associated with the Project is being performed.

C. The **Contractor** shall be required to generate Project documents and records utilizing the aforementioned system. The **Contractor** shall be required to transmit and submit the Project documents within the system to the **County**.

D. The **Contractor** shall utilize a high-capacity scanner capable of scanning 11 x 17 documents, double-sided, onsite for the entire duration of the Project. Documents shall be scanned in and attached to the appropriate Contract Manager document, including submittals, shop drawings, operations & maintenance manuals, and other documents requested by the **County**.

E. The **Contractor** shall utilize the document control system to create and maintain Project documents, including, but not limited to the following:

1. Company Directory: Addresses, Phone Numbers, Personnel Contacts, etc.
2. Drawings Log: Current Drawing revision log
3. Submittals Integrated with Project Schedule through Activity codes
4. Transmittals
5. Risk Register
6. Requests for Information (RFIs)
7. Requests for Proposal (RFPs)
8. Work Authorization Requests (WARs)

9. Work Authorizations (WAs)
10. Change Order Requests (CORs)
11. Change Orders (COs)
12. Daily Reports (Daily Diaries)
13. Field Decisions, Field Orders (FOs), and Clarification Memos
14. Notice of Non-Compliance
15. Construction issue memos
16. Punch lists
17. Meeting Minutes and agendas
18. Correspondence
19. Work Plans
20. Startup Plans
21. Equipment Operations & Maintenance training
22. Spare parts lists

F. The **Contractor** shall utilize the complete capabilities of the DTCS to meet the requirements of this Section. The **Contractor** shall provide a highly trained and experienced construction project controls person knowledgeable in construction Work sequencing, productivity, scheduling, and application of the Primavera P6 software system. This person, along with the **Contractor**'s management team, shall work closely with the **County** to deliver the documents outlined in this Section.

G. Software Support

The **Contractor** shall be required to establish an internet connection using DSL or better to connect to the DTCS to permit the forwarding and receipt of documents.

1. The Contract Manager software supports and the **Contractor** shall utilize Microsoft Outlook .
2. The **Contractor** shall also provide 2 days of consulting services in the base bid for troubleshooting and maintenance of the DTCS at any location designated by the **County** or at the **Contractor**'s administrative field office (if authorized by the **County**). Troubleshooting, maintenance, upgrade, configuration, and setup shall be performed by a **County** approved project management system implementation company based on a scope pre-defined by the **County**. The **Contractor** shall utilize the custom data fields, dictionaries, and coding systems as required by the **County**.

H. The **Contractor**'s staff shall be required to attend a 2-day training session on the operation of the **County**'s DTCS, provided by an Authorized Trainer. The **Contractor** shall provide the training session for 10 participants (fee for the Primavera Authorized Trainer). The training session shall be held at the Evans Technology, Roswell, Georgia, facility and shall be attended by the **Contractor** (limited to three participants) as well as DWM representatives (seven participants). The **Contractor** shall be responsible for the cost of training for additional members of its firm or future retraining, as may be deemed necessary by the **Contractor**.

I. The **Contractor** shall meet with the **County** within 15 days after the Contract is

awarded to discuss access requirements and the **Contractor's** plan to utilize DTCS and execute the document control functions herein.

J. Access through the internet to the DTCS shall be operational within 30 days following the pre-construction meeting date. This shall be operational from the **Contractor's** administrative field office location.

1.2 COMPANY DIRECTORY

The **Contractor** and the **County** shall monitor and manage the Company Directory. The directory shall include Company name, Company abbreviation, contact names, address, phone numbers, and e-mail addresses.

1.3 DRAWING LOG

The **County** will maintain a log of initial "issued for construction" drawings in the DTCS. Information shall include drawing number, title and revision number. In addition to logging the initial project drawing list, the **County** will maintain a log on the DTCS of subsequent revisions to these drawings and any sketches resulting from clarification memos, RFPs, WARs, WAs, RFIs, Field Orders, and Change Orders (COs). It shall be the **Contractor's** responsibility to utilize the latest drawings and sketches in the performance of the Work.

1.4 SUBMITTALS/SHOP DRAWINGS

A. Requirements: This section specifies supplemental requirements to GR-24 and Section 01300, Submittals, related to the processing of submittals and shop drawings. The **Contractor** shall utilize the DTCS to log and track submittals, as well as generate associated transmittal letters.

B. Submittals and Product Data: A list of required submittals shall be entered into the DTCS by the **Contractor**. Submittals shall be incorporated into packages, with numbering as follows: XXXXX-YYY, where X denotes the applicable specification section and Y denotes the individual submittal number for that particular specification section, beginning with 001.The **Contractor** shall log and track submittals utilizing the DTCS. Each review cycle shall be entered into the DTCS. The **Contractor** shall identify as activities in the CPM schedule, to include data submittals, as well as those involving complex reviews and long lead deliveries, and procurement items required for construction activities. Submittal schedule information shall be updated monthly with the **Contractor's** updated project CPM schedule.

C. Samples: A list of required sample submittals shall be entered into the DTCS by the **Contractor**. Sample submittals shall be identified as individual submittals within the submittal packages, with numbering as specified above.

D. Guarantees/Warranties: A list of required Guarantee/Warranty submittals shall be entered into the DTCS by the **Contractor**. These submittals shall be identified as individual submittals within the submittal packages with numbering as specified above.

E. Work Plans, Startup Plans, O&M Submittals, and Spare Parts: Testing, Startup, and O&M submittals shall be entered into the DTCS by the **Contractor**. These submittals shall be identified as individual submittals within the submittal packages identified with numbering as specified above.

F. Submittal Procedures: The **Contractor** shall prepare submittal packages utilizing the submittal numbering system, description, and packaging conventions described above. Submittals prepared by the **Contractor** that fail to follow the conventions described above, will be returned "amend and resubmit." Should the **Contractor** determine that a submittal is required and is not covered by the listing within the DTCS, the **Contractor** shall consult with the **County** to determine the submittal number, description, and packaging that shall be required.

1.5 CORRESPONDENCE

The **County** shall monitor and manage the correspondence, Non-Compliance Notices, Field Decisions and Clarification Memos, and Construction Issue Memo logs. The **Contractor** shall generate Project correspondence within the DTCS, and forward the correspondence to the **County**.

1.6 TRANSMITTAL LOG

The **Contractor** and the **County** will monitor and manage the transmittal log. Project transmittals shall be created electronically, automatically sequentially numbered, and logged into the DTCS system as they are created. The **Contractor** shall utilize the system to create transmittals for items transmitted to the **County**, Resident Inspection Staff, and other contractors.

1.7 RISK MANAGEMENT PLAN AND RISK REGISTER

Contractor shall provide a detailed and specific description of their approach to the management of risks associated with the Project, including permitting, design, construction, and testing and the **County's** operation and maintenance of the Project. Such risks shall include those allocated under the Contract to the County as well as those allocated to the **Contractor**.

Contractor is to develop and maintain a Risk Management Plan that can be used by the **County** to understand and evaluate the **Contractor's** understanding of the biggest risks and challenges to the Project, and how it intends to mitigate such risks. The **Contractor** shall provide sufficient information to enable the **County** to understand this evaluation. The Risk Management Plan shall include:

A. A detailed risk register that identifies Project risk, the likelihood of such risk manifesting itself on the Project, the severity of such risk and a mitigation plan for such risk.

B. An identification of and elaboration upon features of the **Contractor's** Design (if Design-Build type delivery) and Construction Plan that the **Contractor** considers unique and/or innovative relative to reducing or eliminating Project risk.

The **Contractor**, **County and Construction Manager** will review the Risk Register during the Project's progress meetings. The **Contractor** shall update the project Risk Register and provide these updates to the project team through the DTCS system on a monthly basis.

1.8 REQUEST FOR INFORMATION & ANSWERS

The **Contractor** shall be responsible for generating RFIs on the DTCS system. The **Contractor** shall notify the **County** when an RFI is submitted. The **County** will monitor and manage the RFI log. The **County** will generate an Answer document in response to each RFI and forward them to the **Contractor**. The DTCS shall track "Ball in Court" for RFIs and Answers, as well as date of original generation and response date. In addition, the RFIs shall reference the relative Specification Section and Drawings. The DTCS shall identify the date of the request and the originator, responsible party for a response and the date of the response.

1.9 CHANGE DOCUMENTS

Change documents include Request for Proposals (RFPs), Work Authorization Requests (WARs), Work Authorizations (WAs), Change Orders Requests (CORs), and Change Orders (COs). Change documents will be monitored and managed by the **County** utilizing the DTCS. The DTCS shall track "Ball in Court" status of change documents.

1.10 DAILY REPORTS

The **Contractor** is responsible for creating daily reports (daily diaries) utilizing the DTCS. The **Contractor** shall enter the Daily Reports into the DTCS by 10:00 a.m. of the subsequent day that the **Contractor** or any subcontractor performs Work. Daily reports shall be logged into the DTCS by the **Contractor**. The **Contractor** shall also provide one signed hard copy of daily reports on a weekly basis. Required information shall include the **Contractor**, Date, Day, Temperature, Precipitation, Sky, Wind, Work Activity, Equipment, Field Force, Visitors, Materials, and Scheduled Activities utilizing the Primavera schedule activity codes. Daily reports that fail to link Work activities to the active Project schedule shall not be acceptable.

1.11 PUNCH LISTS

The **County** will monitor and manage punch lists, and will create punch lists to be forwarded to the **Contractor**. The **Contractor** shall address the punch list items that have been assigned to the **Contractor** and forward updates to the **County**.

Once accepted as complete, the **County** will access the punch list in the DTCS and close it out.

1.12 MEETING MINUTES AND AGENDA

The **County** will monitor and manage the meeting minute process. The **County** will forward meeting minutes to the **Contractor** electronically. The **County** will log the meeting minute items into the DTCS within 3 days of the meeting date.

1.13 PROGRESS PAYMENTS /REQUISITIONS FOR PAYMENT

The **Contractor** is responsible for creating progress payment applications directly from the project scheduling software and then forwarding them to the **County** electronically, along with hard copies, by 4:00 p.m. at the end of each update/billing period. The **Contractor** shall also simultaneously provide a separate submittal of the updated progress schedule (P6 or latest version at the time of purchase), as specified in Section 01310.- Progress Payments, Schedule of values shall be developed as defined in Section 01310 within the Pay Application and shall be coordinated with the **County**'s Project Manager. Maintenance of the "As-Built" record documents by the **Contractor** shall be verified before processing shall be approved. Failure of a **Contractor** to maintain project record documents, maintain current and properly prepared daily reports, or submit the project schedule update per Section 01310 shall be just cause for withholding the monthly or final payment.

1.14 LYNX PHOTO MANAGEMENT SOFTWARE

The Lynx PM software shall be utilized by the **County** and the **Contractor** for the duration of the project. The daily construction photographs shall be the permanent visual record of the pre-construction conditions, daily construction site activities, and the completion of construction Work. The **Contractor** shall submit to the **County** no less than four record photos for each activity ID listed in the project schedule per the last schedule update. Applicable photos shall accompany each Pay Application.

+++END OF SECTION 01350+++

SECTION 01550
TRAFFIC REGULATION

PART 1 - GENERAL

1.1 SCOPE

The Work specified in this section includes the provision of products, permits, services, procedures, and personnel by the **Contractor** to effect traffic control during the Work.

1.2 TRAFFIC CONTROL MANAGER REQUIREMENTS

A. The **Contractor** shall designate a qualified individual as the Traffic Control Manager (TCM) who shall be responsible for selecting, installing, and maintaining traffic control devices in accordance with the Plans and Specifications and the Manual of Uniform Traffic Control Devices (MUTCD). A written resume documenting the experience and credentials of the TCM shall be submitted and accepted by the **County** prior to beginning any Work that involves traffic control. The TCM shall be available on a 24-hour basis to perform his or her duties. If the Work requires traffic control activities to be performed during the daylight and nighttime hours, it shall be necessary for the **Contractor** to designate an alternate TCM. An alternate TCM shall meet the same requirements and qualifications as the primary TCM and be accepted by the **County** prior to beginning any traffic control duties. The TCM's traffic control responsibilities shall have priority over other assigned duties.

B. As the representative of the **Contractor**, the TCM shall have full authority to act on behalf of the **Contractor** in administering the Traffic Control Plan. The TCM shall have appropriate training in safe traffic control practices in accordance with Part VI of the MUTCD. In addition to the TCM, other individuals making decisions regarding traffic control shall meet the training requirements of Part VI of the MUTCD. The TCMs shall supervise the initial installation of traffic control devices. The **County,** prior to the beginning of construction, will review the initial installation. Modifications to traffic control devices as required by sequence of operations or staged construction shall be reviewed by the TCMs.

PART 2 - PRODUCTS

2.1 SIGNS, SIGNALS, AND DEVICES

A. The **Contractor** shall provide post-mounted and wall-mounted traffic control and informational signs as specified and required by local jurisdictions.

B. The **Contractor** shall provide automatic traffic control signals as approved by local jurisdictions.

C. The **Contractor** shall provide traffic cones and drums, and flashing lights as approved by local jurisdictions.

D. The **Contractor** shall provide flagmen equipment as required by local jurisdictions.

PART 3 - EXECUTION

3.1 PERMITS

A. The **Contractor** shall obtain permits from authorities having jurisdiction over road closures before closing any road. The **Contractor** shall use forms provided by authorities having jurisdiction (DeKalb County Department of Public Works, Georgia Department of Transportation, etc.).

B. The **Contractor** shall either fax or hand carry any permit applications to the DeKalb County Department of Public Works. Permit applications shall indicate the time (in days); length (in feet); the number of lanes; and the purpose of the closure.

C. All permits are approved for operations during off-peak hours, 9:00 a.m. to 4:00 p.m., unless special approval is received from the **County**.

D. Operations between the hours of 6:00 p.m. and 10:00 p.m. and Saturdays, and Sundays shall require approval by the **County.**

E. Full street closure permits shall require 96 hours' advance notice prior to road closure. The following additional information shall be provided by the **Contractor** prior to approval:

1. The recommended detour route with signage and Traffic Management Plan as per the MUTCD.
2. A copy of the resident and/or business notification letters about the closure. The residents/businesses located between the detour routes shall be notified about the closure at least 5 business days prior to the proposed closure.

F. The DeKalb County Department of Public Works will return full road closure permit applications to the **Contractor.** The Fire Chief, Chief of Police, DeKalb Hospital, MARTA, and the DeKalb County Board of Education shall be notified in writing at least 72 hours before commencing road closure activities.

Lane closure permits are issued during operating hours Mondays through Fridays. The DeKalb County Department of Public Works will return lane closure permit applications to the **Contractor.** The **Contractor** shall provide a minimum of 48-hour notice prior to closure. The **Contractor** shall continuously maintain the safety of the traveling public during lane closures in accordance with the requirements of the MUTCD and as stipulated by public officers.

3.2 PREPARATION OF TRAFFIC CONTROL PLANS

The Traffic Control Plan drawings included with the Contract Documents shall only be considered as a guide and are not intended to contain the traffic regulation details that shall be required by the specifications, permitting agencies, and the MUTCD. The **Contractor** shall develop detailed staging and traffic control plans for performing specific areas of the Work including, but not limited to: requirements for certified flagmen, additional traffic control devices, traffic shifts, detours, paces, lane closures, or other activities that disrupt traffic flow. The **Contractor** shall submit these plans in accordance with the Specifications to receive final approvals from permitting agencies and provide required traffic control devices as required by both the permitting agencies and these specifications at no additional cost to the **County**.

3.3 CONSTRUCTION PARKING CONTROL

A. The **Contractor** shall control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and **County's** operations.

B. The **Contractor** shall monitor parking of construction personnel's vehicles in existing facilities and maintain vehicular access to and through parking areas.

C. The **Contractor** shall prevent parking on or adjacent to access roads or in non-designated areas.

3.4 MAINTENANCE OF TRAFFIC

A. Whenever and wherever, in the **County's** opinion, traffic is sufficiently congested or public safety is endangered, the **Contractor** shall furnish uniformed officers to direct traffic and to keep traffic off the highway area affected by construction operations.

B. When the Contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the **Contractor's** performance of Work that is otherwise provided for in the Plans and these Specifications, the **Contractor** shall keep such road, street, or highway open to traffic and shall provide such maintenance as may be required to safely accommodate traffic. The **Contractor** shall furnish, erect, and maintain barricades, warning signs, flagmen, and other traffic control devices in conformity with the requirements of the Georgia Department of Transportation and other local jurisdictions. The **Contractor** shall also construct and maintain in a safe condition any temporary connections necessary to ingress to and egress from abutting property or intersecting roads, streets, or highways. The **Contractor** shall maintain traffic in accordance with any traffic control plans furnished with and made a part of the Plan assembly.

C. The **Contractor** shall make its own estimate of labor, materials, equipment, and incidentals necessary for providing the maintenance of traffic as specified in this section.

D. Unless specified in the Plans or these Specifications, and subject to the approval of the **County**, the cost of maintaining traffic specified in this section shall be considered incidental to the Work and no separate measurement or payment shall be made.

3.5 UNIFORMED POLICE OFFICER FOR TRAFFIC CONTROL

A. The **Contractor** shall provide uniformed police officers to regulate traffic when construction operations encroach on public traffic lanes, as approved by the **County**.

B. Officers shall be currently employed by a local jurisdiction, be in full uniform and have full arrest power while working.

C. Officers shall be employed and paid by the **Contractor**.

D. Officers' shall be responsible for directing traffic within the construction site.

3.6 FLAGMEN

The **Contractor** shall provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroaches into public traffic lanes.

3.7 FLASHING LIGHTS

The **Contractor** shall use flashing lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.8 HAUL ROUTES

A. The **Contractor** shall consult with authorities and establish public thoroughfares to be used for haul routes and site access.

B. The **Contractor** shall confine construction traffic to designated haul routes.

C. The **Contractor** shall provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.9 ROAD CLOSURES ON COUNTY ROADS

A. No street, road, or highway shall be closed without the permission of the owner of any street, road, or highway and the fire department having jurisdiction. Prior to closing a street, road, or highway, signs shall be posted for a minimum of 7 days prior to actual closing, forewarning of the imminent closing. The **County** shall determine the information to be placed upon the signs by the **Contractor**. Where traffic is diverted from the Work, the **Contractor** shall provide materials and perform Work for the construction and maintenance of required temporary roadways, structures, barricades, signs, and signalization.

B. To obtain approval to close a road or street maintained by the **County**, the **Contractor** shall proceed as follows:

1. The **Contractor** shall obtain approval of the traffic plan from the **County.** The traffic plan shall be in accordance with the requirements of the Georgia Department of Transportation and DeKalb County.
2. The **Contractor** shall obtain a utility permit.
3. The **Contractor** shall apply in writing to the **County** and obtain a permit to close the road on a specific date.
4. The **Contractor** shall obtain a permit from the **County** before posting closure signs. Signs shall be posted for 7 days prior to the first day of closure. Signs shall be acceptable to the **County**.
5. The **County** will handle emergency road closures.

3.10 PROCEDURES FOR TRAFFIC DETOUR ROUTE PLAN

A. The **Contractor** shall provide a sketch map to the **County,** showing the traffic detour route plan The sketch map need not be drawn to scale, but should resemble, as closely as possible, the actual location. The sketch map shall be drawn in a manner so as to provide emergency agencies a better understanding of

the detour for quick response. The sketch map shall include directional arrows showing the flow of traffic.

B. The **Contractor** shall erect “Road Closed Ahead” signs before the start point of the detour indicating the name of the street closed.

C. The **Contractor** shall erect “Detour” signs with appropriate directional arrows at intersection along the detour route until the end of the detour, when the traffic is back to the original street.

D. The **Contractor** shall erect an “End Detour” sign at the end of the detour.

E. The **Contractor** shall erect an accessory plate indicating the name of the street being detoured to accompany each “Detour” and “End Detour” sign.

F. The **Contractor** shall apply appropriate traffic control measures in accordance with the requirements of the MUTCD and **County** codes.

3.10 BARRICADES AND WARNING SIGNS

A. The **Contractor** shall furnish, erect, and maintain barricades and warning signs for hazards necessary to protect the public and the Work. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated or reflectorized.

B. For vehicular and pedestrian traffic, the **Contractor** shall furnish, erect, and maintain barricades, warning signs, lights, and other traffic control devices in conformity with the requirements of the Georgia Department of Transportation and DeKalb County.

C. The **Contractor** shall furnish and erect barricades and warning signs for hazards prior to commencing Work that requires such erection and shall maintain the barricades and warning signs for hazards until their dismantling is directed by the **County**.

3.11 REMOVAL

The **Contractor** shall remove equipment and devices when no longer required and repair damage caused by installation.

END OF SECTION 01550

SECTION 01700
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures

2. Final completion procedures

3. Warranties

1.3 SUBMITTALS

Submit the following shop drawings in accordance with Section 01300:

A. Product Data: For cleaning agents.

B. **Contractor's** List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

D. Certificates of Release: From authorities having jurisdiction.

E. Certificate of Insurance: For continuing coverage.

F. Field Report: For pest control inspection.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

A. **Contractor's** List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (**Contractor's** punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following: a minimum of (10) days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting **County** unrestricted use of the Work and access to services

and utilities. Include occupancy permits, operating certificates, and similar releases.

2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.

3. Submit closeout submittals specified in individual Divisions 02 through 16 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

C. Procedures Prior to Substantial Completion: Complete the following: a minimum of (10) days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise the **County** of pending insurance changeover requirements.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of ten (10) days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, **County** will either proceed with inspection or notify **Contractor** of unfulfilled requirements. **County** will prepare the Certificate of Substantial Completion after inspection or will notify **Contractor** of items, either on **Contractor's** list or additional items identified by **County**, that shall be completed or corrected before certificate shall be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

2. Results of completed inspection shall form the basis of requirements for final completion.

1.5 PROJECT RECORDS DOCUMENTS

A. The **Contractor** shall record any actual revisions to the Work and maintain one set of the following Project Record Documents on Site:

1. Contract Drawings, Specifications, and Addenda.

2. Change Orders, Field Orders, and other written notices.

3. Shop drawings, Product data, and samples.

4. Records of surveying and layout Work.

5. Project Record Drawings.

B. The **Contractor** shall record information on the Project Record Documents concurrent with construction progress and store these documents separately from the documents used for construction.

1. The **County** will supply a set of Contract Drawings. The **Contractor** shall mark thereon each revision as the Work progresses in order to produce a set of as-built drawings.

2. The **Contractor** shall note any changes made during construction by any of the **Contractor's** forces or those of any subcontractors.

3. The **Contractor** shall dimension the locations of buried or concealed Work, especially piping and conduit, with reference to exposed structures.

4. The **Contractor** shall note the installed locations of concealed service lines on the Site or within the structure by reference from the center line of the service to the structure column lines, to other main finished faces, or to other structural points that are easily identified and located in the finished Work.

5. Certificates of Substantial Performance and Total Performance shall not be issued until as-built drawings are complete and submitted, and the **Contractor** has fully satisfied the requirements for Substantial Performance and Total Performance of the Work.

C. For Project Record Documents and Record Shop Drawings, the **Contractor** shall legibly mark each item to record actual construction, including:

1. Field changes of dimensions and details.

2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Measured locations of internal utilities and appurtenances that are concealed in construction, referenced to visible and accessible features of the Work.

4. Any Changes in the Work from the contract documents.

5. The location of concealed mechanical services and electrical main feeders, junction boxes, and pullboxes.

D. Upon completion of the Work, the **Contractor** shall prepare two CD-ROM sets of the Record Shop Drawings and an index.

E. The **Contractor**-prepared Record Shop Drawings CD-ROM index shall identify the **County's** project number, project name, and Contract number and the contents of each CD in the format listed below.

1. The index shall include the following columns of information for each Record Shop Drawing:

a. CD number

b. Specification Section number

c. Specification title

d. Shop drawing transmittal number

e. Shop drawing equipment description including preselected Equipment vendor and supplier.

2. The index shall be printed by the following two sorts:

a. Primary sort: Specification Section number. Secondary sort: shop drawing transmittal number.

b. Primary sort: CD number. Secondary sort: Specification Section number.

3. The index shall be generated using Microsoft Excel software. A copy of the electronic file shall be furnished to the **County**.

4. The **Contractor** shall provide a set of Project Record Documents on CD-ROM in an electronic format compatible with the plant CD-ROM record standards. All drawings are to be provided electronically on CD-ROM in both AutoCAD (latest version) and Adobe Acrobat PDF (latest version). Also provide a set of CD-ROMs containing the software implemented on this project, including standard software and custom application software. Also provide a set of CD-ROMs containing the various programming tools and files necessary for maintenance, editing, backing up, and restoring programmable equipment implemented on this project.

1.6 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1.

2. Certified List of Incomplete Items: Submit certified copy of **County's** Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by **County's** representative**.** Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of the request, the **County** will either proceed with inspection or notify the **Contractor** of unfulfilled requirements. The **County** will prepare a final Certificate for Payment after inspection or will notify the **Contractor** of construction that shall be completed or corrected before the certificate will be issued.

C. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete has been completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction, including, if necessary, areas disturbed by the **Contractor** that are outside the limits of construction.

1. Organize the list of spaces in sequential order, starting with exterior areas first, and proceeding from the lowest floor to highest floor.

2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

3. Include the following information at the top of each page:

a. Project name

b. Date

c. Name of **Contractor**

d. Page number

4. Submit list of incomplete items in the following format:

a. PDF electronic file. **County** will return annotated file.

b. Three paper copies. **County** will return two copies.

1.8 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of the **County** for designated portions of the Work where commencement of warranties other than the date of Substantial Completion is indicated, or when a delay in submittal of warranties might limit the **County's** rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Contract Documents.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper or as directed by the **County.**

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark 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 installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of **Contractor**.

4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

END OF SECTION - 01700

SECTION 02000
SITE WORK

PART 1 - GENERAL

1.1 DESCRIPTION

These general site work requirements apply to all site work operations. Refer to specification sections for specific product and execution requirements.

1.2 QUALITY ASSURANCE

A. Comply with all applicable local, state, and federal requirements regarding materials, methods of work, and disposal of excess and waste materials.

B. Obtain and pay for all required inspections, permits, and fees. Provide notices required by governmental authorities.

1.3 PROJECT CONDITIONS

A. Locate and identify existing underground and overhead services and utilities within contract limit work areas. Provide adequate means of protection of utilities and services designated to remain. Repair utilities damaged during site work operations and all cost associated with the damaged utility are the **Contractor's** expense.

B. Arrange for disconnection disconnect and seal or cap all utilities and services designated to be removed or abandoned before start of site work operations. Perform all work in accordance with the requirements of the applicable utility company or agency involved.

C. When uncharted or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the **County** and the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in operation.

D. Locate, protect, and maintain benchmarks, monuments, control points, and project engineering reference points. Reestablish disturbed or destroyed items at the **Contractor's** expense.

E. Perform site work operations and the removal of debris and waste materials to assure minimum interference with streets, walks, and other adjacent facilities.

F. Obtain governing authorities' written permission when required to close or obstruct street, walks, and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways when required by governing authorities.

G. Control dust caused by work. Dampen surfaces as required. Comply with pollution control regulations of governing authorities.

H. Protect existing buildings, paving, and other services or facilities on site and adjacent to the site from damage caused by site work operations. Cost of repair and all cost associated with the damages including restoration of damaged items are at Contractor's expense.

I. Protect and maintain streetlights, utility poles and services, traffic signal control boxes, curb boxes, valves and other services, except items designated for removal. Remove or coordinate the removal of traffic signs, parking meters, and postal mailboxes with the applicable governmental agency. Provide for temporary relocation when required to maintain facilities and services in operation during construction work.

J. Preserve from injury or defacement all vegetation and objects designated to remain.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

Materials and equipment: As selected by the **Contractor**, except as indicated in contract documents.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine the areas and conditions under which site work is performed. Do not proceed with the work until unsatisfactory conditions are corrected.

B. Consult the records and drawings of adjacent work and of existing services and utilities that may affect site work operations.

+++ END OF SECTION 02000 +++

SECTION 02050
DEMOLITION

PART 1 - GENERAL

1.1 SCOPE

A. General:

1. This section covers the labor, equipment, and materials necessary for the work associated with the demolition or removal of pipes, manholes, catch basins, pavement, houses, and other structures within the construction easements shown on the Plans, including all necessary excavation and backfilling.

2. Where removing structural tile and brick from existing structures, the work shall include all patching and reconditioning to restore the remaining tile or brick to its existing state and to provide a proper joint for joining the existing to new construction.

3. Where concrete is cut from existing structures under this Section to permit setting or inserting pipes, flumes, equipment or appurtenances, the work shall include all re-concreting, dressing and finishing of openings to the required lines and dimensions or as necessary for the placing and fixing of inserts. This repair is to meet all structural and leakage requirements and shall use non – shrink material.

4. The **Contractor** shall remove from existing structures and salvage, store or dispose of as specified hereinafter, all valves and piping, mechanical equipment, plumbing, heating, electrical, and ventilating fixtures, pipes, ducts, wires, and equipment, doors and windows, floor grating and cover plates, steel stairs, pipe railing, and the like that are not to remain in service in the finished work, whether or not shown on the Drawings and/or specified herein.

5. The work specified herein and shown on the Drawings is intended to give a general idea of the scope of this work but shall not be construed as covering it entirely. The **Contractor** shall visit the site and judge the amount of work required and the problems anticipated in the performance of the work.

6. Requirements for removal and abandonment of site utilities are specified in Section 02000.

B. Asbestos Abatement:

1. The **Contractor** shall furnish all labor, materials, facilities, equipment, services, employee training and testing, and waste transportation and disposal for the removal of asbestos-containing materials (ACM) at the

site of the Work. Asbestos could possibly be encountered in demolition of houses, structures, and piping to be demolished.

2. All asbestos removal work shall be performed in accordance with the requirements established by the EPA, OSHA, Georgia Department of Transportation, NIOSH and State of Georgia EPD regulations; and any other applicable Federal, State and local regulations governing ACM abatement. Whenever there is a conflict or overlap of the above references, the most stringent provisions shall apply.

3. The **Contractor**, or an asbestos abatement subcontractor acceptable to the **County**, shall be licensed in Georgia to perform asbestos abatement and meet other qualification requirements specified in this section. The **Contractor** shall include a program for protective equipment, breathing apparatus, work area security, and all other aspects dealing with health and safety in his Health, Safety, and Security Plan. This information may be called for elsewhere in these Specifications, however a submittal is required.

C. Related Work Specified Elsewhere:

1. Section 02000 - Site Work

1.02 SUBMITTALS

A. Submittals shall be made in accordance with the requirements of the General Requirements of the Contract Documents and Section 01300 Submittals. In addition, the following specific information shall be provided:

1. The **Contractor** shall submit to the **County** a schedule of demolition, detailed methods of demolition to be used for each structure, copies of authorization, and permits to demolish the structures.

PART 2 - PRODUCTS

2.1 GENERAL

A. The **Contractor** shall provide all materials and equipment in suitable and adequate quantities as required to accomplish demolition work.

PART 3 - EXECUTION

3.1 SAFETY REQUIREMENTS

A. All work shall be performed in conformance with the laws and regulations pertaining to safety established by Federal, State, and local governments and other authorities having jurisdiction.

3.2 UTILITIES

A. The **Contractor** shall be responsible for maintaining all appropriate utility services during the demolition operations.

B. Sewer lines shall be removed or grouted for their entire lengths, and plugged at both ends with concrete to prevent groundwater infiltrating into the sewer line.

C. Total shutdown of the existing utilities to perform any new construction, to make the required structural or piping modifications, and/or to make or install the required service or system modifications, shall not be permitted, except by written request and approval of the **County**.

D. Prior to making any piping or connections or modifications to existing facilities, the **Contractor** shall obtain specified timing and schedule approval from the **County**.

3.3 EQUIPMENT TO BE SALVAGED BY THE **COUNTY**

A. The following is a partial list of materials to be removed and salvaged. The **County** will identify other materials to be salvaged during the course of the Work. Equipment on this list shall be removed by the **Contractor** before the demolition work begins and delivered to a site specified by the **County**.

1. Frames, Grates, and Manhole Covers
2. Fire Hydrants
3. Valves
4. Pumps
5. Meters
6. Backflow Devices

3.4 REMOVAL AND STORAGE OF EQUIPMENT FOR REUSE

A. No structure shall be removed without the approval and consent of the **County** unless shown on the Plans to be removed. The **Contractor** shall maintain all equipment in the same condition as when it was removed. The condition of the structure shall be determined prior to removal by the **County**. The **Contractor** assumes the responsibility for assuring that the material is properly stored and maintained.

3.5 DEMOLITION

A. The Plans define the portion of the structures to be removed. Unless otherwise shown on the Plans, the **Contractor** shall not make rough cuts or breaks that exceed the limits of demolition shown.

B. All equipment, materials, and piping, except as specified hereinbefore, within the limits of the demolition shall become the property of the **Contractor**.

3.6 REMOVAL OF EXISTING PIPING

A. Where existing piping is in conflict with new piping or construction, rerouting or redesign shall be as directed by the **County**.

3.7 REMOVAL OF ASBESTOS-CONTAINING MATERIALS

A. The **Contractor** shall provide all services to perform the work as follows:

1. Remove asbestos containing materials as required by applicable codes and regulations.

2. Isolate each work area and erect temporary staging, containment barriers, and decontamination facilities as required.

3. Remove all ACM from the work area.

4. Thoroughly clean each work area and perform clearance air testing using NIOSH Method 7400.

5. Remove all temporary staging, partitions, and other items installed to perform the work.

6. Dispose of ACM in accordance with applicable Federal, State, and local laws and regulations.

3.8 BACKFILLING

A. The **Contractor** shall backfill all demolished areas to existing ground level as to create positive sheet runoff.

B. Backfill material shall meet the minimum requirements of Section 02200 - Earthwork. Backfill compaction shall be in accordance with the applicable requirements of Section 02324 – Trenching and Trench Backfilling and Section Structures. Rock and debris shall not be used as backfill material. In all areas not backfilled to ground level, the **Contractor** shall erect safety barriers around the excavation and not allow water to accumulate.

3.9 DISPOSAL OF DEMOLITION DEBRIS

A. The **Contractor** shall dispose of demolition debris in accordance with the requirements of Section 02000 - Site Work.

+++ END OF SECTION 02050 +++

SECTION 02125
TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This section includes requirements for the provision, maintenance, and subsequent removal of temporary and/or permanent erosion and sediment controls as shown on the approved Erosion and Sediment Control Plan plans.

B. The temporary erosion and sediment controls specified herein shall be coordinated with the permanent erosion controls, to assure economical, effective, and continuous erosion and sediment control during construction within acceptable limits. Acceptable limits are as established by the Georgia Erosion and Sedimentation Control Act of 1975, as amended, Section 402 of the Federal Clean Water Act, and applicable codes, ordinances, rules, regulations, and laws of local and municipal authorities having jurisdiction.

C. Land disturbance activities shall not commence until the Land Disturbance Permit Stream Buffer variance, and Notice of Intent, if applicable, have been properly issued and all required meetings have taken place.

D. This section requires the **Contractor** to design project specific devices and practices to meet requirements of the related work and references listed below in conjunction with the **Contractor's** own means, methods, and techniques, schedules and sequences of work, and actual conditions encountered. Design shall be performed by professionals experienced and familiar with storm water and drainage characteristics as well as the requirements of references listed below.

1.3 REFERENCES

A. DeKalb **County** Soil Erosion and Sedimentation Control Ordinance.
B. DeKalb **County** Comprehensive Stormwater Management and Stormwater Quality Ordinance.
C. Manual for Erosion and Sediment Control in Georgia, as published by the Georgia Soil and Water Conservation Commission (current edition).
D. Federal Clean Water Act.
E. Georgia Erosion and Sedimentation Act of 1975, as amended.
F. Georgia Department of Natural Resources, Environmental Protection Division General NPDES Permit # 100002.

1.4 QUALITY ASSURANCE

The **Contractor** shall provide at least one (1) representative involved in the project's land disturbing activities that has successfully completed the erosion and sediment control education and certification program as administered by the Georgia Soil and Water

Conservation Commission; this "certified person" shall have completed as a minimum, the Level 1A (Fundamentals) course. A "certified person" shall be present onsite **at all times** when work is being performed. Failure to maintain a certified person onsite at all times shall result in a stop work order or other appropriate enforcement action.

1.5 SUBMITTALS

A. Within fifteen (15) days after the date of the Notice to Proceed, the **Contractor** shall submit a narrative description, working drawings and schedule for proposed temporary erosion and sedimentation controls to the **County** for approval. The description and working drawings shall meet the requirements of the Georgia Erosion and Sedimentation Act of 1975 (as amended) and local soil erosion and sedimentation control ordinances. All fines imposed for improper erosion and sedimentation control shall be paid by the **Contractor**.

B. Land disturbance activity shall not commence until the erosion and sedimentation control plans are approved. The **County** may provide a reproducible drawing of plan sheets to the **Contractor** for **Contractor**'s use if necessary. The reproducible drawing shall not bear the Design Engineer's seal or logo and is provided only for the **Contractor**'s convenience in obtaining land disturbance permits.

C. The description and working drawings shall indicate controls that shall minimize erosion and prevent the off-site transport of sediment in storm water and drainage from the jobsite areas.

D. Submit a written plan to the **County** for both temporary and permanent grassing. The plan shall include selection of species, dates, and rates of application for seeding, fertilizer, and mulching.

E. Submittals shall be made in accordance with the requirements of the General Requirements of the Contract Documents and Section 01300 of these Specifications. Unless otherwise noted, all submittals shall be produced at the Pre-Construction Meeting. In addition, the following information shall be submitted to the **County**:

   i. Certification credentials of all persons that have completed the Georgia Soil and Water Conservation Commission's erosion and sediment control education and certification program and that will be involved in the project shall be provided to the **County** prior to the start of any land disturbing activities.

PART 2 – PRACTICES AND PRODUCTS

2.1 GENERAL

A. The following paragraphs generally describe the erosion and sediment control practices and products typically employed on a utility construction project. The detailed requirements for these, as well as for other measures which may be needed to achieve effective erosion control, shall be as specified in the Standards and Specifications for General Land Disturbing Activities of the Manual for Erosion and Sediment Control in Georgia.

B. The paragraph titles and alphanumeric codes refer to specific structural and vegetative type practices included in the aforementioned Standards. All practices shall be considered as temporary erosion and sediment control features, except the channel stabilization, gabions and grassing/sodding, trees, shrubs, and groundcovers, which are considered as permanent measures.

2.2 STRUCTURAL PRACTICES

A. CONSTRUCTION EXIT - Co

1. A construction exit consists of a stone-stabilized pad with a geotextile underliner located at any point where traffic shall be leaving a construction site to a public right-of-way, street, alley, sidewalk, or parking area.

2. Construction exits are used to reduce or eliminate transport of mud from the construction area.

3. Construction exits shall consist of graded one and one-half to three and one-half (1.5 to 3.5) inch stone meeting National Stone Association grade R-2. The geotextile underliner shall be a non-woven fabric equal to No. C-45NW as manufactured by Contech Construction Products, Inc. or approved equal.

B. CHANNEL STABILIZATION (RIPRAP) - Ch

1. Channel stabilization consists of structures to stabilize an open channel for water conveyance. Such stabilization is typically applied in those locations where the channel banks and bed have been disturbed by excavation for a pipeline crossing.

2. Channels shall be stabilized using a rock riprap lining. The lining shall consist of filter bedding stone and graded riprap stone. Sizes of stone shall be as classified by either the National Stone Association (N.S.A.) or the Department of Transportation (D.O.T.). Riprap stone shall be equal to Georgia Department of Transportation Type 1 or Type 3. Filter bedding stone shall be graded stone not exceeding six (6) inches in diameter. An appropriate geotextile fabric may be substituted for filter stone with **County** approval.

B. GABIONS – Ga

Gabions are large, multi-celled mesh boxes used in channel revetments, retaining walls, abutments, check dams, etc. Boxes shall be constructed of PVC coated wire mesh and filled with four to eight (4” to 8”) inch pieces of durable stone. Stone placement shall be principally by hand or gentle mechanical dumping in no more than twelve (12) inch layers with PVC coated wire cross and diagonal supports in each cell to retain and support basket sides at those intervals. Minimum size for box gabions shall be 6’-0” x 3’-0” x 3’-0”. Minimum

size for Reno Mattresses shall be 9'-9" x 6'-6" x 0'-9". Gabions shall be manufactured by Maccaferri, USA or approved equal.

D. TEMPORARY STREAM CROSSING - Sr

1. A temporary stream crossing is a structure installed across a flowing stream for use by construction equipment.

2. Structures may include bridges, round pipes, and pipe arches. The structure shall be large enough to convey the full bank flow of the stream and be designed by the **Contractor** to withstand flows from a two (2) year, twenty-four (24) hour frequency storm.

E. CHECK DAMS - Cd

1. Check dams are barriers composed of stone or hay bales placed across a natural or constructed drainage way to prevent erosion in areas of concentrated flows.

2. Stone check dams shall not be utilized where the drainage area exceeds five acres. Hay bale check dams shall not be used where drainage areas exceed two (2) acres. Check dams shall not be installed in live streams.

3. Stone check dams shall be constructed of graded size two to ten (2 to 10) inch stone.

F. SEDIMENT BARRIER

1. STAKED HAYBALES - Sd1

Hay bale barriers are placed in a single row on natural ground where the most likely erodible areas are located to restrain sediment particles carried by sheet flow.

2. SILT FENCE - Sd1

a. Silt fences are temporary measures to retain suspended silt particles carried by sheet flow.

b. Silt fence consists of silt fabric, as specified in the Georgia Department of Transportation list #36, wood or steel posts, and wire or nail fasteners.

c. Type A silt fence is a non-woven thirty six (36) inch wide filter fabric and shall be used on developments where the life of the project is greater than or equal to six (6) months. The flow rate (gallon/minute/square foot) is twenty-fine (25). Additionally, Type A fabric has a color mark.

d. Type C silt fence is a woven thirty six (36) inch wide filter fabric with

wire reinforcement. The wire reinforcement is necessary because this fabric allows almost three times the flow rate as Type A silt fence. The flow rate (gallon/minute/square foot) is seventy (70). Additionally, Type C fabric does not have a color mark.

G. INLET SEDIMENT TRAP - Sd2

1. Inlet sediment traps are temporarily protective devices formed around a storm drain inlet to trap sediment.

2. Inlet sediment traps are used to prevent sediment from leaving a site or from entering storm drain systems prior to permanent stabilization of the disturbed area.

H. ROCK FILTER DAM - Rd

1. Rock filter dams are installed across small non-actively flowing drainageways and are applicable for projects that involve grading activity directly in those drainageways.

2. Rock filter dams consist of riprap faced with smaller rock on the upstream side for additional filtering affect.

I. STREAM DIVERSION - PIPED DIVERSION (DV1), PUMPED DIVERSION (DV2), ENGINEERED DIVERSION STRUCTURES (DV3))

1. Installation of water and sewer pipelines designed to cross natural streams shall be accomplished only in “dry channel” conditions (i.e. in the absence of stream flow in the work area). Provisions shall be implemented to divert a constant quantity and quality of stream waters around the construction area by means of adequately sized pipes, pumps, or engineered diversion structures or other methods proposed by the **Contractor** and approved by the **County**. These diversion devices shall be maintained throughout the duration of construction within the stream channel. The structures shall be designed by professionals familiar with storm water / drainage characteristics and applicable requirements to withstand flows from a two (2) year, twenty four (24) hour frequency storm event unless otherwise noted on the drawings. Stream diversion devices shall not be removed until all disturbed areas of the stream channel bottom and banks are returned to original contours and stabilized to prevent erosion. The planning, scheduling, and sequencing of work by the **Contractor** shall be described in a detailed submittal to the **County** for approval. The final implementation schedule shall only be determined in conjunction with forecasted weather conditions for the period anticipated for diversion.

a. Piped Diversion - Dv1
Piped diversions shall be installed and implemented in conjunction with and as an extension of Temporary Stream Crossings - (Sr). Pipes shall be sized as shown on the drawings with sufficient

coordination and planning as to their locations, elevations, etc. to allow subsequent water/sewer pipeline construction to occur in "dry channel' conditions.

Necessary sandbags or other sealing devices, dewatering, etc. shall be provided to accomplish this piped diversion as well as other "Best Management Practices" to ensure that erosion and sedimentation is controlled.

b. Pumped Diversion - Dv2
Pumped diversions shall be installed and implemented in conjunction with and as an extension of Temporary Stream Crossings (Sr). Pumps and piping shall be sized as shown on the drawings with sufficient coordination and planning as to their locations, elevations, etc. to allow subsequent water/sewer pipeline construction to occur in "dry channel" conditions.

Necessary sandbags or other sealing devices, dewatering, discharge sediment basins, sediment filter socks, "floc logs," "dirt bags," etc. shall be provided to accomplish this pumped diversion as well as other "Best Management Practices" to ensure that erosion and sedimentation is controlled.

c. Engineered Diversion Structure - Dv3
Engineered diversion structures such as "Aqua Barrier" by Nilex, Inc., "Portadam" by Portadam Inc, interlocked sheet piling, riprap cofferdams, etc. shall be installed and implemented to allow subsequent water/sewer pipeline construction to occur in "dry channel" conditions. Sequential work elements may be involved to allow the construction area to progress across a stream, and ensuring that the previously completed segment is reasonably restored and stabilized.

Necessary sandbags, geotextiles, linings, or other sealing devices, dewatering, etc, shall be provided to accomplish this manner of diversion as well as other "Best Management Practices" to ensure that erosion and sedimentation is controlled.

2.3 - VEGETATIVE PRACTICES

A. GENERAL

1. Disturbed areas shall be stabilized as construction progresses. For sanitary sewers or water mains installed within easements, the construction corridor shall not exceed one thousand (1,000) linear feet without stabilization. All other projects shall not exceed three hundred (300) linear feet without stabilization

B. DISTURBED AREA STABILIZATION (WITH MULCHING ONLY) - Ds1

1. This practice is applicable where disturbed areas, temporarily idle, have not been established to final grade and/or where permanent vegetative cover is delayed for a period not to exceed six (6) months.

2. Mulch materials shall consist of dry straw or hay, wood chips, erosion control matting or netting, or polyethylene film. The mulch shall be uniform, spread over the designated area from two to four (2 to 4) inches thick.

3. Any and all disturbed areas that have not yet reached final grade shall be stabilized with mulch or temporary grassing within fourteen (14) calendar days of disturbance.

C. DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING) - Ds2

1. Temporary seeding is a measure consisting of seeding and mulching to reduce erosion. All disturbed areas shall be seeded when and where necessary to reduce erosion.

2. This practice is applicable where disturbed areas, temporarily idle, have not been established to final grade and/or where permanent vegetative cover is delayed for up to six (6) months.

3. Temporary seeding consists of a grass or grass-legume mixture suitable to the area and season of the year.

C. DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION) - Ds3

1. Permanent (perennial) vegetation shall consist of planted grasses, trees, shrubs, and/or perennial vines; a crop of perennial vegetation appropriate for the time of year and region (or to match, in kind, pre-existing maintained vegetation); or a crop of annual vegetation and seeding of target crop perennials appropriate for the region (or to match, in kind, pre-existing maintained vegetation), such that within the growing season a seventy (70) percent coverage by perennial vegetation shall be achieved.

2. This practice is applicable on disturbed areas at final grade.

3. Permanent perennial vegetation shall be applied on rough graded areas that shall be undisturbed for more than (6) months.

E. DISTURBED AREA STABILIZATION (WITH SODDING) - Ds4

1. This practice shall consist of ground preparation, furnishing lime and fertilizer and placement of sod.

2. Sod shall be from local area and delivered to the job site in either industry standard blocks or rolls. Sod shall not be delivered to the job site more than

twenty-four (24) hours prior to installation. Sod shall be hand placed with edges butted and cut as required to fit the placement area. The finished installation shall be rolled with a lawn roller and thoroughly watered. The sod shall be watered daily for the first five days after installation.

3. Sod shall be anchored on slopes steeper than three to one (3:1).

F. EROSION CONTROL MATTING AND BLANKETS - Mb

1. This practice is a protective covering (blanket) or soil stabilization mat used to stabilize disturbed areas until permanent vegetation on steep slopes, channels, or shorelines can be established.

2. Concentrated flow areas, all slopes steeper than two and one-half to one (2.5:1) and with a height of ten (10) feet or greater, and cuts and fills within stream buffers, shall be stabilized with the appropriate erosion control matting or blankets.

3. All blanket and matting materials shall be on the Georgia Department of Transportation Qualified Products List (QPL #62 for Blankets, QPL #49 for Matting).

G. JOINT PLANTING STABILIZATION (rip-rap and willow stakes)
Joint planting is a system that installs live willow stakes between rip-rap (type 3) placed previously along the stream bank. It is installed to increase the effectiveness of the rock system by forming a living root matt in the base upon which rock has been placed and improve the environmental function and aesthetics of the rock bank. The rock shall be principally placed by hand or gentle mechanical dumping. Willow stake density of installation shall be 3 to 5 cuttings per square yard. Cuttings shall be two (2) inches in diameter and three and one–half (3.5) feet in length. The cutting shall be freshly cut and alive. Two thirds (2/3) of live stake shall be in the ground below the previously placed rock. Only native species willow stakes shall be used.

PART 3 - EXECUTION

3.1 GENERAL

A. At the Preconstruction Conference, the **Contractor** shall submit a schedule for accomplishing the temporary erosion control work for specific conditions to be encountered on the project.

B. The **Contractor** shall install all erosion and sediment control devices as required by actual field conditions, as shown on the approved plans, or as directed by the **County** or by any agency having jurisdiction in the locale of the project.

C. The erosion and sediment control devices shall be installed by the **Contractor** before land disturbing activities begin.

D. The **County** has the authority to direct the **Contractor** to provide immediate,

additional temporary erosion control measures to prevent contamination of adjacent waterways and drainage ways. Additional erosion control measures may be used to correct conditions that develop during construction that were not foreseen during the design stage or that are needed prior to installation of the permanent erosion control features.

E. The **County** may limit the area of excavation in progress based on the **Contractor's** capability and progress in keeping the finish grading, mulching, and seeding current, in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures, such as mulching or temporary seeding, shall be taken immediately to the extent feasible and justified.

F. The **Contractor** shall incorporate all permanent erosion control features (grassing and sodding) into the project at the earliest practicable time.

3.2 INSTALLATION

A. Erosion control measures shall be designed by professionals familiar with storm water / drainage characteristics, installed, and maintained in accordance with the "Manual for Erosion and Sediment Control in Georgia" published by the Georgia Soil and Water Conservation Commission.

3.3 INSPECTION

A. Upon completion of installation, the **County** shall inspect the erosion and sediment control devices for proper installation, flaws, defects, or other damage. The **Contractor** shall repair or replace, at its expense, the unacceptable portions as directed by the **County.**

B. All erosion and sediment control devices shall be inspected by the **Contractor** at least weekly and after each rainfall occurrence.

C. All projects that require compliance with General NPDES Permit 100002 guidelines shall have inspections and monitoring in accordance with the specific Comprehensive Monitoring Plan.

3.4 MAINTENANCE

A. The **Contractor** shall maintain the erosion and sediment control devices until the project is completed and all disturbed areas are stabilized. Maintenance of the devices shall include: removal and disposal of silt accumulation; replacement of damaged or deteriorated devices; other repairs; and the installation of additional devices should those devices installed prove to be inadequate. The **Contractor** shall provide this maintenance at no additional cost to the **County**.

Silt shall be cleaned out once it has accumulated to half the height of the

device or when half of the available sediment storage capacity has been attained.

3.5 REMOVAL

A. Temporary erosion and sediment devices shall remain in place until such time as a satisfactory stand of grass has been established, unless the **County** or local government authority directs earlier removal. Damaged or otherwise unusable devices shall be removed from the site and disposed of properly.

B. After erosion and sediment device removal, the **Contractor** shall dress out any disturbed areas in the vicinity of the removed device and grass according to these Specifications.

+++ END OF SECTION 02270 +++

SECTION 02711
FENCING AND GATES

PART 1 - GENERAL

1.1 SCOPE

A. Work described in this Section includes furnishing all labor, materials, equipment, tools, and incidentals required for a complete installation of chain link fence and gates. All materials shall be installed and adjusted, in accordance with these Specifications, the manufacturer's recommendations and as shown on the Drawings.

B. Contract drawings show only functional features and some of the required external connections. They do not show all components required for a complete installation nor exact dimensions particular to any manufacturer's products. **Contractor** shall supply all parts, devices, and equipment necessary to meet the requirements of the Contract Documents and shall make all dimensional adjustments particular to the materials being furnished. All costs associated with such changes and adjustments shall be considered as being included in the price bid for the Work shown and specified.

1.2 SUBMITTALS

A. Submittals shall be made in accordance with the requirements of the General Requirements of the Contract Documents and Section 01300.

1.3 QUALITY ASSURANCE

A. Reference Standards: Comply with all Federal and State laws or ordinances, as well as all applicable codes, standards, regulations and/or regulatory agency requirements including the partial listing below:

1. Department of Transportation Standard Specifications for Construction of Roads and Bridges, Sections 643 and 894.

B. Experience: Products furnished under this Section shall be of a design and manufacture that has been successfully used in similar applications. The manufacturer shall have furnished product for a minimum of five similar applications. Provide a list of such installations complete with installation description contact names, addresses, telephone numbers. This reference list shall be submitted with the shop drawings.

1.4 QUALITY STANDARDS

A. The chain link fence and gates shall be furnished by a single manufacturer who shall assume sole responsibility for providing a complete system designed for long life with a minimum of required maintenance meeting the requirements specified herein and as shown on the Drawings.

B. Manufacturer shall provide written certification that the material provided under

this Specification has been amply designed and is a suitable application for these service conditions.

C. Manufacturer's offering products that comply with these specifications include:

Anchor Fence, Inc. or Approved equal.

1.5 WARRANTY

A. Provide a warranty against defective materials and workmanship in accordance with the requirements of the General Requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 GENERAL

A. Zinc and aluminum coated steel and aluminum alloy fabric, posts, fittings and accessories, shall conform to AASHTO M 181.

2.2 FENCE FABRIC

A. All chain link fence shall consist of woven wire in the form of reasonably uniform two (2) inch-square mesh, having parallel sides and horizontal and vertical diagonals of approximately uniform dimensions. The wire size shall be as specified on the Drawings.

B. TYPES

1. Zinc-Coated Steel Fabric: The base metal of the fabric shall be a good commercial quality of steel wire coated with prime western spelter or better (AASHTO: M120) applied at the rate of not less than 1.2 oz. of zinc per square foot of uncoated wire surface after weaving.

- OR -

2. Aluminum-Coated Steel Fabric: The base metal of the fabric shall be a good commercial quality steel wire, coated with aluminum alloy applied at the rate of not less than 0.40 oz. per square foot of uncoated wire surface.

C. Workmanship: Chain Link fence fabric shall be produced by methods recognized as good commercial practices. The zinc or aluminum coating shall be applied to the fabric in a continuous process and shall not be applied to the fabric in roll form. Both coated before weaving and coated after weaving fabric shall be given careful visual inspection to determine the quality of the coating. Excessive roughness, blisters, sal ammoniac spots, bruises, flaking bare spots, or other obvious defects, to any considerable extent, shall be cause for rejection.

1. Tolerances: All dimensions, weights, and test methods shall conform to the applicable portions of AASHTO: M 181 or Federal Specification RR-F-191.

2.3 POSTS

A. Line Posts shall be:
1. One and seven-eighths (1 7/8) inch nominal galvanized steel "H" column minimum weight of two and seven-tenths (2.70) pounds per linear foot, or
2. Nominal two and three-eighths (2 3/8) inches outside diameter galvanized steel pipe minimum weight three and sixty-five hundredths (3.65) pounds per linear foot, or
3. "C" section channels measuring two and twenty-five hundredths by one and seventy hundredths (2.25" x 1.70") inches, minimum weight of two and seventy-three hundredths (2.73) pounds per linear foot.

B. End, Corner, and Pull Posts:

1. Zinc and aluminum-coated posts shall be:
   a. Nominal two and seven eighths (2-7/8) inches outside diameter galvanized steel pipe weighing a minimum of five and seventy-nine hundredths (5.79) pounds per linear foot, or
   b. Two and one half (2-1/2) inch-square posts with a minimum weight of five and seventy hundredths (5.70) pounds per linear foot, or
   c. Three and one-half by three and one half (3-1/2 x 3-1/2) inches rolled form sections with integral fabric loops, weighing a minimum of five and fourteen hundredths (5.14) pounds per linear foot.

2.4 TOP RAILS AND HORIZONTAL BRACES FOR END, CORNER AND PULL POSTS

A. Truss Bracing shall be three-eighths (3/8) inch round rod with suitable turnbuckle or takeup arrangement. Rods shall be of the approximate metal and coating according to the type of fence installation. All braces shall be furnished with suitable metal connections so that they can be securely fastened to the posts.

B. Top rail shall be furnished in lengths of not less than fifteen (15) feet. Each section shall be provided with a suitable expansion sleeve or coupling not less than seven (7) inches long. Every fifth coupling as installed shall have a heavy spring to take up expansion and contraction of the top rail.

C. Zinc and aluminum coated rails and braces shall be nominal:
1. One and five-eighths (1-5/8) inch outside diameter steel pipe, minimum weight of two and twenty-seven hundredths (2.27) pounds per linear foot, or
2. One and five-eighths by one and one-quarter (1-5/8 x 1-1/4) inches roll formed sections weighing a minimum of one and thirty-five hundredths (1.35) pounds per linear foot.

2.5 POST TOPS AND FITTINGS

A. All posts shall be fitted with tops designed to fit securely over the posts and carry the top rail. The tops and fittings shall be of dimensions shown on the Drawings.

2.6 FABRIC FASTENERS

A. Wire for fabric fasteners may be zinc coated or aluminum coated of the gauges specified.

2.7 GATES

A. Frames, Posts, hinges, and fitting shall be in accordance with dimensions shown in Federal Specification RR-F-191, unless otherwise specified.

1. Gates: Shall be provided with combination spring latch and plunger rod of approved design for padlocking.

2. Hinges: Heavy-duty malleable iron or steel, industrial service type, two hundred and seventy (270) degree swing. Provide at least three (3) hinges on each gate leaf at vehicular gate openings.

3. Hold-Open Device: Equip designated gate openings with galvanized steel or malleable iron stop/hold open devices with catch or plunger rod of standard manufacture and approved design.

2.8 BARBED WIRE

A. Galvanized steel barb wire shall be composed of two strands of No. 12 1/2 gauge wire with round barbs, four-point pattern, spaced five plus and minus one-half (5±1/2) inch apart conforming to ASTM: A 121, Class 2, or at the **Contractor**'s option may be high tensile strength barbed wire. If the **Contractor** elects to furnish high tensile strength bared wire, it shall meet the requirements of ASTM: A 121 with the following exceptions:

1. The coated line wires shall have a nominal diameter of 0.067 inch. The coated barbwires shall have a nominal diameter of 0.057 inch.

2. The minimum weight of zinc coating shall be seventy-five hundredths (0.75) ounces per square foot for the line wire and seventy hundredths (0.70) ounces per square foot for the barbed wire.

3. The line wire shall have a minimum tensile strength of four hundred seventy-five (475) pounds per individual strand.

2.9 GROUND RODS

A. Ground Rods shall be five-eighths (5/8) inch in diameter but no less than nine-sixteenths (9/16) inch and shall be minimum eight (8) feet in length unless otherwise shown on the Plans. Ground rods shall be galvanized steel. Galvanizing shall have a minimum coating of two (2) ounces per square foot in accordance with the requirements of ASTM: A 153.

PART 3 - EXECUTION:

3.1 GENERAL

A. Fence shall normally be constructed within the right-of-way line with no portion of the permanent installation encroaching on adjacent property. When it is necessary for the **Contractor** to trespass on private property outside of the right-of-way or easements provided on the Drawings, the **Contractor** shall obtain permission from the property owner for such intrusion.

B. Fence shall generally follow the contour of the ground, with the bottom of fence fabric no less than one inch or more than six inches from the ground surface. The fence line shall be cleared a maximum of eight (8) feet wide and minor grading shall be performed where necessary to provide a neat appearance. Where abrupt changes in the ground profile in low areas make it impractical to maintain the specified ground clearance, longer posts may be used and multiple strands of barbed wire stretched thereon with vertical clearances between strands of barbed wire six (6) inches or less.

C. Any of the various types of fencing materials shown in Part 2, may be used, except that posts, fabric, barbed wire, and appurtenances, including gates when required, shall be of the same or matching type for each Project, unless otherwise directed.

3.2 INSTALLATION

A. Posts shall be located and installed as called for on the Drawings. "C" and two and three-eighths (2 3/8) inch tube-type line posts for all types of fences shall be installed using concrete encasement. Posts installed in rock shall be in accordance with Article 643.03.B.3 of the DOT Standard Specifications.

1. All corner, end, and pull posts shall have concrete encasement as shown in the Drawings. Posts damaged by driving shall be replaced by the **Contractor** at its expense. When posts are set in concrete, the entire hole around the post shall be filled with Class A or B concrete. Concrete may be hand mixed for batches of one-half (1/2) cubic yard or less. The posts shall be firmly braced and held in place until the concrete has set. Distance between end, pull, and corner or angle post assemblies, shall not exceed the following:

   For Chain Link Fence, Straight Line: five hundred (500) feet
   For Chain Link Fence, Curved Line: two hundred fifty (250) feet

2. Posts placed on concrete walls, slabs or solid rock shall be set in round holes twelve (12) inches deep or as indicated on the Drawings. The space around the post shall be filled with a cement filler approved by the **County**.

3. Posts shall be repaired after cutting or drilling. Galvanized steel posts shall be repaired in accordance with the manufacturer's recommendations.

B. Fence Erection; Fence fabric or barbed wire, except when posts are set in concrete footings, may be installed when posts are set and braced. When posts are set in concrete footings, the installation of fabric or wire shall be delayed to

allow the concrete to cure at least five (5) days. When barbed wire fence is required, three strands shall be installed unless otherwise indicated on the Drawings.

C. Gates: Gate assemblies shall be of the length, height and type designated on the Drawings, and installed so as to provide for two hundred seventy (270) degree swing. Gate frames shall be welded units and shall be properly coated after welding. Fabric matching the fence fabric shall be stretched taut over the gate frame. Gate assemblies shall be provided with a positive type locking device, padlock, and keys.

D. Electrical Ground: Whenever a power line carrying more than six hundred (600) volts passes over the fence, a ground rod shall be installed. The ground rod shall be installed at the nearest point directly below the point of crossing. Where possible the ground rod shall be driven into the ground for a full eight (8) feet of penetration. In rocky soil, the rod may be driven slanted, so as to provide eighteen (18) inches of cover at the tip. If solid rock is encountered, two (2) ground rods may be installed at the nearest post on each side of the power line crossing where soil conditions will permit. A length of No. 6 bare copper seven (7) stranded wire shall be attached between the fence and the ground rod with suitable clamps.

3.3 STORAGE OF MATERIALS

A. Barbed wire, wire fence fabric, steel posts, hardware, and other materials, shall not be stored in contact with the ground but shall be placed in floored buildings, on platforms, or on wooden timbers or poles. Floors, platforms, or props shall be high enough to prevent the wire and steel posts from having any contact with the groundwater or surface water. Wire or steel posts that are damaged due to improper storage at any time between fabrication and final erection shall be rejected. Except when rusting occurs as a result of ponding water after erection of the fence, all wire or posts that show signs of rusting before final acceptance shall be repaired, as directed by the **County**, or removed and replaced with new material at the **Contractor**'s expense.

+++ END OF SECTION 02711 +++

SECTION 02920
SITE RESTORATION

PART 1 - GENERAL

1.1 SCOPE

A. This section includes disposition of materials and structures encountered in the Work; ground preparation; mulching; seeding; fence reset; cleanup; and any other similar, incidental, or appurtenant operation that may be necessary to properly complete the Work.

B. The **Contractor** shall provide all services, labor, materials, and equipment required for all site restoration and related operations necessary or convenient to the **Contractor** for furnishing a complete Work as shown on the Plans or specified in these Specifications.

C. Related Work Specified Elsewhere:

1. Section 02510 - Pavement Repairs

1.2 SUBMITTALS

A. Submittals shall be made in accordance with the requirements of the General Requirements of the Contract Documents and Section 01300. In addition, the following specific information shall be provided:

1. Certificates of inspection as required by government authorities. The **Contractor** shall submit manufacturers' or vendors' certified analysis for soil amendments and fertilizer materials. The **Contractor** shall submit other data substantiating that materials comply with specified requirements.

2. Typewritten instructions recommending procedures to be established by the **County** for maintenance of site restoration work for one (1) full year.

3. Seed vendors certified statements for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity, germination, and weed for each grass seed species.

4. Proposed planting schedules, indicating dates for each type of planting work during normal seasons for such work in the site of the Work. The **Contractor** shall correlate with specified maintenance periods to provide maintenance from the Date of Substantial Completion. Once accepted, the **Contractor** shall revise dates only as approved in writing, after documentation of reasons for delays.

1.3 QUALITY ASSURANCE

A. Reference Standards: The **Contractor** shall comply with the applicable provisions and recommendations of the latest editions of the following standards, except as otherwise shown on the Plans or specified in these Specifications.

1. ASTM C602 - Standard Specification for Agricultural Liming Materials.
2. Turfgrass Producers International.

B. The **Contractor** shall ship site restoration materials with certificates of inspection required by authorities having jurisdiction. The **Contractor** shall comply with regulations applicable to site restoration materials.

C. If specified site restoration materials are not obtainable, the **Contractor** shall submit proof of non-availability to the **County** together with proposal for use of equivalent material.

D. The **Contractor** shall package standard products with manufacturers' certified analysis. For other material, the **Contractor** shall provide analysis by recognized laboratory, in accordance with methods established by the Association of Official Agricultural Chemists, as applicable.

1.4 SAFETY REQUIREMENTS

A. Hazards Control:

1. The **Contractor** shall store volatile wastes in covered metal containers, and remove from the site of the Work daily.

2. The **Contractor** shall prevent accumulation of wastes that create hazardous conditions.

3. The **Contractor** shall provide adequate ventilation during use of volatile or noxious substances.

B. The **Contractor** shall conduct cleaning and disposal operations in compliance with local ordinances and environmental laws and regulations.

1. The **Contractor** shall not burn or bury rubbish and waste materials on the site of the Work without prior written permission from the **County**.

2. The **Contractor** shall not dispose of volatile wastes such as mineral spirits, oil, or fuel in open drainage ditches or storm or sanitary drains.

1.5 DELIVERY

A. The **Contractor** shall deliver packaged materials in containers showing weight, analysis, and name of manufacturer. The **Contractor** shall protect materials from deterioration during delivery, and while stored at the site of the Work.

1.6 JOB CONDITIONS

A. All bare earth areas within the limit of work shall be grassed, mulched, or covered with other plant material as shown on the Plans. Final restoration of existing lawn areas (i.e. private residences, schools, and parks) shall be sod.

B. On a continuous basis, the **Contractor** shall maintain the site of the Work free from accumulations of waste, debris, and rubbish caused by its operations.

C. At completion of the Work, the **Contractor** shall remove waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all sight-exposed surfaces. The **Contractor** shall leave the site of the Work clean and ready for occupancy.

D. The **Contractor** shall proceed with the complete site restoration work as rapidly as portions of the site of the Work become available, working within seasonal limitations for each kind of site restoration work required. The **Contractor** shall not be allowed to postpone cleanup and seeding until the end of the Work.

E. The **Contractor** shall determine the locations of underground utilities and perform Work in a manner that shall avoid possible damage. The **Contractor** shall hand excavate, as required. The **Contractor** shall maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.

F. When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, the **Contractor** shall notify the **County** before planting.

G. The **Contractor** shall install materials during normal planting seasons for each type of site restoration work.

H. The **Contractor** shall plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise acceptable to the **County**. If planting of trees and shrubs occurs after lawn work, the **Contractor** shall protect lawn areas and promptly repair damage to lawns resulting from planting operations.

I. The **Contractor** may, at its option, employ additional measures (other than those specified) to prevent loss of, or damage to the Work resulting from the effects of wind and/or water. No additional compensation shall be made for the employment of such additional measures.

PART 2 - PRODUCTS

2.1 TOPSOIL

A. Topsoil for site restoration may not be available at the site of the Work in sufficient quantities and shall be furnished as specified.

B. New topsoil shall be fertile, friable, natural loam, surface soil, reasonably free of subsoil, clay, lumps, brush, weeds, and other litter, and free of roots, stumps, stones, and other extraneous or toxic matter harmful to plant growth.

C. The **Contractor** shall obtain topsoil from local sources or from areas having similar soil characteristics to that found at the site of the Work. The **Contractor** shall obtain topsoil only from naturally, well-drained sites where topsoil occurs in depths of not less than four (4) inches. The **Contractor** shall not obtain topsoil from bogs or marshes.

2.2 MATERIALS

A. Grass seed shall meet the requirements of the State of Georgia Seed Laws and Rules and Regulations except that the requirements as to purity, germination, and noxious weeds shall be specified in this section.

1. Quality: Grass seed quality shall be as shown in the Table below:

Grass Seed Quality			
Seed	Purity Min. %	Germination Min %	Noxious Weed Max. Per Lb.
Sahara Bermuda Grass	98	90	None
Annual Rye Grass	98	90	None
Rebel II Turf Type Fescue	85	85	None

2. Seed shall be approved by the **County** before sowing. Seed shall have been tested by the Georgia Department of Agriculture, and no seed shall be acceptable with a date of test more than six (6) months prior to the date of sowing. Such testing, however, shall not relieve the **Contractor** from responsibility for furnishing and sowing seed that meet the requirements of these Specifications at the time of sowing seed. When required by the **County**, samples of seed shall be furnished by the **Contractor** early enough before seeding to permit further testing before the seed is used. When a low percentage of germination causes the quality of the seed to fall below the minimum pure live seed specified, the **Contractor** may choose to increase the rate of seeding to obtain the minimum pure live seed content specified, provided that such an increase in seeding rates does not cause the quantity of noxious weed seed per square yard to exceed the quantity that would be allowable at the regular rate of seeding.

3. Seed that has become wet, moldy, or otherwise damaged shall not be acceptable.

B. All fertilizer shall be of the grades specified and shall meet the requirements of the State Plant Food Act in effect thirty (30) days prior to the taking of bids. It shall be uniform in composition, dry and free flowing and shall be delivered to the site of the Work in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer that is caked or otherwise damaged, making it unsuitable for use, shall not be accepted.

C. Mulch shall meet the following requirements:

1. Be acceptable to the **County**.
2. Be of such consistency that, when properly loosened, it can be distributed in a uniform application.
3. Be capable of producing the desired results.
4. Meet State and Federal Quarantine Restrictions pertaining to fire ants, Japanese beetles, and white fringed beetles.
5. Shall have a moisture content of twelve (12) percent or less.
6. Contain no excessive amounts of noxious weed seeds.
7. All materials shall carry the following certification: "This material is certified as free for movement under the State and Federal Imported Fire Ant, Japanese Beetle, and White Fringed Beetle Quarantines."
8. Mulch shall be threshed rye, oat straw, wheat straw, or Bermuda grass hay.

D. Agricultural lime shall be a pulverized limestone having the following properties:

1. Total carbonate, not less than eighty five (85) percent.
2. Passing ten (10) mesh screen at least one hundred (100) percent.
3. Passing one hundred (100) mesh screen at least twenty five (25) percent.

E. Hydro mulch: Wood cellulose fiber containing no germination, inhibiting, or growth inhibiting agent. Characteristics shall be as follows:

1. Percent moisture content: Nine (9.0%) percent ± 3.0 percent.
2. Percent organic matter: Nine and two-tenths (9.2%) percent ± 0.8 percent.
3. Percent ash content: One and eight-hundredths (1.08%) percent ± 0.2 percent.
4. pH: four and eight tenths (4.8) (± 0.5).
5. Water holding capacity: one thousand one hundred fifty (1150) grams water/ one hundred (100) grams fiber minimum.

F. Sod. Sod shall meet the requirements of Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, Section 700 and 890, latest edition.

2.3 GRASSING

A. Grass seed shall be as specified on the table below depending on the season or as instructed by the **County**. See the table below for seasonal application rates:

Seasonal Seed Application Rates		
Season	**Type of Seed**	**Application: lbs. per Acre**
Jan. 1 – May 15	Rebel II Turf Type Fescue	250
May 16 – Sept. 15	Sahara Hybrid Bermuda Grass	75
Sept. 16 – Dec. 31	Rebel II Turf Type Fescue	250

B. Disturbed Area Stabilization (Temporary Seeding) shall be planted with seeds listed in Table 2.

PART 3 - EXECUTION

3.1 DISPOSITION OF MATERIALS AND STRUCTURES ENCOUNTERED IN THE WORK

A. Existing materials or structures that may be encountered (within the lines, grades, or trenching sections established for completion of the Work), if unsuitable or unacceptable to the **County** for use in the Work, and for which the disposition is not otherwise specified, shall either be disposed of by the **Contractor** or shall remain the property of the **County** as further provided in this section.

B. At the option of the **County**, any existing materials or structures of "value" encountered in the Work shall remain the property of the **County**. The term "value" will be defined by the **County**.

C. Any existing materials or structures encountered in the Work, and determined not to be of "value" by the **County**, shall be disposed of by the **Contractor**, in an approved manner, except as otherwise specified in Section 02200 - Earthwork

3.2 GROUND PREPARATION

A. All ground to be sodded, sprigged, overseeded, or grassed shall be prepared by plowing, disking, and harrowing to a depth or not less than six (6) inches. After plowing, topsoil shall be spread on the prepared area to a depth of four (4) inches, and smoothed to a uniform depth. The finished surfaces shall present a smooth, uniform, loose, well broken soil. All large clods, boulders, stumps, large roots, roots, debris, and other particles two (2) inches in diameter or greater and which will interfere with the Work shall be removed from the site of the Work.

B. Lime shall be uniformly spread over the area to be planted or sowed at the rate of two thousand (2,000) pounds per acre. Commercial grade five (5) percent nitrogen-ten percent phosphorus – ten percent potassium (5-10-10) fertilizer or approved equal shall also be uniformly spread over the area at the rate of one thousand five hundred (1,500) pounds per acre or as recommended by the manufacturer. The fertilizer and the lime shall then be thoroughly mixed into the top six (6) inches of the soil. All surface areas distorted by mixing of line and fertilizer into the soil shall be restored to the proper line and grade before any more work is done on the area.

3.3 MULCHING

A. The quantity of mulch to be applied shall be that required to evenly cover the ground to a depth of at least three (3) quarters of an inch and not more than one and one-half (1½) inches, according to the texture and moisture content of the mulch material. It is intended that mulch allow some sunlight to penetrate and air to circulate while at the same time shading the ground and conserving soil moisture.

B. Mulch: Mulch shall be uniformly applied manually or with special blower equipment. When a blower is used, baled material shall be thoroughly loosened before it is fed into the machine so as to obtain a uniform coating of mulch and to prevent placement of unbroken clumps. After initial distribution, thick clumps that are dense enough to prevent new grass from emerging shall be loosened and redistributed. Mulch shall not be applied on windy days when the velocity of the wind is sufficient to prevent uniform distribution of mulch.

C. Hydro mulch: If Hydro mulch is used, it shall be mixed to provide equivalent quantities of fertilizer and seed as specified in this section.

3.4 SEEDING

A. Seed shall be uniformly sown at the rates specified, by the use of approved mechanical seed drills, rotary hand seeders, or other type of equipment that shall produce a uniform application of the seed. The **Contractor** shall not distribute seed by hand.

B. In order to obtain an even distribution, seeds shall be sown separately except that seeds of approximately the same size may be mixed and sown together. No sowing shall be done during windy weather that prevents even distribution of the seeds, when the prepared surface is crusted, frozen, wet, or otherwise in non-tillable condition.

C. Immediately after seeding, all areas shall be rolled.

D. Watering: After seeding of areas are complete, watering shall be continued daily as long as necessary to promote a rapid growth except that no water shall be applied between the hours of 10 A.M. and 4 P.M. to prevent “crushing over” from the sun.

E. First Application of Nitrogen (All areas): The first application of nitrogen shall be made on all areas when there is evidence that a satisfactory stand of grass will be obtained. For seeded areas, the young grass shall have reached a height of at least one (1) inch. At this time, nitrate of soda, or other approved commercial fertilizer high in nitrogen content shall be applied at a rate sufficient to furnish seventy (70) pounds of nitrogen per acre. No fertilizer shall be applied to unsatisfactory areas that will have to be replanted.

F. Second Application of Nitrogen (all areas): A second application of nitrogen shall be made thirty (30) days after sufficient moisture has been applied to make the

first application available for plant growth. Second application shall also furnish seventy (70) pounds nitrogen per acre.

G. Maintenance: The **Contractor** shall provide all maintenance necessary to keep all seeded and turf areas in a healthy, satisfactory, and weed-free condition until the Work is finally accepted. This includes repairing washed-out areas, and correctly applying additional seed, fertilizer, and water if they are needed.

H. Satisfactory Stand Defined:

1. A stand of grass shall be considered satisfactory by the **County** only if there is full cover over the seeded area with perennial grass that is alive and growing, leaving no bare spots larger than one (1) square foot or the total of all bare spots within a given area shall constitute no more than one one-hundredth (1/100) of the total area.

2. If it is necessary to repeat any or all of the work necessary to produce a viable stand of perennial grass, including repairing washed-out areas, soil preparation, re-fertilizing, liming, re-seeding, sprigging, watering, or mulching, the **Contractor** shall repeat these operations until satisfactory stand is obtained and approved by the **County**.

I. The **Contractor** shall remove all stumps, fallen trees, uprooted trees, dead trees, and debris from the edge of the right-of-way.

3.5 SOD

A. Furnish and install sod in all lawn areas or as designated by the **County**.

1. Use only Common Bermudagrass (Cynodon dactylon) or one of the following Bermudagrass varieties:
   a. Tifway 419
   b. Tifway II Hybrid
   c. Tift 94
   d. Tifton 10
   e. Midlawn
   f. Midiron
   g. GN-1 Hybrid
   h. Vermont

2. No dwarf Bermuda types shall be used. Sod shall be nursery-grown and accompanied with a Georgia Department of Agriculture Live Plant License Certificate or Stamp. Sod shall consist of live, dense, well-rooted material free of weeds and insects as described by the Georgia Live Plant Act.

3. Place sod by hand or by mechanical means so that joints are tightly abutted with no overlaps or gaps. Use soil to fill cracks between sod pieces, but do not smother the grass.

4. Once sod is placed and staked as necessary, tamp, or roll it using adequate equipment to provide good contact with soil.

5. Use caution to prevent tearing or displacement of sod during this process. Leave the finished surface of sodded areas smooth and uniform.

B. After the sod has been placed and rolled or tamped, water it to promote satisfactory growth. Additional watering will be needed in the absence of rainfall and during the hot, dry summer months. Water may be applied by Hydro Seeder, Water Truck or by other means approved by the **County**.

C. Sod will be inspected by the **County** at the end of the first spring after installation and at the time of Final Inspection. Replace any sod that is not live and growing. Any cost for replacing any unacceptable sod shall be at the **Contractor**'s expense.

D. Apply nitrogen at approximately fifty (50) pounds/acre when specified by the **County** after plants have grown to two (2) inches high. One application is mandatory and shall be applied before Final Acceptance. Apply nitrogen with mechanical hand spreaders or other approved spreaders capable of uniformly covering the grassed areas. Do not apply nitrogen on windy days or when foliage is damp. Do not apply nitrogen between October 15 and March 15.

3.6 FENCE RESET

A. Should the construction of the sewer require or result in removal or damage to an existing fence, the **Contractor** shall replace the fence in kind to the satisfaction of the fence owner.

3.7 CLEANUP

A. During site restoration work, the **Contractor** shall keep pavements clean and the site of the Work in an orderly condition.

B. The **Contractor** shall protect site restoration work and materials from damage due to site restoration operations, operations by other contractors, and trades and trespassers. The **Contractor** shall maintain protection during installation and maintenance periods. The **Contractor** shall treat, repair, or replace damaged site restoration work as directed by the **County**.

C. Throughout the progress of the Work, the **Contractor** shall keep the construction area, including storage areas used by the **Contractor**, free from accumulations of waste material or rubbish, and shall keep its materials and equipment in a neat and orderly manner. Immediately upon completion of any section of the Work and before payment therefore has been made, the **Contractor** shall remove from the site of the Work all construction equipment, temporary structures, and debris, and shall restore the site of the Work to a neat, workmanlike condition; the **Contractor** shall not remove barricades and warning and direction signs until directed by the **County**. The **Contractor** shall not postpone cleanup and seeding until the end of the Work. Waste materials shall be disposed of at locations satisfactory to the **County** or affected regulatory agencies.

D. After completion of all Work contemplated under the Contract and before final payment has been made, the **Contractor** shall make a final cleanup of each separate part of the Work; shall restore all surfaces to a neat and orderly condition; and shall remove all construction equipment, tools, and supplies.

3.8 INSPECTION AND ACCEPTANCE

A. When site restoration work is completed, including maintenance, the **County** will, upon request, make an inspection to determine acceptability.

B. Where inspected site restoration work does not comply with the requirements of the **County**, the **Contractor** shall replace rejected work and continue specified maintenance until re-inspected by the **County** and found to be acceptable. The **Contractor** shall remove rejected plants and materials promptly from the site of the Work.

+++ END OF SECTION 02920 +++