

**PROJECT MANUAL**  
**FOR SITE DRAINAGE MODIFICATIONS**

at

**The Stoneleigh Community**  
**McLean, Virginia**

Prepared For:

**Cardinal Management Group, Inc.**  
**4330 Prince William Parkway, Suite 201**  
**Woodbridge, Virginia 22192**  
**Attn: Mr. Jonathan Sucher**

Prepared By:

Gardner James Engineering, Inc.  
8335 Guilford Road, Suite I  
Columbia, Maryland 21046

Gardner James Engineering Project: 2028

**January 13, 2009**

## **DISCLOSURE STATEMENT**

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**DRAWINGS**

DRAWING 1	Site Plan - Drainage Modifications Behind Units 1531-1547 Candlewick Court (1 page)
DRAWING 2	Site Plan - Drainage Modifications Behind Units 1576-1590 Dunterry Place (1 page)
DRAWING 3	Site Plan - Drainage Modifications Behind Units 1600-1614 Dunterry Place (1 page)
DRAWING 4	Drain Pipe Section Detail

## 1.0 INVITATION TO BID

Sealed Bids for furnishing all labor, materials and equipment services required for a site drainage modifications project at the Stoneleigh Community in McLean, Virginia will be received by:

Attn: Mr. Jonathan Sucher, Cardinal Management Group, Inc., 4330 Prince William Parkway, Suite 201, Woodbridge, Virginia 22192 Phone: 703-569-5797 Fax: 703-866-3156.

with one copy to David A. Gertz, P.E. of Gardner James Engineering, Inc. at 8335 Guilford Road, Suite I, Columbia, Maryland 21046, 410-480-1500, Fax: 410-480-1501.

Bids are to be received by the above representatives **no later than 10 days after the pre-bid meeting**. The date of the pre-bid meeting is scheduled for January 16, 2009. Faxed bids will be accepted, with hard copy and backup to immediately follow by overnight mail. Bids shall be completed in accordance with the Instructions to Bidders.

## 2.0 INSTRUCTION TO BIDDERS

The term Engineer or Architect within the Contract Documents refers to Gardner James Engineering, Inc. unless specifically stated otherwise.

**A mandatory Pre-Bid conference shall be held at the project site.** The Project Manual will be distributed at the Pre-Bid conference. Partial site plans and various construction details are included in the Project Manual.

Addenda will be issued to Prime Contractors only. Prime Contractors shall be responsible for distributing addenda information to Subcontractors and materials suppliers. Extra costs will not be allowed for failure of Contractors and Subcontractors to incorporate addenda information.

The basis of the Bid shall be a **lump sum price** for the entire Work to be completed in accordance with the Bid instructions and the contract requirements given in the specifications. **Unit prices, as indicated on the Bid Form, are also required for quantities that are variable.** The Owner's Representative(s) reserves the right to reject any and all Bids and to waive irregularities and informalities in the Bids. The Owner's Representative(s) reserves the right to negotiate project price and time with the successful Bidder.

It is the Owners' intention to enter into an agreement for site drainage modifications using AIA, A107-2007, Standard Form of Agreement Between Owner and Contractor for Construction Projects of Limited Scope where the basis of payment is a stipulated sum. Payment terms will be 45 days, based on Contractor's submitted and approved Schedule of Values, and a 10 percent retainage will be required.

Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract have the meaning assigned to them in the General Conditions. Joint Bids will not be accepted. The Contractor is to provide a 2 year warranty for materials and workmanship for the entire project. A release of liens shall accompany each application for payment.

**The Work outlined herein is expected to be completed by March 18, 2009.**

On the Bid Form immediately following this page, the Bidder is required to submit the following information with the Bid:

- A. Full business address and telephone number,
- B. Lump sum price for all work identified in these documents.
- C. Unit prices for the items listed on the Bid Form.
- D. Listing of addenda received.
- E. Provide two copies of Bid in an opaque sealed envelope marked with the project name and name and address of Bidder to Cardinal Management and one copy to Gardner James Engineering, Inc. Both parties must receive their copies at the specified time and date or the bid may be disallowed at the Owners discretion. Fax bids may be provided, followed by hard copies via mail.

As an attachment to the Bid Form, provide:

- A. Evidence of qualification to perform work in Virginia.
- B. A list of subcontractors to be used and their scope of work (Form Provided).
- C. A schedule of values for the work to be accomplished.
- D. A listing of any substitutions proposed (Form Provided).

It is the responsibility of the Bidder to examine the contract documents, visit the site, consider federal, state and local laws and regulations and notify Engineer of all conflicts, errors or discrepancies in the Contract Documents.

The Owner is under no obligation to accept lowest or any other Bid and expressly reserves the right to accept or reject any and/or all Bids, and to waive any informalities or irregularities in any Bid.

**3.0 BID FORM**

Bidder will complete the work described in these documents for the prices indicated below.

**PART I**

**A. BASE BID**

All work as described in the Specifications for Site Drainage Modifications, The Stoneleigh Community; Base Bid lump sum (including Bonds):

---

(use words)

\$ \_\_\_\_\_  
(use figures)

Bid Qualification: The lump sum bid indicated above shall represent all Work described in the Project Manual.

The above cost is based on \_\_\_\_\_ linear feet of subgrade drain installation (pipe sizes will vary in accordance with Drawing 1).

The above cost is based on \_\_\_\_\_ square feet of sidewalks to be replaced.

The above cost is based on \_\_\_\_\_ 24" x 24" ADS drain basin inlets to be installed.

The above cost is based on \_\_\_\_\_ linear feet of ACO trenchdrain to be installed.

**PART II**

Unit costs for labor and materials to be added to, or subtracted from the Scope of Work, for quantities that are different then shown in the project plans and specifications. Base Bid quantities should be included as part of the Lump Sum cost provided above. All costs below shall include preparation work and finish work as dictated in this Specification.

- A. Cost per linear foot for installation of 6-inch diameter below-grade drain pipe, including excavation \$ \_\_\_\_\_
- B. Cost per linear foot for installation of 8-inch diameter below-grade drain pipe including excavation \$ \_\_\_\_\_
- C. Cost per linear foot for installation of 12-inch diameter below-grade drain pipe installation including excavation \$ \_\_\_\_\_
- D. Cost per additional 24" x 24" ADS drain basin inlets (installed in turf) \$ \_\_\_\_\_
- E. Cost per additional 24" x 24" ADS drain basin inlets (installed with concrete apron in accordance with Detail A – Drawing 3) \$ \_\_\_\_\_
- F. Cost for additional soil installation (per cubic yard), including re-grading, installation and materials \$ \_\_\_\_\_

G. Cost per linear foot for ACO trenchdrain encased in concrete \$ \_\_\_\_\_

H. Cost per square foot for sidewalk replacement \$ \_\_\_\_\_  
\_\_\_\_\_

**PART III**

Breakout cost for Performance and Payment bonds, **to be deducted from the Base Bid lump sum price**, at discretion of The Owner's Representative(s). Please note that the Base Bid price noted must include the cost of the Bonds.

\$ \_\_\_\_\_, which is \_\_\_\_\_ % of the Contract amount.

**PART IV**

We hereby acknowledge receipt of:

Addendum \_\_\_\_\_, dated \_\_\_\_\_.

Addendum \_\_\_\_\_, dated \_\_\_\_\_.

Addendum \_\_\_\_\_, dated \_\_\_\_\_.

**PART V**

**Bidder's Proposed start date for Base Bid Work** \_\_\_\_\_.

**Bidder's Proposed completion for Base Bid Work** \_\_\_\_\_.

**PART VI**

Communications concerning this Bid shall be addressed to bidder at the following address:

\_\_\_\_\_  
\_\_\_\_\_

THIS BID IS HEREBY SUBMITTED on \_\_\_\_\_

BY \_\_\_\_\_  
(Corporation Name)

BY \_\_\_\_\_  
(Print Name and Title)

\_\_\_\_\_  
(Signature)

(Corporate Seal)

**4.0 SUBCONTRACTOR AND MATERIAL SUPPLIER LISTING**

**These subcontractors shall be licensed to perform in the Commonwealth of Virginia:**

Portion of the Work:

Subcontractor name and address:

_____	_____
_____	_____
_____	_____
_____	_____

**Listing of Material Suppliers**

_____	_____
_____	_____
_____	_____
_____	_____

USE ADDITIONAL SHEETS IF REQUIRED.

PROVIDE SIGNATURE IDENTICAL TO THAT SHOWN ON THE BID FORM

Bidder: \_\_\_\_\_

By: \_\_\_\_\_

### 5.0 SUBSTITUTION LIST

The Contract Sum proposed by the undersigned on the bid form is for the Work as shown on the Drawings, described in the Specifications, and otherwise defined in the Contract Documents. However, the undersigned proposes the following substitutions for the Owner's Representative(s) consideration. Should the Owner's Representative(s) accept any or all of the proposed substitutions, the bidder's proposed Contract Sum will be reduced by the amount shown.

Specified product or material:	Drawing number or Spec. Section:	Proposed Substitution:	Proposed reduction in Contract Sum:
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Manufacturers who have provided unsatisfactory past installations must provide evidence in writing that the reason for the unsatisfactory product has been corrected.

PROVIDE SIGNATURE IDENTICAL TO THAT SHOWN ON THE BID FORM

Bidder: \_\_\_\_\_

By: \_\_\_\_\_

**PROJECT SPECIFICATIONS**  
**FOR SITE DRAINAGE MODIFICATIONS**

at

**The Stoneleigh Community**  
**McLean, Virginia**

Prepared For:

**Cardinal Management Group, Inc.**  
**4330 Prince William Parkway, Suite 201**  
**Woodbridge, Virginia 22192**  
**Attn: Mr. Jonathan Sucher**

Prepared By:

Gardner James Engineering, Inc.  
8335 Guilford Road, Suite I  
Columbia, Maryland 21046

Gardner James Engineering Project: 2028

**January 13, 2009**

## 6.0 SUMMARY OF WORK

The property consists of multiple condominium units located off of several courts off of Westmoreland Road. Insufficient drainage conditions are present at multiple locations throughout the property. Specifically the drainage areas to be addressed are as follows:

**Area 1: The area behind units 1531-1547 Candlewick Court (Drawing 1)**

**Area 2: The areas behind units 1576-1590 Dunterry Place (Drawing 2)**

**Area 3: The turf area behind units 1600-1614 Dunterry Place (Drawing 3)**

The phases and limits of the site work are generally defined as drainage modifications shown on Drawings 1, 2 and 3.

The following is a general outline of the scope of work:

- A. The Base Bid shall encompass all repair locations as illustrated on Drawings 1, 2 and 3.
- B. Remove any existing piping, drain inlets or trenchdrains at locations to receive new drainage modification components.
- C. Install inlet basins/grates and subgrade drainage piping as shown on the Drawings 1, 2 and 3. All drainage piping shall exit into existing drainage features. Please note that a portion of the new drain basin inlets shall receive a 12-inch wide concrete apron.
- D. Install 30 feet of new trenchdrain along the rear of Unit 1608 and 1610 Dunterry Place.
- E. Replace sidewalk at areas shown on Drawings and 3. **For the Base Bid price, assume a total of 700 square feet of sidewalk replacement.**
- F. Re-grade soil as necessary to promote positive drainage to all drain inlets.
- G. All materials shall be installed in accordance with the manufacturer's written recommendations.

## 7.0 PROJECT DIRECTORY

Owner: The Stoneleigh Community  
c/o Cardinal Management Group, Inc.  
4330 Prince William Parkway, Suite 201  
Woodbridge, Virginia 22192

Managing: Cardinal Management Group, Inc.  
Agent 4330 Prince William Parkway, Suite 201  
Woodbridge, Virginia 22192  
Attn: Mr. Jonathan Sucher

Engineer: Gardner James Engineering, Inc.  
8335 Guilford Road, Suite I  
Columbia, Maryland 21046  
Attn: Mr. David A. Gertz, P.E.  
Phone: 410-480-1500  
FAX: 410-480-1501

## 8.0 GENERAL ADMINISTRATIVE PROVISIONS

The following provisions shall apply to this project:

- A. Various standards and specifications are incorporated in the technical sections of these specifications by reference. In all such instances, the reference shall mean the latest edition, including amendment or revision in effect as of the date of this specification, unless a specific issue is identified otherwise. In the event that referenced specifications or standards contain general requirements in conflict with the Contract Documents, the more stringent requirements shall govern.
- B. The Work outlined herein is tentatively scheduled to begin in early 2009 and be completed by **March 18, 2009**, weather permitting. In the event that the work is delayed due to inclement weather or temperature restrictions, the work will be done as soon as possible.
- C. An English speaking superintendent shall be on-site at all times during the course of the work.
- D. Examine the site and verify dimensions and conditions necessary for completion of the Work. Notify Owner and Engineer should the conditions vary from those described in this document.
- E. Work shall be performed only by personnel with minimum of five years experience performing the Work as required by these Specifications.
- F. Existing conditions are reflected correctly to the best of Owner's knowledge. Should conditions be encountered which are not as indicated, modification to accommodate new Work shall be made as required at no additional expense to Owner.
- G. The Contractor shall obtain and pay for any and all permits required, to perform the work, by the Commonwealth of Virginia and the local governing authority having jurisdiction. The Contractor shall submit copies of all permits required to the Engineer and The Owner prior to the start of work.
- H. Perform a thorough survey of property and all affected and adjacent areas of the property with Owner prior to starting the Work in order to document existing damage. Damaged items identified on this list will not be the responsibility of Contractor unless further damaged by Contractor during execution of Project.
- I. Consider any damage to property not identified in the pre-job damage survey as having resulted from execution of this Contract and correct at no additional expense to Owner.
- J. Coordinate Work with others, such that no delay with this project or the work of others occurs.
- K. Construct Work in stages to accommodate Owner's use of premises during construction.
- L. Contractor shall limit use of premises for Work, for storage, and for access to allow for Owner occupancy.
- M. The Contractor (after award of Contract) shall attend a pre-construction meeting with the Managing Agent and the Engineer for the purpose of finalizing the project schedule, to review repair procedures, and to coordinate work with the Owner. At the meeting, the Contractor shall provide emergency names and phone numbers to Owner's representative.

- N. Maintain all exits to the buildings as fire exits. Contractor shall stop work during all community functions which require Contractor to stop and to provide for emergency egress from the buildings at all times.
- O. The on-site Foreman shall inspect the site daily and remove all trash and debris.
- P. Provide a verbal daily progress report to the Engineer at the end of each work day.
- Q. Obtain approval from the Managing Agent prior to initiating or altering Work schedule. Allowable work hours are Monday through Friday 7:00 AM to 6 P.M. **Noise generating activity shall not commence until 8 AM.** Holiday work may be performed with written permission from the Managing Agent.
- R. Assume full responsibility for protection and safekeeping of products stored on site under this Contract.
- S. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- T. Locate utilities which might be affected by the Work. Contractor is solely responsible for maintaining all utilities in operable condition, for repairing any damaged utilities, and for the safety of the workers and public.
- U. Upon completion of the project, or as directed by the Managing Agent, the Contractor shall remove all temporary items, material, and equipment from the site, same to become his property, and leave the premises.
- V. Provide temporary barriers to restrict unintentional access to the work area, without preventing emergency egress. Provide and maintain all safety barricades as required by local and state codes and laws, and as necessary for the protection of workers and the public. Contractor shall provide necessary signage and barriers to redirect vehicles and pedestrians safely around the work area. Detour and caution signage shall be commercially available traffic signs, such as used for highway construction. Provide barricades and perform work in a manner such that products are not tracked by pedestrians or vehicles.
- W. Job site safety shall be the sole responsibility of the Contractor. Contractor procedures and practices shall comply with applicable federal, state and local safety requirements.
- X. Provide all equipment, materials and manpower to complete the work outlined in this document.
- Y. Provide all excavating and all other power equipment with qualified operating personnel for the safe and efficient use of equipment. Provide equipment with all safety devices as required by OSHA, local codes and ordinances, state codes and the equipment manufacturers.
- Z. Contractor may connect to existing common area power service (if available). Contractor shall provide temporary electric feeder from existing electrical service at locations as directed by the Owner's Representative. Power consumption shall not disrupt the Owner's need for continuous service. Otherwise, Contractor shall provide utilities as needed to effectively complete the Work.
- AA. The Owner will pay cost of energy used if the source of power is from the building. Exercise measures to conserve energy.
- BB. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required.
- CC. Permanent convenience receptacles may not be utilized during construction, unless approved by Owner.

- DD. Contractor may connect to existing common area water source for construction operations (if available). Otherwise, Contractor shall provide water as needed to effectively complete.
- EE. The Owner will pay cost of water used. Exercise measures to conserve water.
- FF. Provide portable bathroom facilities during the entire duration of the project. Workers are not to use the community facilities, unless approved by Owner.
- GG. Clean-up shall be performed daily as required to prevent accidents to personnel, protect all Work in place, and to effect completion of the project in an orderly manner. Construction clean-up shall consist of the removal of all mud, oil, grease, sand, gravel, dirt, trash, scrap, debris, and excess materials, from any drive, or walking surface, that may cause the tripping or sliding of persons or equipment. Loose materials or debris being removed from the site by the Contractor's vehicles, which becomes deposited on the roadways or other outside access areas, shall be cleaned up and removed immediately.
- HH. Any request for an extension of time is to be made immediately upon occurrence of conditions which, in the opinion of the Contractor, warrant such an extension with reasons clearly stated and detailed proof given for all delays beyond the Contractor's control, these to be made in writing to the Engineer. No time extension will be allowed except by formal approval of Owner's designated Representative.
- II. Protect materials from weather. Provide temporary weather tight coverings or enclosures for temporary exterior openings.
- JJ. Any Work, existing property, and/or contents damaged by failure to provide protection required above shall be removed and replaced with new Work at the Contractor's expense.
- KK. The Owner reserves the right to perform Work with its own Contractors or forces concurrently with the general Contractor, during the construction and finishing of the project.
- LL. Owner will pay for first inspection and first re-inspection by the Engineer. Any re-inspection required after first re-inspection will be at the Contractor's expense.
- MM. Final acceptance of installed items will be in accordance with the referenced specifications. Replacement or correction of out of specification work will be at the Contractors' expense.
- NN. Payment by the Owner for any materials, equipment, or labor incorporated into the Work shall not be deemed to be an acceptance by the Owner. The risk of loss of such materials, equipment, or cost of labor spent to install such, shall remain with the Contractor, and the Contractor shall be fully responsible for such materials, equipment, or labor to the same extent as if the Owner had not paid or accepted real property until after final inspection and approval by Owner. Stolen, damaged, vandalized, missing, or weather damaged equipment or material shall be considered the property of the Contractor until final acceptance by Owner's designated Representative.
- OO. Provide a two year warranty for materials and installation.
- PP. Contractor shall submit Applications for Payment and Change Orders on original, notarized AIA form G702. All applications for payment, release of liens and Change Order documents shall be submitted to Gardner James Engineering for approval.

- QQ. Releases of liens shall be submitted with each application for payment.
- RR. Submit Work Schedule and Schedule of Values for the project. A 10% retainage will be withheld from each progress payment.
- SS. All change orders during the course of the work shall be submitted in writing using form AIA Form G701.
- TT. Once the Engineer has awarded substantial completion, a reasonable time will be allowed, to the Contractor by the Engineer and Owner's designated Representative, for the Contractor to complete any remaining "punch list" items.
- UU. Upon completion of the project, or as directed by the Managing Agent, the Contractor shall remove all temporary items, material, and equipment from the site, same to become his property, and leave the premises.

### 9.0 INSURANCE REQUIREMENTS

Contractor shall obtain, pay the premiums for and keep in force during the term of this agreement insurance written by companies licensed and authorized to conduct business in the Commonwealth of Virginia and acceptable to the Owner in dollar amounts hereinafter specified or as required by law, whichever is greater:

- A. Insurance for protection from claims under workers' compensation acts and other employee benefit acts which are applicable. This insurance shall be written for not less than limits of liability required by law.
- B. Commercial General Liability including Contractual Liability, Independent Contractors Protective Liability, Products Liability and Completed Operations:
  - 1. Bodily Injury and Property Damage: at least \$1,000,000 each occurrence and \$2,000,000 annual aggregate.
  - 2. "XCU" exclusions relating to damages to property caused by explosion, collapse, shoring, grading and underground utilities shall be removed when applicable.
- C. Automobile Liability Insurance (Owned, Non-Owned and Hired Car):
  - 1. Bodily Injury and Property Damage: at least \$1,000,000 each occurrence and \$1,000,000 annual aggregate.
- D. Umbrella Liability Insurance:
  - 1. Bodily Injury and Property Damage: at least \$2,000,000 each occurrence and \$2,000,000 annual aggregate.
  - 2. Coverage shall extend over the underlying commercial general liability, automobile liability and employer's liability policies.
- E. Contractor's insurance shall name the Owner, Managing Agent and Engineer as additional insureds. Contractor's insurance shall be considered primary in all instances.
- F. Contractor shall provide the Owner with a certificate of insurance confirming the insurance required herein before the commencement date of this agreement. Such certificate shall include a provision requiring the insurer to provide thirty (30) days

written notice prior to cancellation, non-renewal or reduction in coverage or limits for any reason. The Owner may at any time inspect and copy any and all insurance policies required by this agreement.

## 10.0 BONDS

Performance and Payment bonds will be required. The cost for these bonds shall be included in the base Bid. Upon receiving Notice of Award from the Owner the Bidder/Contractor shall, within ten days (and prior to executing a satisfactory contract), furnish to the Owner the following bonds.

- A. A performance bond in the sum of the contract amount conditioned upon the faithful performance of the contract in strict conformity with the plans, specifications and conditions of the contract. Reference is made to AIA Form and Document A312.
- B. A labor and materials payment bond in the sum of the contract amount. Such bond shall be for the protection of claimants who have and fulfill contracts to supply labor or materials to the prime contractor to whom the contract was awarded, or to any subcontractors, in the prosecution of the Work provided for in such contract, and shall be conditioned upon the prompt payment for all such material furnished or labor supplied or performed in the prosecution of the Work. "Labor or materials" shall include public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the site. Reference is made to AIA Form and Document A312.
- C. All bonds shall be executed by one or more surety companies selected by the Contractor, which are legally authorized to do business in the Local Jurisdiction. **Contractor's bonding company/surety shall maintain a minimum secure rating of A or better as determined by the Key Rating Guide of AM Best Company, Oldwick, NJ.**
- D. Acceptance of bonds furnished shall be subject to the review and approval of Owner's legal council.

## 11.0 REFERENCES

- A. All codes and standards applicable to the Work governed by this specification shall be the most recent edition of federal, state and local codes and standards. All applicable codes and standards shall be strictly adhered to, including, but not limited to the following:
  - 1. American Concrete Institute (ACI);
  - 2. International Concrete Repair Institute (ICRI);
  - 3. American National Standards Institute (ANSI);
  - 4. American Society for Testing and Materials (ASTM);
  - 5. Sealant and Waterproofing Restoration Institute (SWRI);
  - 6. National Institute for Occupational Safety and Health (NIOSH);
  - 7. Occupational Safety and Health Administration (OSHA) guidelines;
  - 8. The International Building Code (IBC);
  - 9. National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations;
  - 10. The U.S. Environmental Protection Agency (EPA);
  - 11. The American Water Works Association (AWWA)

## 12.0 SUBMITTALS

All material submittals shall be presented following the notice of award and prior to the Contractor mobilization to the site. After approval, one copy shall be kept by the Owner's Representative, one by the Engineer, and the third shall remain on site at all times with the MSD sheets. Work shall not commence until all submittals are submitted by the Contractor and reviewed/approved by the Engineer.

- A. Provide manufacturer's literature indicating performance characteristics and compliance with the standards referenced in this Specification for the following materials.
  - 1) Aggregate base material for concrete subbase
  - 2) Non-woven Geotextile Fabric
  - 3) Stone Drainage Materials
  - 4) Subgrade inlets
  - 5) Trenchdrain
  - 6) Subgrade Piping and fittings
  - 7) Cast-in-place Concrete Mix Design for Sidewalks and Trenchdrain
  - 8) Bag mix concrete for setting drain basin inlets
  
- B. Submit a detailed schedule for the project defining the sequence of work and the work areas to be addressed during each phase or location. The Owner will require this schedule be updated routinely (i.e., weekly) so that residents and property management can be kept advised. Work Schedule shall also include hours of expected operation as well as daily activity. The Owner's Representative will review and revise the Work Schedule as necessary, with Contractor's cooperation.
  
- C. Submit a schedule of values.
  
- D. Documentation on equipment and supplemental materials to be used in the performance of the Work outlined herein.
  
- E. Warranty information as outlined in Warranty Section. A sample warranty for Contractor's and Manufacturer's two-year warranties.
  
- E. Performance and Payment Bonds
  
- F. Certificate(s) of insurance, showing required coverage limits, for the Contractor and all Subcontractors and listing the Owner, Managing Agent and Gardner James Engineering as additional insured. Other additional insureds shall be incorporated upon request by the Owner.
  
- G. Material Safety Data Sheets for all materials being used.
  
- H. Project Contact List
  
- I. Proposed demolition method including equipment to be used.
  
- J. Prior to final payment, the Contractor shall submit the following items, which shall be in a written form acceptable to the Owner:

1. Applicable release of liens (covering the Owner);
2. Any warranty information from the Contractor.

### **13.0 WARRANTY**

Contractor and Manufacturer must furnish the following warranties for this project:

- A. Provide TWO-year Contractor's Warranty for all materials and workmanship for the Work outlined in these Specifications. In addition, Contractor shall provide any other applicable extended Warranty offered jointly by the Contractor and Material Manufacturer at no extra charge.
- B. The Contractor shall certify upon completion of the job that the Work outlined in these Specifications has been fully completed, and the materials have been applied in strict accordance with these Specifications or the Manufacturers' recommendations.

### **14.0 MATERIAL REQUIREMENTS**

All materials used for this project shall be produced and installed in accordance with the requirements of the Virginia Department of Transportation (VDOT) State Highway Administration "Standard Specifications for Construction and Materials" and The American Society of Testing and Materials (ASTM), latest editions. The Contractor shall provide all materials required to complete the Work of this Specification.

#### **14.1 General**

- A. Deliver materials in manufacturer's original containers in a dry and undamaged condition, with seals and labels intact.
- B. Store materials in weather protected areas, clear of ground and moisture.
- C. All materials shall be handled, transported, and stored in a manner that will preserve their quality and fitness for the Work.
- D. Any material that has deteriorated or has been contaminated shall not be used and shall be immediately removed from the site.
- E. The use of asbestos containing or lead containing materials is prohibited on this project.
- F. Acquire materials from the same source for all repairs required in these Specifications.
- G. Materials that do not conform to these Specifications shall be considered unacceptable. Such materials, whether in place or not, shall be removed from site.
- H. Storage and application temperatures and environmental conditions for materials used shall be as specified by the material manufacturer.

## 14.2 Material Specifications

- A. Subgrade Drain Pipe: Solid, N-12 IB ST (Soil Tight), smooth-wall interior, as manufactured by ADS. Either 8-inch, or 12-inch diameter.
- B. Drain Inlet Basins: 24-inch square drain basins as manufactured by ADS/Nyoplast. Fittings and openings shall be pre-manufactured by ADS.
- C. Underground Leaders: 4-inch diameter, solid, N-12 IB ST (Soil Tight), smooth-wall interior, as manufactured by ADS.
- D. Trenchdrain: ACO Drain KS100S, KlassikDrain Grate, Pedestrian ADA Plastic, Class A, Type 494Q, as manufactured by ACO Drain.
- E. Trench Fill: Free draining material such as #57 stone, or compacted soil or compacted 21A stone.
- F. Trench Fabric: Non-woven, geotextile fabric, if #57 stone backfill is used.
- G. Concrete for sidewalks, trenchdrain encasement and drain inlet basin aprons (Drawing 3 – Detail A) shall be proportioned in accordance with ACI 318, with a maximum water/cement ratio of 0.45 and minimum compressive strength of 4,000 psi at 28 days of age. Concrete mix design shall be air-entrained and designed for exterior exposure.
- H. Stone for below sidewalks: Graded Aggregate Subbase, 21A Base meeting the requirements of VDOT Road and Bridge Specifications Section 208.
- I. Concrete for drain basin inlet bedding: Bag-mix, such as HP Concrete as manufactured by USCP or approved equivalent.

### LANDSCAPING MATERIALS

- J. Fertilizer: 10-10-10 blend.
- K. Turf Seed: Tall fescue variety.
- L. Topsoil: Screened rich soil with no foreign materials, in accordance with VDOT.
- M. Erosion Netting: Poly Jute Netting, photo degradable or approved equivalent.

## 15.0 REHABILITATION PROCEDURES

This repair specification includes procedures for installation of underground leaders and sub-grade drains and other associated Work items.

### 15.1 General

- A. Provide all labor, materials, equipment and supervision to perform the work of this Section.
- B. Contractor shall prepare a written plan for phasing, sequencing, sectioning the repair Work and shall provide the plan to the Owner for review and acceptance prior to the start of Work. Contractor shall update and revise the plan weekly or more frequently as necessary so that Owner and residents are kept informed as Work progresses. Contractor will accommodate Owners requests whenever possible.
- C. Engineer and Contractor will meet at the site to identify and mark areas to be repaired prior to the start of the Work.
- D. Upon approval by the Owner, the Contractor shall proceed with work in a given area. Protect building surfaces, mechanical, plumbing, electrical, lighting, fire suppression equipment, etc. against damage from repair work or associated dust, vibration, etc.
- E. Contractor shall install vehicle and pedestrian traffic control devices (i.e., signs, arrows, barricades, cones, etc.) as required to adequately and safely direct traffic, communicate new traffic patterns clearly and avoid confusion to adjacent roadway and sidewalk users.
- F. Materials that do not conform to the specifications shall be considered unacceptable. Such materials, whether in place or not, will be rejected and shall be removed from the site. No claim for extra payment shall be made as a result of Work associated with such rejection.
- G. Verify conditions are adequately prepared to receive Work of this Section.
- H. Prior to the use of materials of this section, refer to the "Safety" section of the Material Safety Data Sheets (MSDS) provided by the material manufacturer for applicable cautions and warnings. A copy of the MSD sheets shall remain in possession of the Contractor at the site at all times.
- I. Notify Engineer minimum 24 to 48 hours prior to commencement of operations.
- J. Locations adjacent to and including actual repair areas with finished surfaces that are removed, altered, or damaged as a result of any work process shall be restored by the Contractor to its original condition and appearance at no expense to the Owner.

### 15.2 DRAINAGE MODIFICATIONS

This repair specification includes procedures for the installation of new subgrade drainage components, backfilling, compaction and restoration of landscaping. The location and layout of the subgrade drainage components are shown on Drawings 1, 2 and 3.

### 15.2.1 Utility Protection

- A. At least 48 hours in advance of proceeding with trenching, excavation or demolition work required by this contract, the Contractor shall notify the Managing Agent, Engineer, and Miss Utility of the impending excavation and the location thereof. The Contractor shall not proceed with work until all utilities involved have been located or cleared in all areas of Work.
- B. **The Contractor shall contact Cable TV, Telephone and Fiber/Fios to identify underground cable that may not be marked by Miss Utility.**
- C. **Prior to commencing with any trenching or excavation, the Contractor shall perform a thorough survey of the surrounding area to attempt to identify additional components such as underground landscape irrigation, other drainage features, electrical lighting, etc. that may not have been identified by Miss Utility.**

### 15.2.2 General Preparation Layout and Installation

- A. The Contractor shall examine conditions and substrates where subgrade drainage system is to be installed and notify Engineer of any changed conditions.
- B. The Contractor shall install subgrade drainage system in accordance with the manufacturer's installation instructions.
- C. Layout and mark the location of drain systems and collection pipes.
- D. Excavate trench to the necessary width and depth to install piping as recommended by material manufacturer.
- E. Place drain inlet basins and collection pipes into trench locations complete with soil tight fittings. Drainage system shall be installed with a minimum slope of 2 percent, if possible.
- F. Exit new subgrade piping into existing drainage structures. All existing drainage structures shall be repaired and tie-ins of new piping shall be waterproof. New piping shall enter the existing drainage structures at the lowest possible elevation to maximize the slope of the new piping.
- G. Tie-in new piping below grade to existing concrete inlet structures.

### 15.2.3 Installation of New Drain Basins and Piping

- A. Install subgrade piping and inlets at locations shown on Drawings 1, 2 and 3. Contractor shall remove all of the existing drain components prior to installing new piping. The cost for this work shall be included in the Base Bid.
- B. All areas requiring hand excavation shall be determined by the Contractor at the pre-bid meeting and shall be included into the Base Bid cost, as necessary.

- C. Excavate trenches to receive inlets and piping in accordance with manufacturer's written instructions. Excavate the trench such that a positive slope is maintained toward the outfall.
- D. At some locations the excavation shall be performed by hand or in a manner to avoid disturbance of existing utilities.
- E. Piping shall be installed to provide positive drainage with a minimum of 2% slope, if possible.
- F. As shown on Drawings 1 and 3, a swale shall be created away from the edge of the existing sidewalk locations. The new swale shall be continuous and properly sloped to divert runoff directly away from the sidewalks and into each new drain basin inlet.
- G. The inlets shall be installed at the locations shown on Drawings 1, 2 and 3. Locations may vary depending on existing conditions. Some inlets have been selected to be installed at existing low spots in the soil to minimize the disturbance to the existing grade. Contractor shall contact the Engineer if locations must vary significantly. Soil shall be re-graded as necessary to facilitate drainage in all directions.
- H. Inlets shall be installed level, at or just below grade to maximize the intake of runoff. The final elevation of all inlets shall be determined by the Contractor in the field. Any inlets that do not sufficiently drain due to installation at an incorrect elevation, shall be repaired by the Contractor at no expense to the Owner.
- I. All piping shall be set in a bed of #57 stone, compacted soil or compacted 21A stone in accordance with Drawing 4.
- J. All drain basin inlets shall be set into a concrete base a minimum of ~~428~~ inches in depth.
- K. The concrete aprons shall be square and similar in dimension, with tooled control joints as shown on Drawing 3 – Detail A. The top edge of each new concrete apron shall butt against the top edge of the adjacent sidewalk.
- L. Once concrete base has cured, backfill around all drain basin inlets with compacted 21A stone, compacting a minimum of every 6-inches. Compacted 21A stone shall be placed around entire perimeter of drain basin inlet continuously to underside of new concrete apron. At drain basin inlets with concrete aprons, as shown on Drawings 1 and 3, new concrete apron shall be a minimum of 6-inches thick.
- M. At drain basin inlets that do not require concrete apron, each inlet shall be set into a concrete base and backfilled with compacted soil or 21A stone.
- N. Connect inlet basins with solid piping. Fittings and openings shall be pre-manufactured by ADS. **In the event that the Contractor must make on-site modifications to pre-manufactured openings, all connections must be made watertight with an approved sealant.**
- O. Backfill trench with #compacted soil or compacted 21A stone.
- P. After achieving the requirements for the piping and trench backfill, install a minimum of 6-inches of compacted topsoil over the trench area.

- Q. Contractor shall re-grade any adjacent undisturbed areas to allow for proper drainage.
- R. Top off trench with compacted topsoil, seed, straw and erosion netting.
- S. Contractor shall install topsoil at all areas to receive turf. Contractor shall install erosion netting at all disturbed turf areas and pin in place. Contractor shall repair any turf or other landscaping disturbed by this Work.
- T. Add additional soil, re-grade and compact at areas shown on Drawings 2 and 3 at areas of ponding. This work shall be provided on a Unit Rate Basis. **Additional soil shall be provided on a unit rate basis in accordance with the Bid Form and shall include labor and materials.**
- U. **Additional soil at other locations not indicated on the Drawings 1, 2 and 3, will likely be required to facilitate drainage at areas adjacent to the new piping installation as shown on Drawings 1, 2 and 3. Additional soil shall be provided on a unit rate basis in accordance with the Bid Form and shall include labor and materials.** Contractor may use the soils excavated for trench drain piping and inlets, but shall use topsoil as a final grading material.

#### 15.2.4 Installation of Trenchdrain

- A. A new trenchdrain system shall be installed along the sidewalk in the rear of Units 1608 and 1610. Contractor shall remove existing trenchdrain, piping and gravel at this location.
- B. Excavate trench and install gravel backfill per manufacturer's written instructions. The bottom of the trench, trenchdrain, and associated piping are to maintain positive slope toward the new piping into which it connects.
- C. Install the trenchdrain and grate cover in accordance with manufacturer's written instructions.
- D. Form and pour the concrete encasement for the trenchdrain in accordance with manufacturer's written instructions and details.
- E. Install outlet spigot end cap pipe connector at end of trenchdrain and connect to existing piping. Install a bead of silicone sealant along the perimeter of new piping at interface with new piping to ensure a watertight seal.
- F. Install outlet pipe connector at end of trenchdrain and connect to new solid PVC piping, using a 3-inch diameter solid PVC pipe. Slope piping prior to tying into 8-inch ADS piping. Tie in trenchdrain exit piping to new 8-inch solid piping using pre-manufactured pipe connectors as to create a soil tight and watertight condition.

#### 15.3 INSTALLATION OF CONCRETE SIDEWALKS

- A. Concrete sidewalks shall be replaced at locations shown on Drawings 1 and 3. During sidewalk demolition/installation, Contractor shall take into account additional sidewalk panel replacement, if necessary, to re-slope all areas of sidewalk without creating trip hazards between existing and new sections of sidewalk.

- B. Remove and replace sidewalk to be integral with dimensions of existing.
- C. Re-sloping of portions of the new sidewalk shall be required to provide adequate drainage toward the new drain basin inlets.
- D. Contractor shall be responsible to ensure new sidewalk does not pond water.
- E. Compact exposed soil after removal of sidewalk, and install 4-inches of graded aggregate subbase and compact to 98 percent of Standard Proctor.
- F. Concrete shall be produced, placed and cured in accordance with ACI 318-02 for exterior exposure. Install welded wire fabric into new concrete mix.
- G. Concrete shall receive a light broom finish.
- H. Tooled control joints shall be installed to match joints of existing sidewalk at maximum 10-foot intervals.

#### **15.4 LANDSCAPING**

- A. All areas of disturbed grass shall be replaced with compacted topsoil, seed, straw and erosion netting.
- B. At areas of turf to be re-established, Contractor shall place minimum of 4 inches of screened topsoil in all areas of new turf planting. Some removal of existing soil may be required.
- C. At areas where compacted soil is to be placed in accordance with Drawings 1, 2 and 3 install fill in maximum 6-inch lifts and compact by mechanical means to a minimum density of 85 percent of the Standard Proctor maximum dry density for the soil. Install subsequent lifts and repeat compaction procedure as necessary.
- D. Areas where landscaping shall be re-established, fertilize prior to seed and erosion netting placement. Fertilizer shall be spread evenly at a rate of 20 pounds per 1,000 square feet. Topsoil shall be raked to work in the fertilizer and provide a consistent elevation prior to placement of seed and erosion netting.
- E. Erosion netting shall be placed such that there is no overlapping and no spaces.
- F. Erosion netting shall be pinned at corners and edges.
- G. Final grading of turf shall generally match the original topography, except where corrections are required to re-direct runoff into new drain basin inlets and as noted in areas of required re-grading on Drawings 1 and 3. All re-grading shall promote drainage toward the new drain basin inlets or trenchdrain. No low areas that would promote ponding of water shall be accepted. Edges of new turf areas shall match the elevation of the existing adjacent grass areas.
- H. Where new turf area intersects concrete curb, elevation of soil behind curb shall be even with top of curb in order to promote surface water drainage over top of curb, and prevent surface runoff from eroding soil behind or under curb.

- I. Turf shall be thoroughly saturated with water to provide for initial watering needs of the seed.

## **15.5 FINAL CLEAN UP**

- A. Clean all Work areas of construction materials, debris, equipment, etc. Remove all markings from finished surfaces caused as a result of the Work.
- B. Repair any components that were damaged or altered as a result of the Work at no expense to the Owner.
- C. Wash all surfaces with water and detergent where applicable or other cleaners/solvents as necessary to remove concrete, dust, rust, dirt and debris.
- D. Return or provide all keys, passes, equipment, extra materials, etc. provided to the Contractor or purchased by the Owner as part of the Work.

**END OF SPECIFICATION**