



Terry McKee, IS & Procurement Director  
901 Broadway, N.E. • Knoxville, TN 37917-6699  
865.403.1133 • Fax 865.594.8858  
purchasinginfo@kcdc.org  
www.kcdc.org

## Invitation for Bids

### FIVE POINTS PHASE 2 INFRASTRUCTURE IMPROVEMENTS

**Bid Number:** C17002  
**Due Date:** 11:00 a.m. (Eastern Standard Time) on July 14, 2016

**Check KCDC's web page for addenda and changes before submitting your bid**

**Pre-Bid Meeting:** 8:30 a.m. on July 5, 2016 in KCDC's Board Room (901 Broadway NE, Knoxville 37917).

***Please read this document before the meeting and be prepared to ask your questions about it.***

**Questions:** Submit questions to [purchasinginfo@kcdc.org](mailto:purchasinginfo@kcdc.org)

**Deliver Bids to:** Knoxville's Community Development Corporation  
Purchasing Division  
901 Broadway N.E.  
Knoxville, Tennessee 37917

Faxed/Emailed Responses are acceptable: **Yes**  **No**

**Award Results:** KCDC posts both a summary of the bids received and the award decision to its web page at:

<http://www.kcdc.org/en/DoingBusiness/SolicitationResults.aspx>

**Electronic Copies:** Vendors are encouraged to use the MS Word version of this document. If you need an electronic copy, send an email requesting it to [purchasinginfo@kcdc.org](mailto:purchasinginfo@kcdc.org).



### 1. **BACKGROUND AND INTENT**

- a. Knoxville's Community Development Corporation (KCDC) is the public housing and redevelopment agency for the City of Knoxville and for the County of Knox in Tennessee. KCDC's public housing property portfolio includes seventeen housing properties with approximately 3,500 dwelling units. KCDC also administers approximately 3,800 vouchers through our Section 8 department and has three tax credit properties.
- b. The work consists of:
- Demolition of two buildings, approximately 113,000 square feet, of residential apartment housing including the removal of related site development
  - Extension of a concrete porch with steps and handrail
  - Installation of a traffic signal, pole, pedestrian signals and associated wiring
  - Installation of approximately 1,100 linear feet of gravity sanitary sewer
  - Installation of approximately 100 linear feet of water line
  - Installation of approximately 120 linear feet of retaining wall
  - Installation of approximately 2,500 linear feet of roadway and associated striping and signage
  - Installation of approximately 3,000 linear feet of storm drainage systems
  - Installation of approximately 3,500 linear feet of sidewalk
  - Installation of erosion controls
  - Installation of two storm drainage water quality units
  - Removal of approximately 1,600 linear feet of roadway
  - Removal of storm drainage systems
  - Removal of utility infrastructure

### 2. **BONDS**

Bid, payment and performance bonds will be required upon award if the bid exceeds \$100,000 in value. Bonding requirements include:

- a. A bid guarantee from each vendor equivalent to five percent (5%) of the bid price. Such bid bond must accompany the bid. Bid bonds will not be returned until a contract is signed.
- b. One of the following is required (upon award):
1. A performance and payment bond for 100% of the contract price; or
  2. 25% cash escrow; or
  3. 25% irrevocable letter of credit.

- c. All bonding companies must be in the Federal Register, Department of the Treasury Fiscal Service, Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies; Notice. Companies licensed to do business in Tennessee shall issue all required bonds.

3. **CHANGES AFTER AWARD**

It is possible that after award KCDC will need to revise the service needs or requirements specified in this document. KCDC reserves the right to make such changes after consultation with the vendor. Should additional costs arise, KCDC reserves the right to accept these charges provided the vendor can document the increased costs. KCDC reserves the right to add or delete sites (properties) as needs change.

4. **CODES AND ORDINANCES**

All work covered is to be done in full accord with national, state and local codes, ordinances and orders that are in effect at the time the work is performed. The successful vendor and any sub-contractors must meet and fulfill all requirements of the local building department and fire jurisdiction.

5. **CONTACT POLICY**

The vendor may not contact anyone other than the KCDC's Purchasing Division from the issuance of this solicitation until award about matters pertaining to this solicitation. Information obtained from an unauthorized officer, agent, or employee of KCDC will not affect the risks or obligations assumed by the vendor or relieve the vendor from fulfilling any of the conditions of the resulting award for the purpose of this project. Additionally, such contact can disqualify the vendor from participation in the solicitation process.

6. **CONTRACT APPROVAL**

The resulting contract is subject to the approval of the KCDC Board at its next meeting.

7. **CONTRACT DOCUMENTS**

KCDC has posted a prototype of the contract and rider that will be used for this work to its webpage. Please review these documents before you submit a bid.

8. **DAMAGE**

The vendor is responsible for all damage to buildings, equipment, grounds, premises and all other types of potential resulting from the provision of the services requested herein.

9. **EMPLOYEES**

Vendor will:

- a. Allow only personnel thoroughly trained and skilled to work on the job.
- b. Have sufficient personnel to complete the work in a timely manner.
- c. Enforce strict discipline and good order among his/her employees.



d. Provide at least one employee on every job assignment with the ability to speak, read, write and understand the English language in order for KCDC’s representatives to communicate effectively with the vendor.

10. **ENTRANCE TO SITE**

Vendor employees are not to be on KCDC premises unless they are working on a KCDC project. Acquaintances, family members, assistants or any person not working on KCDC’s behalf will not accompany employees on KCDC sites.

11. **EVALUATION:**

KCDC will primarily evaluate the responses to this solicitation on the factors shown below. However, KCDC will arrive at the “lowest and best” solution for the final award. This may or may not entail simply awarding to the vendor quoting the lowest cost.

<b>FACTORS</b>	<b>MAXIMUM POINTS</b>
Cost	100
Total	100

All responses are subject to a determination of “responsive” and “responsible” prior to award. KCDC is the sole judge as to “responsiveness” and “responsibility” of vendors.

KCDC reserves the right to request additional information from vendors to assist in the evaluation process. This includes references and business capacity information.

12. **GENERAL INSTRUCTIONS**

KCDC no longer inserts “General Instructions to Vendors” in the solicitation document. Instead, these instructions are at [www.kcdc.org](http://www.kcdc.org). Click on “Doing Business With KCDC” where you will find a link to the instructions. By submitting a response to this solicitation, the vendor accepts the responsibility for downloading, reading and abiding by the terms and conditions set forth in KCDC’s “General Instructions to Vendors.” Vendors may wish to review certain applicable HUD instructions on KCDC’s webpage.

13. **IDENTIFICATION**

The vendor’s employees will have proper identification displayed, at all times, while on KCDC property. All employees must wear a company uniform or have picture identification badges or other company identification at all times. Vendor vehicles are to have placards (on the doors or in the windshield) that identify the company name. If vendor’s employee drive their vehicles to the work site, the vehicle identification requirements apply.

14. **INSURANCE**

Upon award, Certificates of Insurance must be provided to KCDC indicating that the contractor carries at least the following minimum levels of insurance. Contractor shall at its sole expense obtain and maintain in full force and effect for the duration of the resulting contract and any extension hereof at least the following types and amounts of insurance for claims which may arise from or in connection with this resulting contract. All insurance must be underwritten by insurers with an A.M. Best rating of A-: VI or better.



- a. *Commercial General Liability Insurance:* occurrence version commercial general liability insurance with a limit of not less than \$2,000,000 each occurrence for bodily injury, personal injury, property damage, and products and completed operations. If such insurance contains a general aggregate limit, it shall apply separately to the work/location in this resulting contract or be no less than two times the occurrence limit. If necessary, umbrella liability insurance can be used in conjunction with the general liability insurance to meet these requirements.

Such insurance shall:

1. Contain or be endorsed to contain a provision that includes KCDC, its officials, officers, employees, and volunteers as additional insureds with respect to liability arising out of work or operations performed by or on behalf of the contractor including materials, parts, or equipment furnished in connection with such work or operations. The coverage shall contain no special limitations on the scope of its protection afforded to the above-listed insureds.
  2. For any claims related to this project, contractor's insurance coverage shall be primary insurance as respects KCDC, its officials, officers, employees, and volunteers. Any insurance covering KCDC, its officials, officers, employees, and volunteers shall be excess of contractor's insurance and shall not contribute with it.
  3. At the sole discretion of KCDC, dedicated limits of liability for this specific project may be required.
- b. *Automobile Liability Insurance:* including vehicles owned, hired, and non-owned, with a combined single limit of not less than \$1,000,000 each accident.
- c. *Workers' Compensation Insurance:* workers' compensation insurance with statutory limits as required by the State of Tennessee or other applicable laws and employers' liability insurance with limits of not less than \$500,000. Contractor shall require each of its subcontractors to provide workers' compensation insurance for all of the latter's employees to be engaged in such work unless such employees are covered by contractor's workers' compensation insurance coverage. Such insurance shall include a waiver of subrogation in favor of KCDC.
- d. *Builder's Risk:* Builders' Risk Insurance on a replacement cost basis during the construction of the project. Insurance is to be on an "all risks" basis and shall insure against the perils of fire and extended coverage and physical loss or damage including, but not limited to, theft, vandalism, malicious mischief, collapse, temporary building and debris removal including demolition occasioned by enforcement of any applicable legal requirements and shall cover reasonable compensation for architect's services and expenses required as a result of such insured loss. Insurance is to cover all property of contractor (and its subcontractors) and KCDC at the construction site. Coverage shall cover the completed value of the construction including without limitation, slab on grade, excavations, foundations, caissons, tenant finish work, and retaining walls around the perimeter of the project. Any exclusion of so-called underground damage to pipes, collapse of structure, or damage resulting from explosion or blasting shall be deleted. This coverage shall be issued on a completed value form basis for 100% of the insurable

replacement value of the project. Such policy shall provide that any loss thereunder shall be payable to the contractor, KCDC, and others as their interests may appear and shall also have a replacement cost endorsement. The insurer shall waive all rights of subrogation against KCDC. Partial occupancy or use shall not commence until the insurance company or companies providing the insurance have consented to such partial occupancy or use by endorsement or otherwise. The contractor shall be responsible for the deductible in the event of a loss.

- e. *Pollution Liability Insurance:* pollution liability coverage, providing defense and indemnity coverage for bodily injury, property damage, and environmental investigation and clean-up costs for pollution conditions arising from the contractor's operations.
  
- f. *Other Insurance Requirements:* Contractor shall:
  - 1. Upon award, furnish KCDC with original certificates and amendatory endorsements effecting coverage required by this section and provide that such insurance shall not be cancelled, allowed to expire, or be materially reduced in coverage except on 30 days' prior written notice to KCDC's Contracting Officer.
  - 2. Provide certified copies of endorsements and policies if requested by KCDC in lieu of or in addition to certificates of insurance.
  - 3. Replace certificates, policies, and endorsements for any such insurance expiring prior to completion of services.
  - 4. Maintain such insurance from the time services commence until services are completed. Failure to maintain or renew coverage or to provide evidence of renewal may be treated by KCDC as a material breach of contract.
  - 5. Require all subcontractors to maintain during the term of the resulting contract commercial general liability insurance, automobile liability insurance, and workers' compensation/employer's liability insurance (unless subcontractor's employees are covered by contractor's insurance) in the same manner and limits as specified for contractor. Contractor shall furnish subcontractors' certificates of insurance to KCDC without expense immediately upon request.
  - 6. Any deductibles and/or self-insured retentions greater than \$50,000 must be disclosed to and approved by KCDC prior to the commencement of services. Use of large deductibles and/or self-insured retentions will require proof of financial ability as determined by KCDC.
  - 7. The insurer shall agree to waive all rights of subrogation against KCDC, its officials, officers, employees, and volunteers for losses arising from work performed by contractor for KCDC.



8. All policies must be written on an occurrence basis. Use of policies written on a claims made basis must be approved by KCDC and retroactive dates and/or continuation dates must be provided to KCDC prior to commencement of any work performed.

15. **INVOICING/ORDERING**

- a. Until a contract is in place, work is not to be performed nor are goods to be delivered. If a vendor performs work without a contract in place, KCDC does not have a legal obligation to pay for the work.
- b. Vendor must submit pay applications within 90 days of the date the goods or services were provided. KCDC reserves the right to refuse payment for pay applications submitted after the 90-day threshold.
- c. KCDC is exempt from all taxes levied by the State of Tennessee, its cities and counties, as well as most federally imposed taxes. However if vendors purchase goods for KCDC, the vendor must pay sales or “use tax.” Upon the placement of a purchase order or the award of a contract, KCDC will provide a State of Tennessee Governmental Sales Tax Exemption form to the vendor. KCDC will not pay taxes shown on invoices.
- d. KCDC normally pays by electronic transfer (ACH) only. KCDC does not issue checks. Vendors will need to set up their access to KCDC’s Vendor Portal to track actual payments made.

16. **LICENSURE**

- a. Vendors must be properly licensed by the State of Tennessee and all other authorities having jurisdiction. Throughout the term of this award, the vendor shall maintain the required licenses.
- b. In addition to any City or County licenses that may be required, all vendors must be licensed vendors as required by the “Vendor’s Licensing Act of 1994” as mandated by the State of Tennessee. The vendor must have the necessary licensing classifications as required by the Rules of the Tennessee Board for Licensing General Vendors. For your convenience, an envelope coversheet is at the end of this document. Use it to supply the required information.
- c. The State of Tennessee Contractor Licensing Board has told KCDC that one of the following licenses is required for this work because the cost will exceed \$25,000. However, KCDC will abide by any opinions or rulings that the State Vendor Licensing Board issues irrespective of this initial ruling. Any subsequent ruling by the State Licensing Board automatically revises these specifications-irrespective of the timing of the notice from the State and irrespective of the status of this solicitation.
  - BC
  - BC-B
  - MU
  - MU-B (must cover at least 60% of the work)



17. **LIQUIDATED DAMAGES**

Liquidated damages of \$100.00 per calendar day apply for each day beyond the scheduled completion date and such provision is in the contract for construction. However, KCDC will consider explanatory information if it provides a valid reason for delays in schedule.

18. **MATERIALS AND WORKMANSHIP**

All materials and equipment furnished shall be new and of high quality. Work shall be accurate, skilled and subject to approval of KCDC. All materials and equipment provided shall conform to regulations of enforcement bodies having jurisdiction. Vendor shall furnish material samples for approval if specified and so desired by KCDC.

19. **MEASUREMENTS AND DRAWINGS**

Complete responsibility for the final determination of dimensions lies with the vendor. The vendor shall verify all dimensions with the actual on site conditions. Where the vendor's work is to join another trade, the vendor's shop drawings shall show actual dimensions and the method of joining the work of those trades.

20. **PERMITS**

The vendor shall obtain and pay for or cause its subcontractors to obtain and pay for all permits required to complete required work. In addition, vendor shall arrange, schedule, and pay for or cause its subcontractors to arrange, schedule and pay for all required final inspections by state, local, or independent certified inspecting authorities necessary for issuance of all required KCDC utilization permits in regard to completed work.

21. **QUESTIONS**

Submit questions via email with "Questions about Infrastructure Improvements" in the subject line to [purchasinginfo@KCDC.org](mailto:purchasinginfo@KCDC.org).

22. **REPRESENTATIONS**

By submitting a response, the vendor represents and warrants:

- a. That the vendor is financially solvent and that it is experienced in and competent to perform the type of work, and/or to furnish the personnel, plans, materials, supplies or equipment to be performed or furnished by it; and
- b. That the vendor is familiar with all federal, state, municipal and county laws, ordinances and regulations, which may in any way affect the work of those employed therein, including but not limited to any special acts relating to the work or to the project of which it is a part; and
- c. That the vendor has carefully examined the plans, the specifications and the worksites and that from its own investigations, has satisfied itself as to the nature and location of the work, the character, quality, quantity of surface and subsurface materials likely to be encountered, and character of equipment and other facilities needed for the performance of the work, the general and local conditions and all other materials which may in any way affect the work or its performance.



23. **RESPONSIBILITIES**

At no expense to KCDC, the vendor will:

- a. Provide quality control for all services provided.
- b. Provide competent supervision.
- c. Provide competent workers.
- d. Take precautions necessary to protect persons or property against injury or damage and be responsible for any such damage, or injury that occurs because of their fault or negligence.
- e. Perform work without unnecessarily interfering with the activities of KCDC, residents or other vendors.

24. **SAFETY**

- a. The vendor is responsible for providing and placing barricades, tarps, plastic, flag tape and other safety/traffic control equipment to protect the public, surrounding areas, equipment and vehicles.
- b. The vendor shall ensure that the flow of vehicular traffic is impeded as little as possible during the project. The safety of the public is of prime concern to KCDC and all costs associated are the responsibility of the vendor.
- c. The vendor shall ensure that its employees exercise all necessary caution and discretion to avoid injury to persons or damage to property.
- d. The vendor will protect all buildings, appurtenances and furnishings from damage. The vendor shall, at his expenses, repair such damages (or replace the items) by approved methods to restore the damaged areas to their original condition.
- e. Vendor shall use caution signs as required by OSHA Regulation 1910.144 and 1910.145 at no cost to KCDC. Caution signs shall be on-site on commencement of contract.
- f. Vendor shall comply with all other OSHA and TOSHA safety standards that apply.

25. **SECTION 3 OF THE HUD ACT OF 1968**

Section 3 is a provision of the Housing and Urban Development Act of 1968 which requires that programs of direct financial assistance administered by the U.S. Department of Housing and Urban Development (HUD) provide, to the greatest extent feasible, opportunities for job training and employment to lower income residents in connection with projects in their neighborhoods. Further, to the greatest extent feasible, contracts in connection with these projects are to be awarded to local businesses. Section 3 is a tool for fostering local economic development, neighborhood economic improvement and individual self-sufficiency.



- a. Recipients and vendors must make a good faith effort to utilize Section 3 area residents as trainees and employees in connection with the project. Targeted recruitment and the selection of Section 3 area residents for available positions are two examples of good faith efforts to meet this requirement.
- b. Recipients and vendors must make a good faith effort to award contracts to Section 3 business concerns for work in connection with the project. An example of a good faith effort to meet this requirement is the implementation of an affirmative action plan, which includes targets for the number and dollar value for awarding contracts to Section 3 business concerns.
- c. Recipients and vendors must keep records and submit reports to HUD documenting the good faith efforts taken and the results of these actions. Examples of such documentation include letters to community organizations, employment development and business development centers, copies of solicitations for bids or proposals; and copies of affirmative action plans.
- d. How can businesses find Section 3 residents to work for them? By recruiting in the neighborhood and public housing developments to tell about available training and job opportunities. Distributing flyers, posting signs, placing ads, and contacting resident organizations and local community development and employment agencies to find potential workers are a few effective ways of getting jobs and people together.
- e. All contracts awarded are subject to Section 3 requirements. Vendor shall seek to fill any and all position that are needed and unfilled with residents of KCDC communities. For additional information, please go to <http://www.hud.gov/offices/fheo/section3/Section3.pdf>. The successful vendor will supply KCDC with job announcements for any position that must be filled as a result of the award of KCDC work. Additionally the successful vendor will supply the same job announcement to the Knoxville-Knox County Committee Action Committee's Workforce Connections group. These can be faxed to 544-5269.
- f. A Section 3 resident is one who lives within a public housing authority's site. It is also people who live in an area with a HUD assisted program and whose income is below HUD's low income requirements.
- g. A Section 3 business is one that:
  1. Is at least 51% owned by a Section 3 resident; or
  2. Employs Section 3 residents for at least 30% of its employee base; or
  3. Makes a commitment to sub contract at least 25% of the project's dollars to a Section 3 business.
- h. Upon award, the successful vendor will supply two documents to KCDC:
  1. A Section 3 Business determination (forms supplied by KCDC) provided one is not already on file.



2. A Section 3 Business plan for this work.

26. **SECURITY**

The successful vendor is responsible for providing needed security to equipment, materials, personnel, tools and the site that are required for this job. KCDC is not responsible for damage or losses to equipment, materials, personnel, tools or the site.

27. **SITE EXAMINATION**

- a. Vendors are encouraged to visit the site and become fully acquainted and familiar with conditions as they exist and the desired operations. The vendor shall make such investigations as they may see fit so that they may fully understand the facilities, difficulties and possible restrictions when executing the work.
- b. The failure or omission of the vendor to receive or examine the solicitation document or any part of the specifications, or to visit the site(s) and acquaint themselves as to the nature and location of the work, the general and local conditions and all matters which may in any way affect performance shall not relieve the vendor of any obligation to perform as specified herein. Vendor understands the intent and purpose hereof and its obligations hereunder and that it shall not make any claim for, or have any right to damages resulting from any misunderstanding or misinterpretation of the resulting agreement, or because of any lack of information.
- c. By submitting a response to this solicitation, each vendor is certifying that they have inspected the site and have read and are familiar with the solicitation and all appendices and addenda. The failure or omission of any vendor to receive or examine any form, instrument or document shall in no way relieve the vendor from any obligation in respect to its bid.

28. **STORAGE**

KCDC sites have limited storage space for vendors to access. Accordingly, vendors are responsible for the storage of materials and their security. If possible, KCDC will allow vendors to use space but the safety and security of the items stored is solely the responsibility of the vendor.

29. **STORM WATER AND STREET ORDINANCES**

The City of Knoxville's Storm Water and Street Ordinances apply to this solicitation. The successful vendor will comply with all aspects of the City's ordinances. Compliance includes but is not limited to:

- a. Retaining all sediments on the project site using structural drainage controls. Drainage control costs are incidental to the work.
- b. No construction or demolition related materials, wastes, spills, or residues shall be discharged from the project site to streets, drainage facilities or adjacent properties by wind or runoff.
- c. Non-storm water runoff from equipment and vehicle washing and any other activity shall be contained at the project site.



- d. Additional information about NPDES, BMPs, and the Land Development Manual is at the City of Knoxville's Storm water Engineering Division webpage:  
(<http://www.cityofknoxville.org/engineering/stormwater/npdes.asp>).
- e. The successful vendor is responsible for all work, remediation, repair and monetary penalties or fines arising out of a Notice of Violation of the City of Knoxville's Storm water and Street Ordinances. Any cost incurred by KCDC to install structural drainage controls or remedy a Notice of Violation will be charged to the vendor and deducted from funds due for the work. KCDC shall also charge a \$50 fee per violation for related administrative costs.

30. **SUBCONTRACTORS**

Subcontractors must:

- a. Be approved by KCDC prior to beginning work.
- b. Not be on HUD's Debarment List.
- c. Carry the insurance coverages as outlined herein.
- d. Not be changed without KCDC's permission.
- e. Comply with the Davis Bacon requirements and submit certified payrolls.

31. **WAGE COMPLIANCE**

- a. Federal Davis Bacon Wage Requirements apply to this work. This means that the successful vendor:
  - Will submit certified payrolls that show compliance with the Davis Bacon requirements detailed herein. Failure to do so will be sufficient cause for withholding payment and/or termination of the contract.
  - Must pay its employees at least weekly pursuant to the Davis Bacon determination listed herein.
  - Will display all pages of Wage Posters, in a "prominent spot" at the job site. These are available at <http://www.kcdc.org/Pages/Purchasing/Purchasing.aspx>.
  - Will allow KCDC to conduct on-site interviews of the vendor's employees to ascertain that the vendor follows Davis Bacon provisions. KCDC will use HUD forms and record the information.
  - Classify employees by the applicable Davis Bacon classification. Classifications are determined by the work performed and the tools used-not on titles.



b. General Decision Information

General Decision Number	TN160130
Date	01-08-2016
State	Tennessee
Construction Types	Heavy
Counties	Knox Counties in Tennessee
Heavy Construction	HEAVY CONSTRUCTION PROJECTS (including sewer/water construction)
Modification Number	0

c. Classifications and rates:

Classifications and Rates	Rate	Fringe 1
Electrician	\$23.64	\$9.91
Laborer: Common or General	\$19.14	\$5.97
Laborer: Flagger	\$8.73	\$0.00
Laborer: Pipelayer	\$11.75	\$0.00
Operator: Backhoe, Excavator/Trackhoe	\$18.45	\$0.00
Operator: Loader	\$13.50	\$0.00
Operating Engineer: Bulldozer and Crane	\$26.72	\$9.90
Operating Engineer: Forklift	\$24.53	\$9.90
Truck Driver: Dump Truck	\$10.76	\$0.00
Welders: Receive rate prescribed for craft performing operation to which welding is incidental.		

d. Vendors may not “use a classification” because there is not one listed that exactly identifies the work being performed. Unlisted Classifications needed for work not included within the scope of the classifications listed above may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)). To request an additional classification:

1. Write a brief letter to KCDC (upon award) stating the title needed and the proposed pay rate. Indicate that the employees agree with the rate and are in agreement with the rate. The rate must bear a reasonable resemblance to other rates on the classification.
2. If the additional classification is for a subcontractor, the subcontractor writes a similar letter to the General Contractor who then sends a cover letter to KCDC officially requesting the classification.
3. KCDC will review the request and forward it to HUD and officially request it or KCDC will suggest that the vendor revise the request.
4. HUD will review the request and approve it (or decline it) and send it to the Department of Labor for final approval.
5. The Department of Labor will either approve the request or recommend a different minimum rate.



- 6. HUD will notify KCDC of the decision.
- 7. Should either HUD or the Department of Labor require a higher minimum rate, KCDC will notify the vendor. The higher minimum rate, if any, must be paid for work completed (back wages) and for all future work under this project.
- e. These requirements apply to all subcontractors that used by the successful vendor.
- f. Davis Bacon rates are locked in at the bid opening provided that a contract is awarded within 90 days. If a contract is not awarded within 90 days after the bid opening and if a new decision is released, it will apply. Modifications released 10 days or less before a bid opening are not applicable as there is not time to incorporate the changes in the bid. In all cases however, KCDC is required to adhere to Davis Bacon standards as the Department of Labor determines - irrespective of any announcements KCDC may have made.
- g. Apprentices do not require additional classifications. However, apprentices must:
  - Be in an apprenticeship program registered by the United States Department of Labor
  - Be paid the wages indicated on the program registration documents
  - Must be in the ratio of apprentices to journeymen indicated on the program registration documents

If apprentices are used, the successful vendor will submit documentation of the program to KCDC's Procurement Division for review and consent.

32. **WEATHER**

Since this solicitation calls for liquidated damages if the vendor exceeds the guaranteed number of days for completion, allowances are needed for excessive inclement weather.

- a. EXTENSIONS OF CONTRACT TIME  
If the basis exists for an extension of time in accordance with this solicitation, then an extension of time based on weather may be granted only for the number of weather delay days in excess of the number of weather days listed as the Standard Baseline for that month.
- b. STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE  
The Standard Baseline is the normal and anticipated number of calendar days for each month during which adverse weather will prevent activity. Suspension of activity for the number of days each month as listed in the Standard Baseline is to be included in the work and not eligible for an extension of the contract time. The baseline is:

JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
10	10	10	10	11	8	11	7	9	8	8	12



c. ADVERSE WEATHER AND WEATHER DELAY DAYS

1. Adverse weather is the occurrence of one or more of the following conditions which prevents only exterior activity or access to the site within a twenty-four hour period:
  - a. Precipitation (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure.
  - b. Temperatures which do not rise above 32 degrees Fahrenheit by 10:00 a.m.
  - c. Standing snow in excess of one inch (1.00").
2. Adverse weather may include, if appropriate, "dry-out" or "mud" days when all of the following are met:
  - a. For rain above the Standard Baseline.
  - b. Only if there is a hindrance to site access or site work, such as excavation, backfill, and footings.
  - c. At a rate no greater than one make-up day for each day or consecutive days or rain beyond the Standard Baseline that total 1.0 inch or more, liquid measure, unless specifically recommended otherwise by the owner.
3. A weather delay day occurs only if adverse weather prevents work on the project for 50 percent or more of the vendor's scheduled workday, including a weekend day or holiday if the vendor has scheduled construction activity that day.

d. DOCUMENTATION AND SUBMITTALS

1. Submit Daily Jobsite Work Log showing which and to what extent activities were affected by weather on a monthly basis.
2. Submit actual weather data to support a claim for the time extension obtained from nearest NOAA weather station or other independently verified source approved by the owner at the beginning of the project.
3. Maintain a rain gauge, thermometer, and clock at the jobsite. Keep daily records of precipitation, temperature, and the time of each occurrence throughout the project.
4. Use the Standard Baseline data provided in this section when documenting actual delays due to weather in excess of the average.
5. Organize claim and documentation to facilitate evaluation on a basis of calendar month periods, and submit in accordance with the procedures for claims established by the owner.

e. APPROVAL BY OWNER

1. If the extension of the contract time is appropriate, it will occur in accordance with the provisions of this solicitation.
2. Extra costs shall not be incurred by the owner for any extra time increase to the contract.





**SECTION 01 10 00 - SUMMARY**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 WORK COVERED BY CONTRACT DOCUMENTS**

- A. Project Identification: Five Points Infrastructure Improvements.

1. Project Location: S Olive St, Knoxville, Tennessee.

- B. Owner: Knoxville's Community Development Corporation

- C. Owner's Representative:

1. Partners Development

2. An Owner's Representative has been engaged by the Owner for this Project to serve as an advisor to the Owner and to provide assistance in administering the Contract for Construction between Owner and Contractor, according to a separate contract between Owner and Owner's Representative.

- D. Engineer: Civil & Environmental Consultants, Inc.

- E. The Work consists of the following:

1. The demolition of two two-story buildings, of residential apartment housing including the removal of related site development. The removal of approximately 1,600 linear feet of roadway. The removal of storm drainage systems. The removal of utility infrastructure. The installation approximately 2,500 linear feet of roadway and associated striping and signage. The installation approximately 3,500 linear feet of sidewalk. The installation approximately 120 linear feet of retaining wall. The extension of a concrete porch with steps and handrail. The installation approximately 3,000 linear feet of storm drainage systems. Installation of two storm drainage water quality units. The installation approximately 1,100 linear feet of gravity sanitary sewer. The installation approximately 100 linear feet of water line. Installation and maintenance of erosion controls. The installation of a traffic signal, pole, pedestrian signals and associated wiring.

### 1.3 TYPE OF CONTRACTS

- A. The project will be constructed under a single prime contract.
- B. The Owner reserves the right to perform selected work under separate contracts.

### 1.4 USE OF PREMISES

- A. General: Contractor shall have full use of the premises for construction operations during construction period. Contractor's use of the site will be limited to areas designated. Contractor's use of premises and the designated site is limited only by Owner's right to perform work or to retain other contractors on portions of the project. Contractor shall coordinate use of the site with the owner.

### 1.5 WORK UNDER OTHER CONTRACTS

- A. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Preceding Work: Owner has awarded separate contract for the following construction operations at Project site.
  - 1. Utility lines removal, relocation and installation including lighting.
- C. Future Work: The Owner reserves the right to perform certain aspects of the work under separate contract, including but not limited to the following:
  - 1. Tree planting
  - 2. Miscellaneous utility work

### 1.6 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "Master Format" numbering system.
  - 1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:



1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
  - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

END OF SECTION 01 10 00



## SECTION 01 25 00 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
  - 1. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after the Contract award.

#### 1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Owner's Representative will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Owner's Representative are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within the time specified in the Proposal Request after receipt of the Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate any applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.



- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Owner's Representative.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  2. Include a list of quantities of products required or eliminated and unit costs, with the total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  5. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

#### 1.4 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Owner's Representative will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

#### 1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Owner's Representative may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.



PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00



## SECTION 01 29 00 - PAYMENT PROCEDURES

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

#### 1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### 1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Submit a preliminary Schedule of Values upon request from the Owner.
  - 2. Submit final Schedule of Values to Owner's Representative at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use the Schedule of Values form for a list of line items to include.
  - 1. Use AIA Form G702 and G703 for format.
  - 2. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  - 3. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use the information indicated in the Contract Documents to determine quantities.



4. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
5. List Change Orders as individual line items separate from base fee.

#### 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Owner's Representative and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is decided at the preconstruction meeting but is no less than once a month.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment. Additional HUD forms may be required and will be discussed at the pre-construction meeting.
- D. Application Preparation: Complete every entry on form. Notarize and execute it by a person authorized to sign legal documents on behalf of the Contractor.
  1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  2. Include the amounts of Change Orders and Construction Change Directives issued before the last day of the construction period covered by application.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to the Owner's Representative. All copies shall include waivers of lien and similar attachments if required.
- F. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  1. List of subcontractors.
  2. Schedule of Values.
  3. Contractor's Construction Schedule (preliminary if not final).





4. Submittals Schedule (preliminary if not final).
  5. Copies of building permits.
  6. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
- G. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
- H. Final Payment Application: Submit final Application for Payment with releases and supporting documentation as directed by Owner and Owner's Representative.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00



## SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General project coordination procedures.
2. Conservation.
3. Project meetings.

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

1. Section 01 77 00 - Closeout Procedures for coordinating Contract closeout.

#### 1.3 PROJECT MANAGEMENT AND COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Be fully responsible for coordinating actual installed location and interface of Work.
3. Make adequate provisions to accommodate items scheduled for later installation.

#### 1.4 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at the Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Owner's Representative of scheduled meeting dates and times.



2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including the Owner and Owner's Representative, within three days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Owner's Representative but no later than 15 days after execution of the Agreement. Hold the conference at Project site. Conduct the meeting to review responsibilities and personnel assignments.
1. Attendees: Authorized representatives of Owner, Owner's Representative, Contractor, Contractor's superintendent, major subcontractors, and other concerned parties shall attend the conference.
  2. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Phasing.
    - c. Critical work sequencing.
    - d. Designation of responsible personnel.
    - e. Procedures for processing field decisions and Change Orders.
    - f. Procedures for processing Applications for Payment.
    - g. Distribution of the Contract Documents.
    - h. Submittal schedule & procedures.
    - i. Preparation of Record Documents.
    - j. Use of the premises.
    - k. Responsibility for temporary facilities and controls.
    - l. Parking availability.
    - m. Office, work, and storage areas.
    - n. Equipment deliveries and priorities.
    - o. First aid.
    - p. Security.
    - q. Progress cleaning.
    - r. Working hours.
- C. Progress Meetings: Conduct progress meetings monthly, at a minimum. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner, Owner's Representative, and Contractor, Contractor's superintendent, each subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings.
  2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

- a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how work behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
  - b. Submittals: Status of submittal log.
  - c. Requests for Information (RFI's): review status of RFI log.
  - d. Change Orders: review status of Change Orders, submitted and anticipated.
  - e. Pay Applications: on a monthly basis, review line item request.
  - f. Review present and future needs of each entity present, including the following:
    - 1) Interface requirements.
    - 2) Sequence of operations.
    - 3) Deliveries.
    - 4) Off-site fabrication.
    - 5) Access.
    - 6) Site utilization.
    - 7) Temporary facilities and controls.
    - 8) Work hours.
    - 9) Hazards and risks.
    - 10) Progress cleaning.
    - 11) Quality and work standards.
    - 12) Documentation of information for payment requests.
3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
- a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00



## SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

#### 1.3 USE CHARGES

- A. General: Cost for the installation of temporary facilities are not chargeable to Owner or Owner's Representative and shall be included in the Contract Sum. Usage fees shall be paid by the Contractor. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Owner's construction forces.
2. Owner's Representative.
3. Testing agencies.
4. Personnel of authorities having jurisdiction.

- B. Water Service: Water is available on site. Arrange for temporary connection, and pay applicable installation and usage fees and costs.

- C. Electric Power Service: Power is available on site. Arrange for temporary connection, and pay applicable installation and usage fees and costs.

#### 1.4 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

#### 1.5 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.



2. Relocate temporary services and facilities as required by progress of the Work.
- B. Maintain water for fire and pollution control as required by regulating agencies having jurisdiction.
- C. Construction Fencing:
1. Chain link fencing shall be installed at location as determined by the owner to control access to the work site.
  2. Contractor shall relocate the fence as necessary to control access to the site and allow for work to proceed.
  3. Upon completion of the work, Contractor shall remove fencing.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Owner's Representative. Provide materials suitable for use intended.
- B. Water: Potable.

### 2.2 TEMPORARY FACILITIES

A. Field Offices, Contractor:

1. Provide a unit of sufficient size to accommodate the needs of construction personnel. Contractor shall bring an office trailer to the site.
  2. Furniture required for project-site documents.
  3. Conference room of sufficient size to accommodate meetings of at least ten persons. Furnish the room with a conference table and chairs.
  4. Lighting fixtures capable of maintaining 30 fc on desk and conference table surfaces.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
1. Store combustible materials apart from the building.

### 2.3 EQUIPMENT

- A. General: Provide equipment suitable for use intended.



- B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.
- E. Heating Equipment: Where necessary, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.
- F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- G. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required. Obtain approval of the location from the Owner's Representative prior to any installation.
- B. Do not remove until facilities are no longer needed.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.



1. Arrange with the utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
  3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.
- B. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain an adequate supply. Provide covered waste containers for the disposal of used material.
  2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
  3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.
  4. Drinking-Water Facilities: Provide potable drinking water in dispensers with cups.
- D. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.
- E. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
  2. Provide warning signs at power outlets other than 110 to 120 V.
  3. Provide metal conduit, tubing, or metallic cable for wiring exposed to possible damage. Provide rigid steel conduits for wiring exposed on grades, floors, decks, or other traffic areas.
  4. Provide metal conduit enclosures or boxes for wiring devices.



5. Provide 4-gang outlets, spaced so 100-foot extension cord can reach each area for power hand tools and task lighting. Provide a separate 125-V ac, 20-A circuit for each outlet.

F. Telecommunication Service and electronic equipment:

1. Provide wireless telephone service for Contractor's field supervisor and project manager.
3. Provide digital camera, with ability to download photos to computer and email images.

### 3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access, and where approved by Owner's Representative.
2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion.

B. Dewatering Facilities and Drains: Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in accordance with SWPP Plans and that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.

C. Project Identification and Temporary Signs: Project signs will be provided by Owner's Representative. Do not permit installation of unauthorized signs.

1. Install sign provided by Owner's Representative. Support on posts or framing of preservative-treated wood or steel.
2. No other free standing signs shall be allowed.
3. Signage on trucks, job trailer, and material trailers shall be permitted.

D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Section 01700 - Execution Requirements for progress cleaning requirements.

1. Provide for recycling of plastic bottles and aluminum cans.

E. Field Office, Contractor:

1. Locate field office as approved by the Owner's Representative.
2. Furnish and equip office.



- F. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services.
  - 1. Construct framing, sheathing, and siding using fire-retardant-treated lumber and plywood.
  - 2. Paint exposed lumber and plywood with exterior-grade acrylic-latex emulsion over exterior primer.
- G. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and filed SWPP Plan, and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Stormwater Control: Provide controls as indicated on the Storm Water Pollution Prevention Plan (SWPPP).
- C. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.
- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- E. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
  - 1. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
  - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.



3. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended or no later than Substantial Completion. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
  4. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

END OF SECTION 01 50 00



## SECTION 01 60 00 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Section 01 77 00 - Closeout Procedures for submitting warranties for contract closeout.
  - 2. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.

#### 1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
- D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

#### 1.4 SUBMITTALS

- A. Substitution Requests: Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.



1. Documentation: Show compliance with requirements for substitutions.
  2. Owner's Representative's Action: If necessary, will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Owner's Representative will notify Contractor of acceptance or rejection of proposed substitution within 10 working days of receipt of request, or 5 working days of receipt of additional information or documentation, whichever is later.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

#### 1.5 QUALITY ASSURANCE

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

#### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

#### 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents.
- B. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

### PART 2 - PRODUCTS

#### 2.1 PRODUCT OPTIONS

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

#### 2.2 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit evidence of equivalence, in addition to other required submittals, to obtain approval of an unnamed product.

### PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00



## SECTION 01 70 00 - EXECUTION REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. General installation of products.
  - 3. Progress cleaning.
  - 4. Protection of installed construction.
  - 5. Correction of the Work.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical utilities and other construction affecting the Work.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

#### 3.2 PREPARATION

- A. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Development Manager not less than seven days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Development Manager's written permission.



- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

### 3.3 FIELD ENGINEERING

- A. Identification: The Contractor is responsible for working within property boundaries and locating property lines as necessary to determine limits of the work.
- B. Benchmarks: Establish and maintain a minimum of two temporary benchmarks on the Project site, referenced to data established by survey.

### 3.4 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily. Enforce requirements strictly. Dispose of materials lawfully.
  1. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Installed Work: Keep installed work clean. Clean installed surfaces using cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- D. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- E. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.5 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
- B. Restore permanent facilities used during construction to their specified condition.



- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

END OF SECTION 01 70 00





## SECTION 01 77 00 - CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

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

1. Inspection procedures.
2. Project record documents.

#### 1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining the date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Advise the Owner of pending insurance changeover requirements.
2. Submit specific warranties, final certifications, and similar documents.
3. Obtain and submit releases permitting the Owner unrestricted use of the Work and access to services and utilities. Include certificate of completion, government releases, and similar releases.
4. Prepare and submit Project Record Documents, damage or settlement surveys, and similar final record information.
5. Terminate and remove temporary facilities from the Project site, along with mockups, construction tools, and similar elements.
6. Submit changeover information related to the Owner's occupancy, use, operation, and maintenance.
7. Complete final clean-up requirements.

- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of the request, the Owner's Representative will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Owner's Representative will prepare the Certificate of Substantial Completion after inspection or will notify the Contractor of items, either on the Contractor's list or additional items identified, that must be completed or corrected before certificate will be issued.

#### 1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:



1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit copy of Owner's Representative's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner's Representative. The copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of a request, the Owner's Representative will either proceed with inspection or notify the Contractor of the unfulfilled requirements. The Owner's Representative will prepare a final Certificate for Payment after inspection or will notify the Contractor of construction that must be completed or corrected before the certificate will be issued.

### 1.5 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for the Owner's Representative's reference during normal working hours.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
  1. Mark Record Prints to show the actual installation or cut-off where installation or cut-off varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
  2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
  3. Mark important additional information that was either shown schematically or omitted from the original Drawings.
  4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
  5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on the cover sheets.
- C. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections. Bind or file miscellaneous records and identify each for continued use and reference. Included, but not limited to:
  1. Land fill tickets

2. Hazardous waste disposal tickets
3. Waiver of Liens
4. Certification of employment and labor payroll documentation for employees hired from the housing development and/or within city limits.
5. Certificates of Completion from City Building Officials.

## 1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on the request of the Owner's Representative for designated portions of the Work where the commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

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

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning:
  1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean the Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from the Project site.



- e. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01 77 00



## SECTION 02 22 10 - BUILDING DEMOLITION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:

1. Demolition and removal of selected portions of a building or structure.
2. Repair procedures for selective demolition operations.

- B. Related Sections include the following:

1. Section 01 51 00: Temporary Facilities and Controls, for temporary construction and environmental-protection measures for selective demolition operations.

#### 1.3 DEFINITIONS

- A. Demolish: Completely remove and legally dispose of off-site.
- B. Recycle: Recovery of demolition waste for subsequent processing in preparation for reuse.
- C. Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to the Owner. Include fasteners or brackets needed for reattachment elsewhere.

#### 1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste shall become Contractor's property and shall be removed from the project site.

#### 1.5 SUBMITTALS

- A. Proposed Protection Measures: Submit informational report, including drawings, that indicates the measures propose for protecting individuals and property. Indicate proposed locations of construction barriers.
- B. Schedule of Building Demolition Activities: Indicate the following:
1. Detailed sequence of demolition work with starting and ending dates for each activity.
  2. Temporary interruption of utility services.



- C. Pre-demolition: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by building demolition operations.
- D. Landfill Records:
  - 1. Materials and debris shall be sent to a landfill approved by the State of Tennessee.
  - 2. Maintain and provide Owner's Representative with copies of waste manifest and landfill receipts.
  - 3. Provide manifests and disposal receipts for hazardous wastes.

#### 1.6 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.
- D. Pre-demolition Conference: Conduct conference at Project site to review methods and procedures related to building demolition including, but not limited to, the following:
  - 1. Inspect and discuss the condition of construction to be demolished.
  - 2. Review structural load limitations of the existing structures.
  - 3. Review and finalize the building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review and finalize protection requirements.

#### 1.7 PROJECT CONDITIONS

- A. Buildings to be demolished will be vacated and their use discontinued prior to start of the Work.
- B. Utility services to the buildings will be discontinued and service lines to the site will be cut and capped prior to start of the Work.
- C. Buildings immediately adjacent to the demolition area will be occupied. Conduct building demolition so the use of occupied buildings will not be disrupted.
  - 1. Provide not less than 72 hours-notice of activities that will affect the operations of adjacent occupied buildings.
  - 2. Maintain access to existing parking, walkways, and other facilities used by occupants of adjacent buildings.



- D. Owner assumes no responsibility for buildings and structures to be demolished.
  - 1. Conditions existing at the time of inspection for bidding purpose will be maintained by Owner as far as practical.
- E. Hazardous Materials: Hazardous materials are present in buildings and structures to be demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is part of the Work. Contractor shall remediate and/or remove hazardous materials off site in accordance with local, state, and federal regulations.
  - 2. Hazardous materials present on site include, but are not limited to, asbestos, lead paint, and refrigerants.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting the demolition operations.
- B. Review Project Record Documents of existing construction provided by the Owner. The Owner does not guarantee that existing conditions are the same as those indicated in the Project Record Documents.
- C. Survey existing conditions and correlate with the requirements indicated.
- D. Inventory and record the condition of items to be removed and salvaged. Provide photos or videos of conditions that might be misconstrued as damage caused by salvage operations.

### 3.2 PREPARATION

- A. Hazardous Materials; Hazardous materials shall be abated, removed and disposed of in accordance with all applicable laws and regulations.
- B. Existing Utilities: Locate, identify, and disconnect utilities serving buildings and structures to be demolished.
  - 1. Owner will arrange to shut off indicated utilities prior to Work.
  - 2. Cut off pipe or conduit a minimum of 24 inches below grade.



- C. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

### 3.3 PROTECTION

- A. Existing Facilities: Protect adjacent parking areas, drives, walkways, and other building facilities during demolition operations. Maintain exits from existing, occupied buildings.
- B. Temporary Protection: Erect temporary protection, such as walks and fences where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 01500 - Temporary Facilities and Controls.
  - 1. Project adjacent buildings and facilities from damage due to demolition activities.
  - 2. Protect existing site improvements, appurtenances, and landscaping that are to remain.
  - 3. Erect a plainly visible fence around the drip line of individual trees or around the perimeter drip line of groups of trees to remain.
  - 4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and structures. A temporary chain link fence has been erected around the property. Relocate fence as necessary to provide protection.

### 3.4 DEMOLITION, GENERAL

- A. General: Demolish indicated existing buildings and site improvements completely. Use methods required to complete the Work in accordance with applicable local, state and federal regulations.
- B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
- C. Explosives: The use of explosives is not permitted.



### 3.5 DEMOLITION BY MECHANICAL MEANS

- A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.
- B. Below-Grade Construction: Completely demolish and remove foundation walls, footings, and other below grade construction associated with buildings to be demolished.
- C. Existing Utilities: Abandon existing utilities and below grade utility structures. Cut utilities off 24 inches minimum below grade.

### 3.6 SITE RESTORATION

- A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to backfill requirements of Section 02300 - Earthwork.
- B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

### 3.7 REPAIRS

- A. Promptly repair damage to adjacent buildings, surfaces or other improvements caused by demolition operations. All repairs shall be as approved by the Owners representative.

### 3.8 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from the Project site and legally dispose of them
  1. Dispose of materials in accordance with state and federal regulations.
  2. Materials disposed of in a landfill, shall be done so in an EPA-approved and State of Tennessee approved landfill acceptable to authorities have jurisdiction.
  3. Do not allow demolished materials to accumulate on-site.
  4. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.

### 3.9 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

END OF SECTION 02 22 10



## SECTION 31 10 00 - SITE CLEARING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:

1. Protecting existing trees and vegetation to remain.
2. Removing trees and other vegetation.
3. Clearing and grubbing.
4. Topsoil stripping.
5. Removing above-grade site improvements.

- B. Related Sections include the following:

1. Section 01 50 00 - "Facilities and Controls".
2. Section 02 22 10 - "Building Demolition"

#### 1.3 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of weeds, roots, and other deleterious materials.

#### 1.4 MATERIALS OWNERSHIP

- A. Except for materials indicated to be stockpiled or to remain Owner's property, cleared materials shall become the Contractor's property and shall be removed from the site.

#### 1.5 SUBMITTALS

- A. Record drawings according to Division 1 Section "Contract Closeout."

1. Identify and accurately locate capped utilities and other subsurface structural, electrical, and mechanical conditions.

#### 1.6 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.



1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
  3. Maintain designated site access for vehicular and pedestrian traffic.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on the Owner's premises where indicated.
- C. Notify the utility locator service for the area where the Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 02300 Section "Earth Work."
1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available onsite.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Locate and clearly flag trees and vegetation, utilities, and features designated to remain or to be relocated.
- D. Protect existing site improvements to remain from damage during construction.
1. Restore damaged improvements to their original condition, as acceptable to Owner.

### 3.2 TREE PROTECTION

- A. Erect and maintain a temporary fence around drip line of individual trees or around perimeter drip line of groups of trees to remain. Remove fence when construction is complete.



1. Do not store construction materials, debris, or excavated material within drip line of remaining trees.
  2. Do not permit vehicles, equipment, or foot traffic within drip line of remaining trees.
- B. Do not excavate within drip line of trees, unless otherwise indicated.
- C. Where excavation is required within drip line of trees, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

### 3.3 UTILITIES

- A. Existing water, sewer, and electrical service to buildings shall be cut off and capped arranged by Owner under separate contract.
- B. Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
1. Notify Owner's Representative not less than two days in advance of proposed utility interruptions.
  2. Do not proceed with utility interruptions without Owner's Representative's written permission.

### 3.4 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation, unless noted otherwise on Drawings. Removal includes digging out stumps and obstructions and grubbing roots.
1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
  2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct work.
  3. Completely remove stumps, roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
  4. Use only hand methods for grubbing within drip line of remaining trees.
- B. Burning of debris on site shall not be permitted.
- C. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
1. Place fill material in horizontal layers not exceeding 8-inch loose depth, and compact each layer to a density equal to adjacent original ground.

### 3.5 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
  - 1. Strip surface soil of unsuitable topsoil, including trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Limit height of topsoil stockpiles to 72 inches.
  - 2. Do not stockpile topsoil within drip line of remaining trees.
  - 3. Dispose of excess topsoil as specified for waste material disposal.
  - 4. Stockpile surplus topsoil and allow for re-spreading deeper topsoil.

### 3.6 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 31 10 00



## SECTION 31 00 00 - EARTHWORK

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns, and plantings.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Base course for concrete walks and pavements.
5. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.
6. Excavating, trenching, and backfilling of storm water piping system.

- B. Related Sections include the following:

1. Section 01 50 00 "Temporary Facilities and Controls."
2. Section 31 10 00 "Site Clearing."

#### 1.3 DEFINITIONS

- A. Backfill: Soil materials used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

- B. Base Course: Layer placed between the subgrade course and asphalt paving, concrete pavement or walk.

- C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.

- D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.

- E. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.

- F. Excavation: Removal of material encountered above subgrade elevations.

- G. Fill: Soil materials used to raise existing grades.



- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- I. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below sub base, drainage fill, or topsoil materials.
- J. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

#### 1.4 SUBMITTALS

- A. Quality control test and inspection reports from qualified independent geotechnical engineering testing agency indicating conformance with this specification

#### 1.5 QUALITY ASSURANCE

- A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

#### 1.6 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Owner's Representative and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Owner's Representative not less than two days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without the Owner's Representative's written permission.
  - 3. Contact utility-locator service for area where the Project is located before excavating.

### PART 2 - PRODUCTS

#### 2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.





- C. Unsatisfactory Soils: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols.
  - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Backfill and Fill: Satisfactory soil materials.
- E. Base: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- G. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- H. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2- inch sieve and 0 to 5 percent passing a No. 8 sieve.
- I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.
- J. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by the settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Provide erosion-control measures in accordance with the Construction Storm Water Pollution Plan to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### 3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.



- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
  - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

### 3.3 EXPLOSIVES

- A. Explosives: Do not use explosives.

### 3.4 EXCAVATION, GENERAL

- A. Classified Excavation: Excavation shall be unclassified.

### 3.5 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

### 3.6 APPROVAL OF SUBGRADE

- A. Notify Owner's Representative when excavations are believed to have reached required subgrade.
- B. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excessive yielding. Do not proof roll wet or saturated subgrades.
- C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Owner's Representative.

### 3.7 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

- 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

### 3.8 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  - 1. Removing concrete formwork.



2. Removing trash and debris.
3. Removing temporary shoring and bracing, and sheeting.
4. Installing permanent or temporary horizontal bracing on horizontally supported walls.

### 3.9 FILL

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontals so fill material will bond with existing material.
- C. Place and compact fill material in layers to required elevations as follows:
  1. Under grass and planted areas, use satisfactory soil material.
  2. Under walks and pavements, use satisfactory soil material.

### 3.10 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
  1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
  2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

### 3.11 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 698 (Standard Proctor):
  1. Under walkways, scarify and re-compact top 6 inches below subgrade and compact each layer of backfill or fill material at 95 percent.
  2. Under lawn or unpaved areas, scarify and re-compact top 6 inches below subgrade and compact each layer of backfill or fill material at 85 percent.



### 3.12 GRADING

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
1. Provide a smooth transition between adjacent existing grades and new grades.
  2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
1. Lawn or Unpaved Areas: Plus or minus 1 inch.
  2. Walks: Plus or minus 1 inch.

### 3.13 BASE COURSES

- A. Under walks, place base course on prepared subgrade and as follows:
1. Place base course material over sub base.
  2. Compact base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
  3. Shape base to required crown elevations and cross-slope grades.
  4. When thickness of compacted base course is 6 inches or less, place materials in a single layer.
  5. When thickness of compacted sub base or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

### 3.14 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage and pay for a qualified independent geotechnical engineering Testing agency to perform field quality-control testing on each area of the work.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after the test results for previously completed work comply with requirements.
- C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Owner's Representative.

- D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
  2. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150 feet or less of trench length, but no fewer than two tests.
- E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained.

### 3.15 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
1. Scarify or remove and replace soil material to depth as directed by Owner's Representative; reshape and re-compact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

### 3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 31 00 00



## SECTION 022920 - LAWNS AND GRASSES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:

- 1. Seeding.

- B. Related Sections include the following:

- 1. Section 02230 - "Site Clearing" for topsoil stripping and stockpiling.
  - 2. Section 02300 - "Earthwork" for excavation, filling and backfilling, and rough grading.

#### 1.3 DEFINITIONS

- A. Finish Grade: Elevation of the finished surface of planting soil.
- B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
  - 1. Certification of each seed mixture for turfgrass sod, identifying source, including name and telephone number of supplier.
- C. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer.



- D. Qualification Data: For landscape Installer.
- E. Material Test Reports: For existing surface soil and imported topsoil.
- F. Planting Schedule: Indicating anticipated planting dates for each type of planting.
- G. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of lawns during a calendar year. Submit before the expiration of required maintenance periods.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment.
- B. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of topsoil.
  - 1. Report suitability of topsoil for lawn growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce a satisfactory topsoil.
- C. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed: Seed shall be grown and harvested within 500 miles of the project site. Deliver seed in original sealed, labeled, and undamaged containers.

1.7 SCHEDULING

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
  - 1. Spring Planting: March 15 to May 15
  - 2. Fall Planting: September 15 to October 15
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

1.8 LAWN MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until an acceptable lawn is established, but for not less than the following periods:



1. Seeded Lawns: 60 days from date of Substantial Completion.
  - a. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.
- B. Maintain and establish the lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth lawn.
  1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.
- C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist to a depth of 4 inches.
  1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
  2. Water lawn at a minimum rate of 1 inch per week.
- D. Mow the lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 40 percent of grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
  1. Mow grass 2 to 3 inches high.
- E. Lawn Post fertilization: Apply fertilizer after initial mowing and when grass is dry.
  1. Use fertilizer that will provide actual nitrogen of at least 1 pound/1000 square feet to lawn area.

## PART 2 - PRODUCTS

### 2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species: Seed of grass species as follows, with not less than 90 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed: 33% Five Point Fescue, 33% Shenandoah 2 Fescue, and 33% Fine Lane Fescue.





## 2.2 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 4 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.
  - 1. Topsoil Source: Amend existing in-place surface soil to produce topsoil. Verify suitability of surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
    - a. Surface soil may be supplemented with imported or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

## 2.3 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:
  - 1. Class: Class O, with a minimum 95 percent passing through No. 8 sieve and a minimum 55 percent passing through No. 60 sieve.
  - 2. Provide lime in form of dolomitic limestone.
- B. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, with a minimum 99 percent passing through No. 6 sieve and a maximum 10 percent passing through No. 40 sieve.
- C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
- D. Aluminum Sulfate: Commercial grade, unadulterated.
- E. Perlite: Horticultural perlite, soil amendment grade.
- F. Sand: Clean, washed, natural or manufactured, free of toxic materials.
- G. Diatomaceous Earth: Calcined, diatomaceous earth, 90 percent silica, with approximately 140 percent water absorption capacity by weight.

## 2.4 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 3/4-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:



1. Organic Matter Content: 50 to 60 percent of dry weight.
  2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
- B. Peat: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.
- C. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.
- D. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

## 2.5 PLANTING ACCESSORIES

- A. Selective Pre-emergent Herbicides: EPA registered and approved, of type recommended by manufacturer for application.

## 2.6 FERTILIZER

- A. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

## 2.7 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

## 2.8 PLANTING SOIL MIX

- A. Planting Soil Mix: Mix topsoil with the following soil amendments and fertilizers in the following quantities:
1. Ratio of Loose Compost to Topsoil by Volume: 1:3.
  2. Ratio of Loose Peat to Topsoil by Volume: 1:3.
  3. Weight of Lime per 1000 Sq. Ft.: 25 pounds
  4. Weight of Slow-Release Fertilizer per 1000 Sq. Ft.: 1 pound.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### 3.3 LAWN PREPARATION

- A. Limit lawn subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
  - 1. Apply fertilizer directly to subgrade before loosening.
  - 2. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.
    - a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
    - b. Mix lime with dry soil before mixing fertilizer.
  - 3. Spread planting soil mix to a depth of 4 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
    - a. Spread approximately one-half the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 2 inches of subgrade. Spread remainder of planting soil mix.
    - b. Reduce elevation of planting soil to allow for soil thickness of sod.

- C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.
- D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- E. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

### 3.4 SEEDING (repair work only)

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
  - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
- B. Sow seed at the rate of 5 to 8 pound/1000 square feet.
- C. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.
- D. Protect seeded areas by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
  - 1. Anchor straw mulch by crimping into topsoil with suitable mechanical equipment.
- E. Protect seeded areas from hot, dry weather or drying winds by applying peat mulch within 24 hours after completing seeding operations. Soak and scatter uniformly to a depth of 3/16 inch and roll to a smooth surface.

### 3.5 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
  - 1. Mix slurry with non-asphaltic, fiber-mulch manufacturer's recommended tackifier
  - 2. Apply slurry uniformly to areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

### 3.6 SATISFACTORY LAWNS

- A. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 square feet and bare spots not exceeding 5 by 5 inches.
- B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

### 3.7 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.
- C. Remove erosion-control measures after grass establishment period.

END OF SECTION 02920



## **SECTION 03 30 00 - CAST-IN-PLACE CONCRETE (LIMITED APPLICATIONS)**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section specifies cast-in-place concrete, including reinforcement, concrete materials, mix design, placement procedures, and finishes.
- B. Related Sections include the following:

- 1. Section 33 00 00 - "Earthwork."

#### **1.3 SUBMITTALS**

- A. General: In addition to the following, comply with the submittal requirements in ACI 301.
- B. Product Data: For each type of manufactured material and product indicated.
- C. Design Mixes: For each concrete mix.

#### **1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: An experienced installer who has completed concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
- C. Source Limitations: Obtain each type of cement of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
- D. Comply with ACI 301, "Specification for Structural Concrete."

### **PART 2 - PRODUCTS**

#### **2.1 FORMWORK**

- A. Furnish formwork and form accessories according to ACI 301.



## 2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- C. Re-bar to contain minimum 80% recycled content.

## 2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Types I or II or Type I/II.
  - 1. Fly Ash: ASTM C 618, Class C.
- B. Normal-Weight Aggregate: ASTM C 33, uniformly graded, not exceeding 1-1/2-inch nominal size.
- C. Water: Potable and complying with ASTM C 94.

## 2.4 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures. Do not use admixtures containing calcium chloride.
- B. Air-Entraining Admixture: ASTM C 260.
- C. Water-Reducing Admixture: ASTM C 494, Type A.
- D. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
- E. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.

## 2.5 RELATED MATERIALS

- A. Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than 6 mils thick.
- B. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

## 2.6 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.



- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound and Sealer: ASTM C 309, Type 1, Class B, with 30% solids, meeting VOC limits established in SCAQMD Rule 1113.

## 2.7 CONCRETE MIXES

- A. Comply with ACI 301 requirements for concrete mixtures.
- B. Normal Weight Concrete: Prepare design mixes, proportioned according to ACI 301, as follows:
  - 1. Minimum Compressive Strength, exterior: 4000 psi. with air entrainment
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45
  - 3. Cementitious Materials: maximize use of fly ash up to a maximum of 25% by weight.
  - 4. Slump: 4 inches.
    - a. Slump Limit for Concrete Containing High-Range Water-Reducing Admixture: Not more than 8 inches after adding admixture to plant- or site-verified, 2- to 3-inch slump.
  - 5. Air Content: Maintain within range permitted by ACI 301. Do not allow air content of floor- slabs to receive troweled finishes to exceed 3 percent.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 6.0 percent within a tolerance of plus 1.0 or minus 1.5 percent.

## 2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with ASTM C 94.
  - 1. When air temperature is between 85 and 90 degrees Fahrenheit, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 degrees Fahrenheit, reduce mixing and delivery time to 60 minutes.

## PART 3 - EXECUTION

### 3.1 FORMWORK

- A. Design, construct, erect, shore, brace, and maintain formwork according to ACI 301.

### 3.2 VAPOR RETARDER

- A. Install, protect, and repair vapor-retarder sheets according to ASTM E 1643; place sheets in position with longest dimension parallel with direction of pour.





- B. Lap joints 6 inches and seal with manufacturer's recommended tape.

### 3.3 STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

### 3.4 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Locate and install so as not to impair strength or appearance of concrete, at locations indicated or as approved by Architect.
- C. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as retaining walls and other locations, as indicated.
  - 1. Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
- D. Contraction (Control) Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
  - 1. Grooved Joints (exterior sidewalks and balconies): Form contraction joints after initial floating by grooving and finishing each edge of joint with groover tool to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.

### 3.5 CONCRETE PLACEMENT

- A. Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
- B. Do not add water to concrete during delivery, at Project site, or during placement.

### 3.6 FINISHING FORMED SURFACES

- A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Completely remove fins and other projections.
  - 1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, damp proofing, veneer plaster, or painting.



- B. Broom-Finish: Apply a nonslip broom finish to surfaces indicated and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber bristle broom perpendicular to main traffic route.

### 3.7 TOLERANCES

- A. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

### 3.8 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection, and follow recommendations in ACI 305R for hot-weather protection during curing.

- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

- C. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.

- D. Curing Methods: Cure formed and unformed concrete for at least seven days by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:

1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
2. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

### 3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Tests will be performed according to ACI 301.

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.



### 3.10 REPAIRS

- A. Remove and replace concrete that does not comply with requirements in this Section.

END OF SECTION 03 30 00



## SECTION 321100-PAVING BASE COURSE

### PART 1 – GENERAL

#### 1.1 SECTION INCLUDES

- A. Construction of granular base for asphaltic concrete and Portland cement concrete paving.
- B. Construction of sand/shell base for asphaltic concrete and Portland cement concrete paving.
- C. Construction of full depth asphalt base for asphaltic concrete paving.
- D. Construction hot-mix sand asphalt base for asphaltic concrete paving.
- E. Construction of soil cement stabilized base for asphaltic concrete and Portland cement concrete paving.

#### 1.2 RELATED SECTIONS

- A. Section 310000 – Earthwork
- B. Section 312313 – Excavation, Backfill, and Compaction for Pavement
- C. Section 321123 – Aggregate Materials
- D. Section 321600 – Curbs and Sidewalks
- E. State Highway Department Standard Specifications
- F. Construction Drawings

#### 1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM) latest edition.
  - 1. D 698 Laboratory Compaction Characteristics of Soil Using Standard Effort. (12,400 ft-lbf/ft<sup>2</sup>) (600 kN.m/m<sup>2</sup>)
  - 2. D 1556 Density and Unit Weight of Soil In Place by the Sand-Cone Method.
  - 3. D 1557 Laboratory Compaction Characteristics of Soil Using Modified Effort. (56,000 ft-lbf/ft<sup>2</sup>) (2,700 kN.m/m<sup>2</sup>)
  - 4. D 2167 Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
  - 5. D 2216 Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.



6. D 2487 Classification of Soils for Engineering Purposes.
  7. D 2922 Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth)
  8. D 3017 Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
  9. D 4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- B. American Association of State Highway and Transportation Official (AASHTO) latest edition.
1. T88 Particle Size Analysis of Soils

#### 1.4 QUALITY ASSURANCE

- A. An independent testing laboratory selected and paid by Contractor, will be retained to perform construction testing of in-place base course for compliance with requirements for thickness, compaction, density, and tolerances. Paving base course tolerances shall be verified by rod and level readings on not more than 50-foot centers to be not more than 0.05 feet above design elevation which will allow for paving thickness as shown on Construction Drawings. Contractor shall provide instruments and suitable benchmark.

### PART 2 – PRODUCTS

#### 2.1. FILL MATERIALS

- A. Submit materials certificate to the independent testing laboratory which is signed by materials producer and Contractor, certifying that materials comply with, or exceed, requirements specified herein.

#### 2.2. SOURCE QUALITY CONTROL

- A. Following test will be performed on each type of material used as base course material:
1. Moisture and Density Relationship: ASTM D 698 (or ASTM D 1557).
  2. Mechanical Analysis: AASHTO T 88.
  3. Plasticity Index: ASTM D 4318.
  4. Base material thickness: Perform 1 test for each 20,000 sq. ft. of in-place base material area.
  5. Base material compaction: Perform 1 test in each lift for each 20,000 sq. ft. of in-place base material area.
  6. Test each source of base material for compliance with state highway department specifications.



## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Contractor shall verify to the Owner in writing that the subgrade has been inspected, tested, and gradients and elevations are correct, dry, and properly prepared in accordance with the requirements of applicable state highway department specifications section(s) referred to or noted on the Construction Drawings.

### 3.2 CONSTRUCTION

- A. Construction shall meet or exceed requirements of this Section and applicable state highway department specifications section(s) referred to or noted on the Construction Drawings which pertain to aggregate base course design, materials, preparation, and execution. Materials shall be as indicated on Construction Drawings and shall comply with state highway department specifications regarding source, quality, gradation, liquid limit, plasticity index, and mix proportioning.

### 3.3 FIELD QUALITY CONTROL

- A. Field density tests for in-place materials shall be performed in accordance with one of following standards:
  - 1. Sand-Cone Method: ASTM D 1556.
  - 2. Balloon Method: ASTM D 2167.
  - 3. Nuclear Method: ASTM D 2922 (Method B-Direct Transmission).
- B. The independent testing laboratory will prepare reports that indicate test location, elevation data, and test results. Owner and Contractor shall be provided with copies of the reports within 96 hours of the time the test was performed. In the event that the test results show failure to meet any of the Specifications; Owner and Contractor will be notified immediately by the independent testing laboratory.
- C. Costs related to retesting due to failures shall be paid for by Contractor at no additional expense to Owner. Contractor shall provide free access to the site for testing activities.

END OF SECTION 321100



## **SECTION 321123-AGGREGATE MATERIALS**

### **PART 1 – GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Aggregate materials for use as specified in other sections.

#### **1.2 RELATED SECTIONS**

- A. Section 310000 – Earthwork
- B. Section 312300 – Excavation, Backfill, and Compaction for Structures
- C. Section 312313 – Excavation, Backfill, and Compaction for Pavement
- D. Section 312513 – Slope Protection and Erosion Control
- E. Construction Drawings and Report of Subsurface Exploration

#### **1.3 REFERENCE STANDARDS**

- A. American Society for Testing and Materials (ASTM) latest edition.
  - 1. D 698 Laboratory Compaction Characteristics of Soil Using Standard Effort. (12,400 ft-lbf/ft<sup>2</sup>)(600 kN.m/m<sup>2</sup>)
  - 2. D 1556 Density and Unit Weight of Soil in Place by the Sand-Cone Method.
  - 3. D 1557 Laboratory Compaction Characteristics of Soil Using Modified Effort. (56,000 ft-lbf/ft<sup>2</sup>) (2,700 kN.m/m<sup>2</sup>)
  - 4. D 2167 Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
  - 5. D 2216 Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.
  - 6. D 2487 Classification of Soils for Engineering Purposes.
  - 7. D 2922 Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth)
  - 8. D 3017 Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
  - 9. D 4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

B. American Association of State Highway and Transportation Officials (AASHTO) latest edition.

1. TT 88 Particle Size Analysis of Soils

#### 1.4 QUALITY ASSURANCE

A. Tests and analysis of aggregate materials will be performed in accordance with ASTM and AASHTO procedures specified herein.

#### 1.5 SUBMITTALS

A. Submit 100-pound sample of each aggregate or mixture that is to be incorporated into project in air-tight containers to the independent testing laboratory or submit gradation and certification of aggregate material that is to be incorporated into project to the Engineer for review.

B. Submit name of each material supplier and specific type and source of each material. Any change in source requires approval of Engineer.

### PART 2 – PRODUCTS

#### 2.0 MATERIALS

A. Construction and materials shall meet or exceed requirements of this Section and applicable state highway department specifications section(s) referred to or noted on the Construction Drawings which pertain to paving base course design, materials, preparation, and execution. Materials shall be as indicated on Construction Drawings and shall comply with state highway department specifications regarding source, quality, gradation, liquid limit, plasticity index, and mix proportioning.

#### 2.1 EQUIPMENT

A. Transport off-site materials to project using well-maintained and operating vehicles. Once on site, transporting vehicles shall stay on designated haul roads and shall at no time endanger any improvements by rutting, overloading, or pumping.

### PART 3 – EXECUTION

#### 3.1 STOCKPILING

A. Stockpile on-site at locations indicated by Owner in such manner that there will be no standing water or mixing with other materials.



### 3.2 BORROW AND SPOIL SITES

- A. Upon completion of borrow and/or soil operations, clean up borrow and/or soil areas as indicated on Construction Drawings in neat and reasonable manner to satisfaction of property owner and Owner.

END OF SECTION 32 11 23

## **SECTION 32 12 16-ASPHALT CONCRETE PAVING**

### **PART 1- GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of Asphalt concrete paving work is shown on the drawings.
- B. Clearing, earthwork and prepared aggregate subbase is specified in earthwork sections.

#### **1.3 SUBMITTALS**

- A. Material Certificates: Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

#### **1.4 QUALITY ASSURANCE**

- A. Codes and Standards: Comply with "Standard Specifications for Road and Bridge Construction" by the Tennessee Department of Transportation, latest edition, and with local governing regulations if more stringent than herein specified.

#### **1.5 JOB CONDITIONS**

- A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 degrees F. (10 degrees C.), and when temperature has not been below 35 degrees F. (1 degree C.) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.
- B. Construct asphalt concrete surface course when atmospheric temperature is above 40 degrees F. (4 degrees C.) and when base is dry. Base course may be placed when air temperature is above 30 degrees F. (-1 degree C.) and rising.
- C. Grade Control: Establish and maintain required grades and elevations.

### **PART TWO – PRODUCTS**

#### **2.0 MATERIALS**

- A. General: Use locally available materials and gradations, which exhibit a satisfactory record of previous installations.
- B. Materials shall meet or exceed requirements of this Section and applicable state highway department specifications section(s) referred to or noted on the Construction Drawings which pertain to paving design, materials, preparation, and execution. Materials shall be as indicated on Construction Drawings and shall comply with state highway department specifications regarding source, quality, gradation, liquid limit, plasticity index, and mix proportioning.

## PART THREE – EXECUTION

### 3.1 SURFACE PREPARATION

- A. Remove loose material from compacted subbase surface immediately before applying herbicide treatment or prime coat.
- B. Proof roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.
- C. Notify General Contractor of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.
- D. Herbicide Treatment: Apply chemical weed control agent in strict compliance with manufacturer's recommended dosages and application instructions. Apply to compacted, dry subbase prior to application of prime coat.
- E. Prime Coat: Apply as indicated on Construction Drawings, over compacted subgrade. Apply material to penetrate and seal, but not flood surface. Cure and dry as long as necessary to obtain penetration and evaporation of volatile gases.
- F. Tack Coat: Apply to contact surfaces of previously constructed asphalt or Portland cement concrete and surfaces abutting or projecting into asphalt concrete pavement. Distribute at a rate indicated on Construction Drawings. Allow to dry until at proper condition to receive paving.
- G. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

### 3.2 PLACING MIX

- A. General: Place asphalt concrete mixture on prepared surface, spread and strike-off. Spread mixture at minimum temperature of 225 degrees F. (107 degrees C.). Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness.
- B. Paving Placing: Place in strips not less than 10' wide, unless otherwise acceptable to Architect. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.

- C. Joints: Make joints between old and new pavement, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean compact surfaces and apply tack coat.

#### 3.4 ROLLING

- A. General: Begin rolling when mixture will bear roller weight without excessive displacement.
- B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- C. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced area by loosening and filling, if required, with hot material.
- D. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.
- E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.
- F. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

#### 3.4 TRAFFIC AND LANE MARKINGS

- A. Cleaning: Sweep and clean surface to eliminate loose material and dust.
- B. Striping Use chlorinated rubber base traffic lane-marking paint, factory-mixed, quick drying, and non-bleeding. Color: White
- C. Do not apply traffic and lane-marking paint until layout and placement has been verified by the Architect.
- D. Apply paint with mechanical equipment to produce uniform straight edges. Apply in 2 coats at manufacturer's recommended rates.

### 3.5 FIELD QUALITY CONTROL

- A. General: Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by Engineer.
- B. Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:
- Base course:  $\frac{1}{2}$ " , plus or minus  
Surface course:  $\frac{1}{4}$ " , plus or minus.
- C. Surface smoothness: Test finished surface of each asphalt concrete course for smoothness, using 10' straightedge applied parallel with, and at the right angles to center line of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness.
- Base Course Surface:  $\frac{1}{4}$ "  
Wearing Course Surface:  $\frac{3}{16}$ "  
Crowned Surfaces: Test with crowned template centered and at right angle to crown.  
Maximum allowable variance from template:  $\frac{1}{4}$ " .
- D. Check surface areas at intervals as directed by Engineer.

END OF SECTION 32 12 16

## **SECTION 321600-CURBS AND SIDEWALKS**

### **PART 1 – GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Preparation and placement of combination Portland cement concrete curb and gutter.
- B. Preparation and placement of Portland cement concrete curb.
- C. Preparation and placement of Portland cement concrete sidewalk.

#### **1.2 RELATED SECTIONS**

- A. Section 310000 – Earthwork
- B. Section 321123 – Aggregate Material.
- C. Cast-in-place Concrete (See Architectural/Building Specifications).
- D. State Highway Department Standard Specifications.
- E. Construction Drawings.

#### **1.3 REFERENCE STANDARDS**

- A. American Concrete Institute (ACI) latest edition.
  - 1. 304R Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
  - 2. 308 Standard Practice for Curing Concrete.
- B. American Society for Testing and Materials (ASTM) latest edition.
  - 1. A615 Deformed and Plain Billet-Steel for Concrete Reinforcement.
  - 2. C33 Concrete Aggregates.
  - 3. C94 Ready-Mixed Concrete.
  - 4. C150 Portland Cement.
  - 5. C260 Air-Entraining Admixtures for Concrete.
  - 6. C309 Liquid Membrane-Forming Compounds for Curing Concrete.
  - 7. C494 Chemical Admixtures for Concrete.

8. D1751 Performed Expansion Joint Fillers for Concrete Paving and Structural Construction.  
(Non-extruding and Resilient Bituminous Types)

C. FS TT-C-800 – Curing Compound, Concrete, for New and Existing Surfaces.

#### 1.4 QUALITY ASSURANCE

A. Establish and maintain required lines and elevations.

B. Check surface areas at intervals necessary to eliminate ponding areas. Remove and replace unacceptable work as directed by Owner.

#### 1.5 SUBMITTALS

A. Submit materials certificate to the independent testing laboratory which is signed by materials producer and Contractor, certifying that materials comply with, or exceed, requirements specified herein.

#### 1.6 PROJECT CONDITIONS

A. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.

### PART 2 – PRODUCTS

#### 2.1 MATERIALS

A. Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. Use flexible spring steel forms or laminated boards to form radius bends as required. Forms shall be of depth equal to depth of curbing or sidewalk, and so designed as to permit secure fastening together at tops. Coat forms with non-staining type of coating that will not discolor or deface surface of concrete.

B. Reinforcing Bars: Deformed steel bars, ASTM A 615, Grade 40.

C. Concrete Materials: Comply with requirements of Section 033000 for concrete materials, admixtures, bonding materials, curing materials, and others as required.

D. Joint Fillers: Resilient pre-molded bituminous impregnated fiberboard units complying with ASTM D 1751, FS HH-F-341, Type II, Class A.

E. Joint Sealers: Non-priming, pourable, self-leveling polyurethane. Acceptable sealants are Sonneborn “Sonolastic Paving Joint Sealant, Sonneborn “Sonomeric CT 1 Sealant”, Sonneborn “Sonomeric CT 2 Sealant, Mameco “Vulken 245” or Woodmont Products “Chem-Caulk”.

## 2.2 MIX DESIGN AND TESTING

- A. Concrete mix design and testing shall comply with requirements of Section 03300.
- B. Design mix to produce normal weight concrete consisting of Portland cement, aggregate, water-reducing admixture, air-entraining admixture, and water to produce following:
  - 1. Compressive Strength: 4,000 psi, minimum at 28 days, unless otherwise indicated on Construction Drawings.
  - 2. Slump Range: 2 to 5 inches at time of placement.
  - 3. Air Entrainment: 5 to 8 percent.

## PART 3 – EXECUTION

### 3.1 PREPARATION

- A. Proofroll prepared base material surface to check for unstable areas. Begin paving work only after unsuitable areas have been corrected and are ready to receive paving.
- B. Remove loose material from compacted base material surface to produce firm, smooth surface immediately before placing concrete.

### 3.2 INSTALLATION

- A. Form Construction:
  - 1. Set forms to required grades and lines, rigidly braced and secured.
  - 2. Install sufficient quantity of forms to allow continuance of work and so that forms remain in place a minimum of 24 hours after concrete placement.
  - 3. Check completed formwork for grade and alignment to following tolerances:
    - a. Top of forms not more than 1/8-inch in 10'-0".
    - b. Vertical face of longitudinal axis, not more than 1/4-inch in 10'-0".
  - 4. Clean forms after each use and coat with form release agent as often as required to ensure separation from concrete without damage.
- B. Concrete Placement:
  - 1. Place concrete in accordance with requirements of Section 033000.



2. Do not place concrete until base material and forms have been checked for line and grade. Moisten base material if required to provide uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until set at required finish elevation and alignment.
3. Place Concrete using methods which prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Consolidate with care to prevent dislocation of reinforcing, dowel, and joint devices.
4. Deposit and spread concrete in continuous operation between transverse joints, as far as possible, if interrupted for more than ½ hour, place construction joint. Automatic machine may be used for curb and gutter placement. Machine placement shall be at required cross section, line, grade, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete as specified herein.

C. Joint Construction:

1. Contraction Joints: Construct concrete curb or combination concrete curb and gutter, where specified on Construction Drawings, in uniform sections of length specified on Construction Drawings. Form joints between sections either by steel templates, 1/8-inch in thickness, of length equal to width of curb and gutter, and with depth which will penetrate at least 2-inches below surface of curb and gutter; or with ¾-inch thick performed expansion joint filler cut to exact cross section of curb and gutter; or by sawing to depth of at least 2-inches while concrete is between 4 and 24 hours old. If steel templates are used, they shall be left in place until concrete has set enough to hold its shape, but shall be removed while forms are still in place.
2. Longitudinal Construction Joints: Tie concrete curb or combination concrete curb and gutter, where specified on Construction Drawings, to concrete pavement with ½-inch round deformed reinforcement bars of length and spacing shown on Construction Drawings.
3. Transverse Expansion Joints: Concrete curb, combination concrete curb and gutter, or concrete sidewalk shall have filler cut to exact cross section of curb, gutter, or sidewalk. Joints shall be similar to type of expansion joint used in adjacent pavement.

D. Joint Filler: Extend joint fillers full-width and depth of joint, and not less than ½-inch or more than 1-inch below finished surface where joint sealer is indicated. Furnish joint fillers in 1-piece lengths for full width being placed, wherever possible. Where more than 1 length is required, lace or clip joint filler sections together.

E. Joints Sealants: Seal joints with approved exterior pavement joint sealants. Install in accordance with manufacturer's recommendations.

### 3.3 INSTALLATION PROCEDURES

- A. The area to receive imprinted concrete shall have the sup-grade prepared as required as for any concrete slab on grade.
- B. The formwork shall be installed in accordance with the drawings. The slab thickness shall be consistent with that of ordinary concrete slabs under the same conditions.
- C. Provide reinforcement as specified.
- D. Control joints and/or expansion joints shall be provided in accordance with the drawings and the guidelines established by the American Concrete Institute. As with any concrete slab, imprinted concrete usually contains construction joints, control joints and expansion joints. The contractor shall advise and work with the architect/engineer to determine the best location for these joints to minimize the visibility of the joints and to minimize unsightly cracking.
- E. The concrete shall be placed and screeded to finished grade, and floated to a uniform surface using standard finishing techniques.
- F. While the concrete is still in its plastic stage of set, the imprinting tools shall be applied to the surface.
- G. Cure and Seal, or approved equal shall be applies in accordance with the manufacturer's recommendations immediately after the completing the imprinting process for
- H. After the initial curing period the surface of the slab shall be sealed.

### 3.4 BACKFILL

- A. After concrete has set sufficiently, spaces on either side of concrete curb, combination concrete curb and gutter, or concrete sidewalk shall be refilled to required elevation with suitable material compacted in accordance with geotechnical report.

### 3.5 CLEANING AND ADJUSTING

- A. Sweep concrete pavement and wash free of stains, discolorations, dirt, and other foreign material just prior to final inspection.
- B. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials.

END OF SECTION 32 12 16

## **SECTION 32 17 23-PAVEMENT MARKINGS**

### **PART 1 – GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Preparation and application of painted pavement markings.
- B. Preparation and application of paint on curbs, guard posts, and light pole bases.

#### **1.2 RELATED SECTIONS**

- A. Section 310000 – Earthwork.
- B. Section 321100 – Paving Base Course.
- C. Section 321600 – Curbs and Sidewalks.
- D. Construction Drawings.

#### **1.3 REFERENCE STANDARDS**

- A. FS TTP-85E

#### **1.4 PROJECT CONDITIONS**

- A. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize flagmen, barricades, warning signs, and warning lights as required.

### **PART 2 – PRODUCTS**

#### **2.1 MATERIALS**

- A. Paint shall be non-bleeding, quick-drying, alkyd petroleum base paint suitable for traffic-bearing surface and shall meet FS TTP-85E and be mixed in accordance with manufacturer's instructions before application.
- B. Performed pavement markings shall be Stamark Intersection Grade Tape Series A420 as manufactured by 3M Traffic Control Materials Division, or approved equal.

### **PART 3 – EXECUTION**

#### **3.1 PREPARATION**

- A. Sweep and Clean surface to eliminate loose material and dust.

- B. Where existing pavement markings are indicated on Construction Drawings to be removed or would interfere with adhesion of new paint, a motorized abrasive device shall be used to remove the markings. Equipment employed shall not damage existing paving or create surfaces hazardous to vehicle or pedestrian traffic. Within public rights-of way, method of marking removal shall be approved by appropriate governing authority.

### 3.2 APPLICATION

- A. Apply two coats of paint at manufacturer's recommended rate, without addition of thinner, with maximum 100 square feet per gallon. Apply with mechanical equipment to produce uniform straight edges. At sidewalk curbs and crosswalks, use straightedge to ensure uniform, clean, and straight stripe.
- B. Install pavement markings according to manufacturer's recommended procedures for the specified material.
- C. Following items shall be painted with colors noted below:
  - 1. Pedestrian Crosswalks: White
  - 2. Exterior Sidewalk Curbs, Light Pole Bases, and Guard posts: as selected by Architect.
  - 3. Fire Lanes: Red or per local code.
  - 4. Lane Striping where separating traffic moving in opposite directions: Yellow
  - 5. Lane Striping where separating traffic moving in the same direction: White
  - 6. Handicap Symbols: Blue or per local code
  - 7. Parking Stall Striping: White, unless otherwise noted on Construction Drawings
  - 8. Associate Parking Area: White, unless otherwise noted on Construction Drawings

END OF SECTION 32 17 23

## SECTION 33 40 00 -STORM DRAINAGE

### PART 1- GENERAL

#### 1.0 SUMMARY

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division –1 Specification sections, apply to work of this section.
- B. These specifications cover all required equipment and the complete installation of the systems shown on the attached drawings and related items.
- C. Scope of the work includes furnishing and complete installation of the equipment and materials for the storm drainage system, with all auxiliaries, ready for owner’s use. Storm drain piping from connection at gutter downspouts and/or connection with underground piping at a point five feet outside of the building, to the termination at manholes or catch basins are included in the scope of this section.
- D. Storm drainage piping shall comply with the 2012 International Plumbing Code.
- E. The Contractor shall pay for all permits and fees.
- F. The drawings indicate generally the locations of plumbing fixtures, apparatus, piping, etc., but if, before installation, it is found necessary to change the location of same to accommodate the conditions at the building, such changes shall be made without additional cost to the Owner and as directed by the Owner.

#### 1.1 REFERENCES

- A. Section 221400 – Storm Drainage (inside building)
- B. Section 077100 – Manufactured Roof Specialties (for gutters and downspouts)
- C. International Plumbing Code – 2012 Edition

#### 1.2 SUBMITTALS

- A. Provide submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedure Section.
- B. Submittals are required for fixtures and equipment scheduled on the drawings.

#### 1.3 DELIVERY, STORAGE AND HANDLING

- A. General: Comply with Division 1 Product Requirements Sections.
- B. Furnish the Owner 3 sets of as-built drawings upon completion of work.

#### 1.4 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for additional project warranty provisions.
- B. Furnish one (1) year service and guarantee on all labor and material.

#### PART 2 – PRODUCTS

##### 2.0 MATERIALS

- A. Storm drainage piping shall be HDPE gravity sewer pipe – “ADS N-12 ST in accordance with ASTM F2648.

##### 2.1. EQUIPMENT

- A. Cleanouts shall be as indicated on drawings. Backfill shall be 100% compacted around vertical cleanout extension prior to pouring concrete.

#### PART 3 – EXECUTION

##### 3.0 TRENCHING AND BACKFILLING

- A. Protect all private roads and walks and maintain them during course of the work. Repair all damage at Contractor’s expense.
- B. Erect construction fencing around all excavations before starting work.
- C. Provide and maintain guard lights at all barricades, railing, obstructions, in streets, roads, or sidewalks, and all trenches or adjacent to public walks or roads.
- D. Remove and replace at Contractor’s expense all work damaged by failure to provide protection.
- E. Excavate trenches of sufficient width for proper installation of work. When depth of backfill over piping exceeds 10 feet, keep trench below level of top of pipe as narrow as practical.
- F. Perform trenching in accordance with OSHA and local safety regulations.
- G. Excavate all trenches to at least six inches below bottom elevation of pipe at all points. Grade trench bottom evenly. Lay piping in trenches on 6” bed of crushed stone with stone backfilled to 12” above top of pipe by hand.
- H. Trenches shall provide uniform bearing. Where rock is encountered, excavate 2’ below the pipe and refill to pipe grade with gravel.

- I. Backfill trenches to grade only after piping has been inspected, tested, approved and location of pipe and appurtenances has been recorded. Tamp to 95% compaction. Under pavement, walks, and other surfacing, backfill shall be tamped solidly in layers not thicker than 6". Exclude all cinders and rubbish from trenches in which pipes are laid.
- J. If unstable soil conditions are encountered, erect adequate supports needed in an approved manner to adequately support the underground piping.

### 3.1 INSTALLATION

- A. The location of existing underground utilities are approximate locations only. Before beginning work determine the exact location of all existing utilities. The contractor shall pay for and repair all damages caused by failure to exactly locate and preserve any and all underground utilities. Connect to the public storm sewer system at a catch basin or other standard connection provided.
- B. Elevations shown on the drawings are to the invert of all gravity piping.
- C. Adjust inverts to keep tops of pipe inline where pipe size changes.
- D. Confirm elevation of existing storm drain connection point and grade storm drain at least 1/4" per foot unless otherwise indicated on drawings.
- E. All piping is shown diagrammatically on the drawing. Determine exact locations in the field. Coordinate exact locations with all trades before installation.
- F. Lay storm drainage piping to uniform grade. Make changes in directions of drain piping with long bends. No screwed joints are permitted in drainpipes, except as described herein.
- G. Provide and install cleanouts where shown on the drawings, at 100 feet intervals, and as required by local codes. Extend cleanouts through and terminate flush with the finished grade. Terminate with C.I. plugs.

### 3.2 FIELD QUALITY CONTROL

- A. Flush with water in sufficient volume to obtain free flow through each line. Remove all obstruction and correct all defects discovered. Remove all silt and trash from structures prior to final acceptance of work.

END OF SECTION 33 40 00

## **SECTION 33 41 00-STORM SEWERS AND PIPE CULVERTS**

### **PART 1- GENERAL**

#### **1.1 SECTION INCLUDES**

- A. This work shall consist of the placing of precast concrete pipe, corrugated metal pipe, structural plate pipe and pipe arches, high density polyethylene (HDPE) corrugated pipe (with smooth waterway), and all fittings as called for on the drawings and in accordance with the Specifications including trench excavation, bedding, and backfill.
- B. Each pipe shall be clearly marked to show its class or gauge, date of manufacture, name of manufacturer, and mark of approval by an approved commercial testing laboratory prior to delivery.
- C. All pipe and special fitting shall be new materials, which have not been previously used and free of any defects or damage.
- D. Pipe sizes, class or gauge, and type of bituminous coating will be shown on the drawings. Size of the pipe is nominal inside diameter.
- E. All materials used in this construction, in addition to the general requirement of these Specifications, unless otherwise stipulated, shall conform to the following:
  - 1. Storm sewers and pipe culverts shall conform to Subsection 607 of the Tennessee Department of Transportation, Standard Specifications for Road and Bridge Construction, 1981 or latest revisions.
  - 2. HDPE pipe shall conform to AASHTO M252, M294, MP7 and shall be either AASHTO Type "S" or AASHTO Section 30 or ASTM D2321 and any details shown on the drawings or as recommended by the manufacturer.

#### **1.2 EXISTING UTILITIES**

- A. All existing sewers, water lines, gas lines, underground conduits, telephone lines, electric lines or other utilities or structure in the vicinity of the work shall be carefully protected by the Contractor from damage at all times.

**END OF SECTION 33 41 00**



## SECTION 33 49 00-STORM DRAINAGE STRUCTURES

### PART 1- GENERAL

#### 1.1. SECTION INCLUDES

- A. This work shall consist of constructing the following drainage structures: manholes, catch basins, inlets and junction boxes. Construction shall be in reasonable close conformity to the lines, grades, dimension and sizes shown on the drawings or as directed by the Engineer.
- B. The height or depth of these drainage structures will vary with location, but unless otherwise shown on the drawings, shall be such that the frames will match the line and grades of the parking area, roadway surface or grasses areas and the invert will be at the designated elevations.
- C. Cast iron frames, grates, and covers shall be provided as specified on the drawings.
- D. Manholes, inlets, catch basins, and junction boxes shall conform to the Standard Detail Drawings of the Tennessee Department of Transportation unless otherwise noted on the drawings. Deviations from these drawings may be approved, by submitting a detailed drawing to the Engineer before construction begins.
- E. All materials used in this construction, in addition to the general requirements of these Specifications, unless otherwise stipulated, shall conform to the following:
  - 1. Drainage structures shall conform to Subsection 611 of the Tennessee Department of Transportation, Standard Specifications for Road and Bridge Construction, 2015 or latest revisions.

END OF SECTION 33 49 00

**THIS AND THE PREVIOUS PAGES DO NOT NEED TO BE RETURNED**

**Five Points Phase 2 Infrastructure Improvements C17002  
Solicitation Document A General Response and Cost Section**

General Information about the Vendor	
<b>Sign Your Name to the Right of the Arrow</b> Your signature indicates that you have read and agree to "KCDC's General Instructions to Vendors" on <a href="http://www.kcdc.org">www.kcdc.org</a> .	
<b>Printed Name and Title</b>	
<b>Company Name</b>	
<b>Street Address</b>	
<b>City/State/Zip</b>	
<b>Contact Person (Please Print Clearly)</b>	
<b>Telephone Number</b>	
<b>Fax Number</b>	
<b>Cell Number</b>	
<b>Vendor's e-mail address (Please Print Clearly)</b>	

Addenda	
Addenda are at <a href="http://www.kcdc.org">www.kcdc.org</a> . Click on "Doing Business With KCDC" and then on "Open Solicitations" to find addenda. Please check for addenda prior to submitting a bid.	
Acknowledge addenda have been issued by checking below as appropriate:	
None <input type="checkbox"/>	Addendum 1 <input type="checkbox"/>
Addendum 2 <input type="checkbox"/>	Addendum 3 <input type="checkbox"/>
Addendum 4 <input type="checkbox"/>	Addendum 5 <input type="checkbox"/>

Statistical Information	
This business is owned & operated by persons at least 51% of the following ethnic background:	
Asian/Pacific <input type="checkbox"/>	Black <input type="checkbox"/>
Hasidic Jew <input type="checkbox"/>	Hispanic <input type="checkbox"/>
Native Americans <input type="checkbox"/>	White <input type="checkbox"/>

Cooperative Purchasing by Other Governmental Entities		
Will you extend your pricing and terms to other governments if they desire? Yes <input type="checkbox"/> No <input type="checkbox"/>		
As defined on KCDC's webpage (see the "General Instructions to Vendors"), this business qualifies as:		
Section 3 <input type="checkbox"/>	Small Business <input type="checkbox"/>	Woman Owned <input type="checkbox"/>

Cost	
DO NOT ADJUST THE PRICING CHART WITHOUT KCDC's APPROVAL	
<b>Total Project Cost</b>	\$

Vendor: \_\_\_\_\_

**Conflict of Interest:**

1. No commissioner or officer of KCDC or other person whose duty it is to vote for, let out, overlook or in any manner superintend any of the work for KCDC has a direct interest in the award or the vendor providing goods or services.
2. No employee, officer or agent of the grantee or sub-grantee will participate in selection, or in the award or administration of an award supported by Federal funds if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when the employee, officer or agent, any member of his immediate family, his or her partner, or an organization, which employs, or is about to employ, any of the above, has a financial or other interest in the firm selected for award.
3. The grantee's or sub-grantee's officers, employees or agents will neither solicit nor accept gratuities, favors or anything of monetary value from vendors, potential vendors, or parties to sub-agreements.
4. By submission of this form, the vendor is certifying that no conflicts of interest exist.

**Drug Free Workplace Requirements:**

5. Private employers with five or more employees desiring to contract for construction services attest that they have a drug free workplace program in effect in accordance with TCA 50-9-112.

**Eligibility:**

6. The vendor is eligible for employment on public contracts because no convictions or guilty pleas or pleas of nolo contender to violations of the Sherman Anti-Trust Act, mail fraud or state criminal violations with an award from the State of Tennessee or any political subdivision thereof have occurred.

**General:**

7. Vendor fully understands the preparation and contents of the attached offer and of all pertinent circumstances respecting such offer.
8. Such offer is genuine and is not a collusive or sham offer.

**9. Iran Divestment Act:**

Concerning the Iran Divestment Act (TCA 12-12-101 et seq.), by submission of this bid/quote/proposal, each vendor and each person signing on behalf of any vendor certifies, and in the case of a joint bid/quote/proposal, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each vendor is not on the list created pursuant to § 12-12-106.

**Non-Collusion:**

10. Neither the said vendor nor any of its officers, partners, owners, agents, representatives, employees or parties interest, including this affiant, has in any way colluded conspired, connived or agreed, directly or indirectly, with any other responder, firm, or person to submit a collusive or sham offer in connection with the award or agreement for which the attached offer has been submitted or to refrain from making an offer in connection with such award or agreement, or collusion or communication or conference with any other firm, or, to fix any overhead, profit, or cost element of the offer price or the offer price of any other firm, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against KCDC or any person interested in the proposed award or agreement.
11. The price or prices quoted in the attached offer are fair, proper and not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the firm or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

The undersigned hereby acknowledges receipt of the above applicable laws and verifies that the proposal submitted in response to this solicitation is in full compliance with the listed requirements.

<b>Signed by</b> _____	
<b>Printed Name</b> _____	
<b>Title</b> _____	
<b>Subscribed and sworn to before me this date</b>	
<b>By (Notary Public)</b> _____	
<b>My Commission Expires on</b> _____	

Vendor: \_\_\_\_\_

**Representations, Certifications,  
and Other Statements of Bidders**  
Public and Indian Housing Programs

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**1. Certificate of Independent Price Determination**

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

*[insert*

*full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];*

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

[ ] [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding \$50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) *A fully executed "Non-collusive Affidavit" [ ] is, [ ] is not included with the bid.*

**2. Contingent Fee Representation and Agreement**

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

*(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:*

*(1) [ ] has, [ ] has not employed or retained any person or company to solicit or obtain this contract; and*

*(2) [ ] has, [ ] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.*

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

**3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions** (applicable to contracts exceeding \$100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

#### 4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

- (a) Result in an unfair competitive advantage to the bidder; or,
- (b) Impair the bidder's objectivity in performing the contract work.

*[ ] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.*

#### 5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

#### 6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of 90 calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

#### 7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

*(a) [ ] is, [ ] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.*

*(b) [ ] is, [ ] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.*

*(c) [ ] is, [ ] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:*

*(Check the block applicable to you)*

- |   |   |
|---|---|
| <input type="checkbox"/> Black Americans    | <input type="checkbox"/> Asian Pacific Americans  |
| <input type="checkbox"/> Hispanic Americans | <input type="checkbox"/> Asian Indian Americans   |
| <input type="checkbox"/> Native Americans   | <input type="checkbox"/> Hasidic Jewish Americans |

**9. Certification of Eligibility Under the Davis-Bacon**

**Act** (applicable to construction contracts exceeding \$2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

**10. Certification of Nonsegregated Facilities** (applicable to contracts exceeding \$10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed \$10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

(1) Obtain identical certifications from the proposed subcontractors;

(2) Retain the certifications in its files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

**Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities**

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

**Note:** The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

**11. Clean Air and Water Certification** (applicable to contracts exceeding \$100,000)

The bidder certifies that:

(a) *Any facility to be used in the performance of this contract [ ] is, [ ] is not listed on the Environmental Protection Agency List of Violating Facilities:*

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

**12. Bidder's Signature**

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

*(Signature and Date)* \_\_\_\_\_

*(Typed or Printed Name)* \_\_\_\_\_

*(Title)* \_\_\_\_\_

*(Company Name)* \_\_\_\_\_

*(Company Address)* \_\_\_\_\_

**Five Points Phase 2 Infrastructure Improvements C17002**  
**Solicitation Document D Good Faith Compliance Affidavit**

The vendor must demonstrate a good faith effort to utilize Minority Owned Businesses (MOB) and Woman Owned Businesses (WOB). To assist in this effort, KCDC posts the web links of organizations, which can provide vendors with a list of minority, and women owned businesses on its web site. These lists can be useful to the vendor in preparing a response to this solicitation.

**Place a checkmark in either Section One or Section Two of this form. Provide the information in Section One if you check that box.**

**Section One**

The vendor asked the following companies for pricing for the attached bid. Provided the listed companies meet bid document requirements and their pricing is competitive, it is our intent to use the companies listed. Attached hereto or to be provided to KCDC within five calendar days of solicitation opening is our Form of Commitment/Statement of Effort (**failure to submit Form of Commitment/Statement of Effort timely will be cause to reject the bid.**)

Company Name	Person	Product/Service	MOB	WOB

**Section Two**

MOB/WOB's were not contacted because sub-contractors suppliers will not be needed to complete the contract and all work will be completed by the vendor Other MOB/WOB's not shown above, will be considered during the duration of the contract in the event the vendor decides additional subcontractors or supplier will be used (to complete all or part of the contract).

Signed by	
Print Name and Title	
Subscribed and Sworn to before me on this date	
By	
Notary Public (stamp/signature)	
My Commission Expires on	



**Five Points Phase 2 Infrastructure Improvements C17002**  
**Solicitation Document E Form of Commitment: Minority Owned /Woman Owned Business**

**Place a checkmark in either Section One or Section Two of this form.**

**Section One** Does not apply-MOB/WOB subcontractors will not be used.  (Stop Here)

**Section Two** MOB/WOB Subcontractors will be used.  (Complete this page)

I, \_\_\_\_\_ do certify the firm has or will enter into a formal agreement with the MOB/WOB enterprise for work listed in this schedule.

Name of Firm	M O B	W O B	Contact Person	Type of Supplies to be Provided	Type of Work to be Performed	Dollar Value of Supplies or Service

Place an "X" in "MOB" or "WOB" as appropriate.

**COMPLETE THE FOLLOWING BOXES IF BOX ABOVE WAS NOT COMPLETED**

The following companies were listed on the Good Faith Compliance Affidavit submitted with my bid.

Company Name	Person	Product/Service	MOB	WOB

Explain why each of the above companies could not be used to provide the needed products or services.

Company Name	Reason

Above information submitted by \_\_\_\_\_

Printed/Typed Name and Title: \_\_\_\_\_



If a bid reaches or exceeds **\$25,000**, state law requires certain bidder license information be on the front of your envelope. As a condition of holding your license, you are to know these requirements.

KCDC provides the following page, the envelope cover sheet, as a courtesy. **You** are ultimately responsible for providing the correct information that is required to be on the front of your envelope. Failure to supply such information as is required by the State of Tennessee will invalidate your bid.

For more information go to: <http://tn.gov/regboards/contractors/FAQ.shtml>

**Attach the following page, when properly completed, to the front of your bid envelope.**

**Do not put it inside the envelope.**

**Five Points Phase 2 Infrastructure Improvements C17002**  
**Solicitation Document F      Envelope Coversheet**

<b>Bid Due Date/Time</b>	07-14-16 at 11:00 a.m.		
<b>Bidder's/Firm's Name</b>			
<b>State of Tennessee Contractor's License Holder Name</b>			
<b>State of Tennessee Contractor's License Number (matching the name above)</b>			
<b>State of Tennessee Contractor's License Classification Code Pertaining to this bid</b>			
<b>State of Tennessee Contractor's License Expiration Date</b>			
<b>Subcontractors to be used on this project (If subcontract work is not required, write "none required")</b>			
<b>Electrical Subcontractor Name on the State of Tennessee's Contractor's License</b>		<b>State of Tennessee Contractor License Number</b>	
<b>State of Tennessee Contractor License Classification(s)</b>		<b>Expiration Date of State Contractor's License</b>	
<b>HVAC Subcontractor Name on the State of Tennessee's Contractor's License</b>		<b>State of Tennessee Contractor License Number</b>	
<b>State of Tennessee Contractor License Classification(s)</b>		<b>Expiration Date of State Contractor's License</b>	
<b>Masonry Subcontractor Name on the State of Tennessee's Contractor's License</b>		<b>State of Tennessee Contractor License Number</b>	
<b>State of Tennessee Contractor License Classification(s)</b>		<b>Expiration Date of State Contractor's License</b>	
<b>Plumbing Subcontractor Name on the State of Tennessee's Contractor's License</b>		<b>State of Tennessee Contractor License Number</b>	
<b>State of Tennessee Contractor License Classification(s)</b>		<b>Expiration Date of State Contractor's License</b>	
<b>Geothermal Subcontractor Name on the License issued by the Department of Environment &amp; Conservation</b>		<b>Department of Environment &amp; Conservation Contractor License Number</b>	
<b>Department of Environment &amp; Conservation License Classification</b>		<b>Expiration Date of Department of Environment &amp; Conservation License</b>	

**Advisement:** KCDC will not consider notes changing the bid written on the bid envelope. Such notes must be inside the envelope.