PART VI

CONTRACT AGREEMENT

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PART VI

CONTRACT AGREEMENT

THIS AGREEMENT, made on the **28th** day of **October, 2021**, by and between **Lexington-Fayette Urban County Government**, acting herein called "OWNER" and **Cleary Construction, Inc.**, doing business as*(~~an individual~~) (~~a partnership~~) **(a corporation)** located in the City of **Lexington**, County of **Fayette**, and State of **Kentucky**, hereinafter called "CONTRACTOR."

WITNESSETH: That the CONTRACTOR and the OWNER in consideration of **One Million Seventeen Thousand Eight Hundred Sixty- Five** Dollars and **Zero** Cents (**$1,017,865.00**) quoted in the proposal by the CONTRACTOR, dated **September 17, 2021**, hereby agree to commence and complete the construction described as follows:

1. SCOPE OF WORK

The CONTRACTOR shall furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the Proposal, the General Conditions, and the Special Conditions of the Contract, the Specifications and Contract Documents therefore as prepared for the **Southland Park Stormwater Improvements Project**.

2. TIME OF COMPLETION AND LIQUIDATED DAMAGES

The time period estimated and authorized by the OWNER for the proper execution of the Work by the Contract, in full, is hereby fixed as **one hundred eighty (180) calendar days**. The time shall begin in accordance with the Notice to Proceed provided by OWNER. **TIME IS OF THE ESSENCE IN THE PERFORMANCE OF THIS AGREEMENT AND CONTRACTOR SHALL BE LIABLE AND RESPONSIBLE FOR DAMAGES SUFFERED BY OWNER AS A RESULT OF THE DELAY CAUSED BY CONTRACTOR.**

Should the CONTRACTOR fail or refuse to complete the work within the time specified in his Proposal and/or Contract (or extension of time granted by the owner), the CONTRACTOR shall pay liquidated damages in an amount of **$400 per day.** The amount of liquidated damages shall in no event be considered as a penalty, nor other than an amount agreed upon by the CONTRACTOR and the OWNER for damages, losses, additional engineering, additional resident representation, and other costs that will be sustained by the OWNER, if the CONTRACTOR fails to complete the work within the specified time. Liquidated damages will be applied on a rate per day for each and every calendar day (Sundays and holidays included) beyond the Contract expiration date stipulated in the Contract Documents, considering all time extension granted. **These Liquidated Damages are in addition to any other damages / fees / penalties that are incurred as a result of Consent Decree requirements.**

3. ISSUANCE OF WORK ORDERS

Notice to begin Work will be given in whole or for part of the Work as determined by the OWNER pending the availability of funds. The order of construction will be as determined by the Engineer after consultation with the CONTRACTOR and the OWNER.

4. THE CONTRACT SUM

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the Contract, as quoted in the proposal, subject to any additions and deductions, as provided therein.

5. PROGRESS PAYMENTS

The OWNER shall make payments on account of the Contract, as provided in accordance with the General Conditions, as estimated by the Engineer, less the aggregate of previous payments.

6. ACCEPTANCE AND FINAL PAYMENT

Final payment shall be due within ninety (90) days after completion of the Work, provided the Work be then fully completed and the Contract fully accepted.

Before issuance of final certificate, the CONTRACTOR shall submit evidence satisfactory to the Engineer that all payrolls, material bills, and other indebtedness connected with the Work has been paid.

If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the CONTRACTOR, and the Engineer so certifies, the OWNER shall upon certificate of the Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

7. THE CONTRACT DOCUMENTS

The Advertisement for Bids, Information for Bidders, General Conditions, Special Conditions, Contract Agreement, Bonds and Certificates, Technical Specifications, any and all Addenda, and Proposal, and Plan Drawings form the Contract, and they are fully a part of the Contract as if hereto attached or herein repeated.

8. EXTRA WORK

The OWNER, without invalidating the Contract, may order extra work or make changes by altering, adding to, or deducting from the Work, the Contract Sum being adjusted accordingly. All such Work shall be executed and paid for in accordance with the General Conditions, which is a part of this Contract.

9. CONSENT DECREE REQUIREMENTS (NOT APPLICABLE TO THIS PROJECT)

10. ENUMERATION OF SPECIFICATIONS AND DRAWINGS

The following is an enumeration of the Specifications and Drawings (Contract Documents):

SPECIFICATIONS

SECTION NO.	TITLE
I	Advertisement for Bids
II	Information for Bidders
III	Form of Proposal
IV	General Conditions
V	Special Conditions
VI	Contract Agreement
VII	Bonds and Certificates
VIII	Permits
IX	Addenda

TECHNICAL SPECIFICATIONS

Division 1	General Requirements
Division 2	Site Work
Division 3	Concrete

STANDARD DRAWINGS - LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

Number	Description
100	Storm Sewer Manhole Type "A" – Circular Walls
101	Storm Sewer Manhole Type "B" – Non-Circular Walls
102	Storm Sewer Manhole Details
103	Manhole Frames, Covers, and Steps
105	Storm Sewer Manhole Circular Slabs 6'-0" Diameter
130-1	Aggregate Channel Lining
130-2	Aggregate Channel Lining
153	Pipe Culvert Headwalls 0° Skew 15" - 27" Circular Pipe
154-1	Pipe Culvert Headwalls 0° Skew 30"-108" Pipe
154-2	Dimensions and Quantities 30"-108" Headwalls Circular Pipe 0° Skew
154-3	Bill of Reinforcement 30"-90" Diameter Circular Pipe Headwalls 0° Skew
303	Sidewalk Construction Specifications

304	Sidewalk Ramp Type 1
308	Chain Link Fence 3' - 6'
309	Chain Link Fence 8' - 12'
310	Chain Link Gate
311	Plank Fence
316	Top Rail for Retaining Walls Handrail for Steps
319	Typical Edge Key for Minimum Overlays, Short Projects, Low Speed
323	Public Improvement Sign

DRAWINGS

"Southland Park Stormwater Improvements" by Banks Engineering dated August 2021.

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the date and year above written.

(Seal)

ATTEST:

Mackenzie Stack
Clerk of the Urban County Council

(Witness)

(Seal)

Shirley Cleary
(Secretary)*

Mary D Sparkes
(Witness)

Lexington-Fayette Urban County Government
Lexington, Kentucky
(Owner)

BY: Linda Gorton
MAYOR

Mayor
(Title)

Cleary Construction Inc.
(Contractor)

BY:

Darren Cleary, President
(Title)

2006 Edmonton Road Tompkinsville, KY 42167
(Address and Zip Code)

IMPORTANT: *Strike out any non-applicable terms.

Secretary of the Owner should attest. If the CONTRACTOR is corporation, Secretary should attest. Give proper title of each person-executing Contract.

- END OF SECTION -

Premium based upon
final contract price.

Bond No. 183579J

BONDS EXECUTED IN THREE (3) ORIGINAL COUNTERPARTS

1.01 **PERFORMANCE BOND**

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

Cleary Construction, Inc.
(Name of CONTRACTOR)

2006 Edmonton Road, Tompkinsville, Kentucky 42167
(Address of CONTRACTOR)

a corporation, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and Westfield Insurance Company
(Name of Surety)

One Park Circle, Westfield Center, Ohio 44251
(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:

One Million Seventeen Thousand Eight Hundred Sixty-Five & No/100 dollars ($1,017,865.00 --),
for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the **Southland Park Stormwater Improvements Project**, LFUCG Bid No. 61-2021 in accordance with Contract Documents prepared by Banks Engineering, Inc. and dated August 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly and faithfully perform said Agreement (Contract), then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Whenever, Principal shall be, and declared by OWNER to be in default under the Agreement (Contract), the OWNER having performed OWNER'S obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the Agreement (Contract) in accordance with its terms and conditions or

2. Obtain a Bid or Bids for completing the Agreement (Contract) in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the OWNER elects, upon determination by the OWNER and Surety jointly of the lowest responsible bidder, arrange for an Agreement (Contract) between such bidder and OWNER, and make available as Work progresses (even though there may be a default or a succession of defaults under the Agreement (Contract) or Agreements (Contracts) of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Agreement (Contract) Amount; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "Balance of the Agreement (Contract) Amount", as used in this paragraph shall mean the total amount payable by OWNER to Principal under the Agreement (Contract) and any amendments thereto, less the amount properly paid by OWNER to Principal.

Any suit under this bond must be instituted before the expiration of one (1) year from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators or successors of OWNER.

IN WITNESS WHEREOF, this instrument is executed in 3 (number) counterparts, each one of which shall be deemed an original, this the Twenty-Eighth day of October, 2021.

ATTEST:

Cleary Construction, Inc.
Principal

(Principal) Secretary
Shirley Cleary

By: (s)
Darren Cleary, President

2006 Edmonton Road
Address

Tompkinsville, Kentucky 42167

Witness as to Principal MaryJo Spurlock

2006 Edmonton Road
Address

Tompkinsville, Kentucky 42167

Westfield Insurance Company
Surety

ATTEST:

By:
Attorney-in-Fact

See Power of Attorney
(Surety) Secretary

One Park Circle
Address

Westfield Center, Ohio 44251

(SEAL)

Witness to Surety
Seth Chapman

Title: Attorney-in-Fact
Surety

6640 Carothers Parkway, Suite 160
Address

By:
Craig M. Whitlow

Franklin, Tennessee 37067

Title: Account Executive

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).

Premium based upon
final contract price.

Bond No. **183579J**

BONDS EXECUTED IN THREE (3) ORIGINAL COUNTERPARTS

1.02 PAYMENT BOND

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that

Cleary Construction, Inc.
(Name of CONTRACTOR)

2006 Edmonton Road, Tompkinsville, Kentucky 42167
(Address of CONTRACTOR)

a corporation, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and Westfield Insurance Company
(Name of Surety)

One Park Circle, Westfield Center, Ohio 44251
(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:

One Million Seventeen Thousand Eight Hundred Sixty-Five & No/100 dollars ($1,017,865.00 --),
for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the **Southland Park Stormwater Improvements Project**, LFUCG Bid No. 61-2021 in accordance with Contract Documents prepared by Banks Engineering, Inc. and dated August 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW, THEREFORE THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined for all labor and material used or reasonably required for use in the performance of the Agreement (Contract), then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor material, or both, used or reasonably required for use in the performance of the Agreement (Contract), labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Agreement (Contract).

2. The above named Principal and Surety hereby jointly and severally agree with the OWNER that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such

sum or sums as may be justly due claimant and have execution thereon. The OWNER shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

   (a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: The Principal, the OWNER, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the Work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the Work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, OWNER, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

   (b) After the expiration of one (1) year following the date on which Principal ceased Work on said Agreement (Contract), it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

   (c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against aid improvement, whether or not claim for the amount of such lien be presented under and against this bond.

IN WITNESS WHEREOF, this instrument is executed in 3 (number) counterparts, each one of which shall be deemed an original, this the Twenty-Eighth day of October, 20 21.

ATTEST:

Cleary Construction, Inc.
Principal

Shirley Cleary
(Principal) Secretary
Shirley Cleary

By: Darren Cleary (s)
Darren Cleary, President

2006 Edmonton Road
Address

Tompkinsville, Kentucky 42167

Malinda Jo Spurlock
Witness as to Principal Malinda Jo Spurlock

2006 Edmonton Road
Address

Tompkinsville, Kentucky 42167

Westfield Insurance Company
Surety

ATTEST:

By: Amanda K. Allen
Attorney-in-Fact

See Power of Attorney
(Surety) Secretary

One Park Circle
Address

Westfield Center, Ohio 44251

(SEAL)

Seth Chapman
Witness to Surety
Seth Chapman

6640 Carothers Parkway, Suite 160
Address

Franklin, Tennessee 37067

Title: Account Executive

Title: Attorney-in-Fact
Surety

By: Craig M. Whitlow
Craig M. Whitlow

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).

Premium based upon
final contract price.

Bond No. **183579J**

BONDS EXECUTED IN THREE (3) ORIGINAL COUNTERPARTS

1.03 **EROSION AND SEDIMENT CONTROL PERFORMANCE BOND**

EROSION AND SEDIMENT CONTROL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

Cleary Construction, Inc.
(Name of CONTRACTOR)

2006 Edmonton Road, Tompkinsville, Kentucky 42167
(Address of CONTRACTOR)

a corporation, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and Westfield Insurance Company
(Name of Surety)

One Park Circle, Westfield Center, Ohio 44251
(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:
Thirty Thousand Five Hundred Thirty-Five and 95/100 --
[3% of Total Bid Price] dollars ($ 30,535.95 --), for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the **Southland Park Stormwater Improvements Project**, LFUCG Bid No. 61-2021 in accordance with Contract Documents prepared by Banks Engineering, Inc. and dated August 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly and faithfully perform said Agreement (Contract), then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Whenever, Principal shall be, and declared by OWNER to be in default under the Agreement (Contract), the OWNER having performed OWNER's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the installation, maintenance, and removal of the soil erosion and sediment controls and final stabilization of the site during the full period of land disturbance in accordance with the Agreement (Contract), the LFUCG Land Disturbance Permit, Chapter 16 Article X Division 5 of the LFUCG Code of Ordinances, Chapter 11 of the LFUCG Stormwater Manual, and the KPDES General Permit for Stormwater Discharges Associated with Construction Activities (KYR10).

2. Obtain a Bid or Bids for completing the installation, maintenance, and removal of the soil erosion and sediment controls and final stabilization of the site in accordance with the Agreement's (Contract's) terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the OWNER elects, upon determination by the OWNER and Surety jointly of the lowest responsible bidder, arrange for an Agreement (Contract) between such bidder and OWNER, and make available as Work progresses (even though there may be a default or a succession of defaults under the Agreement (Contract) or Agreements (Contracts) of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Agreement (Contract) Amount; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Agreement (Contract) Amount", as used in this paragraph shall mean the total amount payable by OWNER to Principal under the Agreement (Contract) and any amendments hereto, less the amount properly paid by OWNER to Principal.

Any suit under this bond must be instituted before the expiration one (1) year from the date on which final payment under the Agreement (Contract) falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators or successors of OWNER.

IN WITNESS WHEREOF, this instrument is executed in 3 (number) counterparts, each one of which shall be deemed an original, this the Twenty-Eighth day of October, 20 21.

ATTEST:

Cleary Construction, Inc.
Principal

Shirley Cleary
(Principal) Secretary
Shirley Cleary

By: Darren Cleary, President (s)

2006 Edmonton Road
Address

Tompkinsville, Kentucky 42167

Mary Jo Spurlock
Witness as to Principal Mary Jo Spurlock

2006 Edmonton Road
Address

Tompkinsville, Kentucky 42167

Westfield Insurance Company
Surety

ATTEST:

By: Pamela K Pursiano
Attorney-in-Fact

See Power of Attorney
(Surety) Secretary

One Park Circle
Address

Westfield Center, Ohio 44251

(SEAL)

Seth Chapman
Witness to Surety
Seth Chapman

6640 Carothers Parkway, Suite 160
Address

Franklin, Tennessee 37067

Title: Attorney-in-Fact
Surety

By: Craig M. Whitlow
Craig M. Whitlow

Title: Account Executive

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).

Premium based upon
final contract price.

Bond No. **183579J**

BONDS EXECUTED IN THREE (3) ORIGINAL COUNTERPARTS

1.04 **WARRANTY BOND**

WARRANTY BOND

KNOW ALL MEN BY THESE PRESENTS, that

Cleary Construction, Inc.
(Name of CONTRACTOR)

2006 Edmonton Road, Tompkinsville, Kentucky 42167
(Address of CONTRACTOR)

a corporation, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and Westfield Insurance Company
(Name of Surety)

One Park Circle, Westfield Center, Ohio 44251
(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:

One Million Seventeen Thousand Eight Hundred Sixty-Five & No/100 dollars ($1,017,865.00 --),
for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents. The warranty bond shall be in the amount of five percent (5%) of the final construction cost amount (based on contractor's final pay request).

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the **Southland Park Stormwater Improvements Project**, LFUCG Bid No. 61-2021 in accordance with Contract Documents prepared by Banks Engineering, Inc. and dated August 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that, if the Principal shall well and faithfully do and perform the required maintenance and shall indemnify and save harmless the OWNER against all claims, loss or damage, and expenses of reconstruction or additional work required to restore the Project to its acceptable condition within a period of one (1) year from the date of acceptance by OWNER of the Project, then this obligation shall be void; otherwise, it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Any suit under this bond must be instituted before the expiration of one (1) year from the date on which final payment under the Contract falls due.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators, successors, or assigns of the OWNER.

IN WITNESS WHEREOF, this instrument is executed in 3 (number) counterparts, each one of

which shall be deemed an original, this the Twenty-Eighth day of October, 20 21.

ATTEST:

Cleary Construction, Inc.
Principal

(Principal) Secretary

Shirley Cleary

By: Darren Cleary, President (s)

2006 Edmonton Road
Address

Tompkinsville, Kentucky 42167

Witness as to Principal MaryJo Spurlock

2006 Edmonton Road
Address

Tompkinsville, Kentucky 42167

Westfield Insurance Company
Surety

ATTEST:

By: Attorney-in-Fact

See Power of Attorney
(Surety) Secretary

One Park Circle
Address

Westfield Center, Ohio 44251

(SEAL)

Witness to Surety
Seth Chapman

Title: Attorney-in-Fact
Surety

6640 Carothers Parkway, Suite 160
Address

By: Craig M. Whitlow

Franklin, Tennessee 37067

Title: Account Executive

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).

THIS POWER OF ATTORNEY SUPERCEDES ANY PREVIOUS POWER BEARING THIS SAME POWER # AND ISSUED PRIOR TO 03/01/17, FOR ANY PERSON OR PERSONS NAMED BELOW.

POWER NO. 4110812 07

General Power of Attorney

CERTIFIED COPY

Westfield Insurance Co.
Westfield National Insurance Co.
Ohio Farmers Insurance Co.

Westfield Center, Ohio

Know All Men by These Presents, That WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY, corporations, hereinafter referred to individually as a "Company" and collectively as "Companies," duly organized and existing under the laws of the State of Ohio, and having its principal office in Westfield Center, Medina County, Ohio, do by these presents make, constitute and appoint
JAMES L. NOE, III, STEPHANIE RICHARDSON, ANDREW C. BENNETT, DEIDRE KITTREDGE, CRAIG M. WHITLOW, PAMELA D. PUSKARICH, JOINTLY OR SEVERALLY

of **FRANKLIN** and State of **TN** its true and lawful Attorney(s)-in-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver **any and all bonds, recognizances, undertakings, or other instruments or contracts of suretyship**- .

LIMITATION: **THIS POWER OF ATTORNEY CANNOT BE USED TO EXECUTE NOTE GUARANTEE, MORTGAGE DEFICIENCY, MORTGAGE GUARANTEE, OR BANK DEPOSITORY BONDS.**
and to bind any of the Companies thereby as fully and to the same extent as if such bonds were signed by the President, sealed with the corporate seal of the applicable Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney(s)-in-Fact may do in the premises. Said appointment is made under and by authority of the following resolution adopted by the Board of Directors of each of the WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY:

"*Be It Resolved*, that the President, any Senior Executive, any Secretary or any Fidelity & Surety Operations Executive or other Executive shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

The Attorney-in-Fact, may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements of indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed by the President and sealed and attested by the Corporate Secretary."

"*Be it Further Resolved*, that the signature of any such designated person and the seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signatures or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached." (Each adopted at a meeting held on February 8, 2000).

In Witness Whereof, WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY have caused these presents to be signed by their **National Surety Leader and Senior Executive** and their corporate seals to be hereto affixed this **01st** day of **MARCH** A.D., **2017** .

Corporate Seals Affixed

WESTFIELD INSURANCE COMPANY
WESTFIELD NATIONAL INSURANCE COMPANY
OHIO FARMERS INSURANCE COMPANY

By: Dennis P. Baus

Dennis P. Baus, *National Surety Leader and Senior Executive*

State of Ohio
County of Medina ss.:

On this **01st** day of **MARCH** A.D., **2017** , before me personally came **Dennis P. Baus** to me known, who, being by me duly sworn, did depose and say, that he resides in **Wooster, Ohio**; that he is **National Surety Leader and Senior Executive** of WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY, the companies described in and which executed the above instrument; that he knows the seals of said Companies; that the seals affixed to said instrument are such corporate seals; that they were so affixed by order of the Boards of Directors of said Companies; and that he signed his name thereto by like order.

Notarial Seal Affixed

State of Ohio
County of Medina ss.:

David A. Kotnik

David A. Kotnik, Attorney at Law, *Notary Public*
My Commission Does Not Expire (Sec. 147.03 Ohio Revised Code)

I, **Frank A. Carrino**, Secretary of WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Companies, which is still in full force and effect; and furthermore, the resolutions of the Boards of Directors, set out in the Power of Attorney are in full force and effect.

In Witness Whereof, I have hereunto set my hand and affixed the seals of said Companies at Westfield Center, Ohio, this 28th day of October A.D., 2021 .

Frank A Carrino *Secretary*

Frank A. Carrino, *Secretary*

BPOAC2 (combined) (06-02)

CLEACON-01 SWHITLOW

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 9/24/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Insurance Group of America LLC 6640 Carothers Parkway, Suite 160 Franklin, TN 37067	CONTACT NAME: Andrew Bennett PHONE (A/C, No, Ext): (615) 905-6954 FAX (A/C, No): (615) 905-1698 E-MAIL ADDRESS: Andrew.Bennett@IGA.biz
INSURED Cleary Construction Inc. 2006 Edmonton Road Tompkinsville, KY 42167	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : The Phoenix Ins Co — 25623 INSURER B : Charter Oak Fire Ins Co — 25615 INSURER C : Travelers Property Casualty Co of America — 25674 INSURER D : Bridgefield Casualty Ins Co — 10335 INSURER E : INSURER F :

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT X LOC OTHER:			CO6P296915	2/24/2021	2/24/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Prop. Dam. Ded.	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $ 2,500
B	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY SCHEDULED AUTOS HIRED AUTOS ONLY NON-OWNED AUTOS ONLY			8105P980217	2/24/2021	2/24/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
C	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 10,000			CUP6P393358	2/24/2021	2/24/2022	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		0196-42220	1/1/2021	1/1/2022	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: LFUCG Bid No. 61-2021I Southland Park Stormwater Improvements

Lexington-Fayette Urban County Government and Banks Engineering, Inc. are additional insureds on a primary and noncontributory basis with regards to General Liability for ongoing and completed operations, Auto Liability and Umbrella Liability where required by written contract. 30 Day Notice of Cancellation will be requested.

CERTIFICATE HOLDER

Lexington-Fayette Urban County Government
200 East Main St.
Lexington, KY 40507

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

CONTRACT DOCUMENTS
AND
SPECIFICATIONS

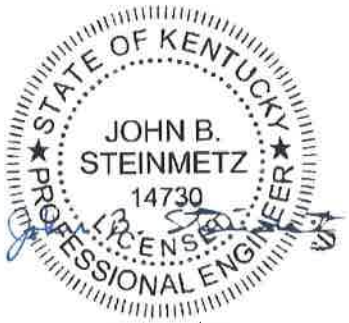
FOR

SOUTHLAND PARK
STORMWATER IMPROVEMENTS

DIVISION OF WATER QUALITY
LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT

LFUCG BID NO. 61-2021

August, 2021



PREPARED BY:

Banks Engineering, Inc.

BANKS

Set #1

Digital Planroom
www.lynnimaging.com

v. 11.16.2020

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PART I

ADVERTISEMENT FOR BIDS

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ADVERTISEMENT FOR BIDS

1. INVITATION

Sealed proposals for the following work will be received by the Lexington-Fayette Urban County Government (LFUCG) via Ion Wave (https://lexingtonky.ionwave.net) until **2:00 pm, local time, September 17, 2021** for furnishing all labor and/or materials and performing all work as set forth in the Contract Documents prepared by and for Lexington-Fayette Urban County Government, Division of Water Quality (OWNER). All forms and Contract Documents normally filled out and attached with bid submission shall be downloaded from Lynn Imaging's Planroom and may be viewed on Ion Wave. All notary requirements are waived for this solicitation. A copy of the bid bond must be included with submission. Immediately following the scheduled closing time for reception of Bids, all proposals which have been submitted in accordance with the above will be opened electronically and a bid tab sheet will be posted on Ion Wave within approximately 30 mins.

Due to the current environment and recommendations for social distancing, LFUCG will only be accepting bids on-line through Ion Wave for this solicitation. Base bid and alternate totals (if required) should be provided on the appropriate line items tab on Ion Wave. Submissions without line-item totals (if required) may be rejected and deemed non responsive. THESE INSTRUCTIONS SUPERCEDE ALL OTHER BID SUBMISSION INSTRUCTIONS PROVIDED IN THIS PACKAGE. PLEASE SUBMIT ALL QUESTIONS VIA THE Q&A MODULE ON ION WAVE.

2. DESCRIPTION OF WORK

The project includes providing all construction supervision, labor, materials, tools, test equipment necessary for the **Southland Park Stormwater Improvements Project**.

3. OBTAINING PLANS, SPECIFICATIONS, AND BID DOCUMENTS

Plans, Specifications, and Contract Documents may be obtained from the official bid document distributor, LYNN IMAGING, 328 Old Vine Street, Lexington, KY 40507, (859) 255-1021 or (www.lynnimaging.com) and click on plan room for a non-refundable price of reproduction for each full set of plans and documents. Bids must be submitted through LFUCG's Ion Wave. Plans may also be purchased in digital download format.

Due to current environment and recommendations for social distancing, no Contract Documents may be examined in person.

4. METHOD OF RECEIVING BIDS

Bids will be received from Prime Contracting firms on a **Line Item Unit Price Basis**.

Bids shall be submitted in the manner and subject to the conditions as set forth and described in the Instruction to Bidders and Special Conditions.

Bids shall be submitted online via Ion Wave.

5. METHOD OF AWARD

The Contract, if awarded, will be to the lowest, qualified responsible Bidder for the total project whose qualifications indicate the award will be in the best interest of the OWNER and whose Bid/proposal complies with all the prescribed requirements. No Notice of Award will be given until the OWNER has concluded such investigation as deemed necessary to establish the responsibility, qualifications and financial ability of Bidders to do the work in accordance with the Contract Documents to the satisfaction of the OWNER within the time prescribed. The OWNER reserves the right to reject the Bid of any Bidder who does not pass such investigation to the OWNER's satisfaction. In analyzing Bids, the OWNER may take into consideration alternate and unit prices, if requested by the Bid forms.

6. BID WITHDRAWAL

No Bidder may withdraw his Bid for a period of sixty (60) calendar days after the closing date for receipt of Bids. Errors and omissions will not be cause for withdrawal of Bid without forfeit of Bid Bond. Bids may be withdrawn in person prior to the closing date of receipt of Bids.

7. BID SECURITY

If the Bid is $50,000 or greater, Bid shall be accompanied by a certified / cashier's check or Bid bond payable to the Lexington-Fayette Urban County Government in an amount not less than Five Percent (5%) of the base Bid. Bid Bond shall be executed by a Surety Company authorized to do business in the Commonwealth of Kentucky and countersigned by a licensed Kentucky Resident Agent, representing the Surety Company. Bid Bonds are not required for Bids under $50,000. A certified check or cashier's check is also acceptable forms of Bid security.

8. SUBMISSION OF BIDS

CONTRACTORS shall submit their Bids via Ion Wave not later than **2:00 pm, local time, September 17, 2021**. Bids will remain sealed until 2:00 p.m. (local time) 2:00 pm, local time, September 14, 2021, the official Bid closure time. Bids received after the scheduled closing time for receipt of Bids will not be considered.

9. RIGHT TO REJECT

The Purchasing Agent for the Lexington-Fayette Urban County Government reserves the right to reject any and all Bids and to waive all informalities and/or technicalities where the best interest of the Lexington-Fayette Urban County Government may be served.

10. NOTIFICATION TO THE LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT FOR AFFIRMATIVE ACTION PLAN AND CURRENT WORKFORCE

The successful Bidder must submit with their Bid the following items to the Lexington-Fayette Urban County Government:

1. Affirmative Action Plan for his/her firm.
2. Current Workforce Analysis Form.

Failure to submit these items as required herein may result in disqualification of the Bidder from the award of the contract.

All submissions shall be directed to:

Lexington-Fayette Urban County Government
Division of Purchasing
200 East Main Street, 3rd Floor, Room 338
Lexington, Kentucky 40507

11. NOTICE CONCERNING MWDBE GOAL

Notice of requirement for Affirmative Action to ensure Equal Employment Opportunities and Disadvantaged Business Enterprises (DBE) Contract participation. Disadvantaged Business Enterprises (DBE) consists of Minority-Owned Business Enterprises (MBE) and Woman-Owned Business Enterprises (WBE).

The Lexington-Fayette Urban County Government has set a goal that not less than ten percent (10%) of the total value of this Contract be subcontracted to Disadvantaged Business Enterprises, which is made up of MBEs and WBEs. The goal for the utilization of Disadvantaged Business Enterprises as subcontractors is a recommended goal. Contractor(s) who fail to meet such goal will be expected to provide written explanations to the Director of the Division of Purchasing of efforts they have made to accomplish the recommended goal, and the extent to which they are successful in accomplishing the recommended goal will be a consideration in the procurement process. Depending on the funding source, other DBE goals may apply.

For assistance in locating Disadvantaged Business Enterprises Subcontractors contact:

Sherita Miller, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, 3rd Floor, Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

12. PRE-BID MEETING

A **non-mandatory** Pre-Bid meeting will be held at 9:00 a.m. local time on **September 3, 2021**. The meeting will be virtual and current planholders will be notified with the link via an emailed addendum 24-48 hours prior to the meeting.

13. CONSENT DECREE REQUIREMENTS

Consent Decree Requirements do not apply to this project.

- END OF SECTION -

PART II

INFORMATION FOR BIDDERS

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PART II

INFORMATION FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS

The Lexington-Fayette Urban County Government (herein called the OWNER) invites Bids from firms on the project described in the Advertisement for Bids. The OWNER will receive Bids online through Ion Wave (https://lexingtonky.ionwave.net) at the time and in the manner set forth in the Advertisement for Bids, at which time the bids will be opened electronically. The OWNER may consider informal any Bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all Bids. Any Bid may be withdrawn prior to the scheduled time for the opening of Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. No Bidder may withdraw a Bid within one hundred twenty (120) days after the actual time and date of the Bid opening, but OWNER may, in its sole discretion, release any Bid and return the Bid Security prior to that date.

The OWNER assumes no responsibility for Bids that are not submitted electronically as indicated above. Bids that are not submitted online by the stated time and date will be rejected.

2. PREPARATION OF BID

Each Bid must be submitted on the prescribed digital Bid Form within Ion Wave. All blank spaces for the Bid prices must be filled in or the bid will be considered incomplete. Each Bid must be submitted online via Ion Wave.

3. SUBCONTRACTS

The bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this Contract must be acceptable to the OWNER. All proposed subcontractors must be identified on the Form of Proposal. Prior to the award of Contract, the OWNER or the OWNER'S representative will advise the CONTRACTOR of the acceptance and approval thereof or of any action necessary to be taken. Should any Subcontractor be rejected by the OWNER, the CONTRACTOR shall present a new name and/or firm to the OWNER at no change in the Contract Price.

4. QUALIFICATION OF BIDDER

The OWNER may make such investigations as the OWNER deems necessary to determine the ability of the bidder to perform the Work, and the bidder shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the OWNER that such bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein. Conditional bids will not be accepted.

In evaluating Bids, OWNER shall consider the qualifications of the BIDDERS, whether or not the Bids comply with the prescribed requirements, and alternatives and unit prices, as requested. OWNER may consider maintenance requirements, performance data, and disruption or damage to private property. It is OWNER'S intent to accept alternatives, if requested by the bid forms, in the order in which they are listed in the Bid Form, but OWNER may accept or decline them in any order or combination. The contract, if awarded, will be awarded to the lowest, qualified, responsible BIDDER based upon OWNER'S evaluation which indicates that the award will be in the best interest of OWNER and the general public.

In the event there is any question as to the bidder's qualifications and ability to complete the work, a final determination will be made in accordance with a fair evaluation by the Urban County Government of the above listed elements.

A. If the OWNER requires filling out a detailed financial statement, the bidder may provide its current certified financial statement(s) for the required time interval.

B. Corporate firms are required to be registered and in good standing with the requirements and provisions of the Office of the Secretary of State, Commonwealth of Kentucky.

C. Documents Required of CONTRACTOR - (1) A sworn statement signed by the President or owner of the Company regarding all current work in progress anywhere; (2) A document showing the percent of completion of each project and the total worth of each project; and (3) Documentation showing the percentage of the DBE employment levels on each project of the Bidder's current work force, and DBE participation levels for Subcontractors.

D. Optional OWNER Requirements - The OWNER, at its discretion, may require the BIDDER/CONTRACTOR to provide: (1) a current detailed financial statement for a period including up to 3 prior years; (2) financial security or insurance in amounts and kinds acceptable to the OWNER to meet the financial responsibility requirements for the CONTRACTOR to indemnify the OWNER. (3) Additional information and/or DBE work force data, as well as DBE participation data.

Each bidder agrees to waive any claim it has or may have against the Owner, the Architect/Engineer, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any bid.

5. BID SECURITY

A. Each bid must be accompanied by a bid bond prepared on a Form of Bid Bond and attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the OWNER, in the amount of 5% of the bid. Such bid bond will be returned to the unsuccessful bidder(s) only upon written request to the Director of Central Purchasing within seven (7) days of opening of

bids. Bid bond shall be made payable to the Lexington-Fayette Urban County Government. Bid security is not required for projects under $50,000.

B. Bonds shall be placed with an agent licensed in Kentucky with surety authorized to do business within the state. When the premium is paid for such coverage, the full commission payable shall be paid to such local agent who shall not divide such commission with any person other than a duly licensed resident local agent.

6. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

The successful bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within ten (10) days after he has received notice of the acceptance of his bid, shall forfeit to the OWNER, as liquidated damages for such failure or refusal, the security deposited with his bid.

7. TIME OF COMPLETION AND LIQUIDATED DAMAGES

Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" from the OWNER and to fully complete the Project within the time as specified in the Contract. Bidder must agree also to pay $400 per day as liquidated damages, or the sum as specified in the Contract for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

8. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

A. It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site(s) to become familiar with local conditions that may affect cost, progress, performance or furnishing of the work, (c) consider Federal, State and Local laws and regulations that may affect cost, progress, performance or furnishing of the work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors or discrepancies in the Contract Documents.

B. Bidders should examine the requirements of section 4 of the General Conditions for information pertaining to subsurface conditions, underground structures, underground facilities, and availability of lands, easements, and rights-of-way. The completeness of data, presented in the Contract Documents, pertaining to subsurface conditions, underground structures, and underground facilities for the purposes of bidding or construction is not assured. The Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface and subsurface) which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents. On request in advance, OWNER will provide access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.

C. The submission of a Bid will constitute an incontrovertible representation by the Bidder that Bidder has complied with every requirement of this paragraph 8; that without exception the Bid is premised upon furnishing and performing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents; and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

9. ADDENDA AND INTERPRETATIONS

No interpretation of the meaning of the Contract Documents will be made to any bidder orally. Every request for such interpretation should be in writing addressed to the Director of Central Purchasing, who in turn will have an Addendum issued for the Lexington-Fayette Urban County Government, and to be given consideration must be received prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications. Acknowledgement of the receipt of addenda must be included with all submitted bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

10. SECURITY FOR FAITHFUL PERFORMANCE

A. Simultaneously with his delivery of the executed Contracts, the CONTRACTOR shall furnish a surety bond or bonds as security for the faithful performance of this Contract and for payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract, as specified in the General Conditions. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the OWNER and authorized to do business in the Commonwealth of Kentucky.

B. All bonds required by this Contract and laws of this State shall be placed with agents licensed in the State of Kentucky. When the premium is paid for such coverage's, the full commission shall be paid to such local agent who shall not divide such commission with any person other than a duly licensed resident local agent.

C. **Contractor shall use standard Performance and Payment Bond forms such as documents provided with this contract book or AIA form A312-1984 (or later). Each document will be for 100% of the Contract Bid Amount.**

11. POWER OF ATTORNEY

Attorney-in-fact who signs bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

12. TAXES AND WORKMEN'S COMPENSATION

The CONTRACTOR and subcontractor will be required to accept liability for payment of all payroll taxes, sales and use tax, and all other taxes or deductions required by local, state or federal law, such as old age pension, social security, or annuities measured by wages. Each shall carry Workmen's Compensation Insurance to the full amounts as required by Statutes and shall include the cost of all foregoing items in the proposal. The CONTRACTOR will not otherwise be reimbursed or compensated for such tax payments. The CONTRACTOR is urged to ascertain at his own risk his actual tax liability in connection with the execution or performance of his Contract.

13. LAWS AND REGULATIONS

The bidder's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the contract, the same as though herein written out in full.

14. EROSION AND SEDIMENT CONTROL AND PERMITS

The CONTRACTOR and Subcontractors performing work on projects on behalf of the OWNER shall also comply with all applicable federal, state, and local environmental regulations and all requirements and conditions set forth in "special" permits including but not limited to Corp of Engineers 404 permits, 401 Water Quality Certifications, Stream Crossing and Floodplain Encroachment Permits as described in Part 4 General Conditions Paragraph 5.17.

15. PREVAILING WAGE LAW AND MINIMUM HOURLY RATES

Federal or state wage rates and regulations, if required for this Project, will be as described in the Special Conditions.

16. AFFIRMATIVE ACTION PLAN

The successful Bidder must submit with their bid, the following items to the Urban County Government:

1. Affirmative Action Plan of the firm
2. Current Work Force Analysis Form
3. Good Faith Effort Documentation
4. List of Disadvantaged Business Enterprise Subcontractors and the Dollar Value of each Subcontract

A Work Force Analysis Form shall be submitted for each Contract. Failure to submit these items as required herein may result in disqualification of the Bidder from award of the Contract.

All submissions should be directed to:

Director, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, Third Floor
Lexington, KY 40507

17. CONTRACT TIME

The number of calendar days within which the Work is to be substantially completed and ready for final payment (the Contract Time) is set forth in the Form of Proposal and the Agreement.

18. SUBSTITUTE OR "OR-EQUAL" ITEMS

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by the CONTRACTOR if acceptable to the ENGINEER and OWNER, application for such acceptance will not be considered by the ENGINEER and OWNER until after the effective date of the Agreement. The procedure for submission of any such application by the CONTRACTOR and consideration by the ENGINEER and OWNER is set forth in the General Conditions.

19. ALTERNATE BIDS

Bidders shall submit alternate bids/proposals only if and when such alternate bids/proposals have been specifically requested in an Invitation for Bids. If alternate bids/proposals are requested in an Invitation for Bids, the form of submission of such alternate bid and the conditions under which such alternate bids will be considered for award of a contract will be established in the Invitation.

Any Bidder who submits a bid incorporating an alternate proposal when alternate bids/proposals have not been requested in the Invitation for Bids shall have his/her bid rejected as non-responsive.

Any Bidder who submits a bid incorporating two (2) or more prices for an item or groups of items (unless such method of pricing is requested in the Invitation for Bids), or which imposes conditions for acceptance other than those established in the Invitation for Bids, shall have their bid rejected as non-responsive.

20. SIGNING OF AGREEMENT

When OWNER gives a Notice of Award to the successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within ten days thereafter, CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER with the required Bonds, Certificate of Insurance, and Power of Attorney. The OWNER will deliver one fully signed counterpart to CONTRACTOR at such time as it has been signed by the Mayor.

21. ASSISTANCE TO BE OFFERED TO DISADVANTAGED BUSINESS ENTERPRISE (MWDBE) CONTRACTORS

A. Outreach for MWDBE(s)

The Lexington-Fayette Urban County Government (LFUCG) maintains a database of MWDBE contractors and organizations. When a LFUCG construction project is advertised for bidding, notices are sent to companies registered at https://lexingtonky.ionwave.net. The notices describe the project and indicate the deadline for submitting bids.

If you wish to be added to the LFUCG MWDBE contractor database, please contact:

Sherita Miller, Minority Business Enterprise Liaison
Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

B. Bid Bond Assistance for MWDBE(s)

For those MWDBE contractors who wish to bid on LFUCG project, bid bond assistance is available. This bid bond assistance is in the form of a "Letter of Certification" which is accepted by the LFUCG's Division of Purchasing, in lieu of a bid bond. The "Letter of Certification" must be included in the bid package when it is submitted to the Division of Purchasing. The "Letter of Certification" will reference the specific project for which the bid is being submitted, and the time and date on which the bid is due. Bid bond assistance must be requested from the Lexington-Fayette Urban County Government's Division of Central Purchasing.

C. Eligibility for Bid Bond Assistance for MWDBE(s)

In order to be eligible for any Bid bonding assistance, a MWDBE construction company must be owned or controlled at the level of 51% or more by a member or members of a minority group or females. Prior to receiving assistance, a statement providing evidence of ownership and control of the company by a member or members of a minority group or females must be signed by the Owner or corporate officer and by an attorney or accountant submitted to:

Sherita Miller, Minority Business Enterprise Liaison
Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

D. MWDBE and Veteran Subcontractors

The LFUCG will, upon request, assist prime contractors in the procurement of eligible DBE subcontractors in an effort to achieve 10% minimum MWDBE and 3% minimum veteran goal.

For a list of eligible subcontractors, please contact:

Sherita Miller, Minority Business Enterprise Liaison
Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

PART III

FORM OF PROPOSAL

INDEX

PART III

Invitation to Bid No. 61-2021

Southland Park Stormwater Improvements Project

1. FORM OF PROPOSAL

Place: Lexington, Kentucky

Date: _____

The following Form of Proposal shall be followed exactly in submitting a proposal for this Work.

This Proposal Submitted by _____

_____
(Name and Address of Bidding Contractor)

(Hereinafter called "Bidder"), organized and existing under the laws of the State of _____, doing business as _____ "a corporation," "a partnership", or an "individual" as applicable.

To: Lexington-Fayette Urban County Government
(Hereinafter called "OWNER")
Office of the Director of Purchasing
200 East Main Street, 3rd Floor
Lexington, KY 40507

Gentlemen:

The Bidder, in compliance with your Invitation for Bids for the **Southland Park Stormwater Improvements Project** having examined the Plans and Specifications with related documents, having examined the site for proposed Work, and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the lump sum and/or unit prices stated hereinafter. These prices are to cover all expenses incurred in performing the Work required under the Contract Documents, of which this proposal is a part. The OWNER will issue work orders for work to be performed under this Contract.

BIDDER hereby agrees to commence Work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete the project within the time provided in the Purchase Order or Work Orders issued by the OWNER. BIDDER further agrees to pay liquidated damages, the sum of **$400.00** for each consecutive calendar day thereafter.

The Bidder hereby acknowledges receipt of the following addenda:

Addendum No. ____ Date _____

Addendum No. ____ Date _____

Addendum No. ____ Date _____

Addendum No. ____ Date _____

Addendum No. ____ Date _____

Addendum No. ____ Date _____

Addendum No. ____ Date _____

Addendum No. ____ Date _____

Insert above the number and the date of any Addendum issued and received. If none has been issued and received, the word "NONE" should be inserted.

2. LEGAL STATUS OF BIDDER

Bidder _____

Date _____

* 1. A corporation duly organized and doing business under the laws of the State of _____, for whom _____, bearing the official title of _____, whose signature is affixed to this Bid/Proposal, is duly authorized to execute contracts.

* 2. A Partnership, all of the members of which, with addresses are: (Designate general partners as such)

_____

_____

_____

_____

_____

* 3. An individual, whose signature is affixed to this Bid/Proposal (please print name)

_____

_____

*(The Bidder shall fill out the appropriate form and strike out the other two.)

3. BIDDERS AFFIDAVIT

Comes the Affiant, _____, and after being first duly sworn, states under penalty of perjury as follows:

1. His/her name is _____ and he/she is the individual submitting the bid or is the authorized representative of _____ _____, the entity submitting the bid (hereinafter referred to as "Bidder").
2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.
3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.
4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.
5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.
6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as the "Ethics Act."
7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

_____
(Affiant)

STATE OF _____

COUNTY OF _____

The foregoing instrument was subscribed, sworn to and acknowledged before me by

_____ on this the _____ day of _____, 20____.

My Commission expires: _____

_____
NOTARY PUBLIC, STATE AT LARGE

4. BID SCHEDULE – SCHEDULE OF VALUES

The Bidder agrees to perform all the Work described in the Specifications and shown on the Plans for the following proposed lump sum and/or unit prices, if applicable, which shall include the furnishing of all labor, materials, supplies, equipment and/or vehicle usage, services, all items of cost, overhead, taxes (federal, state, local), and profit for the Contractor and any Subcontractor involved, within the time set forth herein. If unit prices are applicable, Bidder must make the extensions and additions showing the total amount of bid.

Form of proposal must include unit bid prices written in words, unit price written in numbers and total amount bid (unit price x quantity) per line item OR bid may be considered non-responsive. In case of price discrepancy, unit bid price written in words will prevail followed by unit price written in numbers then total amount bid per line item.

If a discrepancy between the unit price and the item total exists, the unit price prevails except:

> If the unit price is illegible, omitted, or the same as the item total, item total prevails, and the unit price is the quotient of the item total and the quantity.

If the unit price and the item total are illegible or are omitted, the bid may be determined nonresponsive. If a lump sum total price is illegible or is omitted, the bid may be determined nonresponsive.

For a lump sum-based bid, the item total is the bid amount the Division uses for bid comparison.

For a unit price-based bid, the sum of the item totals is the bid amount the Division uses for bid comparison.

The LFUCG's decision on the bid amount is final.

The contract, if awarded, will be on the basis of materials and equipment specified in the specifications without consideration of possible substitute or "or equal" items.

The estimated quantities of items of unit price work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract price. Determination of the actual quantities and classification of unit price work performed by the Contractor will be made by the Engineer in accordance with the General Conditions.

Southland Park Stormwater Improvements Project – Bid Items

Item No.	Quantity	Unit To Bid On	Description w/Unit Bid Price Written in words	Unit Price	Total Amount Bid
1.	1	LS	Mobilization (3.5% maximum) _____ Dollars _____ Cents Per Lump Sum	$_____	$_____
2.	1	LS	General Conditions _____ Dollars _____ Cents Per Lump Sum	$_____	$_____
3.	1	LS	Clearing and Grubbing _____ Dollars _____ Cents Per Lump Sum	$_____	$_____
4.	10,150	CY	Earthwork _____ Dollars _____ Cents Per Cubic Yard	$_____	$_____
5.	1	LS	Demolition _____ Dollars _____ Cents Per Lump Sum	$_____	$_____
6.	50	LF	Storm Sewer Pipe – 15-inch _____ Dollars _____ Cents Per Linear Foot	$_____	$_____
7.	66	LF	Storm Sewer Pipe – 24-inch _____ Dollars _____ Cents Per Linear Foot	$_____	$_____
8.	113	LF	Storm Sewer Pipe – 36-inch _____ Dollars _____ Cents Per Linear Foot	$_____	$_____
9.	47	LF	Storm Sewer Pipe – 42-inch _____ Dollars _____ Cents Per Linear Foot	$_____	$_____

Item No.	Quantity	Unit To Bid On	Description w/Unit Bid Price Written in words	Unit Price	Total Amount Bid
10.	1	EA	Storm Sewer Manhole – 6' Diameter _____ Dollars _____ Cents Per Each	$_____	$_____
11.	1	EA	Control Structure "CS-A2" _____ Dollars _____ Cents Per Each	$_____	$_____
12.	1	EA	Control Structure "CS-B2" _____ Dollars _____ Cents Per Each	$_____	$_____
13.	1	EA	Concrete Headwall – 15-inch _____ Dollars _____ Cents Per Each	$_____	$_____
14.	1	EA	Concrete Headwall – 24-inch _____ Dollars _____ Cents Per Each	$_____	$_____
15.	3	EA	Concrete Headwall – 36-inch _____ Dollars _____ Cents Per Each	$_____	$_____
16.	1	EA	Concrete Headwall – 42-inch _____ Dollars _____ Cents Per Each	$_____	$_____
17.	1	EA	Surface Inlet – 15-inch Discharge _____ Dollars _____ Cents Per Each	$_____	$_____
18.	1,005	SF	Modular Retaining Wall _____ Dollars _____ Cents Per Square Foot	$_____	$_____

Item No.	Quantity	Unit To Bid On	Description w/Unit Bid Price Written in words	Unit Price	Total Amount Bid
19.	2,300	CY	Bioretention Filter Media _____ Dollars _____ Cents Per Cubic Yard	$_____	$_____
20.	4,900	SY	Bioretention Coir Matting _____ Dollars _____ Cents Per Square Yard	$_____	$_____
21.	4	EA	Energy Dissipation Pool _____ Dollars _____ Cents Per Each	$_____	$_____
22.	4	EA	Rock A Vane _____ Dollars _____ Cents Per Each	$_____	$_____
23.	5	EA	Rock Step _____ Dollars _____ Cents Per Each	$_____	$_____
24.	8	EA	Small Woody Debris Complex _____ Dollars _____ Cents Per Each	$_____	$_____
25.	4	EA	Hardened Woody Debris Complex _____ Dollars _____ Cents Per Each	$_____	$_____
26.	2,180	EA	Live Stakes _____ Dollars _____ Cents Per Each	$_____	$_____
27.	395	EA	Container Trees _____ Dollars _____ Cents Per Each	$_____	$_____

Item No.	Quantity	Unit To Bid On	Description w/Unit Bid Price Written in words	Unit Price	Total Amount Bid
28.	2,425	SY	Native Detention Area Seeding _____ Dollars _____ Cents Per Square Yard	$_____	$_____
29.	6,300	SY	Cover Crop Seeding _____ Dollars _____ Cents Per Square Yard	$_____	$_____
30.	1,950	SY	Rain Garden See Mix _____ Dollars _____ Cents Per Square Yard	$_____	$_____
31.	1,950	SY	Retention Basin Wildlife Seed Mix _____ Dollars _____ Cents Per Square Yard	$_____	$_____
32.	3,280	SY	Fine Fescue Turf Grass Seed _____ Dollars _____ Cents Per Square Yard	$_____	$_____
33.	130	TN	Dense Graded Aggregate _____ Dollars _____ Cents Per Ton	$_____	$_____
34.	45	TN	Class 2 Asphalt Surface, 0.38B PG64-22 _____ Dollars _____ Cents Per Ton	$_____	$_____
35.	60	SY	Replace Concrete Sidewalk _____ Dollars _____ Cents Per Square Yard	$_____	$_____
36.	45	SY	Replace Pervious Pavers _____ Dollars _____ Cents Per Square Yard	$_____	$_____

Item No.	Quantity	Unit To Bid On	Description w/Unit Bid Price Written in words	Unit Price	Total Amount Bid
37.	180	LF	3-Plank Wood Fence _____ Dollars _____ Cents Per Linear Foot	$_____	$_____
38.	600	SY	Turf Reinforcement Matting _____ Dollars _____ Cents Per Square Yard	$_____	$_____
39.	2,750	SY	Seeding and Protection _____ Dollars _____ Cents Per Square Yard	$_____	$_____
40.	1	EA	Project Sign _____ Dollars _____ Cents Per Each	$_____	$_____
41.	1	LS	Erosion Control _____ Dollars _____ Cents Per Lump Sum	$_____	$_____
42.	1	LS	Demobilization (1.5% minimum) _____ Dollars _____ Cents Per Lump Sum	$_____	$_____
Total for Bid Items 1 through 42:					

TOTAL OF ALL BID PRICES FOR **Southland Park Stormwater Improvements Project** (Items 1 through 42) in words and figures. In case of discrepancy, the amount shown in words will govern.

_____

_____ ($_____).

Submitted by:

_____
Firm

_____
Address

_____
City, State & Zip

Bid must be signed:
(original signature)

_____
Signature of Authorized Company Representative – Title

_____
Representative/s Name (Typed or Printed)

_____
Area Code – Phone – Extension *Fax #*

_____
E-Mail Address

OFFICIAL ADDRESS:

_____

_____

_____

_____ (Seal if Bid is by Corporation)

By signing this form, you agree to ALL terms, conditions, and associated forms in this bid package.

5. STATEMENT OF BIDDER'S QUALIFICATIONS

The following statement of the Bidder's qualifications is required to be filled in, executed, and submitted with the Proposal:

1. Name of Bidder: _____

2. Permanent Place of Business: _____

3. When Organized: _____

4. Where Incorporated: _____

5. Construction Plant and Equipment Available for this Project:

_____

_____

_____

_____

_____

_____

(Attach Separate Sheet If Necessary)

6. Financial Condition:

   If specifically requested by the OWNER, the apparent low Bidder is required to submit its latest three (3) years audited financial statements to the OWNER'S Division of Central Purchasing within seven (7) calendar days following the bid opening.

7. In the event the Contract is awarded to the undersigned, surety bonds will be furnished by:

   _____(Surety)

   Signed: _____(Representative of Surety)

8. The following is a list of similar projects performed by the Bidder: (Attach separate sheet if necessary).

NAME	LOCATION	CONTRACT SUM

9. The Bidder has now under contract and bonded the following projects:

NAME	LOCATION	CONTRACT SUM

10. List Key Bidder Personnel who will work on this Project.

NAME	POSITION DESCRIPTION	NO. OF YEARS WITH BIDDER

11. DBE Participation on current bonded projects under contract:

SUBCONTRACTORS (LIST)	PROJECT (SPECIFIC TYPE)	DBE	% of WORK

(USE ADDITIONAL SHEETS IF NECESSARY)

12. We acknowledge that, if we are the apparent low Bidder, we may be required to submit to the OWNER within 7 calendar days following the Bid Opening, a sworn statement regarding all current work on hand and under contract, and a statement on the OWNER'S form of the experience of our officers, office management and field management personnel. Additionally, if requested by the OWNER, we will within 7 days following the request submit audited financial statements and loss history for insurance claims for the 3 most recent years (or a lesser period stipulated by the OWNER).

6. LIST OF PROPOSED SUBCONTRACTORS

The following list of proposed subcontractors is required by the OWNER to be executed, completed and submitted with the BIDDER'S FORM OF PROPOSAL. All subcontractors are subject to approval of the Lexington-Fayette Urban County Government. Failure to submit this list completely filled out may be cause for rejection of bid.

BRANCH OF WORK **List Each Major Item** Such as: Grading, bituminous Paving, concrete, seeing and Protection, construction staking, etc	**SUBCONTRACTOR**	**DBE(Yes/No)**	**% of Work**
1. _____	Name: _____	_____	_____
	Address: _____		
2. _____	Name: _____	_____	_____
	Address: _____		
3. _____	Name: _____	_____	_____
	Address: _____		
4. _____	Name: _____	_____	_____
	Address: _____		
5. _____	Name: _____	_____	_____
	Address: _____		
6. _____	Name: _____	_____	_____
	Address: _____		
7. _____	Name: _____	_____	_____
	Address: _____		
8. _____	Name: _____	_____	_____
	Address: _____		

(Attach additional sheet(s) if necessary.)

7. AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND CONFLICT OF INTEREST

I hereby swear (or affirm) under the penalty for false swearing:

1. That I am the Bidder (if the Bidder is an individual), a partner of the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);

2. That the attached bid has been arrived at by the Bidder independently, and has been submitted without collusion with, and without any agreement, understanding or planned common course of action, with any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition;

3. That the contents of the bid or bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished, with the bid or bids, and will not be communicated to any such person, prior to the official opening of the bid or bids;

4. That the Bidder is legally entitled to enter into the contracts with the Lexington-Fayette Urban County Government, and is not in violation of any prohibited conflict of interest;

5. (Applicable to corporation only) That as a foreign corporation, we are registered with the Secretary of State, Commonwealth of Kentucky, and authorized to do business in the State _____ or, that as a domestic corporation, we are in good standing with the Secretary of State, Commonwealth of Kentucky _____. Check the statement applicable.

6. This offer is for 60 calendar days from the date this bid is opened. In submitting the above, it is expressly agreed that, upon proper acceptance by the Lexington-Fayette Urban County Government of any or all items bid above, a contract shall thereby be created with respect to the items accepted.

7. That I have fully informed myself regarding the accuracy of the statements made in this statement.

8. That I certify that Subcontractors have not and will not be awarded to any firm(s) that have been debarred from noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

9. STATEMENT OF EXPERIENCE

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

_____

_____

_____

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

_____

_____

_____

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

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NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

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_____

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

_____

_____

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

_____

_____

* Include all officers, office management's, Affirmative Action officials, and field management personnel. (Attach separate sheets if necessary.)

10. EQUAL OPPORTUNITY AGREEMENT

The Law

* Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.
* Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and subcontractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.
* Section 503 of the Rehabilitation Act of 1973 States:

  The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.
* Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal Contracts.
* Section 206 (A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

  The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors, and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractor may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped, and aged persons.

_____ _____

Signature Name of Business

The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit

discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.

The Kentucky equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any count, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;

(2) The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;

(3) The contract will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and

(4) The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.

The Act further provides:

KRS 45.610. Hiring minorities – Information required

(1) For the length of the contract, each contractor shall hire minorities from other sources within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.

(2) Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.

KRS 45.620. Action against contractor – Hiring of minority contractor or subcontractor

(1) If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under

KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.

(2) If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 – 45.640.

(3) The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.

KRS 45.630 Termination of existing employee not required, when

Any provision of KRS 45.560 to 45.640 notwithstanding, no contractor shall be required to terminate an existing employee upon proof that that employee was employed prior to the date of the contract.

KRS 45.640 Minimum skills

Nothing in KRS 45.560 to 45.640 shall require a contractor to hire anyone who fails to demonstrate the minimum skills required to perform a particular job.

It is recommended that all of the provisions quoted above to be included as special conditions in each contract. In the case of a contract exceeding $250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

11. EQUAL EMPLOYMENT OPPORTUNITY AFFIRMATIVE ACTION POLICY

It is the policy of _____

to assure that all applicants for employment and all employees are treated on a fair and equitable basis without regard to their race, religion, sex, color, handicap, natural origin or age.

Such action shall include employment, promotion, demotion, recruitment or recruitment advertising, layoff or termination, rates of pay and other forms of compensation, and selection for training, whether apprenticeship and/or on-the-job-training.

Furthermore, this company agrees to make special recruitment efforts to hire the protected class whenever feasible. This company also agrees to adhere to all applicable federal, state, and local laws relating to Equal Employment Opportunity for all individuals.

12. WORKFORCE ANALYSIS FORM

Name of Organization: _____ Date: ____/____/____

Categories	Total	White		Black		Other		Total	
		M	F	M	F	M	F	M	F
Administrators									
Professionals									
Superintendents									
Supervisors									
Foremen									
Technicians									
Protective Service									
Para-Professionals									
Office/Clerical									
Skilled Craft									
Service/Maintenance									
Total:									

Prepared By: _____

13. EVIDENCE OF INSURABILITY

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT CONSTRUCTION PROJECT
(Use separate form for each Agency or Brokerage agreeing to provide coverage)

Names Insured: _____ Employee ID: _____

Address: _____ Phone: _____

Project to be insured: _____

In lieu of obtaining certificates of insurance at this time, the undersigned agrees to provide the above Named Insured with the minimum coverage listed below. These are outlined in the Insurance and Risk Management of Part V (Special Conditions), including all requirements, and conditions:

Section Items	Coverage	Minimum Limits and Policy Requirements	Limits Provided To Insured	Name of Insurer	A.M. Best's Code	Rating
SC-3, Section 2, Part 4.1 – see provisions	CGL	$1,000,000 per occ. And $2,000,000 aggregate	$			
SC-3, Section 2, Part 4.1 – see provisions	AUTO	$2,000,000/per occ.	$			
SC-3, Section 2, Part 4.1 – see provisions	WC	Statutory w /endorsement as noted	$			

Section 2 includes required provisions, statements regarding insurance requirements, and the undersigned agrees to abide by all provisions for the coverage's checked above unless stated otherwise when submitting.

_____ _____
Agency or Brokerage Name of Authorized Representative

_____ _____
Street Address Title

_____ _____
City State Zip Authorized Signature

_____ _____
Telephone Number Date

NOTE: Authorized signatures may be the agent's if agent has placed insurance through an agency agreement with the insurer. If insurance is brokered, authorized signature must be that of authorized representative of insurer.

IMPORTANT: Contract may not be awarded if a completed and signed copy of this form for all coverage's listed above is not provided with the bid.

14. DEBARRED FIRMS

PROJECT NAME: _____

BID NUMBER: _____

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LEXINGTON, KY

All prime Contractors shall certify that Subcontractors have not and will not be awarded to any firms that has been debarred for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

All bidders shall complete the attached certification in duplicate and submit both copies to the Owner with the bid proposal. The Owner (grantee) shall transmit one copy to the Lexington-Fayette Urban County Government, Division of Community Development, within fourteen (14) days after bid opening.

The undersigned hereby certifies that the firm of _____ has not and will not award a subcontract, in connection with any contract award to it as the result of this bid, to any firm that has been debarred for noncompliance with the Federal labor Standards, Title VI of the civil Rights Act of 1964, Executive Order 11246 as amended or any Federal Law.

_____
Name of Firm Submitting Bid

_____
Signature of Authorized Official

_____
Title

_____
Date

15. DEBARMENT CERTIFICATION

All contractors/subcontractors shall complete the following certification and submit it with the bid proposal.

The contractor/subcontractor certifies in accordance with Executive Order 12549 (Debarment and Suspension 2/18/86) that to the best of its knowledge and belief, that it and its principals:

1) Are not presently debarred, suspended, proposed for debarment, declared negligible, or voluntarily excluded from covered transactions or contract by any Federal department or agency for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 as amended, Executive Order 11246 as amended or any other Federal law;

    a) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

    b) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(a) of this certification; and

    c) Have not within a three year period preceding this bid has one or more public (Federal, State or local) transactions or contracts terminated for cause or default.

2) Where the contractor is unable to certify to any of the statements in this certification, such prospective contractors shall attach an explanation to this certification form.

Firm Name: _____

Project: _____

Printed Name and Title of Authorized Representative: _____

Signature: _____

Date: _____

- END OF SECTION -

PART IV

GENERAL CONDITIONS

TABLE OF CONTENTS

DETAILED TABLE OF CONTENTS OF GENERAL CONDITIONS

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- 13.4 Review of Application for Progress Payments
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14. Suspension of Work and Termination

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- 15.4 Percentage of Work Performed by Prime CONTRACTOR
- 15.5 Clean-up
- 15.6 General
- 15.7 Debris Disposal

PART IV

GENERAL CONDITIONS

1. DEFINITIONS

Wherever used in these General Conditions or the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof.

1.1 Addenda
Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bid Documents or the Contract Documents.

1.2 Agreement
The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

1.3 Application for Payment
The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents.

1.4 Bid
The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

1.5 Bidder
An individual, partnership, or corporation, who submit a Bid for a prime contract with the OWNER, for the Work described in the proposed Contract Documents.

1.6 Bonds
Bid, performance and payment bonds and other instruments of security.

1.7 Calendar Day
A calendar day of twenty-four hours measured from midnight to the next midnight shall constitute a day.

1.8 Change Order
A document recommended by ENGINEER, which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

1.9 Contract Documents

The Advertisement for Bidders, Information for Bidders, Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR'S Bid (including documentation accompanying the Bid and any post-bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Special Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements.

1.10 Contract Unit Price

The monies payable by OWNER to CONTRACTOR under the Contract Documents as stated in the Agreement. Unit Prices are to be firm for the term of this Contract.

1.11 Contract Time

The number of consecutive calendar days between the date of issuance of the Notice to Proceed and the contract completion date.

1.12 CONTRACTOR

The person, firm or corporation with whom OWNER has entered into the Agreement.

1.13 Defective

An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER'S recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER).

1.14 Drawings

The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents.

1.15 Effective Date of the Agreement

The date indicated in the Agreement on which it becomes effective.

1.16 ENGINEER

The Lexington-Fayette Urban County Government Division of Water Quality or its authorized representative.

1.17 Field Order

A documented order issued by ENGINEER which orders minor changes in the Work, but which does not involve a change in the Contract Price or the Contract Time.

1.18 Giving Notice

Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

1.19 Laws and Regulations

Laws, rules, regulations, ordinances, codes and/or orders.

1.20 Notice of Award

The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

1.21 Notice to Proceed

A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR'S obligations under the Contract Documents.

1.22 OWNER

The Lexington-Fayette Urban County Government.

1.23 Partial Utilization

Placing a portion of the Work in service for the purpose for which it is intended (or related purpose) before reaching Completion for all the Work.

1.24 Project

The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

1.25 Inspector

The authorized representative of the ENGINEER who is assigned to the site or any part thereof.

1.26 Shop Drawings

All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by CONTRACTOR to illustrate material or equipment for some portion of the Work.

1.27 Specifications

Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and

workmanship as applied to the Work and certain administrative details applicable thereto.

1.28 Standard Specifications
The "Standard Specifications for Road and Bridge Construction", Transportation Cabinet, Department of Highways, Commonwealth of Kentucky, current edition. MUTCD shall refer to the "Manual of Uniform Traffic Control Devices."

1.29 Subcontractor
An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

1.30 Special Conditions
The part of the Contract Documents which amends or supplements these General Conditions.

1.31 Supplier
A manufacturer, fabricator, supplier, distributor, materialman or vendor.

1.32 Underground Facilities
All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

1.33 Unit Price Work
Not applicable

1.34 Work
The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

1.35 Time Period
When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

2. PRELIMINARY MATTERS

2.1 Delivery of Bonds

When the CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER, such Bonds, Insurance Certificate, and Power of Attorney as CONTRACTOR may be required to furnish.

2.2 Copies of Documents

Owner shall furnish to CONTRACTOR up to three copies (unless otherwise specified in the Special Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

2.3 Commencement of Contract Time; Notice to Proceed

The Contract Time will commence to run on the day specified in the Notice to Proceed.

2.4 Starting the Project

CONTRACTOR shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run.

2.5 Before Starting Construction

Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents, unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

2.6 Submittal of Schedules

Within ten days after the effective date of the Agreement (unless otherwise specified) CONTRACTOR shall submit to ENGINEER for review:

2.6.1 an estimated progress schedule indicating the starting and completion dates of the various stages of the Work;

2.6.2 a preliminary schedule of Shop Drawing submissions; and

2.6.3 a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the

basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by CONTRACTOR at the time of submission.

2.7 Preconstruction Conference

Before CONTRACTOR starts the Work at the proposed site, a conference attended by CONTRACTOR, ENGINEER, EEO-Affirmative Action Officer, and other appropriate parties will be held to discuss the following issues: (1) The scheduling of the Work to be completed; (2) The procedures for handling shop drawings and other submittals; (3) The processing of applications for payment; (4) The establishment of an understanding among the involved parties in regard to the proposed project; and (5) The establishment of procedures for effectively implementing the LFUCG's 10% minimum DBE goals.

2.8 Finalizing Schedules

At least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to finalize the schedules submitted in accordance with paragraph 2.6. The finalized progress schedule will be acceptable to ENGINEER as providing orderly progression of the Work to completion within the Contract Time, but such acceptance will neither impose on ENGINEER responsibility for the progress or scheduling of the Work nor relieve CONTRACTOR from full responsibility thereof. The finalized schedule of Shop Drawing submissions will be acceptable to ENGINEER as providing a workable arrangement for processing the submissions. The finalized schedule of values will be acceptable to ENGINEER as to form and substance.

3. CONTRACT DOCUMENTS: INTENT, CONFLICTS, AMENDING AND REUSE

3.1 General

The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2 Intent

It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in accordance with that meaning. Reference to standard specifications,

manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or ENGINEER, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any of ENGINEER'S consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 8.12.3 or 8.12.4. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in paragraph 8.4.

3.3 Conflicts

If, during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, CONTRACTOR shall so report to ENGINEER in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from ENGINEER; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

In resolving such conflicts, errors and discrepancies, the documents shall be given precedence in the following order:

1. Agreement
2. Field and Change Orders
3. Addenda
4. Special Conditions
5. Instruction to Bidders
6. General Conditions
7. Specifications and Drawings

Figure dimension on drawings shall govern over scale dimensions and detailed Drawings shall govern over general Drawings.

3.4 Amending and Supplementing Contract Documents

The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof by means of a Change Order or a Field Order. Contract Price and Contract Time may only be changed by a Change Order.

3.5 Reuse of Documents

Neither CONTRACTOR nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER; and they shall not reuse any of them on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER.

4. AVAILABILITY OF LANDS; PHYSICAL CONDITIONS, REFERENCE POINTS

4.1 Availability of Lands

OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR believes that any delay in OWNER'S furnishing these lands, rights-of-way or easements entitles CONTRACTOR to an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Article 11. ENGINEER shall determine if the claim is legitimate or not. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2 Physical Conditions

4.2.1 Explorations and Reports

Reference is made to the Special Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for CONTRACTOR'S purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to subsurface conditions at the site.

4.2.2 Existing Structures

Reference is made to the Special Conditions for identification of those drawings of physical conditions in or relating to existing surface and

subsurface structures (except Underground Facilities referred to in paragraph 4.3 which are at or contiguous to the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, but not for the completeness thereof for CONTRACTOR'S purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to physical conditions in or relating to such structures.

4.2.3 Report of Differing Conditions
If CONTRACTOR believes that:

4.2.3.1 any technical data on which CONTRACTOR is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is inaccurate, or

4.2.3.2 any physical conditions uncovered or revealed at the site differ materially from that indicated, reflected or referred to in the Contract Documents,

CONTRACTOR shall, promptly after becoming aware thereof and before performing and WORK in connection therewith (except in an emergency) notify OWNER and ENGINEER in writing about the inaccuracy or difference.

4.2.4 ENGINEER'S Review
Engineer will promptly review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise CONTRACTOR of ENGINEER'S findings and conclusions.

4.2.5 Possible Document Change
If ENGINEER concludes that there is a material error in the Contract Documents or that because of newly discovered conditions a change in the Contract Documents is required, a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the inaccuracy or difference.

4.2.6 Possible Price and Time Adjustments
In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such inaccuracy or difference.

4.3 Physical Conditions-Underground Facilities

4.3.1 Shown or Indicated
The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is

based on information and data furnished to OWNER or ENGINEER by the owners of such underground facilities or by others. Unless it is otherwise expressly provided in the Special Conditions:

4.3.1.1 OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and,

4.2.1.2 CONTRACTOR shall have full responsibility for reviewing and checking all such information and data; for locating all underground facilities shown or indicated in the Contract Documents; for coordination of the Work with the owners of such underground facilities during construction; and for the safety and protection thereof and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

4.3.2 Not Shown or Indicated

If an underground facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of, CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency), identify the owner of such Underground Facility and give written notice thereof to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the underground facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, CONTRACTOR shall be responsible for the safety and protection of such underground facility. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any underground facility that was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of.

4.4 Reference Points

OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER'S judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work (unless otherwise specified), shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by a Registered Land Surveyor. CONTRACTOR shall immediately notify the OWNER and ENGINEER if any property line or corner markers (including, but not limited to, iron pins, nails, stakes,

etc.) are disturbed during the course of the work. Such markers disturbed in the course of the work shall be replaced by the OWNER.

5. CONTRACTOR'S RESPONSIBILITIES

5.1 Supervision

CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall assure that all CONTRACTOR personnel (including subcontractors, etc.) conduct themselves in a courteous and respectful manner toward the ENGINEER and the general public. Failure to comply with this condition of the Contract will result in immediate suspension of the Work. Following a review by the Commissioner of Public Works, the Contract may be terminated (see GC section 14). CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

5.2 Superintendence

CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR'S representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

5.3 Labor

CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER'S written consent given after prior written notice to ENGINEER.

5.4 Start-Up and Completion of Work

Unless otherwise specified, CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals

necessary for the furnishing, performance, testing, start-up and completion of the Work.

5.5 Materials and Equipment

All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to ENGINEER, or any of ENGINEER'S consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 8.12.3 or 8.12.4.

5.5.1 Not Clearly Specified or Indicated

In all instances where materials specified are obtainable in different sizes, weights, trade grades, qualities or finishes, etc., whose weights, trade grades, qualities or finishes, etc., are not clearly specified or indicated on the Drawings, the CONTRACTOR shall notify the ENGINEER of all such instances at least five (5) days in advance of receiving the proposals. The Engineer will then determine which size, weight, trade grade, quality, finish, etc., is required.

5.5.2 Coordination of Work

The CONTRACTOR shall see that for his own Work and for the work of each subcontractor, proper templates and patterns necessary for the coordination of the various parts of the Work are prepared. The CONTRACTOR shall furnish or require the Subcontractor to furnish such duplicates as will enable the Subcontractors to fit together and execute fully their respective portions of the Work.

5.6 Adjusting Progress Schedule

CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.8) adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the Contract Documents applicable thereto.

5.7 Substitutes or "Or-Equal" Items

5.7.1 General

Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type,

function, and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by OWNER/ENGINEER if sufficient information is submitted by CONTRACTOR to allow OWNER/ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named. The procedure for review by OWNER/ENGINEER will include the following. Requests for review of substitute items of material and equipment will not be accepted by OWNER/ENGINEER from anyone, other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make written application to OWNER/ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not prejudice CONTRACTOR'S achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by OWNER/ENGINEER in evaluating the proposed substitute. OWNER/ENGINEER may require CONTRACTOR to furnish at CONTRACTOR'S expense additional data about the proposed substitute.

5.7.2 Substitutes

If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to OWNER/ENGINEER, if CONTRACTOR submits sufficient information to allow OWNER/ENGINEER to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by OWNER/ENGINEER will be similar to that provided in paragraph 5.7.1 as applied by OWNER/ENGINEER.

5.7.3 OWNER/ENGINEER'S Approval

OWNER/ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. OWNER/ENGINEER will be the sole

judge of acceptability, and no substitute will be ordered, installed or utilized without OWNER/ENGINEER'S prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR'S expense a special performance guarantee or other surety with respect to any substitute. OWNER/ENGINEER will record time required by OWNER/ENGINEER and OWNER/ENGINEER'S consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not OWNER/ENGINEER accepts a proposed substitute, CONTRACTOR shall reimburse OWNER for the charges of OWNER/ENGINEER and OWNER/ENGINEER'S consultants for evaluating each proposed substitute.

5.8 Subcontractors, Suppliers, and Others

5.8.1 Acceptable to ENGINEER

CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER and ENGINEER as indicated in paragraph 5.8.2), whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

5.8.2 Objection After Due Investigation

If the Contract Documents require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement for acceptance by OWNER and ENGINEER and if CONTRACTOR has submitted a list thereof, OWNER'S or ENGINEER'S acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute. No acceptance by OWNER or ENGINEER of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

5.8.3 Contractor Responsible for Acts of Subcontractors

The CONTRACTOR shall perform on the site, and with its own organization, work equivalent to at least fifty (50) percent of the total amount of Work to be performed under the Contract. This percentage may be

reduced by a supplemental agreement to this Contract if, during performing the Work, the CONTRACTOR requests a reduction and the Urban County Engineer determines that the reduction would be to the advantage of the Urban County Government.

The CONTRACTOR shall, at the time he submits his proposal for the Contract, notify the OWNER in writing of the names of Subcontractors proposed for the Work. He shall not employ any Subcontractor without the prior written approval of the OWNER.

CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR'S own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

5.8.4 Division of Specifications

The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

5.8.5 Agreement Between Contractor and Subcontractors

All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER.

5.8.6 Statements and Comments by CONTRACTOR

Neither the CONTRACTOR, his employees, nor his subcontractors shall at any time make any statement or comment as to the project scope, nature, intention, design, or construction method to any third party or parties without the explicit written consent of the OWNER.

Any third party requesting such information shall be referred to the OWNER or his representative.

Should there be any change from the original intent of the project as a result of any statement or comment by the contractor, his employees or

subcontractors, contractor shall be held liable for any change in the scope, nature, design, or construction method and shall bear the full cost for the previously mentioned changes.

5.9 Patent Fees and Royalties

CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others.

5.10 Permits

Unless otherwise provided in the Special conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or if there are no Bids on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

5.11 Laws and Regulations

5.11.1 CONTRACTOR to Comply

CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR'S compliance with any Laws and Regulations.

5.11.2 Specifications and Drawings at Variance

If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give ENGINEER prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 3.4. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws, or Regulations, and without such notice to ENGINEER, CONTRACTOR shall bear all costs arising therefrom; however, it shall not be CONTRACTOR'S primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

5.12 Taxes

CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work. Any

party, firm or individual submitting a proposal pursuant to invitation must have paid all taxes owed to the Lexington-Fayette Urban County Government at the time the proposal is submitted, and must maintain a "current" status in regard to those taxes throughout the Contract. If applicable, business must be licensed in Fayette County.

5.13 Use of Premises

5.13.1 Project Site

CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the staging areas or work site areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against OWNER or ENGINEER by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER and ENGINEER harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER or ENGINEER to the extent based on a claim arising out of CONTRACTOR'S performance of the Work.

5.13.2 Clean Up

During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

5.13.3 Loading of Structures

CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

5.14 Record Drawings

CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Change Orders, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, samples and Shop Drawings will be delivered to ENGINEER for OWNER.

5.15 Shop Drawings and Samples

5.15.1 Shop Drawing Submittals

After checking and verifying all field measurements and after complying with applicable procedures specified, CONTRACTOR shall submit to ENGINEER for review and approval in accordance with the accepted schedule of Shop Drawing submissions (see paragraph 2.8), or for other appropriate action if so indicated in the Special Conditions, five copies (unless otherwise specified) of all Shop Drawings, which will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR'S responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as ENGINEER may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable ENGINEER to review the information as required.

5.15.2 Sample Submittals

CONTRACTOR shall also submit to ENGINEER for review and approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR'S responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

5.15.3 Review by CONTRACTOR

Before submission of each Shop Drawing or sample CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

5.15.4 Notice of Variation

At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to ENGINEER for review and approval of each such variation.

5.15.5 ENGINEER'S Approval

ENGINEER will review and approve with reasonable promptness Shop Drawings and samples, but ENGINEER'S review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of Shop Drawings and submit, as required, new samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

5.15.6 Responsibility for Errors and Omissions

ENGINEER'S review and approval of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER'S attention to each such variation at the time of submission as required by paragraph 5.15.4 and ENGINEER has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 5.15.3.

5.15.7 Cost of Related Work

Where a Shop or sample is required by the Specifications, any related Work performed prior to ENGINEER'S review and approval of the pertinent submission will be the sole expense and responsibility of CONTRACTOR.

5.16 Continuing the Work

CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolutions of any disputes or disagreements, except as permitted by paragraph 14.5 or as CONTRACTOR and OWNER may otherwise agree in writing.

5.17 Erosion and Sediment Control

5.17.1 General Environmental Requirements

The CONTRACTOR and Subcontractors performing work on projects on behalf of the OWNER shall comply with all applicable federal, state, and local environmental regulations and all requirements and conditions set forth in "special" permits including but not limited to Corps of Engineers 404 permits, 401 Water Quality Certifications, Stream Crossing and Floodplain Encroachment Permits.

Any fines or penalties resulting from the failure to comply with the terms of the federal, state or local permits or perform necessary corrective action are solely the obligation of the CONTRACTOR.

5.17.2 Stormwater Pollution Prevention

A. The CONTRACTOR shall exercise due care to prevent or minimize any damage to any stream or wetland from pollution by debris, sediment or other material. The operation of equipment and/or materials in a jurisdictional wetland is expressly prohibited. Water that has been used for washing or processing, or that contains oils, sediments or other pollutants shall not be discharged from the job site. Such waters shall be collected and properly disposed of by the CONTRACTOR in accordance with applicable local, state and federal law.

B. The CONTRACTOR is solely responsible for securing all required state and local permits associated with stormwater discharges from the project including, but not necessarily limited to the KY Notice of Intent to Disturb (NOI) for Coverage of Storm Water Discharges Associated with Construction Activities under the KPDES Storm Water General Permit KYR100000 and the LFUCG Land Disturbance Permit. Permit application preparation and all required documentation are the responsibility of the CONTRACTOR. The CONTRACTOR is solely responsible for maintaining compliance with the stormwater pollution prevention plan or erosion and sediment control plan and ensuring the following:

a. That the Stormwater Pollution Prevention Plan (SWPPP) or erosion control plan is current and available for review on site;
b. That any and all stormwater inspection reports required by the permit are conducted by qualified personnel and are available for review onsite; and
c. That all best management practices (BMPs) are adequately maintained and effective at controlling erosion and preventing sediment from leaving the site.

C. The CONTRACTOR shall provide the necessary equipment and

personnel to perform any and all emergency measures that may be required to contain any spillage or leakage and to remove materials, soils or liquids that become contaminated. The collected spill material shall be properly disposed at the CONTRACTOR's expense.

D. Upon completion of the work and with the concurrence of the OWNER, the CONTRACTOR must file a Notice of Termination (NOT) of Coverage Under the KPDES General Permit for Storm Water Discharges Associated with Construction Activity with the appropriate local and state authorities.

E. Any fines or penalties resulting from the failure to comply with the terms of the state or local stormwater permits or perform necessary corrective action are solely the obligation of the CONTRACTOR.

6. OTHER WORK

6.1 Related Work at Site

OWNER may perform other work related to the Project at the site by OWNER'S own forces, have other work performed by utility owners or let other direct contracts therefor which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to CONTRACTOR prior to starting any such other work; and, if such performance will involve additional expense to CONTRACTOR or requires additional time, a Change Order to the Contract will be negotiated.

6.2 Other Contractors or Utility Owners

CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or OWNER, if OWNER is performing the additional work with OWNER'S employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

6.3 Delays Caused by Others

If any part of CONTRACTOR'S Work depends for proper execution or results upon the work of any such other contractor or utility owner (or OWNER), CONTRACTOR shall inspect and promptly report to ENGINEER in writing any

delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. CONTRACTOR'S failure so to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR'S Work except for latent or non-apparent defects and deficiencies in the other work.

6.4 Coordination

If OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Special Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided, in the Special Conditions.

7. OWNER'S RESPONSIBILITIES

7.1 Communications

OWNER shall issue all communications to CONTRACTOR through ENGINEER.

7.2 Data and Payments

OWNER shall furnish the data required of OWNER under the Contract Documents promptly after they are due.

7.3 Lands, Easements, and Surveys

OWNER'S duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER'S identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by ENGINEER in preparing the Drawings and Specifications.

7.4 Change Orders

OWNER is obligated to execute Change Orders as indicated in paragraph 9.4.

7.5 Inspections, Tests and Approvals

OWNER'S responsibility in respect to certain inspections, tests and approvals is set forth in paragraph 13.3.

7.6 Stop or Suspend Work

In connection with OWNER'S right to stop Work or suspend Work, see paragraph 12.4 and 14.1 Paragraph 14.2 deals with OWNER'S rights to terminate services of CONTRACTOR under certain circumstances.

8. ENGINEER'S STATUS DURING CONSTRUCTION

8.1 OWNER'S Representative

ENGINEER will be OWNER'S representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER'S representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and ENGINEER.

8.2 Visits to Site

ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. ENGINEER'S efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defects and deficiencies in the Work.

8.3 Project Representation

ENGINEER will provide a Project Representative to assist ENGINEER in observing the performance of the Work. If OWNER designates another agent to represent OWNER at the site who is not ENGINEER'S agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Special Conditions.

8.4 Clarifications and Interpretations

ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

8.5 Authorized Variations in Work

ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order.

8.6 Rejecting Defective Work

ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, and will also have authority to require special inspection or testing of the Work as provided in paragraph 12.3, whether or not the Work is fabricated, installed or completed.

8.7 Shop Drawings

In connection with ENGINEER'S responsibility for Shop Drawings and samples, see paragraphs 5.15.1 through 5.16 inclusive.

8.8 Change Orders

In connection with ENGINEER'S responsibilities as to Change Orders, see Articles 10, 11 and 12.

8.9 Payments

In connection with ENGINEER'S responsibilities with respect to Applications for Payment, etc., see Article 13.

8.10 Determinations for Unit Prices

ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR.

ENGINEER will review with CONTRACTOR ENGINEER'S preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise).

8.11 Decision on Disputes

ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 10 and 11 in respect of changes in the Contract Price or Contract Time will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph, which ENGINEER will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter will be delivered to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to ENGINEER within sixty days after such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

8.12 Limitations on Engineer's Responsibilities

8.12.1 CONTRACTOR, Supplier, or Surety

Neither ENGINEERS authority to act under this Article 8 or elsewhere in the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

8.12.2 To Evaluate the Work

Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved" or terms of like effect or import

are used, or the adjectives "reasonable", "suitable", "acceptable", "proper", or "satisfactory" or adjectives or like "effect" or "import" are used to describe a requirement, direction, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 8.12.3 or 8.12.4.

8.12.3 CONTRACTOR'S Means, Methods, Etc.
ENGINEER will not be responsible for CONTRACTOR'S means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR'S failure to perform or furnish the Work in accordance with the Contract Documents.

8.12.4 Acts of Omissions of CONTRACTOR
ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

9. CHANGES IN THE WORK

9.1 OWNER May Order Change
Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by a Change Order. Upon receipt of such notice, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

9.2 Claims
Claims for an increase or decrease in the Contract Price or an extension or shortening or the Contract Time that should be allowed as a result of a Change Order will be settled as provided for in Article 10 or Article 11.

9.3 Work Not in Contract Documents
CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraph 3.4, except in the case of an emergency and except in the case of uncovering Work as provided in paragraph 12.3.4.

9.4 Change Orders

OWNER and CONTRACTOR shall execute appropriate Change Orders covering:

9.4.1 changes in the Work which are ordered by OWNER pursuant to paragraph 9.1, are required because of acceptance of defective Work under paragraph 12.7 or corrective defective Work under paragraph 12.8, or are agreed to by the parties;

9.4.2 changes in the Contract Price or Contract Time which are agreed to by the parties; and

9.4.3 changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 8.11; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and REGULATIONS, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 5.16.

9.5 Notice of Change

If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR'S responsibility, and the amount of each applicable Bond will be adjusted accordingly.

10. CHANGE OF CONTRACT PRICE

10.1 Total Compensation

The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

10.2 Claim for Increase or Decrease in Price

The Contract Price may only be changed by a Change Order. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by CONTRACTOR'S written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of the occurrence of said event.

10.3 Value of Work

The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

10.3.1 Unit Prices

Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraphs 10.9.1. through 10.9.3, inclusive).

10.3.2 Lump Sum

By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 10.6.2.1).

10.3.3 Cost Plus Fee

On the basis of the Cost of the Work (determined as provided in paragraphs 10.4 and 10.5) plus a CONTRACTOR'S fee for overhead and profit (determined as provided in paragraphs 10.6 and 10.7).

10.4 Cost of the Work

The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project; shall include only the following items; and shall not include any of the costs itemized in paragraph 10.5:

10.4.1 Payroll Costs

Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by OWNER.

10.4.2 Materials and Equipment Costs

Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

10.4.3 Subcontractor Costs

Payments made by CONTRACTOR to the Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of ENGINEER, which bids will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a Fee, the Subcontractor's Cost of the Work shall be determined in the same manner as CONTRACTOR'S Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

10.4.4 Special Consultant Costs

Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.

10.4.5 Supplemental Costs

10.4.5.1 The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR'S employees incurred in discharge of duties connected with the Work.

10.4.5.2 Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.

10.4.5.3 Rentals of all construction equipment and machinery and the parts thereof whether rented from

CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, installation, dismantling and removal shall be in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

10.4.5.4 Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

10.4.5.5 Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

10.4.5.6 Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by OWNER), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR'S fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid a fee proportionate to that stated in paragraph 10.6.2 for services.

10.4.5.7 The cost of utilities, fuel and sanitary facilities at the site.

10.4.5.8 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

10.4.5.9 Cost of premiums for additional Bonds and insurance required because of changes in the Work and

premiums for property insurance coverage within the limits of the deductible amounts established by OWNER.

10.5 Not to Be Included in Cost of the Work

The term Cost of the Work shall not include any of the following:

10.5.1 Costs of Officers and Executives

Payroll costs and other compensation of CONTRACTOR'S officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR'S principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 10.4.1 or specifically covered by paragraph 10.4.4 - all of which are to be considered administrative costs covered by the CONTRACTOR'S fee.

10.5.2 Principal Office

Expenses of CONTRACTOR'S principal and branch offices other than CONTRACTOR'S office at the site.

10.5.3 Capital Expense

Any part of CONTRACTOR'S capital expenses, including interest on CONTRACTOR'S capital employed for the Work and charges against CONTRACTOR for delinquent payments.

10.5.4 Bonds and Insurance

Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 10.4.5.9 above).

10.5.5 Costs Due to Negligence

Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

10.5.6 Other Costs

Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 10.4.

10.6 Contractor's Fee

The CONTRACTOR'S Fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

10.6.1 a mutually acceptable fixed fee; or if none can be agreed upon

10.6.2 a fee based on the following percentages of the various portions of the Cost of the Work:

10.6.2.1 for costs incurred under paragraphs 10.4.1 and 10.4.2, the CONTRACTOR'S fee shall be fifteen percent;

10.6.2.2 for costs incurred under paragraph 10.4.3, the CONTRACTOR'S fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a fee, the maximum allowable to CONTRACTOR on account of overhead and profit of all Subcontractors shall be fifteen percent;

10.6.2.3 no fee shall be payable on the basis of costs itemized under paragraphs 10.4.4, 10.4.5 and 10.5;

10.6.2.4 the amount of credit to be allowed by CONTRACTOR to OWNER for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in CONTRACTOR'S Fee by an amount equal to ten percent of the net decrease; and

10.6.2.5 when both additions and credits are involved in any one change, the adjustment in CONTRACTOR'S fee shall be computed on the basis of the net change in accordance with paragraphs 10.6.2.1 through 10.6.2.4, inclusive.

10.7 Itemized Cost Breakdown

Whenever the cost of any Work is to be determined pursuant to paragraph 10.4 or 10.5, CONTRACTOR will submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

10.8 Cash Allowances

It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to ENGINEER, CONTRACTOR agrees that:

10.8.1 Materials and Equipment

The allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

10.8.2 Other Costs

CONTRACTOR'S costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances. No demand for additional payment on account of any thereof will be valid.

10.8.3 Change Order

Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

10.9 Unit Price Work

10.9.1 General

Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER in accordance with Paragraph 8.10.

10.9.2 Overhead and Profit

Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR'S overhead and profit for each separately identified item.

10.9.3 Claim for Increase in Unit Price

Where the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement and there is no corresponding adjustment with respect to any other item of Work and if CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof, CONTRACTOR may make a claim for an increase in the Contract Price in accordance with Article 10.

11. CHANGE OF CONTRACT TIME

11.1 Change Order

The Contract Time may only be changed by a Change Order. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by ENGINEER in accordance with paragraph 8.11. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph 11.1.

11.2 Justification for Time Extensions

The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of CONTRACTOR if a claim is made therefore as provided in paragraph 11.1. Such delays shall include, but not be limited to, acts or neglect by OWNER or others performing additional work as contemplated by Article 6, or to fires, floods, labor disputes, epidemics, abnormal weather conditions or acts of God.

11.3 Time Limits

All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Article 11 shall not exclude recovery for damages (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court costs) for delay by either party.

12. WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

12.1 Warranty and Guarantee

CONTRACTOR warrants and guarantees to OWNER and ENGINEER that all Work will be in accordance with the Contract Documents and will not be defective. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article 12.

12.2 Access to Work

ENGINEER and ENGINEER'S representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide proper and safe conditions for such access.

12.3 Tests and Inspections

12.3.1 Timely Notice

CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals.

12.3.2 Requirements and Responsibilities

The ENGINEER may require such inspection and testing during the course of the Work as he/she deems necessary to ascertain and assure the integrity and acceptable quality of the materials incorporated and the work performed. Inspection presence may be either full-time or intermittent, and neither the presence nor absence at any time of the ENGINEER or the INSPECTOR shall relieve the CONTRACTOR of sole responsibility for the acceptability and integrity of the Work or any part thereof.

The costs of sampling, testing, and inspection on-site to ascertain acceptability of the Work and materials will be borne by the OWNER except as otherwise provided. The OWNER will select a testing laboratory to perform such sampling and testing. Sampling and/or testing required by the CONTRACTOR or necessitated by failure of Work or materials to meet the above acceptability test shall be at the expense of the CONTRACTOR.

Inspection services may be performed by the employees of the OWNER or by others selected or designated by the OWNER or the ENGINEER.

Sampling and/or testing required for manufacturing quality and/or process control, for certification that raw mineral materials or manufactured products are the quality specified in the contract, or to assure the acceptability for incorporation into the Work shall be borne by the CONTRACTOR or the material supplier.

Cost for inspection, sampling, testing, and approvals required by the laws or regulations of any public body having competent jurisdiction shall be borne by the CONTRACTOR or the material supplier.

Sampling and testing will be in accord with pertinent codes and regulations and with appropriate standards of the American Society of Testing Materials or other specified standards.

12.3.3 On-Site Construction Test and Other Testing

All inspections, tests or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to OWNER and CONTRACTOR (or by ENGINEER if so specified).

12.3.4 Covered Work

If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation. Such uncovering shall be at CONTRACTOR'S expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR'S intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

12.3.5 CONTRACTOR'S Obligation

Neither observations by ENGINEER nor inspections, tests or approvals by others shall relieve CONTRACTOR from CONTRACTOR'S obligations to perform the Work in accordance with the Contract Documents.

12.4 OWNER May Stop the Work

If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any other party.

12.5 Correction or Removal of Defective Work

If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with non-defective Work. CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

12.6 One Year Correction Period

If within one year after the date of Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER'S written instructions, either correct such defective Work, or, if it has been rejected by OWNER, remove it from the site and replace it with non-defective Work. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by CONTRACTOR. In special circumstances

where a particular item of equipment is placed in continuous service before Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Change Order.

12.7 Acceptance of Defective Work

If, instead of requiring correction or removal and replacement of defective Work, OWNER prefers to accept it, OWNER may do so. CONTRACTOR shall bear all direct, indirect and consequential costs attributable to OWNER'S evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness and to include but not be limited to fees and charges of engineers, architects, attorneys and other professionals).

12.8 OWNER May Correct Defective Work

If CONTRACTOR fails within a reasonable time after written notice of ENGINEER to proceed to correct and to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 12.5, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR'S services related thereto, take possession of CONTRACTOR'S tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER'S representatives, agents and employees such access to the site as may be necessary to enable OWNER to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of OWNER in exercising such rights and remedies will be charged against CONTRACTOR in an amount approved as to reasonableness by ENGINEER, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR'S defective Work. CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER'S rights and remedies hereunder.

13. PAYMENTS TO CONTRACTOR AND COMPLETION

13.1 Schedule of Values

The schedule of values established as provided in paragraph 2.8 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

13.2 Application for Progress Payment

At least ten days before each progress payment is scheduled (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that OWNER has received the materials and equipment free and clear of all liens, charges, security interests and encumbrances (which are hereinafter in these General Conditions referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER'S interest therein, all of which will be satisfactory to OWNER. OWNER shall, within thirty (30) calendar days of presentation to him of an approved Application for Payment, pay CONTRACTOR the amount approved by ENGINEER. Monthly progress payments shall be ninety (90) percent of the sum obtained by applying the respective bid unit prices to the approved estimated quantities of work completed by the Contractor during the preceding month. The remaining ten (10) percent will be held by the Owner, as retainage. At such time as the Engineer deems appropriate - based on the quality of work performed, progress of cleanup, and other pertinent factors - the rate of retainage, or the total amount retained, may be reduced; although, any reduction in retainage, below the ten (10) percent level, is made solely at the Engineer's discretion. All remaining retainage held will be included in the final payment to the Contractor.

13.3 CONTRACTOR'S Warranty of Title

CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

13.4 Review of Applications for Progress Payment

13.4.1 Submission of Application for Payment

ENGINEER will, after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER, or return the Application to CONTRACTOR indicating in writing ENGINEER'S reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

13.4.2 ENGINEER'S Recommendation

ENGINEER may refuse to recommend the whole or any part of any payment, if, in ENGINEER'S opinion, it would be incorrect to make such representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in ENGINEER'S opinion to protect OWNER from loss because:

13.4.2.1 the Work is defective, or completed Work has been damaged requiring correction or replacement;

13.4.2.2 the Contract Price has been reduced by Written Amendment or Change Order;

13.4.2.3 OWNER has been required to correct defective Work or complete Work in accordance with paragraph 12.8; or

13.4.2.4 of ENGINEER'S actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.2.1 through 14.2.9 inclusive.

13.5 Partial Utilization

OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and has been completed. If CONTRACTOR agrees, CONTRACTOR will certify to OWNER that said part of the Work is complete and request that a Certificate of Completion be issued for that part of the Work.

13.6 Final Inspection

Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will make a final inspection with CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

13.7 Final Application for Payment

After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in paragraph 5.14) and other documents - all as required by the Contract Documents, and after ENGINEER has indicated that the Work is acceptable (subject to the provisions of paragraph 13.10), CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full; an affidavit of CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER'S property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If any Subcontractor or Supplier fails to furnish a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

13.8 Final Payment and Acceptance

13.8.1 ENGINEER'S Approval

If, on the basis of ENGINEER'S observation of the Work during construction and final inspection, and ENGINEER'S review of the final Application for Payment and accompanying documentation - all as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR'S other obligations under the Contract Documents have been fulfilled, ENGINEER will, after receipt of the final Application for Payment, indicate in writing ENGINEER'S recommendation of payment and present the Application to OWNER for payment. Thereupon ENGINEER will give written notice to OWNER and CONTRACTOR that the Work is acceptable, subject to the provisions of paragraph 13.10. Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application.

13.8.2 Delay in Completion of Work

If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, OWNER shall, upon receipt of CONTRACTOR'S final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been

furnished as required in paragraph 10 of Part II, Information for Bidders, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

13.9 CONTRACTOR'S Continuing Obligation

CONTRACTOR'S obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by ENGINEER, nor the issuance of a certificate of Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor any correction of defective Work by OWNER will constitute an acceptance of Work not in accordance with the Contract Documents or a release of CONTRACTOR'S obligation to perform the Work in accordance with the Contract Documents (except as provided in paragraph 13.10).

13.10 Waiver of Claims

The making and acceptance of final payment will constitute:

13.10.1 a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from defective Work appearing after final inspection or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR'S continuing obligations under the Contract Documents; and

13.10.2 a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

14. SUSPENSION OF WORK AND TERMINATION

14.1 OWNER May Suspend Work

OWNER may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 10 and 11.

14.2 OWNER May Terminate

The OWNER may terminate the Work upon the occurrence of any one or more of the following events:

14.2.1 if CONTRACTOR commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if CONTRACTOR takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

14.2.2 if a petition is filed against CONTRACTOR under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

14.2.3 if CONTRACTOR makes a general assignment for the benefit of creditors;

14.2.4 if a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law or under contract, whose appointment or authority to take charge of property of CONTRACTOR is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of CONTRACTOR'S creditors;

14.2.5 if CONTRACTOR admits in writing an inability to pay its debts generally as they become due;

14.2.6 if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.8 as revised from time to time);

14.2.7 if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

14.2.8 if CONTRACTOR disregards the authority of ENGINEER, or

14.2.9 if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR'S tools,

appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) such excess will be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER will be approved as to reasonableness by ENGINEER and incorporated in a Change Order, but when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

14.2.10 If safety violations are observed and brought to the Contractors attention and Contractor fails to take immediate corrective measures any repeat of similar safety violations, Owner will order an immediate termination of contract. Note: it is the Contractor's responsibility to know proper safety measures as they pertain to construction and OSHA.

14.2.11 This contract may be canceled by either party thirty (30) days after delivery by canceling party of written notice of intent to cancel to the other contracting party.

14.2.12 This contract may be canceled by the Lexington-Fayette Urban County Government if it is determined that the Bidder has failed to perform under the terms of this agreement, such cancellation to be effective upon receipt of written notice of cancellation by the Bidder.

14.3 CONTRACTOR'S Services Terminated

Where CONTRACTOR'S services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

14.4 Payment After Termination

Upon seven days' written notice to CONTRACTOR, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed and any expense sustained plus reasonable termination expenses, which will include, but not be limited to, direct, indirect and consequential costs (including,

but not limited to, fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs).

14.5 CONTRACTOR May Stop Work or Terminate

If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within sixty days after it is submitted, or OWNER fails for sixty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER and ENGINEER, terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition, and in lieu of terminating the Agreement, if ENGINEER has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven days' written notice to OWNER and ENGINEER stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve CONTRACTOR of the obligations under paragraph 5.16 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with OWNER.

15. MISCELLANEOUS

15.1 Claims for Injury or Damage

Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 15.1 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

15.2 Non-Discrimination in Employment

The CONTRACTOR shall comply with the following requirements prohibiting discrimination:

15.2.1 That no person (as defined in KRS 344.010) shall bid on Lexington-Fayette Urban County Government construction projects, or bid to furnish materials or supplies to the Lexington-Fayette Urban County Government, if, within six months prior to the time of opening of bids, said person shall have been found, by declamatory judgment action in Fayette Circuit Court, to be presently engaging in an unlawful practice, as hereinafter defined. Such declamatory judgment action may be brought by an aggrieved individual or upon an allegation that an effort at conciliation pursuant to KRS 344.200 has been attempted and failed, by the Lexington-Fayette County Human Rights Commission.

15.2.2 That it is an unlawful practice for an employer:

15.2.2.1 to fail or refuse to hire, or to discharge any individual or otherwise to discriminate against an individual, with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, sex, age, or national origin; or

15.2.2.2 to limit, segregate or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee because of such individual's sex, race, color, religion, age, or national origin.

15.2.3 That it is an unlawful practice for an employer, labor organization, or joint-labor management committee controlling apprenticeship or other training or retraining, including on-the-job training programs to discriminate against an individual because of his race, color, religion, sex, age, or national origin in admission to, or employment in, any program established to provide apprenticeship or other training.

15.2.4 That a copy of this Ordinance shall be furnished all suppliers and made a part of all bid specifications.

15.2.5 This Ordinance shall take effect after it is signed, published and recorded, as required by law.

15.3 Temporary Street Closing or Blockage

The CONTRACTOR will notify the ENGINEER at least 72 hours prior to making any temporary street closing or blockage. This will permit orderly notification to all concerned public agencies. Specific details and restrictions on street closure or blockage are contained in the Special Conditions.

15.4 Percentage of Work Performed by prime CONTRACTOR

The CONTRACTOR shall perform on site, and with its own organization, Work equivalent to at least fifty (50%) percent of the total amount of Work to be performed under the Contract. This percentage may be reduced by a supplemental agreement to this Contract if, during performing the Work, the CONTRACTOR requests a reduction and the ENGINEER determines that the reduction would be to the advantage of the OWNER.

15.5 Clean-up

Cleanup shall progress, to the greatest degree practicable, throughout the course of the Work. The Work will not be considered as completed, and final payment will not be made, until the right-of-way and all ground occupied or affected by the Contractor in connection with the Work has been cleared of all rubbish, equipment,

excess materials, temporary structures, and weeds. Rubbish and all waste materials of whatever nature shall be disposed of, off of the project site, in an acceptable manner. All property, both public and private, which has been damaged in the prosecution of the Work, shall be restored in an acceptable manner. All areas shall be draining, and all drainage ways shall be left unobstructed, and in such a condition that drift will not collect or scour be induced.

15.6 General

The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 12.1, 12.3.5, 13.3, and 15.2 and all of the rights and remedies available to OWNER and ENGINEER thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Agreement.

15.7 Debris Disposal

For all LFUCG projects any trash, construction demolition debris, yard waste, dirt or debris of any kind that is removed from the project site must be disposed of in accordance with local, state, and federal regulations. The disposal site or facility must be approved in advance by the LFUCG and disposal documentation is required. The Contractor will be responsible for payment of any fines associated with improper disposal of material removed from the project site.

- END OF SECTION -

PART V
SPECIAL CONDITIONS
INDEX

1. BLASTING

Blasting shall not be allowed on this project.

2. RISK MANAGEMENT PROVISIONS - INSURANCE AND INDEMNIFICATION

(1) It is understood and agreed by the parties that Contractor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Contractor or its employees, agents, servants, owners, principals, licensees, assigns or subcontractors of any tier (hereinafter "CONTRACTOR") under or in connection with this agreement and/or the provision of goods or services and the performance or failure to perform any work required thereby.

(2) CONTRACTOR shall indemnify, save, hold harmless and defend the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, volunteers, and successors in interest (hereinafter "LFUCG") from and against all liability, damages, and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees that are in any way incidental to or connected with, or that arise or are alleged to have arisen, directly or indirectly, from or by CONTRACTOR's performance or breach of the agreement and/or the provision of goods or services provided that: (a) it is attributable to personal injury, bodily injury, sickness, or death, or to injury to or destruction of property (including the loss of use resulting therefrom), or to or from the negligent acts, errors or omissions or willful misconduct of the CONTRACTOR; and (b) not caused solely by the active negligence or willful misconduct of LFUCG.

(3) In the event LFUCG is alleged to be liable based upon the above, CONTRACTOR shall defend such allegations and shall bear all costs, fees and expenses of such defense, including but not limited to, all reasonable attorneys' fees and expenses, court costs, and expert witness fees and expenses, using attorneys approved in writing by LFUCG, which approval shall not be unreasonably withheld.

(4) These provisions shall in no way be limited by any financial responsibility or insurance requirements and shall survive the termination of this agreement.

(5) The work and services performed hereunder involve a CONSENT DECREE as further explained in Part 1-Advertisement for Bids, provision 13. These provisions are incorporated herein by reference as if expressly stated.

(6) LFUCG is a political subdivision of the Commonwealth of Kentucky. CONTRACTOR acknowledges and agrees that LFUCG is unable to provide indemnity or otherwise save, hold harmless, or defend the CONTRACTOR in any manner.

(7) BIDDER/CONTRACTOR understands and agrees that it shall, prior to final acceptance of its bid and the commencement of any work, demonstrate the ability to assure compliance with the above Indemnity provisions and these other risk management provisions.

(8) Required Insurance Coverage. BIDDER/CONTRACTOR shall procure and maintain for the duration of this contract the following or equivalent insurance policies at no less than the limits shown below and cause its subcontractors to maintain similar insurance with limits acceptable to LFUCG in order to protect LFUCG against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by CONTRACTOR. The cost of such insurance shall be included in any bid:

Coverage	**Limits**
General Liability Aggregate *(Insurance Services Office Form CG 00 01)*	$1 million per occurrence, $2 million aggregate or $2 million combined single limit
Commercial Automobile Liability *(Insurance Services Office Form CA 0001)*	Combined single, $1 million per occurrence
Worker's Compensation	Statutory
Employer's Liability	$500,000.00

The policies above shall contain the following conditions:

a. All Certificates of Insurance forms used by the insurance carrier shall be properly filed and approved by the Department of Insurance for the Commonwealth of Kentucky (DOI). LFUCG shall be named as an additional insured in the General Liability Policy and Commercial Automobile Liability Policy using the Kentucky DOI approved forms.

b. The General Liability Policy shall be primary to any insurance or self-insurance retained by LFUCG.

c. The General Liability Policy shall include a Products and Completed Operations endorsement or Premises and Operations Liability endorsement unless it is deemed not to apply by LFUCG.

d. The General Liability Policy shall include an Explosion-Collapse Underground (XCU) endorsement.

e. The General Liability Policy shall include a Pollution liability and/or Environmental Casualty endorsement unless it is deemed not to apply by LFUCG.

f. LFUCG shall be provided at least 30 days advance written notice via certified mail, return receipt requested, in the event any of the required policies are canceled or non-renewed.

g. Said coverage shall be written by insurers acceptable to LFUCG and shall be in a form acceptable to LFUCG. Insurance placed with insurers with a rating classification of no less than Excellent (A or A-) and a financial size category of no less than VIII, as defined by the most current Best's Key Rating Guide shall be deemed automatically acceptable.

h. Owner requests that the Bidder obtain an Umbrella Liability endorsement to the CGL policy for a limit of liability of $1 million and that this CGL policy endorsement be renewed for one (1) year after completion of this project.

YOUR ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS ABOVE. YOU MAY NEED TO CONFER WITH YOUR INSURANCE AGENTS, BROKERS, OR CARRIERS TO DETERMINE IN ADVANCE OF SUBMISSION OF A RESPONSE THE AVAILABILITY OF THE INSURANCE COVERAGES AND ENDORSEMENTS REQUIRED HEREIN. IF YOU FAIL TO COMPLY WITH THE INSURANCE REQUIREMENTS BELOW, YOU MAY BE DISQUALIFIED FROM AWARD OF THE CONTRACT.

(9) Renewals. After insurance has been approved by LFUCG, evidence of renewal of an expiring policy must be submitted to LFUCG and may be submitted on a manually signed renewal endorsement form. If the policy or carrier has changed, however, new evidence of coverage must be submitted in accordance with these Insurance Requirements.

(10) Deductibles and Self-Insured Programs. Self-insurance programs, deductibles, and self-insured retentions in insurance policies are subject to separate approval by Lexington-Fayette Urban County Government's Division of Risk Management, upon review of evidence of BIDDER/CONTRACTOR's financial capacity to respond to claims. Any such programs or retentions must provide LFUCG with at least the same protection from liability and defense of suits as would be afforded by first-dollar insurance coverage. If BIDDER/CONTRACTOR satisfies any portion of the insurance requirements through deductibles, self-insurance programs, or self-insured retentions, BIDDER/CONTRACTOR agrees to provide Lexington-Fayette Urban County Government, Division of Risk Management, the following data prior to the final acceptance of bid and the commencement of any work:

a. Latest audited financial statement, including auditor's notes.

b. Any records of any self-insured trust fund plan or policy and related accounting statements.

c. Actuarial funding reports or retained losses.

d. Risk Management Manual or a description of the self-insurance and risk management program.

e. A claim loss run summary for the previous five (5) years.

f. Self-Insured Associations will be considered.

IF YOU INTEND TO SUBMIT A SELF-INSURANCE PLAN IT MUST BE FORWARDED TO LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, DIVISION OF RISK MANAGEMENT, 200 EAST MAIN STREET, LEXINGTON, KENTUCKY 40507 NO LATER THAN A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO THE RESPONSE DATE.

(11) Safety and Loss Control. CONTRACTOR shall comply with all applicable federal, state, and local safety standards related to the performance of its works or services under this Agreement and take necessary action to protect the life, health and safety and property of all of its personnel on the job site, the public, and LFUCG.

(12) Verification of Coverage. BIDDER/CONTRACTOR agrees to furnish LFUCG with all applicable Certificates of Insurance signed by a person authorized by the insurer to bind coverage on its behalf prior to final award, and if requested, shall provide LFUCG copies of all insurance policies, including all endorsements.

(13) Right to Review, Audit and Inspect. CONTRACTOR understands and agrees that LFUCG may review, audit and inspect any and all of its records and operations to ensure compliance with these Insurance Requirements.

(14) Default. BIDDER/CONTRACTOR understands and agrees that the failure to comply with any of these insurance, safety, or loss control provisions shall constitute default and that LFUCG may elect at its option any single remedy or penalty or any combination of remedies and penalties, as available, including but not limited to purchasing insurance and charging BIDDER/CONTRACTOR for any such insurance premiums purchased, or suspending or terminating the work.

3. WAGE SCALES (*Do not apply to this project.*)

4. CONSTRUCTION SEQUENCE

CONTRACTOR shall submit a Construction Sequence Plan to the OWNER for review and approval.

5. PLAN NOTES vs. TECHNICAL SPECIFICATIONS

The OWNER has specific construction notes on Plan Sheets 2 and 3 that include technical work requirements and specifications for some construction items; these plan notes shall overrule any conflicting information in the Technical Specifications.

6. CONTRACTOR QUALIFICATIONS

CONTRACTOR and/or a SUBCONTRACTOR shall demonstrate familiarity with construction of stream channels based on the principles of Natural Channel Design. CONTRACTOR shall have constructed at least two (2) stream restoration and/or enhancement projects of similar size and complexity in the past three (3) years. Submit verifiable evidence including, but not limited to, detailed scope, project location, construction cost, Engineer of Record, owner contact information, and technical reference for each project. Failure to meet these minimum requirements may be justification for declaring a bid non-responsive.

7. PLANTINGS WARRANTIES

CONTRACTOR shall warrant all work for a period of one (1) year following Final Completion of work as specified in the General Conditions. In addition, CONTRACTOR shall further warrant the establishment and survival of vegetation and trees as specified below.

(1) Permanent Seeding. CONTRACTOR shall provide a care and replacement warranty for the establishment and survival of seeded areas as follows:

a. The initial warranty period shall begin after ENGINEER'S inspection and acceptance of the installation of seed and extend through one (1) year from the date of Final Completion.

b. CONTRACTOR shall be responsible for re-seeding all areas which, in the opinion of OWNER, experience a survival rate less than 85 percent aerial coverage per 1,000 square foot area. Reseeding shall be conducted in accordance with the Drawings and Technical Specifications.

c. Should reseeding be required, CONTRACTOR shall provide a subsequent care and replacement warranty to begin upon OWNER'S inspection and acceptance of the reseeding effort and extend through one (1) year from that date.

d. CONTRACTOR shall not be responsible for damage or mortality to seeded areas due to vandalism, fire, prolonged flooding, or other activities deemed by OWNER to be beyond CONTRACTOR'S control.

(2) Container Trees. CONTRACTOR shall provide a care and replacement warranty for the survival of container trees as follows:

a. The initial warranty period shall begin after ENGINEER'S inspection and acceptance of the installation of container trees and extend through one (1) year from the date of Final Completion.

b. CONTRACTOR shall be responsible for replanting all container trees which, in the opinion of OWNER, experience a survival rate of less than 85 percent. Re-planting shall be conducted in accordance with the Drawings and Technical Specifications.

c. Should replanting of container trees be required, CONTRACTOR shall provide a subsequent care and replacement warranty to begin upon OWNER'S inspection and acceptance of the replanting effort and extend through one (1) year from that date.

d. CONTRACTOR shall not be responsible for damage or mortality to container trees due to vandalism, fire, prolonged flooding, or other activities deemed by OWNER to be beyond CONTRACTOR'S control.

(3) Live Stakes. CONTRACTOR shall provide a care and replacement warranty for the survival of live stakes as follows:

a. The initial warranty period shall begin after ENGINEER'S inspection and acceptance of the installation of live stakes and extend through one (1) year from the date of Final Completion.

b. CONTRACTOR shall be responsible for replanting all live stakes which, in the opinion of OWNER, experience a survival rate of less than an 85 percent. Replanting of live stakes shall be conducted in accordance with the Drawings and Technical Specifications.

c. Should replacement of live stakes be required, CONTRACTOR shall provide a subsequent care and replacement warranty to begin upon OWNER'S inspection and acceptance of the replanting effort and extend through one (1) year from that date.

d. CONTRACTOR shall not be responsible for damage or mortality to live stakes due to vandalism, fire, prolonged flooding, or other activities deemed by OWNER to be beyond CONTRACTOR'S control.

8. CHAIN LINK FENCING

All chain link fencing installed on this project (*i.e.* on stormwater headwalls) shall be black vinyl coated.

9. CONSTRUCTION PROJECT COORDINATION

The proposed project will be preceded by a playground relocation project, and followed by a storm sewer installation project in the residential neighborhoods upstream of the park. If, for unforeseen circumstances, the project schedules overlap it may be necessary to coordinate staging areas, construction entrance installation/removal, and/or installation of the 42-inch storm sewer included in this contract.

10. CONSTRUCTION ACCESS and PARKING

Construction access shall be from an existing park maintenance road on the west side of the Southland Park parking lot on Hill n Dale Drive. A pending playground reconstruction project will use the same road as construction access, and the access will be left in place for this project. Repaving of that access road will be conducted in a separate subsequent project by others.

The Contractor may use the western portion of the existing parking lot for employee parking until Memorial Day weekend when the swimming pool is scheduled to open. Any other parking or access needs for this project, and restoration of any damage to the existing parking lot caused by the Contractor's operations, will be provided at no additional cost in accordance with Section 01550 of the Technical Specifications.

- END OF SECTION -

PART VI

CONTRACT AGREEMENT

INDEX

PART VI

CONTRACT AGREEMENT

THIS AGREEMENT, made on the _____ day of _____, 20____, by and between **Lexington-Fayette Urban County Government**, acting herein called "OWNER" and _____, doing business as *(an individual) (a partnership) (a corporation) located in the City of _____, County of _____, and State of _____, hereinafter called "CONTRACTOR."

WITNESSETH: That the CONTRACTOR and the OWNER in consideration of _____ _____ Dollars and _____ Cents ($_____) quoted in the proposal by the CONTRACTOR, dated _____, hereby agree to commence and complete the construction described as follows:

1. SCOPE OF WORK

The CONTRACTOR shall furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the Proposal, the General Conditions, and the Special Conditions of the Contract, the Specifications and Contract Documents therefore as prepared for the **Southland Park Stormwater Improvements Project**.

2. TIME OF COMPLETION AND LIQUIDATED DAMAGES

The time period estimated and authorized by the OWNER for the proper execution of the Work by the Contract, in full, is hereby fixed as **one hundred eighty (180) calendar days**. The time shall begin in accordance with the Notice to Proceed provided by OWNER. **TIME IS OF THE ESSENCE IN THE PERFORMANCE OF THIS AGREEMENT AND CONTRACTOR SHALL BE LIABLE AND RESPONSIBLE FOR DAMAGES SUFFERED BY OWNER AS A RESULT OF THE DELAY CAUSED BY CONTRACTOR.**

Should the CONTRACTOR fail or refuse to complete the work within the time specified in his Proposal and/or Contract (or extension of time granted by the owner), the CONTRACTOR shall pay liquidated damages in an amount of **$400 per day.** The amount of liquidated damages shall in no event be considered as a penalty, nor other than an amount agreed upon by the CONTRACTOR and the OWNER for damages, losses, additional engineering, additional resident representation, and other costs that will be sustained by the OWNER, if the CONTRACTOR fails to complete the work within the specified time. Liquidated damages will be applied on a rate per day for each and every calendar day (Sundays and holidays included) beyond the Contract expiration date stipulated in the Contract Documents, considering all time extension granted. **These Liquidated Damages are in addition to any other damages / fees / penalties that are incurred as a result of Consent Decree requirements.**

3. ISSUANCE OF WORK ORDERS

Notice to begin Work will be given in whole or for part of the Work as determined by the OWNER pending the availability of funds. The order of construction will be as determined by the Engineer after consultation with the CONTRACTOR and the OWNER.

4. THE CONTRACT SUM

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the Contract, as quoted in the proposal, subject to any additions and deductions, as provided therein.

5. PROGRESS PAYMENTS

The OWNER shall make payments on account of the Contract, as provided in accordance with the General Conditions, as estimated by the Engineer, less the aggregate of previous payments.

6. ACCEPTANCE AND FINAL PAYMENT

Final payment shall be due within ninety (90) days after completion of the Work, provided the Work be then fully completed and the Contract fully accepted.

Before issuance of final certificate, the CONTRACTOR shall submit evidence satisfactory to the Engineer that all payrolls, material bills, and other indebtedness connected with the Work has been paid.

If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the CONTRACTOR, and the Engineer so certifies, the OWNER shall upon certificate of the Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

7. THE CONTRACT DOCUMENTS

The Advertisement for Bids, Information for Bidders, General Conditions, Special Conditions, Contract Agreement, Bonds and Certificates, Technical Specifications, any and all Addenda, and Proposal, and Plan Drawings form the Contract, and they are fully a part of the Contract as if hereto attached or herein repeated.

8. EXTRA WORK

The OWNER, without invalidating the Contract, may order extra work or make changes by altering, adding to, or deducting from the Work, the Contract Sum being adjusted accordingly. All such Work shall be executed and paid for in accordance with the General Conditions, which is a part of this Contract.

9. CONSENT DECREE REQUIREMENTS (NOT APPLICABLE TO THIS PROJECT)

10. ENUMERATION OF SPECIFICATIONS AND DRAWINGS

The following is an enumeration of the Specifications and Drawings (Contract Documents):

SPECIFICATIONS

SECTION NO.	TITLE
I	Advertisement for Bids
II	Information for Bidders
III	Form of Proposal
IV	General Conditions
V	Special Conditions
VI	Contract Agreement
VII	Bonds and Certificates
VIII	Permits
IX	Addenda

TECHNICAL SPECIFICATIONS

Division 1	General Requirements
Division 2	Site Work
Division 3	Concrete

STANDARD DRAWINGS - LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

Number	Description
100	Storm Sewer Manhole Type "A" – Circular Walls
101	Storm Sewer Manhole Type "B" – Non-Circular Walls
102	Storm Sewer Manhole Details
103	Manhole Frames, Covers, and Steps
105	Storm Sewer Manhole Circular Slabs 6'-0" Diameter
130-1	Aggregate Channel Lining
130-2	Aggregate Channel Lining
153	Pipe Culvert Headwalls 0° Skew 15" - 27" Circular Pipe
154-1	Pipe Culvert Headwalls 0° Skew 30"-108" Pipe
154-2	Dimensions and Quantities 30"-108" Headwalls Circular Pipe 0° Skew
154-3	Bill of Reinforcement 30"-90" Diameter Circular Pipe Headwalls 0° Skew
303	Sidewalk Construction Specifications

304	Sidewalk Ramp Type 1
308	Chain Link Fence 3' - 6'
309	Chain Link Fence 8' - 12'
310	Chain Link Gate
311	Plank Fence
316	Top Rail for Retaining Walls Handrail for Steps
319	Typical Edge Key for Minimum Overlays, Short Projects, Low Speed
323	Public Improvement Sign

DRAWINGS

"Southland Park Stormwater Improvements" by Banks Engineering dated August 2021.

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the date and year above written.

(Seal)

Lexington-Fayette Urban County Government
Lexington, Kentucky
(Owner)

ATTEST:

_____
Clerk of the Urban County Council

BY: _____
MAYOR

_____
(Witness)

_____
(Title)

(Seal)

_____
(Contractor)

_____
(Secretary)*

BY: _____

_____
(Witness)

_____
(Title)

_____
(Address and Zip Code)

IMPORTANT: *Strike out any non-applicable terms.

Secretary of the Owner should attest. If the CONTRACTOR is corporation, Secretary should attest. Give proper title of each person-executing Contract.

- END OF SECTION -

PART VII

BONDS AND CERTIFICATES

1.01 PERFORMANCE BOND

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

_____
(Name of CONTRACTOR)

_____
(Address of CONTRACTOR)

a _____, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and _____
(Name of Surety)

_____
(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:

_____dollars ($_____),
for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the **Southland Park Stormwater Improvements Project**, LFUCG Bid No. 61-2021 in accordance with Contract Documents prepared by Banks Engineering, Inc. and dated August 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly and faithfully perform said Agreement (Contract), then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Whenever, Principal shall be, and declared by OWNER to be in default under the Agreement (Contract), the OWNER having performed OWNER'S obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the Agreement (Contract) in accordance with its terms and conditions or

2. Obtain a Bid or Bids for completing the Agreement (Contract) in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the OWNER elects, upon determination by the OWNER and Surety jointly of the lowest responsible bidder, arrange for an Agreement (Contract) between such bidder and OWNER, and make available as Work progresses (even though there may be a default or a succession of defaults under the Agreement (Contract) or Agreements (Contracts) of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Agreement (Contract) Amount; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "Balance of the Agreement (Contract) Amount", as used in this paragraph shall mean the total amount payable by OWNER to Principal under the Agreement (Contract) and any amendments thereto, less the amount properly paid by OWNER to Principal.

Any suit under this bond must be instituted before the expiration of one (1) year from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators or successors of OWNER.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of
(number)

which shall be deemed an original, this the _____day of _____, 20____.

ATTEST:

_____
Principal

_____
(Principal) Secretary

By:_____(s)

_____
Address

_____

_____
Witness as to Principal

_____
Address

_____

_____
Surety

ATTEST:

By:_____
Attorney-in-Fact

_____
(Surety) Secretary

_____
Address

_____

(SEAL)

_____
Witness to Surety

Title:_____
Surety

_____
Address

By:_____

_____

Title:_____

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).

1.02 PAYMENT BOND

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that

_____
(Name of CONTRACTOR)

_____
(Address of CONTRACTOR)

a _____, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and _____
(Name of Surety)

_____
(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:

_____dollars ($_____),
for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the **Southland Park Stormwater Improvements Project**, LFUCG Bid No. 61-2021 in accordance with Contract Documents prepared by Banks Engineering, Inc. and dated August 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW, THEREFORE THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined for all labor and material used or reasonably required for use in the performance of the Agreement (Contract), then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor material, or both, used or reasonably required for use in the performance of the Agreement (Contract), labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Agreement (Contract).

2. The above named Principal and Surety hereby jointly and severally agree with the OWNER that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such

sum or sums as may be justly due claimant and have execution thereon. The OWNER shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

   (a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: The Principal, the OWNER, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the Work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the Work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, OWNER, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

   (b) After the expiration of one (1) year following the date on which Principal ceased Work on said Agreement (Contract), it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

   (c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against aid improvement, whether or not claim for the amount of such lien be presented under and against this bond.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of
(number)

which shall be deemed an original, this the _____ day of _____, 20____.

ATTEST:

_____
Principal

_____
(Principal) Secretary

By:_____(s)

_____
Address

_____

_____
Witness as to Principal

_____
Address

_____

_____
Surety

ATTEST:

By:_____
Attorney-in-Fact

_____
(Surety) Secretary

_____
Address

_____

(SEAL)

_____
Witness to Surety

Title:_____
Surety

_____
Address

By:_____

_____

Title:_____

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).

1.03 EROSION AND SEDIMENT CONTROL PERFORMANCE BOND

EROSION AND SEDIMENT CONTROL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

_____
(Name of CONTRACTOR)

_____
(Address of CONTRACTOR)

a _____, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and _____
(Name of Surety)

_____
(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:

[3% of Total Bid Price] _____ dollars ($_____), for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the **Southland Park Stormwater Improvements Project**, LFUCG Bid No. 61-2021 in accordance with Contract Documents prepared by Banks Engineering, Inc. and dated August 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly and faithfully perform said Agreement (Contract), then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Whenever, Principal shall be, and declared by OWNER to be in default under the Agreement (Contract), the OWNER having performed OWNER's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the installation, maintenance, and removal of the soil erosion and sediment controls and final stabilization of the site during the full period of land disturbance in accordance with the Agreement (Contract), the LFUCG Land Disturbance Permit, Chapter 16 Article X Division 5 of the LFUCG Code of Ordinances, Chapter 11 of the LFUCG Stormwater Manual, and the KPDES General Permit for Stormwater Discharges Associated with Construction Activities (KYR10).

2. Obtain a Bid or Bids for completing the installation, maintenance, and removal of the soil erosion and sediment controls and final stabilization of the site in accordance with the Agreement's (Contract's) terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the OWNER elects, upon determination by the OWNER and Surety jointly of the lowest responsible bidder, arrange for an Agreement (Contract) between such bidder and OWNER, and make available as Work progresses (even though there may be a default or a succession of defaults under the Agreement (Contract) or Agreements (Contracts) of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Agreement (Contract) Amount; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Agreement (Contract) Amount", as used in this paragraph shall mean the total amount payable by OWNER to Principal under the Agreement (Contract) and any amendments hereto, less the amount properly paid by OWNER to Principal.

Any suit under this bond must be instituted before the expiration one (1) year from the date on which final payment under the Agreement (Contract) falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators or successors of OWNER.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of
(number)

which shall be deemed an original, this the _____day of _____, 20____.

ATTEST:

_____
Principal

_____
(Principal) Secretary

By:_____(s)

_____
Address

_____

_____
Witness as to Principal

_____
Address

_____

_____
Surety

ATTEST:

By:_____
Attorney-in-Fact

_____
(Surety) Secretary

_____
Address

_____

(SEAL)

_____
Witness to Surety

Title:_____
Surety

_____
Address

By:_____

_____

Title:_____

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).

1.04 WARRANTY BOND

WARRANTY BOND

KNOW ALL MEN BY THESE PRESENTS, that

_____
(Name of CONTRACTOR)

_____
(Address of CONTRACTOR)

a _____, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and _____
(Name of Surety)

_____
(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of: _____

_____ dollars ($_____),

for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents. The warranty bond shall be in the amount of five percent (5%) of the final construction cost amount (based on contractor's final pay request).

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the **Southland Park Stormwater Improvements Project**, LFUCG Bid No. 61-2021 in accordance with Contract Documents prepared by Banks Engineering, Inc. and dated August 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that, if the Principal shall well and faithfully do and perform the required maintenance and shall indemnify and save harmless the OWNER against all claims, loss or damage, and expenses of reconstruction or additional work required to restore the Project to its acceptable condition within a period of one (1) year from the date of acceptance by OWNER of the Project, then this obligation shall be void; otherwise, it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Any suit under this bond must be instituted before the expiration of one (1) year from the date on which final payment under the Contract falls due.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators, successors, or assigns of the OWNER.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of
(number)

which shall be deemed an original, this the _____day of _____, 20____.

ATTEST:

_____
Principal

_____
(Principal) Secretary

By:_____(s)

_____
Address

_____

_____
Witness as to Principal

_____
Address

_____

_____
Surety

ATTEST:

By:_____
Attorney-in-Fact

_____
(Surety) Secretary

_____
Address

_____

(SEAL)

_____
Witness to Surety

Title:_____
Surety

_____
Address

By:_____

_____

Title:_____

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).

POWER OF ATTORNEY

(to be inserted)

1.05 RISK MANAGEMENT PROVISIONS INSURANCE AND INDEMNIFICATION

A. DEFINITIONS

The Contractor understands and agrees that the Risk Management Provisions of this Agreement (Contract) define the responsibilities of the Contractor to the Owner.

As used in these Risk Management Provisions, the terms "Contractor" and "Owner" shall be defined as follows:

1. "Contractor" means the contractor and its employees, agents, servants, owners, principals, licensees, assigns and subcontractors of any tier.

2. "Owner" means the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, boards, consultants, assigns, volunteers and successors in interest.

B. INDEMNIFICATION AND HOLD HARMLESS PROVISION

1. It is understood and agreed by the parties that Contractor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Contractor under or in connection with this agreement and/or the provision of goods or services and the performance or failure to perform any work required thereby.

2. Contractor shall indemnify, save, hold harmless and defend the Owner from and against all liability, damages, and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees that are in any way incidental to or connected with, or that arise or are alleged to have arisen, directly or indirectly, from or by Contractor's performance or breach of the agreement and/or the provision of goods or services provided that: (a) it is attributable to personal injury, bodily injury, sickness, or death, or to injury to or destruction of property (including the loss of use resulting therefrom), or to or from the negligent acts, errors or omissions or willful misconduct of the Contractor; and (b) not caused solely by the active negligence or willful misconduct of the Owner.

3. In the event the Owner is alleged to be liable based upon the above, Contractor shall defend such allegations and shall bear all costs, fees and expenses of such defense, including but not limited to, all reasonable attorneys' fees and expenses, court costs, and expert witness fees and expenses, using attorneys approved in writing by the Owner, which approval shall not be unreasonably withheld.

4. These provisions shall in no way be limited by any financial responsibility or insurance requirements, and shall survive the termination of this Agreement (Contract).

5. The Work and services performed hereunder may involve a Consent Decree as further explained in of Section 00100, provision 1.13 of these specifications. The provisions of that provision are incorporated herein by reference as if expressly stated.

6. Owner is a political subdivision of the Commonwealth of Kentucky. Contractor acknowledges and agrees that the Owner is unable to provide indemnity or otherwise save, hold harmless, or defend the Contractor in any manner.

C. FINANCIAL RESPONSIBILITY

The Contractor understands and agrees that it shall, prior to final acceptance of its Bid and the commencement of any Work, demonstrate the ability to assure compliance with the Indemnity Agreement and other provisions of this Agreement (Contract).

D. INSURANCE REQUIREMENTS

Bidders' attention is directed to the following insurance requirements, as Bidders must confer with their respective insurance agents, brokers, or carriers to determine in advance of Bid submission the availability of the insurance coverage's and endorsements required herein. If an apparent low Bidder fails to comply strictly with the insurance requirements below, that Bidder shall be disqualified from the award of the Agreement (Contract), at the Owner's discretion.

1. Required Insurance Coverage

Contractor shall procure and maintain for the duration of this Agreement (Contract) the following or equivalent insurance policies at no less than the limits shown below and cause its subcontractors to maintain similar insurance with limits acceptable to Owner in order to protect Owner against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work hereunder by Contractor. The cost of such insurance shall be included in any Bid.

Coverage	**Limits**
General Liability (Insurance Services Office Form CG 00 01)	$1 million per occurrence $2 million aggregate, or $2 million combined single limit
Commercial Automobile Liability (Insurance Services Office Form CA 0001)	Combined single, $1 million per occurrence
Worker's Compensation	Statutory
Employer's Liability	$500,000

The policies above shall contain the following conditions:

a. All Certificates of Insurance forms used by the insurance carrier shall be properly filed and approved by the Department of Insurance for the Commonwealth of Kentucky (DOI). Owner shall be named as additional insured in the General Liability Policy and Commercial Automobile Liability Policy using the Kentucky DOI approved forms.

b. The General Liability Policy shall be primary to any insurance or self-insurance retained by Owner.

c. The General Liability Policy shall include a Products and Completed Operations endorsement or Premises and Operations Liability endorsement unless it is deemed not to apply by Owner.

d. The General Liability Policy shall include an Explosion-Collapse Underground (XCU) endorsement.

e. The General Liability Policy shall include a Pollution Liability and/or Environmental Casualty endorsement unless it is deemed not to apply by Owner.

f. Owner shall be provided at least thirty (30) days advance written notice via certified mail, return receipt requested, in the event any of the required policies are canceled or non-renewed.

g. Said coverage shall be written by insurers acceptable to Owner and shall be in a form acceptable to Owner. Insurance placed with insurers with a rating classification of no less than Excellent (A or A-) and a financial size category of no less than VIII, as defined by the most current Best's Key Rating Guide shall be deemed automatically acceptable.

h. Owner requires that the Bidder obtain an Umbrella Liability endorsement to the CGL policy for a limit of liability of $ (N/A) and that this CGL policy endorsement be renewed for one (1) year after completion of this project.

2. Renewals

After insurance has been approved by Owner, evidence of renewal of an expiring policy must be submitted to Owner, and may be submitted on a manually signed renewal endorsement form. If the policy or carrier has changed, however, new evidence of coverage must be submitted in accordance with these Insurance Requirements.

3. Deductibles and Self-Insured Programs

IF CONTRACTOR INTENDS TO SUBMIT A SELF-INSURANCE PLAN, IT MUST BE FORWARDED TO LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, DIVISION OF RISK MANAGEMENT, 200 EAST MAIN STREET, LEXINGTON, KENTUCKY 40507 NO LATER THAN A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO BID OPENING DATE. Self-insurance programs, deductibles, and self-insured retentions in insurance policies are subject to separate approval by Lexington-Fayette Urban County Government's Division of Risk Management, upon review of evidence of Contractor's financial capacity to respond to claims. Any such programs or retentions must provide Owner with at least the same protection from liability and defense of suits as would be afforded by first-dollar insurance coverage. If Contractor satisfies any portion of the insurance requirements through deductibles, self-insurance programs, or self-insured retentions, Contractor agrees to provide Lexington-Fayette Urban County Government, Division of Risk Management, the following data prior to the final acceptance of Bid and the commencement of work:

a. Contractor's latest audited financial statement, including auditor's notes.
b. Any records of any self-insured trust fund plan or policy and related accounting statement.
c. Actuarial funding reports or retained losses.
d. Risk Management Manual or a description of self-insurance and risk management program.
e. A claim loss run summary for the previous five (5) years.
f. Self-Insured Associations will be considered.

4. Safety and Loss Control

Contractor shall comply with all applicable federal, state, and local safety standards related to the performance of its works or services under this Agreement and take necessary action to protect the life, health and safety and property of all of its personnel on the job site, the public, and the Owner.

5. Verification of Coverage

Prior to award of bid, Contractor agrees to furnish Owner with all applicable Certificates of Insurance signed by a person authorized by the insurer to bind coverage on its behalf. If requested, Contractor shall provide Owner copies of all insurance policies, including all endorsements.

6. Right to Review, Audit and Inspect

Contractor understands and agrees that Owner may review, audit and inspect any and all of Contractor's records and operations to insure compliance with these Insurance Requirements.

7. Contractor understands and agrees that the failure to comply with any of these insurance, safety, or loss control provisions shall constitute default under this Agreement (Contract). Contractor also

agrees that Owner may elect at its option any single remedy or penalty or any combination of remedies and penalties, as available, including but not limited to purchasing insurance and charging Contractor for any such insurance premiums purchased, or suspending or terminating this Agreement (Contract).

1.06 CERTIFICATE OF LIABILITY INSURANCE

(Insert Contractor's Certificate)

- END OF SECTION -

PART VIII

PERMITS

PART 1 - GENERAL

1.01 SUMMARY

The CONTRACTOR shall conform to the requirements of the following permits which are provided herein:

Kentucky Division of Water – Water Quality Certification

U.S. Army Corps of Engineers – Nationwide Permit No. 43

All other permits shall be obtained by the Contractor, including the Kentucky Division of Water *General Permit for Stormwater Discharges Associated with Construction Activities* and the Lexington-Fayette Urban County Government *Land Disturbance Permit*.

- END OF SECTION -

ANDY BESHEAR
GOVERNOR

REBECCA W. GOODMAN
SECRETARY

ANTHONY R. HATTON
COMMISSIONER

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

July 30, 2021

Attn: Gregory Lubeck
LFUCG - Division of Water
125 Lisle Industrial Ave
Lexington, KY 40511

Re: §401 Water Quality Certification
Southland Park
AI No.: 169072; Activity ID: APE20210002
WQC No: WQC2021-066-2
USACE ID No.: LRL-2021-00512-mad
Wetland Area at UT to Wolf Run
Fayette County, Kentucky

Dear Mr. Lubeck:

Pursuant to Section 401 of the Clean Water Act (CWA) and 40 CFR 121.7(c), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under a federal license or permit, and the attached conditions are met.

Other permits from the Division of Water may be required for this activity. Activities within a floodplain may require a Permit to Construct Across or Along a Stream; contact the Floodplain Management Section (502-564-3410). Projects that disturb one acre or more of land or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land require a Kentucky Pollution Discharge Elimination System (KPDES) Stormwater Permit; contact the Surface Water Permits Branch (502-564-3410 or SWPBSupport@ky.gov). A Groundwater Protection Plan is required if activities listed in Section 2(2) of 401 KAR 5:037 are conducted. A Water Withdrawal Application is required for activities proposing raw water withdrawals of 10,000 gallons per day or more; contact the Watershed Management Branch (502-564-3410).

All future correspondence on this project must reference AI No. **169072**. **The attached document is your official Water Quality Certification; please read it carefully**. Please contact Ellen M Mullins by phone at 502-782-0720 or email at Ellen.Mullins@ky.gov if you have any questions.

Sincerely,

Shawn Hokanson, Manager
Water Resources Branch
Kentucky Division of Water

EH:EMM

Attachment

cc: Gregory Lubeck, LFUCG (via email: glubeck@lexingtonky.gov)
Matt Dennis, USACE: Louisville District (via email: matt.a.dennis@usace.army.mil)
Rain Storm, Third Rock Consultants (via email: rstorm@thirdrockconsultants.com)
J. Steinmetz, Engineer (via email: jsteinmetz@banksengineering.net)
Lee Andrews, USFWS: Frankfort (via email: kentuckyes@fws.gov)
Malissa McAlister, DOW Kentucky River Basin Coordinator (via email: mmcalister@uky.edu)

Water Quality Certification
Southland Park
Facility Requirements
Permit Number: WQC2021-066-2
Activity ID No.:APE20210002

ACTV0000000001 (AI 169072 Southland Park) Expand stormwater management area; construct 3 detention basins:

Submittal/Action Requirements:

Condition No.	Condition
S-1	**Lexington-Fayette Urban County Government shall notify the Water Quality Certification Project Manager or Supervisor of the scheduled start of construction activities at least two weeks before the start of construction.** This condition is necessary for the Division of Water to be informed of the ongoing activity for the purposes of site visits to ensure implementation of Kentucky Regulatory Statutes and Administrative Regulations; the Division will monitor the environment to afford more effective and efficient control practices, to identify changes and conditions in ecological systems, and to warn of emergency conditions. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
S-2	**Lexington-Fayette Urban County Government shall notify the Water Quality Certification Project Manager or Supervisor of substantial completion of construction no later than two weeks post-construction.** This condition is necessary for the Division of Water to be informed of the ongoing activity for the purposes of site visits to ensure implementation of Kentucky Regulatory Statutes and Administrative Regulations; the Division will monitor the environment to afford more effective and efficient control practices, to identify changes and conditions in ecological systems, and to warn of emergency conditions. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
S-3	**Lexington-Fayette Urban County Government shall submit as-built drawings within 90 days after substantial completion of construction to the Water Quality Certification Section Project Manager or Supervisor.** This condition is necessary for the Division of Water to monitor the environment to afford more effective and efficient control practices, to identify changes and conditions in ecological systems, and to warn of emergency conditions. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]

ACTV0000000001 (AI 169072 Southland Park) Expand stormwater management area; construct 3 detention basins:

Narrative Requirements:

Condition No.	Condition
T-1	**The work approved by this certification shall be limited to the expansion of an existing stormwater management area including:** **- construction of three (3) detention basins to mitigate downstream flooding;** **- permanent impacts to 0.02 acre wetland;** **- use of natural stream design and native plantings;** **- berm installation (with no impacts to streams or wetlands); and** **- avoidance of any riparian or stream impacts within 'Ex. Stream CL' area shown on Plan Set 'May 2021, Sheet 6 of 17'.** This condition is necessary to confirm the activity approved under this certification. [401 KAR 9:010(1)(a)(2)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-2	**All work performed under this certification shall adhere to the design and specifications set forth in the following document(s):** **- Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification received on June 8, 2021;** **- Cover Letter and Plan Set Package received on June 8, 2021;** **- Pre-Filing Meeting Request received on June 10, 2021; and** **- Certification Request received on July 12, 2021.** This condition is necessary to confirm the activity approved under this certification. [401 KAR 9:010(1)(a)(2)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-3	**Lexington-Fayette Urban County Government is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction.** This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]

ACTV0000000001 (AI 169072 Southland Park) Expand stormwater management area; construct 3 detention basins:

Narrative Requirements:

Condition No.	Condition
T-4	**Heavy equipment (e.g. bulldozers, backhoes, draglines, etc.), if required for this project, should not be used or operated within the stream channel. In those instances where such instream work is unavoidable, then it shall be performed in such a manner and duration as to minimize re-suspension of sediments and disturbance to the channel, banks, or riparian vegetation.** This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-5	**Erosion and sedimentation pollution control plans and Best Management Practices must be designed, installed, and maintained in effective operating condition at all times during construction activities so that violations of state water quality standards do not occur.** This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-6	**Remove all sediment and erosion control measures after re-vegetation has become well-established.** This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-7	**Any fill or riprap shall be of a composition that shall not cause violations of water quality standards by adversely affecting the biological, chemical, or physical properties of waters of the Commonwealth. If riprap is used, it shall be of a weight and size that bank stress or slump conditions shall not occur.** This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]

ACTV0000000001 (AI 169072 Southland Park) Expand stormwater management area; construct 3 detention basins:

Narrative Requirements:

Condition No.	Condition
T-8	**Sediment and erosion control measures (e.g., check-dams, silt fencing, or hay bales) shall not be placed within surface waters of the Commonwealth, either temporarily or permanently, without prior approval by the Kentucky Division of Water's Water Quality Certification Section. If placement of sediment and erosion control measures in surface waters is unavoidable, placement shall not be conducted in such a manner that may cause instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control measures shall be removed and the natural grade restored prior to withdrawal from the site.** This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-9	**Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.** This condition is necessary to prevent water pollution as prohibited by statute. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-10	**To the maximum extent practicable, all in-stream work under this certification shall be performed during low flow.** This condition is necessary to prevent and minimize objectionable deposits and pollution and protect the use of the stream. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-11	**Removal of existing riparian vegetation shall be restricted to the minimum necessary for project construction.** This condition is necessary to minimize negative effects to the environment. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-12	**Should stream pollution, wetland impairment, and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/564-2380.** This condition is necessary for the Division of Water to monitor the environment to afford more effective and efficient control practices, to identify changes and conditions in ecological systems, and to warn of emergency conditions. [401 KAR 10:031 Section 2(1)(a)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]

ACTV0000000001 (AI 169072 Southland Park) Expand stormwater management area; construct 3 detention basins:

Narrative Requirements:

Condition No.	Condition
T-13	**The authorization of this certification coincides with the duration of authorization by the issued federal permit.** This condition is necessary for the issuance of the certification to align with the issuance of the federal permit. [KRS 224.16-050(2)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]
T-14	**If there is a transfer or conveyance of the project site during the issued WQC term for the approved activity, the Lexington-Fayette Urban County Government shall submit written notice to the Water Quality Certification Section Project Manager or Supervisor of the transfer or conveyance of the project site or any part of the project site at least 60 days prior to the transfer or conveyance of the project site. The notification shall include the WQC number; the Agency Interest (AI) No.; the name, mailing address, email address, and telephone number of the current owner; the name, mailing address, email address, and telephone number of the prospective transferee; the proposed effective date of transfer/conveyance; and a copy of the documentation evidencing the transfer/conveyance. Failure to comply with this condition does not negate the validity or enforceability of this certification.** This condition is necessary for the Division of Water to be aware of authorized impacts, the appropriate responsible party and to monitor the environment to afford more effective and efficient control practices, to identify changes and conditions in ecological systems, and to warn of emergency conditions. [401 KAR 9:010(1)(a)(2)]. [401 KAR 10:030 Section 1, KRS 224.10-100, KRS 224.70-110]

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT
600 DR. MARTIN LUTHER KING JR PL
LOUISVILLE, KY 40202

August 11, 2021

Regulatory Division
South Branch
ID No. LRL-2021-00512

Gregory Lubeck
Lexington-Fayette Urban County Government
125 Lisle Industrial Avenue
Lexington, KY 40501

Dear Mr. Lubeck:

This is in response to your request for authorization to expand an existing stormwater management area and construct 3 detention basins impacting a wetland adjacent to Spring Branch in Lexington, Fayette County, Kentucky (Lat:38.018, Long: -84.539) for the Southland Park, Yuma, Tucson Area Stormwater Improvement project. The information supplied by you was reviewed to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 404 of the Clean Water Act.

Your project is considered a discharge of dredged and/or fill material into aquatic resources for the construction of a stormwater management facility. The project is authorized under the provisions of 33 CFR 330 Nationwide Permit (NWP) No. 43, Stormwater Management Facilities, as published in the Federal Register January 13, 2021. Under the provisions of this authorization, you must comply with the enclosed Terms and General Conditions for NWP No. 43, and the following Special Conditions:

1. Tree clearing shall not occur during the occupied timeframe from April 1 to October 14 to minimize adverse effects to the federally listed northern long-eared bat and the Indiana bat. To mitigate for the loss of 0.4 acres of potential suitable roost trees, the permittee shall follow the process outlined in the Kentucky Field Office's (KFO) 2016 Revised Conservation Strategy for Forest-Dwelling Bats (Conservation Strategy) and provide receipt of an appropriate contribution to the Imperiled Bat Conservation Fund (IBCF). The Permittee shall contact the KFO of the U.S. Fish and Wildlife Service (USFWS) by calling (502) 695-0468 to determine the appropriate mitigation in accordance with the Conservation Strategy. The Permittee shall provide the Corps with a receipt of payment prior to any tree removal. If additional forested areas not previously considered in the DA permit application are to be cleared, the Permittee shall notify the Corps and the USFWS in advance of any additional tree clearing to determine if re-initiation of Endangered Species Act would be required.

2. The Permittee shall comply with all conditions of the Section 401 Water Quality Certification No. WQC2021-066-2, dated July 30, 2021, issued by the Kentucky Division of Water, which are incorporated herein by reference.

This verification is valid until March 14, 2026. The enclosed Compliance Certification must be submitted to the District Engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

Note that we also perform periodic inspections to ensure compliance with our permit conditions and applicable Federal laws. A copy of this letter will be forwarded to your agent and to the KDOW.

If you have any questions, please contact us by writing to the District Regulatory Office at the above address, ATTN: CELRL-RDS, or contact me directly at 502-315-6689 or matt.a.dennis@usace.army.mil. Any correspondence on this matter should refer to our ID Number LRL-2021-00512.

Sincerely,

Matt Dennis
Senior Project Manager
Regulatory Division

Enclosures

COORDINATING AGENCY

Ellen Mullins
Kentucky Energy & Environment Cabinet
Division of Water
300 Sower Boulevard
Frankfort, Kentucky 40601

AGENT

Rain Storm
Third Rock Consultants
2526 Regency Road, Suite 180
Lexington, KY 40503

Compliance Certification:

Permit Number: LRL-2021-00512

Name of Permittee: Gregory Lubeck Lexington-Fayette Urban County Government

Date of Issuance: August 11, 2021

Upon completion of the activity authorized by this permit and any mitigation required by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
CELRL-RDS
P.O. Box 59
Louisville, Kentucky 40201

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

2021 Nationwide Permit Summary

US Army Corps of Engineers
Louisville District ®

Issued: **March 15, 2021**
Expires: **March 14, 2026**

No. 43. Stormwater Management Facilities

(NWP Final Rule, 86 FR 2744)

Discharges of dredged or fill material into non-tidal waters of the United States for the construction of stormwater management facilities, including stormwater detention basins and retention basins and other stormwater management facilities; the construction of water control structures, outfall structures and emergency spillways; the construction of low impact development integrated management features such as bioretention facilities (e.g., rain gardens), vegetated filter strips, grassed swales, and infiltration trenches; and the constructionof pollutant reduction green infrastructure features designed to reduce inputs of sediments, nutrients, and other pollutants into waters, such as features needed to meet reduction targets established under Total Maximum Daily Loads set under the Clean Water Act.

This NWP authorizes, to the extent that a section 404 permit is required, discharges of dredged or fill material into non-tidal waters of the United States for the maintenance of stormwater management facilities, low impact development integrated management features, and pollutant reduction green infrastructure features. The maintenance of stormwater management facilities, low impact development integrated management features, and pollutant reduction green infrastructure features that are not waters of the United States does not require a section 404 permit.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters. This NWP does not authorize discharges of dredged or fill material for the construction of new stormwater management facilities in perennial streams.

Notification: For discharges of dredged or fill material into non-tidal waters of the United States for the construction of new stormwater management facilities or pollutant reduction green infrastructure features, or the expansion of existing stormwater management facilities or pollutant reduction green infrastructure features, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 32.) Maintenance activities do not require pre-construction notification if they are limited to restoring the original design capacities of the stormwater management facility or pollutant reduction green infrastructure feature. (Authority: Section 404)

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or

adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles,

including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine

Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal

individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state,

then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN

complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize

the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

2021 District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they

individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

2021 Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

2021 Nationwide Permit Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the

purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a "water of the United States." If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

PART IX

ADDENDA

All addenda issued during the bidding of the Project will be reproduced in the signed Contract Documents, on the pages following this heading sheet.

Addendum Number	Title	Date
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

- END OF SECTION -

SECTION 01110

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. These Specifications and the accompanying Drawings describe the Work to be done and materials to be furnished (see Drawings for vicinity map). Unless otherwise noted, Contractor shall provide and pay for labor, materials, equipment, tools, construction machinery, transportation, and other facilities and services necessary for proper execution and completion of Work required by Contract Documents.

Work of Contract can be summarized by reference to Contract, General Conditions, specification sections as listed in "Table of Contents" bound herewith, drawings as listed in "Schedule of Drawings" bound herewith, addenda and modifications to Contract Documents issued subsequent to initial printing of project specifications, and including but not necessarily limited to printed matter referenced by any of these. It is recognized that Work of Contract may be affected or influenced by governing regulations, natural phenomenon including weather conditions, and other forces outside Contract Documents.

B. Major Work items in this Contract include:

1. Construction of stormwater management areas with associated storm sewers and drainage channels, asphalt sidewalks, landscape plantings, and related appurtenances for the Lexington Fayette Urban County Government.

2. The Contractor shall include all materials, labor and equipment necessary for completion of the Project. The Contract Documents are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the Project shall be included.

3. The following major Work items are included in the Contract:
   a) Removal of existing trees necessary to construct the project
   b) Earthwork to construct detention basins and stormwater management areas
   c) Storm sewer piping and structures
   d) Site paving for the construction of an asphalt trail/sidewalk
   e) Installation of modular retaining walls and fencing
   f) Landscape plantings and revegetation
   g) Site restoration

C. Stipulations

a. In the event of conflict between these specifications and Federal, State, and Local law/codes, the latter will take precedence.

b. In all cases where a device or part of the equipment is herein referred to in the singular, such reference shall apply to as many such items as are required to complete the installation.

c. Any item not shown on the drawing shall be constructed using Lexington Fayette-Urban County Government Standard Drawings, current edition.

1.02 CONTINUOUS OPERATIONS

A. The existing systems must be maintained in continuous operation in such a manner that it meets all local, state, and federal requirements. The Contractor is responsible not to deactivate, demolish, or interfere with any system required for the continuous operation until a temporary or new permanent-like system has been installed and is operational. The Contractor is responsible for payment of all fines resulting from any action or inaction on his part or the part of his subcontractors during performance of the Work that is illegal.

1.03 PERMITS

A. Obtain any permits related or required by the Work in this Contract including but not limited to:

LFUCG *Land Disturbance Permit*
KY *General Permit for Stormwater Discharges Associated with Construction Activities* (KYR10)

1.04 CODES

A. Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices, citations, and similar communication to the Owner.

1.05 EXISTING CONDITIONS AND DIMENSIONS

A. The Contractor is responsible for verifying all existing conditions, elevations, dimensions, etc.

- END OF SECTION -

SECTION 01120

WORK SEQUENCE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall conform to all miscellaneous requirements as contained in the Contract.

1.02 RELATED REQUIREMENTS

A. General Conditions

B. Section 01110 - Summary of Work

C. Section 01310 - Project Management and Coordination

PART 2 - PRODUCTS

2.01 MATERIALS

The Contractor shall comply with the Specifications for type of Work to be done.

PART 3 - EXECUTION

3.01 SEQUENCE OF CONSTRUCTION OPERATIONS

The Contractor shall submit to the Engineer for review and acceptance a complete schedule (progress chart) of his proposed sequence of construction operations prior to commencement of Work. However, the Engineer shall not accept a construction schedule that fails to utilize the entire time allocated for the construction of the project. The Contractor shall schedule the various construction activities to complete the project throughout the entire allotted time period. This schedule requirement in no way prevents the Contractor from completing the project in a shorter time frame than scheduled. The construction schedule along with a cost breakdown schedule shall be submitted and approved by the Owner prior to the submittal of the first partial payment request in accordance with the general conditions. A revised construction schedule shall be submitted to the Owner with each pay request. This revised schedule must be approved by the Owner prior to payment.

- END OF SECTION -

SECTION 01290

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 DESCRIPTION

A. This Section includes administrative and procedural requirements for determining payment for Work completed and ready for payment under the Unit Price Contract where the Unit Price Bid Form is utilized in the Applications for Payment.

1.02 RELATED SECTIONS

A. Bid Schedule

B. Schedule of Values

1.03 GENERAL REQUIREMENTS

A. Prices shall include all costs required for the completed, in-place construction of the specified unit of Work. This may include but not be limited to, materials and delivery; cost of installation; incidentals; labor including social security, insurance, and other required fringe benefits; workman's compensation insurance; bond premiums; rental of equipment and machinery; taxes; testing; surveys; incidental expenses; and supervision.

B. Installation, acceptance, and payment shall be in accordance with the References.

C. The Owner reserves the right to reject the Contractor's measurement of completed Work that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

D. Contract Sum adjustments will be by Change Order on basis of net accumulative change for each unit price category.

a. Except as otherwise specified, unit prices shall apply to both deductive and additive variations of quantities.

b. Lump sum and unit prices in the Agreement shall remain in effect until date of final completion of the entire Work.

E. Partial payment for material and equipment properly stored and protected will be made in accordance with requirements of the Contract.

F. MEASUREMENT AND PAYMENT

a. Payment shall constitute full compensation and will be made as indicated in the Contract.

b. The quantity approved for payment shall be either:

i. Percentage of the Lump Sum Price - A percentage of the Lump Sum Price equivalent to the percentage of the project completion as determined by the Engineer as of the date of the pay request submitted. The percent completion of the project shall be based on the percent of the total project actually constructed and not on the percent of the Contract price completed.

ii. Measured Quantities - The actual quantities in-place and accepted as measured by the Engineer on the date of the pay request submitted in the units specified in the Bid form or approved Schedule of Values. C. Items measured by linear foot such as pipes, culverts, curb, guardrails, and underdrains that are shown on the Drawings and on the Bid Form are measured parallel with the base or foundations upon which they are placed. Contractor shall be paid based on plan view measurements installed for these types of items regardless of vertical deflections or other changes in depth that may require additional materials.

G. PROTECTION

a. Where pavement, pipes, valves, appurtenances, trees, shrubbery, fences, other property or structures are in proximity to the Work, adequate protection shall be provided. Such protection is considered incidental to construction and shall not be assigned to any pay item.

H. RESTORATION

a. Where pavement, pipes, valves, structures, appurtenances, trees, shrubbery, fences, other property or structures not designated as pay items, have been damaged, removed or disturbed by the Contractor, whether deliberately or through failure to carry out the requirements of the Contract Documents, state laws, municipal ordinances or the specific direction of the Engineer, or through failure to employ usual and reasonable safeguards, such property and surface structures shall be replaced or repaired at the expense of the Contractor to a condition equal to that before Work began within a time frame approved by the

Engineer. Such restoration is considered incidental to construction and shall not be assigned to any pay item.

I. EXPLORATORY EXCAVATIONS

a. The Contractor shall verify the exact locations and depths of all utilities shown and shall conduct exploratory excavations of all utilities that may interfere with the Work. All such exploratory excavations shall be performed as soon as practicable after award of the Contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor's work. When such exploratory excavations show the utility location as shown to be in error, the Contractor shall so notify the Engineer. The cost for conducting these excavations shall be considered incidental to construction.

J. TESTING, SURVEY, AND RECORD DRAWINGS

a. All survey layout and record drawings shall be considered incidental to the cost of construction and shall include all calculations and field work required, in order to establish all horizontal and vertical controls, set all stakes needed, such as grade stakes, offset stakes, reference point stakes, slopes stakes, and other reference marks or points necessary to provide lines and grades for construction and as-builting of all roadway, utility construction, and miscellaneous items.

b. All testing shall be considered incidental to the cost of construction and shall include all field testing and laboratory work including reports as required by the Drawings and specifications and by agencies having jurisdiction over the project.

PART 2 - PRODUCTS

2.01 MOBILIZATION AND DEMOBILIZATION

Payment for the Contractor's mobilization and demobilization will be made at the Contract Lump Sum Price and shall include all cost incurred for moving equipment to and from the Project area and any pertinent costs related thereto. The lump sum price for mobilization and demobilization shall not exceed five (5) percent of the total contract amount. Payment for the mobilization portion will be made in the first partial payment to the Contractor and shall not exceed 75 percent of the lump sum cost for mobilization and demobilization. Payment for the demobilization (remaining) portion shall be made in the final payment to the Contractor.

2.02 GENERAL CONDITIONS

Payment for General Conditions will be made at the Contract Lump Sum Price and shall include compensation for insurance, performance and payment bonds, and any other items required under bidding requirements, Contract forms and conditions of the Contract that are not included in other pay items.

2.03 CLEARING AND GRUBBING

Payment for Clearing and Grubbing will be made at the Contract Lump Sum Price and shall include compensation for all work required in this section. This item includes the clearing and grubbing of vegetation, trees, stumps, brush, bushes, cement concrete and/or stone masonry within the construction limits not otherwise removed by the excavation and grading operations or included in the summary items. Also, included is the proper removal and disposal of such materials in accordance with all local, state, and federal requirements and in a manner not detrimental to the inhabitants of the area. The CONTRACTOR will be responsible for determining and complying with local ordinances regarding disposal of such materials. Trees, shrubbery, and other such items not specifically noted on the plans to be removed or saved in place, or not shown on the plans, but suspected of being within the project construction limits shall not be disturbed until so directed by the ENGINEER. Clearing and grubbing shall not commence without approval of the ENGINEER.

Work shall not be performed outside the construction limits and existing vegetation outside the construction limits shall not be disturbed unless authorized by the ENGINEER. Protection of existing trees that are not to be disturbed, whether shown on the Plans or not, is included in and incidental to this pay item.

Vegetated areas on which excavation or fill operations are to be performed shall be stripped of all vegetation, topsoil, and other organic material as directed by the ENGINEER.

Stockpiling of topsoil-type material will be required, and no topsoil shall be removed from the site unless otherwise specifically designated on the Drawings or in the Specifications. After grading work has been completed, topsoil shall be evenly spread in areas to be revegetated unless otherwise shown on the plans. Stripped material may not be placed beneath proposed paving areas or in stormwater management areas.

To the extent that it does not conflict with the content of the Plans and Contract Documents and Specifications, Section 202 of KDOH Standard Specifications, current edition, is incorporated into this Technical Specification.

2.04 EARTHWORK

The Work shall consist of the required removal and proper placement or disposal of all excavated materials, forming embankments, and the shaping and finishing to the required lines and grades as shown on the Plans.

Earthwork shall be paid for on a Plan Quantity basis per cubic yard of excavation, as listed in the drawings, and shall be full compensation for all labor, equipment, and incidentals necessary to complete the work, in place, ready for use. There shall be no separate measurement of earthwork quantities, except for approved grade changes.

Excavation is unclassified. Any rock excavation encountered for any item of work on this project shall be incidental to the project as a whole. There will be no separate payment for rock excavation.

2.05 DEMOLITION – REMOVE EXISTING SIDEWALKS

Work for this Section shall conform to the Contract Documents or Kentucky Department of Highways Standard Specifications, Section 203, current edition and shall include all labor, materials, equipment, excavation, disposal, and incidentals necessary to complete the Work as shown on the Demolition Plan.

Payment for the accepted quantity will be made at the Contract Lump Sum Price, which payment shall be full compensation for all Work required by this Section. Demolition of other items to be removed or replaced in this project (trees and replacement of existing concrete and pervious paver sidewalk) shall be incidental to other pay items.

2.06 STORMWATER STRUCTURES

Stormwater structures shall include headwalls, manholes, and detention control structures used in the construction of storm drainage systems. Accepted quantities under this Section will be paid for at the respective Contract Unit Prices as quoted and shall include the furnishing and installation of the structures and all materials or equipment incidental to the structure. Also included are excavation (including rock excavation), earth backfill, and all other materials not specifically delineated herein, but necessary to complete the construction of the stormwater structures as shown on the Drawings.

2.07 STORM SEWER PIPES

Work under this Section shall include all labor, excavation, materials, equipment, bedding and backfilling in accordance to the Contract Documents, and all incidentals necessary to construct Storm Sewer of the type and the sizes indicated on the Drawings. RCP (Reinforced Concrete Pipe) shall be Class III and shall meet the

requirements of KDOH Section 810. HDPE is permitted, as listed in the Contract Documents.

Accepted quantities under this Section will be paid for at the respective Contract Unit Prices as quoted. Surface restoration (seeding, sod, pavement, etc.) will be paid separately under the appropriate Bid Items. All trenching, bedding, backfill (including trench cap), and testing of storm sewers shall be incidental to the payment for installed pipe. Installation of anti-seep collars in basin embankments is also incidental to this item.

2.08 BIORETENTION FILTER MEDIA

Bioretention Filter Media shall be paid for at the Contract Plan Quantity per cubic yard and shall be full compensation for all Work under this Section completed in accordance with the Contract Documents. All labor, materials, and equipment shall be incidental to the installation of the media.

2.09 BIORETENTION COIR MATTING

Bioretention Coir Matting shall be paid for at the Contract Plan Quantity per square yard and shall be full compensation for all Work under this Section completed in accordance with the Contract Documents. All labor, materials, and equipment shall be incidental to the installation of the Bioretention Coir Matting.

2.10 NATURAL STREAM CONSTRUCTION STRUCTURES
(Energy Dissipation Pools, rock A vanes, Rock Steps, Woody Debris Complexes)

Construction of natural stream structures shall be paid for at the Contract Plan Quantity per each installation and shall be full compensation for all Work under this Section completed in accordance with the Contract Documents. All labor, materials, and equipment shall be incidental to the installation of the individual structures.

2.11 DENSE GRADED AGGREGATE and BITUMINOUS PAVING

Work for this Section shall consist of the construction of Dense Graded Aggregate Base, Bituminous Surface, and/or Tack Coat in conformance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, Sections 402 and 403, current edition.

Accepted quantities of Dense Graded Aggregate and Bituminous Paving items will be paid for at the Contract Plan Quantity per ton as quoted and shall be full compensation for all Work required under this Section.

2.12 MODULAR RETAINING WALLS

Modular retaining walls shall be paid for at the Contract Unit Price per square foot of vertical wall face (exposed, excluding below-grade portions) and shall be full compensation for all Work under this Section completed in accordance with the Contract Documents and in accordance with Manufacturer's specifications. All labor, materials, and equipment shall be incidental to the installation of the modular retaining walls.

2.13 CONCRETE SIDEWALK REPLACEMENT

Removal and replacement of existing concrete sidewalk shall be paid for at the Contract Unit Price per square yard and shall be full compensation for all Work under this Section completed in accordance with the Contract Documents including demolition and removal of the existing sidewalk. Earthwork required to raise the existing grade is included in separate bid items. All labor, materials, and equipment shall be incidental to the installation of the new concrete sidewalk.

2.14 PERVIOUS PAVER REPLACEMENT

Removal and replacement of existing pervious pavers shall be paid for at the Contract Unit Price per square yard and shall be full compensation for all Work under this Section completed in accordance with the Contract Documents (including demolition and removal of the existing pavers) and in accordance with Manufacturer's specifications. The replacement pavers shall be new materials unless existing pavers can be salvaged and any damaged pavers replaced with identical materials. Earthwork required to raise the existing grade is included in separate bid items. All labor, materials, and equipment shall be incidental to the installation of the pervious pavers

2.15 PLANTINGS (Plant Plugs, Trees, Live Stakes, Native Seeding)

Payment for plantings shown in the Contract Documents shall be paid for at the Contract Plan Quantities and shall be full compensation for all Work under this Section completed in accordance with the Contract Documents. All labor, materials, and equipment shall be incidental to the installation of the Plantings.

2.16 SEEDING AND PROTECTION

Accepted quantities of Seeding and Protection shall be paid for at the Contract Plan Quantity per square yard as measured and shall be full compensation for all Work under this Section. All labor, materials, and equipment shall be incidental to the installation of Seeding.

2.17 PROJECT SIGN

Payment for Project Signs in accordance with the plan details will be made at the Contract Plan Quantity and shall include compensation for labor and materials required to install and maintain project identification signage at locations directed by the Owner and/or Engineer.

2.18 EROSION CONTROL

The Work consists of compliance with all requirements of the Stormwater Pollution Prevention Plan (SWPPP) and installing barriers such as Silt Checks and Inlet Protection and/or the installation of temporary Silt Fence to control erosion and siltation. Work for this Section shall be in accordance to the Contract Documents and shall include all labor, excavation, materials, equipment, and incidentals necessary to complete the work.

Payment for Erosion Control will be paid for at the Contract Lump Sum Price and shall be full compensation for all Work required under this Section. Each facility must be properly maintained throughout the duration of the project and removed at the completion of construction, with no additional compensation for maintenance or replacement.

PART 3 - EXECUTION

3.01 PAY ITEMS

Any and all items of Work listed in the Specifications or shown on the Drawings for this Contract shall be considered part of the project and, therefore, are assumed to be included in the lump sum figure or unit prices provided in the Agreement.

3.02 QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Bid Proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the Work contemplated by this Contract, and such increase or diminution shall not give cause for claims or liability for damages. The Engineer will not be financially responsible for any omissions from the Contract Documents and therefore not included by the Contractor in his proposal.

- END OF SECTION -

SECTION 01310

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Contractor shall coordinate the Work of all trades and subcontractors engaged on the Work, and the Contractor shall have final responsibility in regard to the schedule, workmanship, and completeness of each and all parts of the Work.

B. All trades and subcontractors shall be made to cooperate with each other and with others, as they may be involved in the installation of Work which adjoins, incorporates, precedes, or follows the Work of another. It shall be the Contractor's responsibility to point out areas of cooperation prior to execution of subcontract agreements and the assignment of the parts of the Work. Each trade and subcontractor shall be made responsible to the Owner, for furnishing embedded items, giving directions for doing all cutting and fitting, making all provisions for accommodating the Work, and for protecting, patching, repairing, and cleaning as required to satisfactorily perform the Work.

C. The Contractor shall be responsible for all cutting, digging, and other action of his subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the project, the Contractor shall make such repairs, alterations, and additions, in the opinion of the Engineer, to bring said structure or component back to its original design condition at no additional cost to the Owner.

D. In cases where storm sewers, sanitary sewers, gas lines, water lines, telephone lines, electric lines, or other underground structures are encountered, they shall not be displaced or disturbed unless necessary, in which case they shall be replaced in as good condition as found as quickly as possible. All such lines or underground structures damaged or disturbed by the construction shall be replaced at the Contractor's expense, unless in the opinion of the Engineer, such damage was caused through no fault of the Contractor.

E. The Contractor shall notify Kentucky 811 and, as necessary, the utility companies a minimum of 72 hours prior to any excavation adjacent to their facilities, and shall locate all such facilities with their assistance.

F. Coordination and obtaining utility markings are the responsibility of the Contractor and he shall follow all requirements associated to Kentucky 811/utility markings. Any fines given out because of failure to comply with requirements will be paid for by the Contractor at his own expense.

G. Each subcontractor is expected to be familiar with the general requirements and all sections of the detailed Specifications for all other trades and to study all Drawings applicable to this Work. Each Contractor shall consult with the Engineer if conflicts exist on the Drawings.

H. No extra compensation will be allowed to cover the cost of removing piping, conduits, etc., or equipment found encroaching on space required by others.

I. Contractor shall coordinate with Columbia Gas during any excavation and backfilling within a foot of a gas main.

J. Contractor shall coordinate with Kentucky American Water Company during excavation and backfilling within a foot of a water main. Work shall be in accordance with all regulatory and Kentucky American Water Company requirements.

K. Contractor shall coordinate with all property owners for temporary fencing at no additional cost to the owner. Temporary fencing shall be a minimum of three (3) feet high and adequately supported to prevent overturning.

- END OF SECTION -

SECTION 01311

PROJECT MEETINGS

PART 1 - GENERAL

1.01 PRECONSTRUCTION CONFERENCES

A. The Engineer shall schedule and administer preconstruction meetings, periodic progress meetings, and specially called meetings throughout the progress of Work.

a. The Engineer shall:
   i. Prepare agenda for meetings.
   ii. Make physical arrangements for meetings.
   iii. Preside at meetings.
   iv. Record in writing the minutes; include significant proceedings and decisions.
   v. Record the meeting with an audio recording device.
   vi. Reproduce and distribute copies of minutes within five working days after each meeting:
      1. To participants in the meeting.
      2. To parties affected by decisions made at the meeting.

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

C. The Contractor shall attend meetings to assure that Work is executed consistent with Contract Documents and construction schedules.

D. The preconstruction conference will be for the purpose of reviewing procedures to be followed concerning the orderly flow of required paperwork; coordination of the various parties involved with the project, review of Shop Drawing submittals, Contract time, liquidated damages, payment estimates, Change Orders, and other items of interest to the parties involved.

1.02 MONTHLY PROGRESS MEETINGS

A. Project meetings will occur at a minimum of once monthly. Additional meetings may be required if necessary to facilitate scheduling or construction conflicts. The Contractor's project manager shall attend these meetings. Representatives of the Owner, Engineer, and appropriate state and federal agencies will be in attendance as they choose.

a. The Contractor is to attend progress meetings and is to study previous meeting minutes and current agenda items, in order to be prepared to discuss pertinent topics such as deliveries of materials and equipment, progress of Work, etc.

b. The Contractor is to provide a current submittal log and construction schedule at each progress meeting.

- END OF SECTION -

SECTION 01320

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 WORK INCLUDED

Provide monthly photographs of the construction throughout the progress of the Work of the project site and adjacent property (as necessary). Provide video of the length of construction area prior to commencement of work, monthly progress, and at completion of work.

1.02 RELATED WORK

A. General Conditions

B. Section 01770 - Contract Closeout

1.03 PHOTOGRAPHY

A. Provide monthly photographs (two sets) of the construction throughout progress of the Work. Provide twenty-four (24) views of Work each month or more as may be necessary to clearly show any new Work.

B. Take the photographs at the beginning, during, and completion of each element of construction listed below:

1. Unclassified excavation.
2. Trenching.
3. Pipe removal
4. Pipe installation
5. Inlet installation
6. Manhole Installation
7. Basin grading
8. Connection of pipes
9. All other aspects of construction.

1.04 PRINTS

A. Color: two (2) prints of each view, bound into separate sets.

B. Paper: single weight, neutral black image tone, white base.

C. Finish: matte.

D. Size: 3" x 5". Mount with binder tabs.

E. Label each print on back. List project name and Contract number, orientation of view, date and time of view, work being performed, location of work, and Contractor's name.

1.05 DIGITAL PHOTOGRAPHS

All photographs shall be digital. Digital photographs of all views shall be provided on compact disc (CD) or digital video disc (DVD) to the Owner. The CD or DVD shall be included monthly along with the two sets of prints. Digital pictures shall be time and date stamped one labeled the same as prints.

a. No Copyrighted Photographs will be accepted.

b. Images shall not be edited in any way.

1.06 DIGITAL VIDEO

A. All video shall be digital. Digital video shall be provided on a compact disc (CD) or digital video disc (DVD) to the Owner. The CD or DVD shall be included monthly with the digital photographs. Digital video shall be time and date stamped.

B. Initial video shall be completed prior to the arrival of any equipment for construction facilities. The video shall include all existing structures, visible utilities, parking lots, and access roads. Record any existing damage to the facilities.

C. Final video shall be completed once all equipment and construction facilities have been removed from the sites. The video shall include all items listed above plus all new modifications or alternations.

D. All video shall provide correct exposure and focus, high resolution and sharpness, maximum depth of field.

1.07 TECHNIQUE

A. All views shall provide factual presentation of the Work progress.

B. All photographs shall provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

1.08 VIEWS

The photographs shall be from varied views that show the most representative sample of the Work progress.

1.09 SUBMITTALS

A. Submit prints and CD or DVD at the monthly progress meetings unless specifically requested sooner by the Owner or Engineer.

B. The photographer shall keep electronic copies for a minimum of two years from Owner acceptance of the project.

- END OF SECTION -

SECTION 01321

SURVEYING

PART 1 – GENERAL

1.01 SUMMARY

This section of the specifications includes requirements for surveying, field engineering, and record documents.

1.02 CONTRACTOR'S SURVEYOR

Contractor is required to provide and pay all costs related to an individual skilled in the practice of surveying to provide surveying services as required for layout and construction of the project as indicated on the Drawings and specified herein. As deemed appropriate by the Contractor, its surveyor shall:

A. Determine existing conditions and features,

B. Generate cut sheets,

C. Provide construction control points,

D. Provide construction stake out,

E. Provide necessary information and documentation for construction quality assurance,

F. Provide information and documentation for final Record Drawings (as-builts),

G. Maintain and update a set of project record documents, and

H. Other information required to execute the work in accordance with the Drawings, Specifications, and Contract.

1.03 OWNER'S SURVEYOR

The Owner's surveyor will perform the following:

A. Provide survey control information,

B. Verify the work as the Owner deems necessary for construction quality assurance, and

C. Verify surveys for measurement and payment for the work.

1.04 DEFINITIONS

A. Existing Features: Existing features may include, but are not limited to the following:

1. Roads
2. Stormwater Basins
3. Stormwater Channels
4. Buried Piping
5. Utilities
6. Manholes
7. Drives to be Crosses
8. Trees to be removed
9. Inlet Structures

B. Independent Surveyor: A surveyor employed by an organization that is Independent from the Contractor and acceptable to the Owner.

C. Record Documents: See Article 3.04 of this specification.

1.05 SUBMITTALS

A. Within 14 days before commencing work, the Contractor shall submit qualifications of Contractor's surveyor. Submit surveyor's name, State license number, experience, and qualifications to the Owner or Owner's Representative:

B. Project Record Documents: Upon Substantial Completion of the Work, contractor shall deliver survey record documents to Engineer. Final payment will not be made until Owner receives satisfactory record documents. Accompany record documents with transmittal form containing:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title and number of each record document.
5. Certification that each document as submitted is complete and accurate.
6. Signature of Contractor and certification by Contractor's Surveyor.

1.06 SITE CONDITIONS

A. Existing Features: Contractor is required to field verify the location of existing features. Owner existing record drawings are available to the Contractor. The existence and location of features are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and existing features. Owner and Owner's representatives take no responsibility for the accuracy of these existing record drawings implied or otherwise.

B. Field Verification: Prior to construction, verify the location of existing features at points of connection or tie-in to the Work.

C. Field Conditions and Measurements: The Contractor shall base all measurements, both horizontal and vertical, from established benchmarks. The Contractor shall be responsible for field verification of all dimensions and conditions at the job site.

D. Discrepancies: Should the Contractor discover any discrepancy between actual conditions and those indicated which prevent following good practice or the intent of the Drawings and Specifications, he shall notify Engineer in writing and request clarification and instructions on how to proceed. The Contractor shall not proceed with his work until he has received the same from Engineer.

E. No Additional Payment: No claims shall be made for extra payment or extensions of Contract completion time if the Contractor fails to notify the Engineer of any discrepancy before proceeding with the aspect of the Work.

PART 2 – PRODUCTS

2.01 GLOBAL POSITIONING SYSTEM

The Contractor shall verify Permanent benchmarks and establish temporary bench marks with a global positioning system (GPS). Notify Engineer of any discrepancies.

PART 3 – EXECUTION

3.01 QUALIFICATIONS OF CONTRACTOR'S SURVEYOR

A. Kentucky Registered Professional Surveyor and Mapper, acceptable to the Owner and the Engineer.

3.02 FIELD SURVEY WORK

A. Control Points: Engineer will identify existing project control points, if any, at the site for the Contractor.

B. Benchmarks: Contractor shall establish and maintain a minimum of two permanent benchmarks on the site, referenced to data established by survey control points. Record benchmark locations, with horizontal and vertical data, on project Record Documents. Do not change or relocate benchmarks or control points without prior written approval by the Engineer. Promptly report lost or destroyed reference points or requirements to relocate reference points because of necessary changes in grades or locations.

C. Site Improvements: Work from lines and levels established by benchmarks and markers to set lines and levels as needed to properly locate each element of the Project. Locate and lay out site improvements, including stakes for slopes, grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.

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

E. Surveyor's Log: Keep neat legible notes of all measurements and calculations made by him while surveying and laying out the work. Maintain a surveyor's log of control and other survey work. Make this log available for reference and provide as part of Record Documents.

3.03 TOLERANCES

A. Positive Drainage: Provide positive drainage for surface towards permanent drainage ways. All areas shall be graded to the minimum slopes indicated. No ponding areas are permitted. Positive drainage shall be maintained on all gravity sewer lines. Other tolerances for specific items of work are listed where applicable.

B. All equipment used for surveying shall have the capability of achieving a minimum accuracy of ±0.1 foot horizontally. The allowable tolerances required for construction are ±0.1 foot vertically and ±0.1 foot horizontally.

3.04 RECORD DOCUMENTS

Contractor shall provide documents as follows:

A. General: Do not use record documents for construction purposes. Protect record documentation from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Owner's reference during normal working hours. Backup electronic documents at least once per week.

B. Recording

1. Label and file record documents and samples in accordance with Specification Section number listings in Table of Contents of this Invitation for Bids/Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

2. Preparation of project record documents shall be by personnel skilled as a draftsman competent to prepare the required drawings.

3. Record and update daily record information from field notes, on set of Drawings, and copy of Invitation for Bids/Project Manual.

4. Record information concurrently (daily) with construction progress. Do not conceal work until required information is recorded.

5. Record deviations from required lines and levels, and advise Engineer when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.

C. Record Drawings: Maintain a clean, undamaged set of black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

Mark record sets with red erasable pencil. Mark new information that is important to the OWNER, but was not shown on Contract Drawings or Shop Drawings. Note related Change Order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Legibly mark each item to record actual construction, including:

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

2. Measured locations of appurtenances concealed in construction, referenced to visible and accessible features of construction.

3. Field changes (dimensions and detail).

4. Changes by Modifications made by Owner.

5. Details not on original Contract Drawings.

6. References to related Shop Drawings and Modifications.

7. Depths of various elements of the Work in relation to datum.

D. Record Specifications: Maintain one complete copy of the Project Manual, including addenda and one copy of other written construction documents such as Change Orders and Field Order issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the Specifications, Change Order, and Field Order. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and product data. Legibly mark up each Section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
2. Changes made by Change Order or Field Order.
3. Other matters not originally specified.

E. Record Product Data: Maintain one copy of each approved Product Data submittal. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the work that cannot be otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.

Upon completion of mark-up, submit complete set of record Product Data to the Owner for Owner's records.

F. Record Sample Submittal: Record Sample Submittal: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with Engineer and the Owner's personnel to determine which of the submitted samples that have been maintained during progress of the work are to be transmitted to Owner for record purposes. Comply with delivery to Owner sample storage area.

G. As-Built Survey: Survey final location and elevation of all pipes, wells, sumps, and lateral connections. Buried pipes shall be surveyed at a minimum of every 50 feet, plus at all manholes, laterals, fittings, and at all breaks or changes in grade. Contractor shall determine as-built length and slope of all pipes installed under this Contract. Contractor shall provide final topographic mapping showing breaks in grade, swales, berms, ditches, and the extent of construction activities. The topographic mapping shall be on 1-foot vertical intervals. Provide as-built coordinates of all surveyed points and topographic mapping to Engineer in an acceptable electronic format for use in preparing as-built drawings.

H. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records. Miscellaneous record submittals include but are not limited to:

1. Field Test Records
2. Inspection Certificates
3. Manufacturer's Certificates
4. Manufacturer's Warrantees

I. All as-built survey information and record documents shall be provided to the Engineer within 30 days of Substantial Completion of the Work by the Contractor.

3.05 INSPECTION

Verify locations of survey control points and existing features prior to starting work. Promptly notify Engineer of any discrepancies.

3.06 SURVEYING FOR RECORD DRAWINGS

Final measurement shall be submitted to and verified by the Engineer. Drawings and as-built calculations shall be checked and certified by the Contractor's Surveyor. In the event of any disagreements, the Owner's Surveyor or an Independent Surveyor may be hired by the Owner to provide supplemental information on final pay quantities to the Engineer.

- END OF SECTION -

SECTION 01510

TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Furnish, install and maintain temporary utilities required for construction, remove on completion of Work.

B. The Contractor shall maintain strict supervision of use of temporary utility services.

1. Enforce compliance with applicable standards.

2. Enforce safety practices.

3. Prevent abuse of services.

4. Utility charges: Contractor shall be responsible for paying for all utilities utilized during construction.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

A. Obtain and pay for all permits as required by governing authorities.

B. Obtain and pay for temporary easements required across property other than that of Owner.

C. Comply with applicable codes including but not limited to Federal, State and Local codes and regulations and with utility company requirements, and were applicable National Electric Code, County Health Department and Environmental Regulations.

1.03 TEMPORARY ELECTRICITY AND LIGHTING

A. Arrange with utility company, provide service required for power and lighting, and pay all costs for service and for power used in the construction, testing, and trial operation prior to final acceptance of the Work by the Owner.

B. Install circuit and branch wiring, with the area distribution boxes located so that power and lighting is available throughout the construction by the use of construction type power cords.

C. Provide adequate artificial lighting for all areas of Work when natural light is not adequate to Work, and all areas accessible to the public.

1.04 TEMPORARY WATER

A. Arrange with the water utility provider to provide water for construction purposes.

B. Install branch piping with taps located so that water is available throughout the construction by the use of hoses.

C. Install at each and every connection to the Owner water supply a backflow preventer meeting the requirements of ANSI A40.6 and AWWA C511. Contractor shall be required to meter and pay for all water used.

1.05 TEMPORARY SANITARY

A. Provide sanitary facilities in compliance with laws and regulations.

B. Service, clean and maintain facilities and enclosures.

1.07 REMOVAL

A. Completely remove temporary materials, equipment, and offices upon completion of construction.

B. Repair damage caused by installation and restore to specified or original condition.

- END OF SECTION -

SECTION 01550

VEHICULAR ACCESS AND PARKING AREAS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Access roads.

B. Temporary parking.

C. Existing pavements and parking areas.

D. Permanent pavements and parking areas.

E. Maintenance.

F. Removal and repair.

1.02 RELATED REQUIREMENTS

A. Section 01730 - Cutting and Patching

B. Section 01510 - Temporary Utilities

PART 2 - PRODUCTS

2.01 MATERIALS

A. For temporary construction: Contractor's option, but must be approved by the Engineer.

PART 3 - EXECUTION

3.01 PREPARATION

A. Clear areas, provide proper surface and storm drainage of premises and adjacent areas. Install erosion protection.

3.02 ACCESS ROADS

A. Construct temporary all-weather access roads from public thoroughfares to serve construction area, of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

B. Construct temporary bridges and/or culverts to span low areas and allow unimpeded drainage.

C. Extend and relocate as Work progress requires, and provide detours as necessary for unimpeded traffic flow.

D. Locate temporary access roads as approved by the Owner and/or the Engineer.

E. Provide and maintain access to all Owner facilities.

3.03 TEMPORARY PARKING

A. Construct temporary parking areas to accommodate use of construction personnel in an area acceptable to the Owner and/or the Engineer. Pay all costs relating to temporary parking.

3.04 MAINTENANCE

A. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, products, mud, snow, and ice. Use dust control measures required to prevent airborne particles.

B. Contractor shall schedule and control his work so as to prevent all hazards to public safety, health and welfare.

C. Streets shall be kept free of dirt and debris on a continuous basis. Pedestrian facilities shall be kept free of obstruction, and an accessible route shall be maintained at all times.

D. On existing streets, two-way traffic shall be maintained at all times unless detour plans have been approved in advance by the Engineer.

E. Pedestrian and vehicular access to occupied buildings shall be maintained at all times except where approval from the building owner has been obtained.

F. Adherence to the project's erosion and sediment control plan will be required. Features contained therein, such as silt fences, check dams and sedimentation ponds shall be maintained in good working order to the satisfaction of the public works inspector.

G. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies to maintain paving and drainage in original and/or specified condition.

3.05 REMOVAL AND REPAIR

A. Remove temporary materials and construction when permanent facilities are usable as directed by the Engineer.

B. Remove underground work and compacted materials to a depth of two (2) feet; fill and grade site as specified.

C. Repair existing permanent facilities damaged by usage to original and/or specified condition.

- END OF SECTION -

SECTION 01551

TRAFFIC REGULATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Construction parking control.

B. Flagmen.

C. Flares and lights.

D. Haul routes.

E. Removal.

F. This consists of maintaining, controlling, and protecting vehicular, bicycle, and pedestrian traffic adjacent to and within the construction area in accordance with the Plans, Contract Documents and Specifications, and Lexington-Fayette Urban County Government (LFUCG) Standard Drawings, current edition. Work in this section shall also conform to the Kentucky Transportation Cabinet Standard Specifications, (KYTC) Latest Edition specially but not limited to: Sections 112 of the KYTC Standard Specifications, current edition and associated cross references, but only to the extent that these KYTC sections do not conflict with the content of these Plans, Contract Documents and Specifications, and LFUCG Standard Drawings.

1.02 RELATED SECTIONS

A. General Conditions

B. Section 01560 - Barriers

PART 2 - PRODUCTS

2.01 SIGNS AND DEVICES

A. Traffic Cones and Drums, Flares and Lights: as approved by federal, state, and local jurisdictions.

B. Flagman Equipment: as required by federal, state, and local jurisdictions.

PART 3 – EXECUTION

3.01 CONSTRUCTION PARKING CONTROL

A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's operations.

B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.

C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.02 TRAFFIC CONTROL

A. All lane blockages and closures must be permitted by the LFUCG Division of Traffic Engineering. Contractor is responsible for obtaining all lane blockage/closure permits from LFUCG Traffic Engineering.

B. Contractor shall abide by county and state regulations governing utility construction Work.

C. Traffic control shall be provided according to the Kentucky Department of Highways Manual on Uniform Traffic Control Devices for Streets and Highways.

3.03 FLAGMEN

Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

3.04 FLARES AND LIGHTS

Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.05 HAUL ROUTES

A. Consult with authorities, establish public thoroughfares to be used for haul routes and site access.

B. Confine construction traffic to designated haul routes.

C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.06 REMOVAL

Remove equipment and devices when no longer required.

- END OF SECTION -

SECTION 01560

BARRIERS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Contractor shall provide all temporary barriers in conformance with local, state, and federal codes.

B. The Contractor is responsible for safety at all times on the project site. The Contractor shall provide appropriate barricades, safety fences, and warning signs. No open excavations or equipment shall be accessible to the general public at any time.

C. Contractor shall coordinate with all property owners for temporary fencing at no additional cost to the Owner. Temporary fencing shall be a minimum of three (3) feet high and adequately supported to prevent overturning.

- END OF SECTION -

SECTION 01561

SECURITY

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The project area must remain safely accessible to Owner's personnel; however, the Contractor shall provide any non-interfering security he deems necessary to protect his Work, equipment, etc.

B. Provide an adequate system to secure the project area at all times, especially during non-construction periods; the Contractor shall be solely responsible for taking proper security measures.

1.02 COSTS

A. Contractor shall pay for all costs for protection and security systems.

- END OF SECTION -

SECTION 01562

PROTECTION OF WORK AND PROPERTY

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Protection for products (including Owner-provided products) after installation and existing property.

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 PROTECTION AFTER INSTALLATION

A. Protect installed products and control traffic in immediate area to prevent damage from subsequent operations.

B. Restrict traffic of any kind across planted lawn and landscape areas.

- END OF SECTION -

SECTION 01570

TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Dust control.

B. Surface drainage.

1.02 RELATED REQUIREMENTS

Section 01510 – Temporary Utilities

Section 02370 – Erosion and Sediment Control

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 DUST CONTROL

A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

B. Execute Work by methods to minimize raising dust from construction operations. Provide positive means to prevent airborne dust from dispersing into atmosphere.

C. Minimize amount of bare soil exposed at one time.

D. Provide temporary measures such as berms, dikes, drains, hay bales, gabions, etc., so as to minimize siltation due to runoff.

E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

3.02 SURFACE RUNOFF CONTROL

A. Provide temporary control of surface runoff from adjacent property until proposed storm drainage is complete and in service.

B. Direct surface water flow away from any open trenches.

- END OF SECTION -

SECTION 01580

PROJECT IDENTIFICATION AND SIGNS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall provide signs near the site of the Work. The sign shall set forth the description of the Work and the names of the Owner, Engineer, and Contractor.

1.02 RELATED SECTIONS

A. Part IV- General Conditions

PART 2 - PRODUCTS

2.01 IDENTIFICATION SIGN (3' x 6')

A. Project identification sign shall comply with Standard Drawing 323 unless otherwise noted.

B. Basic design shall be as required by the Engineer or shown on the Drawings.

C. Colors shall be as stated on the Drawings.

D. Number Required: one (1)

2.02 SIGNS

A. The following signs shall be provided with mounting frames and installed as directed by the Engineer.

Signs	Size		Quantity
	Horizontal	Vertical	
Authorized Personnel Only / No Trespassing	14"	10"	3

(Provide steel posts for these signs.)

B. All informational signs shall meet applicable OSHA specifications. They shall be heavy-duty painted aluminum 1/16-inch thick, rust, weather, and sunlight resistant.

PART 3 - EXECUTION

3.01 INSTALLATIONS

A. Signs shall be installed at locations specified by LFUCG. Project identification signs shall be located at the beginning of the project and the end of the project as decided by LFUCG.

B. Project identification signs shall be in accordance with LFUCG Standard Drawing No. 323 attached at the end of this section.

3.02 MAINTENANCE

The signs shall be maintained in good condition until the completion of the project.

- END OF SECTION -

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 STORAGE OF MATERIALS AND EQUIPMENT

All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants, and occupants.

1.02 HANDLING AND DISTRIBUTION

A. The Contractor shall handle, haul, and distribute all materials and all surplus materials on the different portions of the Work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until the final completion and acceptance of the Work.

B. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

1.03 MATERIALS, SAMPLES, INSPECTION

A. Unless otherwise expressly provided on the Drawings or in any of the other Contract Documents, only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the inspection of the Engineer. No material shall be processed or fabricated for the Work or delivered to the Work site without prior concurrence of the Engineer.

B. As soon as possible after execution of the Agreement, the Contractor shall submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the Work. As requested, the Contractor shall also submit data relating to the materials and equipment he proposes to incorporate into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working Drawings.

C. Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall be removed immediately from the site of the Work.

D. If the Engineer so requires, either prior to or after commencement of the Work, the Contractor shall submit samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed.

E. The Contractor shall furnish suitable molds for making concrete test cylinders. The Contractor shall have a minimum of four (4) concrete cylinders taken for every 25 cubic yards of concrete or discreet concrete delivery should the amount be less than 25 cubic yards even though placement may be at multiple locations. Cylinders shall be submitted to an independent laboratory for testing of strength by breaking at 7 days, 14 days, and 28 days. Additional cylinders may be taken as deemed necessary by Engineer and all costs associated with concrete testing shall be borne by the Contractor. Concrete sampling, cylinders, curing, and testing shall be accordance with respective ASTM standards, latest editions.

F. All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.

G. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection, and testing before the materials and equipment are needed for incorporation in the Work. The consequences of his failure to do so shall be the Contractor's sole responsibility.

H. When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

I. After review of the samples, data, etc., the materials and equipment used on the Work shall in all respects conform therewith.

1.04 IMPERFECT WORK OR MATERIALS

A. Any defective or imperfect work or materials furnished by the Contractor which is discovered before the final acceptance of the work, as established by the

Certificate of Substantial Completion, or during the subsequent guarantee period, shall be removed immediately even though it may have been overlooked by the Engineer and estimated for payment. Any materials condemned or rejected by the Engineer shall be tagged as such and shall be immediately removed from the site. Satisfactory work or materials shall be substituted for that rejected.

B. The Engineer may order tests of imperfect or damaged work or materials to determine the required functional capability for possible acceptance, if there is no other reason for rejection. The cost of such tests shall be borne by the Contractor; and the nature, tester, extent and supervision of the tests will be as determined by the Engineer. If the results of the tests indicate that the required functional capability of the work or material was not impaired, consistent with the final general appearance of same, the work or materials may be deemed acceptable. If the results of such tests reveal that the required functional capability of the questionable work or materials has been impaired, then such work or materials shall be deemed imperfect and shall be replaced. The Contractor may elect to replace the imperfect work or material in lieu of performing the tests.

- END OF SECTION -

SECTION 01660

STORAGE

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. General Storage

B. Enclosed Storage

C. Exterior Storage

D. Maintenance of Storage

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 GENERAL STORAGE

A. Store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.

B. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.

C. Storage location shall be approved by the Owner.

3.02 ENCLOSED STORAGE

A. Store products, subject to damage by the elements, in substantial weather-tight enclosures.

B. Maintain temperature and humidity within ranges stated in manufacturer's instructions.

C. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.

D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

3.03 EXTERIOR STORAGE

A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.

B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.

C. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent erosion and ponding of water.

D. Provide surface drainage to prevent erosion and ponding of water.

E. Prevent mixing of refuse or chemically injurious materials.

3.04 MAINTENANCE OF STORAGE

A. Regularly inspect stored products on a scheduled basis. Maintain a log of inspections, make available to Engineer on request.

B. Verify that storage facilities comply with manufacturer's product storage requirements.

C. Verify that manufacturer required environmental conditions are maintained continually.

D. Verify that surfaces of products exposed to the elements are not adversely affected; that any weathering of finishes is acceptable under requirements of Contract Documents.

- END OF SECTION -

SECTION 01730

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide cutting and patching work to properly complete the Work of the project for connecting to existing stormwater or sewer lines and structures.

B. Do not cut and patch in a manner that would result in a failure of the Work to perform as intended, decreased energy performance, increased maintenance, decreased-operational life, or decreased safety.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Match existing materials for cutting and patching work with new materials conforming to project requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Inspect conditions prior to Work to identify scope and type of Work required. Protect adjacent Work. Notify Owner of Work requiring interruption to building services or Owner's operations.

B. Perform Work with workmen skilled in the trades involved. Prepare sample area of each type of Work for approval.

C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent Work. Check for concealed utilities and structure before cutting.

D. Patching: Make patches, seams, and joints durable and inconspicuous. The Contractor shall compact every 6-inch lift of stone backfill with a plate compactor. Comply with tolerances for new Work.

E. Clean Work area and areas affected by cutting and patching operations.

- END OF SECTION -

SECTION 01770

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

A. Section 01120 – Work Sequence

1.02 SUBSTANTIAL COMPLETION

A. Contractor shall submit written certification to Engineer that project is substantially complete and includes a list of major items to be completed or corrected.

B. Engineer will make an inspection within fourteen (14) days after receipt of certification, together with the Owner's representative.

C. Should Engineer consider that work is substantially complete:

1. Engineer will prepare and issue a certificate of substantial completion, containing:

a. Date of substantial completion.

b. Contractor's list of items to be completed or corrected, verified, and amended by Engineer.

c. The time within which Contractor shall complete or correct work of listed items.

2. Contractor shall complete work listed for completion or correction, within designated time.

D. Should Engineer consider that work is <u>not</u> substantially complete:

1. He shall immediately notify Contractor, in writing, stating reasons.

2. Contractor shall complete work, and send second written notice to Engineer, certifying that project, or designated portion of project is substantially complete.

3. Engineer will re-review work.

1.03 FINAL INSPECTION

A. Contractor shall submit written certification that:

1. Contract Documents have been reviewed.

2. Project has been inspected for compliance with Contract Documents.

3. Work has been completed in accordance with Contract Documents.

4. Equipment and systems have been tested in presence of Owner's representative and are operational.

5. Project is completed and ready for final inspection.

B. Engineer will make final on-site observation/review within fourteen (14) days after receipt of certification.

C. Should Engineer consider that work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Contract closeout submittals.

D. Should Engineer consider that work is <u>not</u> finally complete:

1. He shall notify Contractor, in writing, stating reasons.

2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that work is complete.

3. Engineer will re-review the work.

1.04 FINAL CLEANING UP

The work will not be considered as completed and final payment made until all final cleaning up has been done by the Contractor in a manner satisfactory to the Engineer.

1.05 CLOSEOUT SUBMITTALS

A. Project Record Documents

B. Operation and Maintenance Data

C. Guarantees, Warranties, and Bonds

1.06 INSTRUCTION

Instruct Owner's personnel in operation of all systems, mechanical, electrical, and other equipment.

1.07 FINAL APPLICATION FOR PAYMENT

Contractor shall submit final applications in accordance with requirements of general conditions.

1.08 FINAL CERTIFICATE FOR PAYMENT

A. Engineer will issue final certificate in accordance with provisions of general conditions.

B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a semi-final certificate for payment.

- END OF SECTION -

SECTION 02220

DEMOLITION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The demolition indicated on the drawings and required by the Specifications does not profess to show or indicate every detail necessary to complete this project. The drawings and Specifications indicate the overall intent. The contractor shall provide the labor, construction equipment, materials and incidentals necessary to meet the intent of the contract documents. Demolition of existing items shall include the removal of all related appurtenances and the patching of all holes resulting from the removal. Demolition required to alter or remove all or parts of existing structures shall be conducted in a manner that protects the existing structures and those facilities to remain in service, and the proper disposal of all construction debris. Contractor shall inform the Owner of the disposal location for material. If disposal is in Fayette County, a separate ESC plan and gradings permit shall be obtained by the Contractor.

B. Included, but not limited to, are demolition and removals of existing materials, equipment, or work necessary to install the new work as shown and specified and to connect same with existing work in an approved manner. Demolition includes, but is not necessarily limited to, structural steel, structural concrete, miscellaneous metal, piping, equipment, attachments, appurtenances, and similar existing facilities.

C. Demolitions and removals which may be specified under other sections shall conform to requirements of this section.

D. All work shall comply with all federal, state, and local codes and regulations regarding safety.

1.02 SUBMITTALS

A. Contractor shall submit for review proposed methods, equipment, and operations sequence. Include coordination for shut-off capping, temporary services, continuation of utility services, and other applicable items to ensure no interruption of Owner's operations.

1.03 JOB CONDITIONS

A. Protection

1. Contractor shall execute the demolition and removal work to prevent damage or injury to structures, occupants thereof, and adjacent features which might result from falling debris or other causes, and so as not to interfere with the use, and free and safe passage to and from, adjacent structures.

2. Closing or obstructing of roadways, sidewalks, and passageways adjacent to the work by the placement or storage of materials will not be permitted, and all operations shall be conducted with a minimum interference to traffic on these ways unless approved by the Owner.

3. Contractor shall erect and maintain barriers, lights, sidewalk sheds, and other required protective devices.

4. Contractor shall repair damage to facilities to remain, or to any property belonging to the Owner or occupants of the facilities at no additional cost to the Owner.

B. Scheduling

1. Contractor shall carry out his operations so as to avoid interference with operations and work in the existing facilities.

C. Notification

1. At least 48 hours prior to commencement of a demolition or removal, Contractor shall notify the Engineer in writing of his proposed schedule. Owner shall inspect the existing equipment and identify and mark those items which are to remain the property of the Owner. No removals shall be started without the written permission of the Engineer.

D. Explosives

1. Do not bring explosives on site nor use explosives for demolition.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

A. All materials and equipment removed from existing work shall become the property of the Contractor, except for those which the Owner has identified and marked for its use. All materials and equipment marked by the Owner to remain its property, or designated to be relocated, shall be carefully removed by the Contractor so as not to be damaged, and then cleaned and stored on or adjacent to the site in a protected place specified by the Engineer or loaded onto trucks provided by the Owner.

B. Contractor shall dispose of all demolition materials, equipment, debris, and all other items not marked by the Owner to remain as its property off the site and in conformance with all existing applicable laws and regulations.

C. Surfaces of walls, floors, ceilings, or other areas which are exposed by any of the removals specified herein, and which will remain as architecturally finished surfaces and which have holes, scars, chipped or other damaged surfaces revealed by the removal shall be repaired by the Contractor with the same or matching materials as the existing surface or as may be otherwise approved by the Engineer.

D. Pollution Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

2. Clean adjacent structures, facilities, and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to conditions existing prior to the start of the work.

3.02 STRUCTURAL REMOVALS

A. Existing structures which are designated to be demolished shall be removed in their entirety unless noted otherwise on the drawings.

B. All concrete, concrete block, reinforcement, plaster, wire mesh and other items contained in or upon the structures shall be removed and taken from the site, unless otherwise approved by the Engineer. Demolished items shall not be used in backfill adjacent to structures or in pipeline trenches.

C. All structural and miscellaneous metals designated to remain the property of the Owner shall be removed and stored on or adjacent to the site in a protected place specified by the Owner or loaded onto trucks provided by the Owner.

D. After removal of parts or all of masonry walls, slabs and like work which tie into new work or existing work, the point of junction shall be neatly repaired so as to leave only finished edges and surface exposed.

E. After removing the demolished structures, remaining cavities shall be backfilled with soil unless otherwise noted on the drawings.

3.03 PIPE REMOVED

A. Piping removals shall consist of removing existing piping, and other appurtenances as specified, shown, or required for the completion of the work. It shall include demolition, cutting, capping, and plugging as required.

B. Excavate all necessary material to remove the pipe which has been designated for removal. Dispose of the excavated material and remove the pipe. The pipe shall be relocated where indicated on the drawings. Pipe not scheduled to be relocated shall become the property of the Contractor and shall be removed from the project site. Seal all holes left in walls of structures or manholes that are to remain in place.

C. The trench resulting from the removal of pipe shall be backfilled except when the trench lies within the limits of subsequent excavation.

D. Where existing piping is not removed in its entirety, the remaining abandoned portion of the pipe will be sealed with precast, vitrified, or concrete stoppers or with masonry of a type and thickness acceptable to the Engineer.

E. Where existing piping through demolished structures is to remain in service, pipes shall be connected through the structures with new pipe of a type and in a manner acceptable to the Engineer without additional cost to the Owner.

F. After connecting across or sealing the existing pipes remaining, cavities shall be backfilled with soil. When connecting pipes are used, suitable backfill shall be carefully tamped solidly under and around the pipe.

3.04 MANHOLES ABANDONED

A. Existing manholes which are designated to be abandoned shall be removed to a minimum of one foot below the ground surface in a manner that will not damage pipes that are to remain. Backfill with crushed stone to subgrade elevation.

B. Castings shall remain the property of the Owner and shall be carefully removed and stored within the project limits for pickup by the Owner.

3.05 CLEAN UP

A. Contractor shall remove from the site all debris resulting from the demolition operations as it accumulates. Upon completion of the work, all materials, equipment, waste, and debris of every sort shall be removed. The premises shall be left clean, neat, and orderly.

- END OF SECTION -

SECTION 02230

SITE CLEARING

PART 1 - GENERAL

1.01 SUMMARY

A. Clear site within construction limits of plant life and grass.

B. Remove root system of trees and shrubs.

C. Remove surface debris.

1.02 REGULATORY COMPLIANCE

Conform to applicable local codes and ordinances for disposal of debris.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.01 REMOVAL OF EXISTING TREES AND OTHER VEGETATION

A. Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees that receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing. The Contractor shall not cut or injure any trees or other vegetation outside right-of-way or easement line and outside areas to be cleared, as indicated on the drawings, without written permission from the Engineer. The Contractor shall be responsible for all damages outside these lines.

B. The Engineer shall designate which trees are to be removed within permanent and temporary easement lines or right-of-way lines.

3.02 CLEARING

A. From areas to be cleared, the Contractor shall cut or otherwise remove all trees, brush, and other vegetation such as snags, bark, and refuse. The ground shall be cleared to the width of the permanent easement or right-of-way unless otherwise directed by the Engineer.

B. Except where clearing is performed by uprooting with machinery, trees, stumps, and stubs to be cleared shall be cut as close to the ground surface as practicable, but no more than six (6) inches above the ground surface for small trees and 12 inches for larger trees.

C. Elm bark shall be either buried at least one (1) foot deep or burned in suitable incinerators off-site with satisfactory antipollution controls and fire prevention controls, to prevent the spread of Dutch Elm disease and as required by applicable laws.

3.03 GRUBBING

From areas to be grubbed, the Contractor shall remove completely all stumps, remove to a depth of 12 inches all roots larger than 3-inch diameter, and remove to a depth of six (6) inches all roots larger than 1/2-inch diameter. Such depths shall be measured from the existing ground surface or the proposed finished grade, whichever is lower.

3.04 STRIPPING OF TOPSOIL

Prior to starting general excavation, strip topsoil to a depth of six (6) inches or to depths required by the Engineer. Do not strip topsoil in a muddy condition and avoid mixture of subsoil. Stockpile the stripped topsoil within easement or right-of-way lines for use in finish grading and site restoration. Topsoil stockpiled shall be free from trash, brush, stones over two (2) inches in diameter and other extraneous material.

3.05 PROTECTION

A. Protect plant growth and features remaining as final landscaping.

B. Protect benchmarks and existing work from damage or displacement.

C. Maintain designated site access for vehicle and pedestrian traffic.

3.06 DISPOSAL

A. All materials resulting from clearing and grubbing and not scheduled for reuse shall become the property of the Contractor and shall be suitably disposed of off-site, unless otherwise directed by the Engineer, in accordance with all applicable laws, ordinances, rules, and regulations.

B. Such disposal shall be performed as soon as possible after removal of the material and shall not be left until the final period of cleaning up.

- END OF SECTION -

SECTION 02240

DEWATERING

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Furnish all labor and equipment required to dewater all excavations.

B. Dewatering of all excavations shall be the responsibility of the Contractor, and no additional compensation will be allowed for same.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

A. Dewatering equipment shall be of adequate size and quantity to assure maintaining proper conditions for installing pipe, concrete, backfill or other material or structure in the excavation.

B. Dewatering shall include proper removal of any and all liquid, regardless of its source, from the excavation.

C. The site shall be kept free of surface water at all times. The Contractor shall install stabilized drainage ditches, dikes, and shall perform all pumping and other work necessary to divert or remove rainfall and/or all other accumulations of water from the excavations. The diversion and removal of surface water shall be performed in a manner that will prevent flooding and/or damage to other locations within or beyond the construction limits where it may be detrimental.

D. The Contractor shall provide, install, and operate sufficient trenches, sumps, pumps, hose piping, well points, deep wells, etc., necessary to depress and maintain the groundwater level below the base of the excavation during all stages of construction operations.

E. No groundwater from the excavated area shall be discharged into the sanitary sewer system, and no dewatering flows shall be discharged directly to streams or other waterbodies without authorization from the Kentucky Division of Water and notification to the LFUCG Division of Water Quality.

F. Dewatering shall be in accordance with Chapter 11 of the LFUCG Stormwater Manual and all other state and local regulations/permits/plans.

G. Trench shall be dewatered as required and never shall the trench accumulate groundwater to a depth that will cause pipe to float.

- END OF SECTION -

SECTION 02250

SHORING AND UNDERPINNING

PART 1 - GENERAL

1.01 SUMMARY

A. Shore and brace sidewalls in deep excavations with steel sheet, soldier piles or timber lagging as required to protect existing buildings, utilities, roadways, and improvements. Prevent cave-ins, loss of ground, or damage to people and property.

B. Maintain shoring and bracing during construction activities and remove shoring and bracing if practical when construction and filling is complete.

C. Contractor shall be fully responsible for means and methods of shoring and underpinning, and shall submit plans, sealed by a Professional Engineer in the State of Kentucky, to the Engineer for review.

1.02 SAFETY

A. Comply with all federal, state, and local codes and regulations regarding safety. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Sheet Steel: Heavy-gauge steel sheet suitable for service.

B. Soldier Piles: Steel H-beams in serviceable condition.

C. Timber Lagging: Heavy timber pressure treated with wood preservative.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in proper relation with adjacent construction. Coordinate with work of other sections.

B. Locate shoring and bracing to avoid permanent construction. Anchor and brace to prevent collapse.

- END OF SECTION -

SECTION 02300

EARTHWORK FOR BASIN EMBANKMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. This Specification is for embankments on low hazard basins (Class A). Embankment height shall not exceed 20 feet (measured from the downstream toe).

B. The Contractor shall furnish all labor, materials, and equipment necessary for the construction of the areas requiring the Earthwork in accordance with the Drawings and Specifications. This includes hauling, placing, compacting, screening, crushing, processing, moisture additions, disking, scarification, and all other incidental items required in the work.

1.02 SUBMITTALS

The Contractor shall provide the following:

A. Soil classification test reports, including plastic limit, liquid limit, and particle size analysis, on material to be used for embankments

B. Optimum moisture maximum density curve (Standard Proctor – ASTM D698) for each type of soil to be used for embankments

C. Unconfined compressive strength on each soil type to be used for the embankment.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. The equipment used for the earthwork will be of the Contractor's option. The equipment used shall have sufficient capabilities to produce a product meeting the desired final performance of the product.

2.02 MATERIALS

A. The material used for the embankments shall be ML, CL, MH, or CH soils as determined in accordance with the Unified Soil Classification System (USCS). This material shall include existing soil from the construction site and soil from borrow sites. The material shall be clean, natural soil void of topsoil or other

deleterious materials such as vegetation, roots, or other debris. The maximum size rock allowed in the material shall be 4-inches in diameter.

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

A. Areas to receive fill of overlying constructed materials shall be compacted by sheepsfoot to a minimum of 95 percent standard Proctor density. The surface layers of the subgrade shall be void of topsoil or deleterious material such as vegetation, roots, or other debris.

B. Compaction of the subgrade shall be tested by the Engineer using a nuclear density meter a minimum of nine tests per acre, if practical, otherwise a proof roll as described in D below will suffice.

C. The Contractor shall notify the Engineer prior to placement of fill material over the subgrade. The Engineer or his representative shall visually inspect the exposed surface to evaluate the suitability of the subgrade and ensure that the surface is properly compacted, smooth, uniform, and has positive surface drainage.

D. The soil subgrade shall be proof-rolled in the presence of the Engineer or his representative using a minimum 100,000-pound loaded four tire scraper (20 cubic yards in size), or an equivalent procedure and equipment.

E. The Contractor shall remove any areas of the subgrade deemed to be soft or contain organic materials. These areas shall be over-excavated to suitable material as approved by the Engineer or his representative. The excavated area shall be brought up to grade using compacted fill and retested.

3.02 EMBANKMENTS

A. The maximum standard dry density (ASTM D698) of at least two distinct samples of the soils to be used for embankment construction shall be determined by the Contractor and reported to the Engineer.

B. Earthen embankments shall have side slopes not steeper than 3:1 (horizontal to vertical).

C. Verify areas to be backfilled are free of debris, snow, ice, or water, and ground surfaces are not frozen.

D. Backfill areas to contours and elevations. Use materials that are not frozen. The Contractor shall keep the foundation and subgrade free from water or unacceptable materials after the fill operations have started.

E. Backfill systematically to allow minimum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.

F. Place and compact soil fill materials in continuous layers not exceeding eight (8) inches loose depth. Compact soil fill materials to 95 percent of maximum dry density.

G. Field density tests shall be performed by the Contractor on each lift. Field density tests shall conform to ASTM D1556 (Sand Cone Method) or ASTM D (Nuclear Density Method). All test results shall be documented, and a copy of the results provided to the Engineer. Areas that fail to meet the requirements shall be reworked as necessary to meet the requirements and then tested again. This process shall be repeated until the compaction requirements are met. Tests shall be performed on each 400 square feet of surface area and on each lift of the surface area.

H. Maintain optimum moisture content of backfill material to attain required compaction density as specified.

I. Backfill shall not be placed against or on structures until they have attained sufficient strength to support all loads

J. Anti-seep collars shall be installed when the spillway barrel passes through the embankment. Anti-seep collars shall be provided on all conduits through earthen embankments, foundations, and abutments.

K. Slope grade away from structures a minimum of two (2) percent, unless noted otherwise.

L. Remove surplus excavation materials from project site.

M. Earthen embankments shall be immediately stabilized with temporary or permanent vegetation.

N. For embankments of 5 feet or less, the minimum top width shall be 5 feet. For embankments of over 5 feet, the minimum top width shall be 12 feet.

O. For embankments of 5 feet or less in height, the embankment shall be used as an emergency spillway and the downstream slope shall be 5H:1V or flatter. In addition, the downstream slope of the embankment shall be immediately protected with rock riprap.

P. For embankments greater than 5 feet in height, the emergency spillway channel shall be located so that it will not be constructed over fill material.

3.03 TOLERANCES

A. Bottom of Excavation: Plus or minus one-tenth (0.1) foot.

- END OF SECTION -

SECTION 02310

ROUGH GRADING AND CLEAN-UP

PART 1 - GENERAL

1.01 SUMMARY

A. Remove topsoil and stockpile for later reuse.

B. Excavate subsoil and stockpile for later reuse as directed in Section 02316, Excavating, Backfilling, and Compacting for Utilities

C. Grade and rough contour site.

D. Rough (preliminary) Clean-up
On a daily basis, maintain the work area free from accumulations of waste, debris, excess rock and excavated material, downed trees and brush resulting from line installation operations. Repair fences directly following backfilling of trench. Generally, restore contours as directed by Engineer.

E. Final Clean-up
Fully restore contours, seed or sod, fertilize, and straw mulch as directed by Engineer. Restore property to original condition.

1.02 RELATED SECTIONS

A. Section 02410 - Rock Removal

B. Section 02315 - Excavation

C. Section 02316 - Excavating, Backfilling, and Compacting for Utilities

1.03 PROTECTION

A. Protect trees and other features remaining as portion of final landscaping.

B. Protect benchmarks, existing structures, fences, roads, sidewalks, and other features not designated for demolition.

C. Protect above or below grade utilities which are to remain.

D. Contractor shall be responsible for repairing any damage to those items not designated for demolition or removal in a manner satisfactory to the Owner at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Topsoil

Topsoil shall be fertile, natural soil, typical of the locality, free from large stones, roots, sticks, peat, weeds, and sod, and obtained from naturally well-drained areas. It shall not be excessively acid or alkaline nor contain other toxic material harmful to plant growth. Topsoil stockpiled under other sections or divisions may be used, but the Contractor shall furnish additional topsoil at his own expense, if required.

B. Subsoil

Subsoil shall be excavated material, graded free of lumps larger than 12 inches, rocks larger than 12 inches, and debris.

PART 3 - EXECUTION

3.01 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Identify known below grade utilities. Stake and flag locations.

C. Identify and flag above grade utilities.

D. Maintain and protect existing utilities remaining which pass through work area.

E. Upon discovery of unknown utility or concealed conditions, discontinue affected work; notify Engineer.

3.02 TOPSOIL EXCAVATION

A. Excavate topsoil from areas to be further excavated, and stockpile in area designated on site by the Engineer.

B. Do not excavate wet topsoil.

C. Stockpile topsoil to depth not exceeding eight (8) feet.

3.03 SUBSOIL EXCAVATION

A. Excavate subsoil from indicated areas and stockpile in area designated on site. Excess subsoil may be reused according to Section 02316, Excavating, Backfilling, and Compacting for Utilities.

B. Do not excavate wet subsoil.

C. Stockpile subsoil to depth not exceeding eight (8) feet.

D. When excavation through roots is necessary, perform work by hand and cut roots with a sharp axe.

3.04 TOLERANCES

Top Surface of Subgrade: Plus or minus three (3) inches.

- END OF SECTION -

SECTION 02311

LANDSCAPE GRADING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Finish grade subsoil.

B. Place, level, and compact topsoil.

1.02 RELATED SECTIONS

A. Section 02300 – Earthwork for Basin Embankments

B. Section 02920 – Seeding and Sodding

1.03 PROTECTION

A. Protect landscaping and other features remaining as final work.

B. Protect existing structures, fences, roads, and paving.

PART 2 - PRODUCTS

2.01 MATERIALS

Topsoil: Reused.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify site conditions and note irregularities affecting work of this Section.

B. Beginning work of this Section means acceptance of existing conditions.

3.02 SUBSOIL PREPARATION

A. Eliminate uneven areas and low spots. Remove debris, roots, branches, stones, in excess of 1 inch in size. Remove subsoil contaminated with petroleum products.

B. Scarify subgrade to depth of 3 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.03 PLACING TOPSOIL

A. Place topsoil in areas where seeding is scheduled.

B. Use topsoil in relatively dry state. Place during dry weather.

C. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles, and contours of subgrade.

D. Remove stone, roots, grass, weeds, debris, and foreign material while spreading.

E. Manually spread topsoil around structures to prevent damage.

F. Roll placed topsoil.

G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.04 TOLERANCES

Top of Topsoil: Plus or minus 1 inch.

3.05 SCHEDULE OF LOCATIONS

A. The following paragraph identifies compacted topsoil thicknesses for various locations.

B. Seeded Grass: 6 inches minimum.

- END OF SECTION -

SECTION 02315

EXCAVATION

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor shall furnish all labor, materials, and equipment necessary for the unclassified excavation as shown on the Drawings.

1.02 RELATED SECTIONS

A Section 02300 – Earthwork for Basin Embankments

B. Section 02410 - Rock Removal

C. Section 02316 - Excavating, Backfilling, and Compacting for Utilities

1.03 SAFETY

A. Conform to all federal, state, and local codes and regulations regarding safety.

B. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation. Trench boxes shall meet OSHA standards.

C. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.

D. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

E. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.

F. Grade excavation top perimeter to prevent surface water run-off into excavation.

G. Contractor shall provide ample means and devices with which to intercept any water entering the excavation area.

1.04 ROCK EXCAVATION

Rock removal shall be in accordance with Section 02410.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Subsoil

Excavated material, graded free of lumps larger than 12 inches, rocks larger than 12 inches, and debris.

B. Pea Gravel

Mineral aggregate grader ¼ inch to 5/8 inch, free of soil, subsoil, clay, shale, or foreign matter.

PART 3 - EXECUTION

3.01 CLASSIFICATION

A. Without regard to the materials encountered, all trenching, roadway and drainage excavation is unclassified, and the Owner will consider it Unclassified Excavation. Any reference to rock, earth, or any other material on the Drawings or cross sections, whether in numbers, words, letters, or lines, is solely for the Owner's information and is not an indication of classified excavation or the quantity of either rock, earth, or any other material involved. The Bidder must draw his own conclusions as to the conditions to be encountered. The Owner does not give any guarantee as to the accuracy of the data and will not consider any claim for additional compensation when the materials encountered are not in accord with the classification shown.

3.02 PREPARATION

Identify required lines, levels, contours, and datum.

3.03 EXCAVATION

A. All unclassified excavation shall be done in accordance with Section 204 – Roadway and Drainage Excavation in the Kentucky Transportation Cabinet's *Standard Specifications for Road and Bridge Construction*, Latest Edition.

B. Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees that receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

C. Before excavation and grading is commenced for buildings, structures, roads, parking areas, or other work described hereinafter or before material is removed from borrow pits, the topsoil shall be removed from the areas affected and stockpiled.

D. Excavate subsoil required for construction operations and other work.

E. Contractor is responsible to adequately brace open cuts and protect workmen and equipment from cave-in, in accordance with all federal, state, and local regulations.

F. Remove lumped subsoil, boulders, and rock up to 1/3 cu. yd., measured by volume.

G. Correct unauthorized excavation at no cost to Owner.

H. Fill over-excavated areas under structure bearing surfaces in accordance with Section 02316 – Excavating, Backfilling, and Compacting for Utilities or as directed by Engineer.

I. Stockpile excavated material in area designated on site.

3.04 DEWATERING

A. The Contractor, at his own expense, shall provide adequate facilities for promptly and continuously removing water from all excavation. Additionally, no additional payment will be made for dewatering associated with leakage from any existing facilities during the construction.

B. To ensure proper conditions at all times during construction, the Contractor shall provide and maintain ample means and devices (including spare units kept ready for immediate use in case of breakdowns) with which to remove promptly and dispose properly of all water entering trenches and other excavations. Such excavation shall be kept dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.

C. All water pumped or drained from the work shall be disposed of in a suitable manner without undue interference with other work, damage to pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of the work.

D. If necessary, the Contractor shall dewater the excavations by means of an efficient drainage wellpoint system which will drain the soil and prevent saturated soil from flowing into the excavation. The wellpoints shall be designed especially for this type of service. The pumping unit shall be designed for use

with the wellpoints, and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.

E. The installation of the wellpoints and pump shall be done under the supervision of a competent representative of the manufacturer. The Contractor shall do all special work such as surrounding the wellpoints with sand or gravel or other work which is necessary for the wellpoint system to operate for the successful dewatering of the excavation.

3.05 UNAUTHORIZED EXCAVATION

If the bottom of any excavation is taken out beyond the limits indicated or prescribed, the resulting void shall be backfilled at the Contractor's expense with thoroughly compacted crushed stone in accordance with Section 02376, or with 4000 psi concrete, if the excavation was for a structure.

3.06 EXCAVATION / DISPOSAL OF UNSUITABLE MATERIAL

A. If material unsuitable for foundation (in the opinion of the Engineer) is found at or below the grade to which excavation would normally be carried in accordance with the drawings and/or specifications, the Contractor shall remove such material to the required width and depth and replace it with thoroughly compacted, screened gravel, select bank-run gravel, fine aggregate, or concrete as directed.

B. No excavated materials shall be removed from the site of the work or disposed of by the Contractor except as directed or permitted.

C. Surplus excavated materials suitable for backfill shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill; shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions. All work shall be as directed or permitted and without additional compensation.

D. Surplus excavated materials not needed as specified above shall be hauled away and dumped by the Contractor, at his expense, at appropriate locations, and in accordance with arrangements made by him.

3.07 EXCESS MATERIAL

Disposal of excess material shall be the responsibility of the Contractor. The Contractor shall determine the best method and area for disposal and obtain all permits and required permission. Disposal on site will not be permitted unless specifically indicated on the Drawings.

3.08 EXISTING UTILITIES AND OTHER OBSTRUCTIONS

Prior to the commencement of construction on the project, the Contractor shall contact the Owner and utility companies whose lines, above and below ground, may be affected during construction and verify the locations of the utilities as shown on the drawings. The Contractor shall ascertain from said parties if he will be allowed to displace or alter, by necessity, those lines encountered or replace those lines disturbed by accident during construction, or if the parties themselves are only permitted by policy to perform such work. If the Contractor is permitted to perform such work, he shall leave the lines in as good condition as were originally encountered and complete the work as quickly as possible. All such lines or underground structures damaged or molested in the construction shall be replaced at the Contractor's expense, unless in the opinion of the Engineer, such damage was caused through no fault of the Contractor.

- END OF SECTION -

SECTION 02316

EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES

PART 1 - GENERAL

1.01 SUMMARY

A. Excavating of trenches.

B. Bedding of pipe.

C. Backfilling trenches.

D. Installing Identification Tape.

1.02 RELATED SECTIONS

A. Section 02250 – Shoring and Underpinning

B. Section 02410 – Rock Removal

C. Section 02632 – Stormwater Pipe

PART 2 - PRODUCTS

2.01 BEDDING AND BACKFILLING STONE

A. Crushed Stone material shall conform to the Kentucky Transportation Cabinet Standard Specifications, latest edition.

B. Bedding Stone: No. 9 Crushed Stone.

C. Backfill Stone: No. 9 Crushed Stone.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. Trenching may be accomplished by means of a backhoe, trenching machine or by hand depending on the construction area. At the Contractor's option, trenching by a trenching machine or by backhoe is acceptable except as noted below:

1. Where the pipeline parallels a state highway and is being installed within the limits of the shoulder, a trenching machine must be used whenever practicable.

2. Where trenching close to other utilities, structures, building, or large trees, and it is reasonable to anticipate possible damage from the use of a trenching machine, then trenching shall be made by hand methods.

B. Clearing

All trees, stumps, bushes, shrubbery, and abandoned concrete or masonry structures within the limits of the trench shall be removed by the Contractor and disposed of in a manner satisfactory to the land owner and in accordance with federal, state, and local regulations. All clearing work shall be considered as incidental to the cost of laying pipe.

C. Bracing and Sheeting

In areas of unstable soils, bracing and sheeting shall be provided to adequately protect the workers during pipeline installation.

1. All requirements of the Occupational Safety and Health Act (OSHA) shall be met during trenching and backfill operations.

2. When sheeting and bracing are required, the trench width shall not be less than specified herein. As backfill is placed, the sheeting shall be withdrawn in increments not exceeding one (1) foot and the void left by the withdrawn sheeting shall be filled and compacted.

3. The Engineer will not be responsible for determining requirements for bracing or sheeting.

D. Excavated materials shall be piled in a manner that will not endanger the Work and will avoid obstructing driveways and sidewalks. Gutters shall be kept clear or other satisfactory provisions made for street drainage.

E. No more than 300 feet of trench shall be opened at any time in advance of the pipe, nor shall more than 25 feet be left unfilled overnight.

F. All trenches located within the right-of-way are to be covered at the end of each workday.

3.02 TRENCHING

A. General

1. The Contractor shall perform all excavation of every description and of whatever substances encountered, including clearing over the pipe line route. All excavations for the pipeline shall be open-cut except at paved city and county roads, state and federal highways, railroads and blacktop or concrete driveways which shall be bored unless otherwise approved by Engineer. Banks of excavations shall be kept as nearly vertical as possible.

B. Trench Width

1. Trench widths shall be in accordance with LFUCG Standard Drawings.

2. Contractor shall submit a shop drawing that includes a certification from the pipe manufacturer stating the recommended trench width for each pipe size and material being used.

C. Trench Depth:

1. The trench shall be excavated to a minimum of six (6) inches below pipe grade as noted on LFUCG Standard Drawings.

3.03 BLASTING AND EXPLOSIVES

A. If rock removal by blasting methods is approved for use by the Owner and Engineer, blasting must comply with Federal, State, and Local Regulations and National Codes on the purchase, transportation, storage, and use of explosive material. Codes include, but are not limited to the following:

1. Storage, security, and accountability: Bureau of Alcohol, Tobacco, and Firearms (BATF): 27 CFR Part 181.
2. Shipment: DOT, 49 CFR Parts 171-179, 390-397.
3. Safety and Health: OSHA 29 CFR Part 1926, Subpart U.
4. Transportation and Storage: NFPA 495, Chapters 3 through 6.
5. Kentucky Department of Mines and Minerals code for explosive disintegration of rock.

B. The Contractor must complete the following before explosives are brought to site:

1. Obtain all required permits from authorities having jurisdiction, with copies to Owner.

2. Obtain Blasting and Liability insurance in accordance with Kentucky

Department of Highway requirements. A copy of the Declaration of Insurance shall be provided to the Owner.

3. Complete preblast survey with signed copy to Owner.

4. The Contractor shall submit a blasting plan prepared by a licensed blaster to the Owner and Engineer.

C. No explosives shall be used within 20 feet of:

1. Building and/or structures existing, constructed, or under construction.

2. Underground and/or overhead utilities whether existing or partially constructed.

D. Permission for any deviation from the restriction set forth above shall be secured from the Engineer; in writing; however, permission for any such deviations shall not relieve the Contractor from any responsibility in the event of damage to buildings, structures, or utilities.

E. All operations involving explosives shall be conducted with all possible care to avoid injury to persons and property. Blasting shall be done only with such quantities and strengths of explosives and in such a manner as will break the rock approximately to the intended lines and grades and yet will leave rock not to be excavated in an unshattered condition. Care shall be taken to avoid excessive cracking of the rock upon or against which any structure will be built, to prevent injury to existing pipes or other structures and property above or below ground. Rock shall be well covered with logs or mats, or both, where required. Sufficient warning shall be given to all persons in the vicinity of the work before a charge is exploded.

F. The Contractor shall be solely responsible for his blasting operations. The Contractor shall not hold the Owner and/or Engineer liable for any damages resulting from his blasting operations on this project. Furthermore, the Contractor shall, at his expense, repair any damage to any structure, resulting from his blasting operations.

G. Preblast Survey

1. A preblast survey is to be of such quality to determine whether blasting operations damaged structures. Preblast survey shall utilize video, still images and report forms to document each structure. Video with audible description of observations shall be used to observe general conditions of each structure and to note specific damage that exists to structure prior to blasting. Still images shall be utilized to supplement video as needed to document specific conditions of each structure. Report form shall

document date of survey, and who was present during survey. Forms shall also be utilized to supplement video as to the conditions of structures. Existing damage such as cracked foundations, brick facade, and etc. shall have reference object such as a scale in image or video. Audio commentary of cracked foundations, brick facades, etc. shall denote width of cracks. The Contractor shall submit three copies of video, still images, and pdf copies of report forms on CD's.

2. A preblast survey is required for all structures and utilities within a 500-foot radius of the blasting area.

3. At least thirty (30) days before initiation of blasting, the Contractor shall notify, in writing, all residents or owners of dwellings or other structures located within 500 feet of the blasting area advising that they will have a preblast survey performed. Contractor to maintain records of notifications and responses to be submitted to the Engineer.

D. Refer to Section 02220 for blasting requirements related to utilities.

3.04 STORM PIPE BEDDING

A. Refer to LFUCG Standard Drawings.

3.05 STORM PIPE BACKFILLING

A. Refer to LFUCG Standard Drawings.

- END OF SECTION -

SECTION 02370

EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish all labor, materials, and equipment required for installing, maintaining, amending, and removing temporary soil erosion, sediment, and pollutant controls as shown in the Erosion and Sediment Control Plan or Stormwater Pollution Prevention Plan (hereinafter referred to generally as the SWPPP) and as specified herein and as required by the LFUCG Land Disturbance Permit, Chapter 16-Article X, Division 5 of the LFUCG Code of Ordinances, and the KPDES General Permit for Stormwater Discharges Associated with Construction Activities (KYR10).

B. The Contractor shall take all site management measures necessary to minimize erosion and contain sediment, construction materials (including excavation and backfill), and pollutants (such as chemicals, fuels, lubricants, bitumen, raw sewage, and other harmful waste) on the site, and prevent them from being discharged offsite or into or alongside any body of water or into natural or man-made conveyances leading thereto.

C. The Contractor shall at all times minimize land disturbance and the period of time that the disturbed area is exposed without stabilization practices. In "critical areas" (within 25 feet of a perennial or intermittent stream, wetland, sinkhole, inlet or other waterbody) erosion prevention measures such as working during dry periods, use of sediment controls, and use of erosion control mats/blankets, mulch, or straw blown in and stabilized with tackifiers or by treading, etc. shall be implemented on disturbed areas within 24 hours or "as soon as practical" after completion of disturbance/grading or following cessation of activities.

D. Temporary erosion controls include, but are not limited to sodding, mulching, seeding, providing erosion control blankets and turf reinforcement mats on all disturbed surfaces including waste area surfaces and stockpile and borrow area surfaces; covering small disturbed areas with tarps or other materials; scheduling work to minimize erosion; and providing diversion or interceptor ditches to minimize the discharge of sediment.

E. Temporary sedimentation controls include, but are not limited to, silt fences, rock check dams, berms, traps, barriers, fiber logs, storm drain inlet filters, and appurtenances on sloped surfaces to minimize the discharge of sediment.

F. Contractor is responsible for providing and maintaining effective temporary erosion and sediment control measures prior to and during construction or until final controls become effective and the site is stabilized in accordance with state and local requirements.

G. Prior to construction, the Contractor shall obtain an LFUCG Land Disturbance Permit and shall obtain coverage under the KPDES General Permit for Stormwater Discharges Associated with Construction Activities (KYR10) (see Article 3.24 in this Section) if required. The Contractor shall be responsible for placement of pollutant, erosion, and sedimentation controls as shown in the Stormwater Pollution Prevention Plan (SWPPP) prior to excavation, fill, or grade work. If during the course of construction, the state and/or LFUCG determine additional controls are required, the Contractor shall furnish, install, and maintain additional seeding, mulch, blankets, sediment barriers, diversion or other ditches, and/or other controls as necessary to control pollution, erosion, and sedimentation to the satisfaction of the regulatory agency.

H. The Contractor shall inspect and repair all erosion and sedimentation controls as follows:

1. At least once every seven (7) calendar days, and

2. Within 24 hours after any storm event of 0.5 inch or greater.

I. Final stabilization practices on those portions of the project where land disturbance activities have permanently ceased shall be initiated within fourteen (14) days of the date of cessation of land disturbance activities. Temporary stabilization for those portions of the project where land disturbance has temporarily ceased (e.g., temporary seeding, mulching, etc.) shall be initiated within fourteen (14) days of the date of cessation of land disturbance activities.

J. Erosion and Sediment Control prevention measures shall be installed prior to removal of vegetation, grading, and/or stripping of topsoil. The Contractor is responsible for preparing and submitting the Kentucky Division of Water Notice of Intent and attachments and obtaining state permit approval, if applicable, prior to the beginning of any construction activities.

1.02 PERMITS AND NOTIFICATION REQUIREMENTS

A. The Contractor is responsible to submit a Stormwater Pollution Prevention Plan (SWPPP) for inclusion with permit applications. The Contractor may elect one of the following options to meet this requirement:

1. Utilize the SWPPP (which includes the Erosion and Sediment Control Plan) provided in the Construction Drawings and prepared by the Owner's

Engineer as a basis for an updated SWPPP, and take sole responsibility for updating and implementing the SWPPP, or

2. Provide a SWPPP, including an Erosion and Sediment Control Plan, prepared by a professional engineer licensed in the Commonwealth of Kentucky, meeting all of the requirements of KYR10, Chapter 11 of the LFUCG Stormwater Manual, and Chapter 16-Article X, Division 5 of the LFUCG Code of Ordinances.

B. If applicable (i.e., for projects with a disturbed area of one acre or more), the Contractor shall submit a KPDES Notice of Intent specifically for Construction Activities (NOI-SWCA) and receive notification of coverage before beginning any site disturbance, and shall implement erosion, sediment, and pollution control measures as may be required by state, local and federal agencies. Contractor shall submit a signed Notice of Intent form and required attachments to the Division of Water at least seven (7) days prior to beginning of construction activity. See Article 3.24 in this Section for detailed requirements.

C. A Land Disturbance Permit shall be obtained from the Lexington-Fayette Urban County Government Division of Engineering. See Article 3.25 in this Section for detailed requirements.

D. The Contractor shall comply with all additional requirements of LFUCG. It is the Contractor's responsibility to provide evidence to the Owner that all permits, including those associated with construction across or along a stream channel, if applicable, have been obtained prior to initiation of construction. Some permits are obtained during the design phase of the project. Typically, they should be included in the contract documents.

1.03 RELATED WORK

A. Section 02371 – Stormwater Pollution Prevention Plan (SWPPP)

B. Section 02378 – Stream Crossings, Streambank Restoration, and Stream Buffer Restoration

PART 2 – PRODUCTS

2.01 MULCH

A. Mulch or erosion control blankets / turf reinforcement mats (see Section 2.08) shall be used as a soil stabilization measure for any disturbed area inactive (i.e., not undergoing grading or excavation) for 14 days or longer. Areas requiring stabilization during December through February shall receive only mulch held in place with bituminous material. Mulching, blankets, or mats shall be used whenever permanent or temporary seeding is used. The anchoring of mulch,

blankets, and mats shall be in accordance with the Construction Drawings except all mulch placed in December through February shall be anchored with bituminous materials regardless of the slope. Permanent mulches or mats shall be used in conjunction with planting trees, shrubs, and other ground covers that do not provide adequate soil stabilization.

B. Straw shall come from wheat, rye, or barley and may be spread by hand or machine. Straw shall be anchored. Straw shall be applied at two tons per acre or 90 pounds per 1,000 square feet. Straw shall be free from weeds and coarse matter.

C. Wood chips are appropriate for areas with less than five percent slopes, and do not require tacking. Wood chips shall be applied at 270 cubic yards per acre or 6 cubic yards per 1,000 square feet and approximately 2 inches deep. Wood chips shall be treated with 20 pounds of nitrogen per acre or shall be treated with 12 pounds slow-release nitrogen per ton to prevent nutrient deficiency in plants.

D. Bark chips or shredded bark are appropriate for areas with less than five percent slopes, and shall be applied at 70 cubic yards per acre or 1.5 to 2 cubic yards per 1,000 square feet and about one-half inch thick. Bark does not require additional nitrogen fertilizer.

E. Manufacturer's recommendations shall be followed. during application of manufactured wood fiber and recycled paper sold as mulch materials applied in a hydroseeder slurry with binders/tackifiers. Recycled paper (newsprint) or wood fiber shall be mixed at 50 pounds per 100 gallons of water and applied according to manufacturer's recommendations and model of hydroseeder in use.

F. Liquid mulch binders/tackifiers shall be applied according to manufacturer's recommendations. Chemical soil stabilizers or soil binders/tackifiers/emulsions shall not be used alone. Recommended buffer distances between applied products and waterbodies shall be strictly followed.

G. Gravel or stone aggregate may be used in relatively small areas when incorporated into an overall landscaping plan. Before the gravel or crushed stone is applied, it shall be washed.

2.02 TEMPORARY SEED

A. Temporary seeding shall be used for soil stabilization when grades are not ready for permanent seeding, except during December through February. The seed shall be applied within 14 days after grading has stopped. Only rye grain or annual rye grass seed shall be used for temporary seeding.

2.03 PERMANENT SEED

A. Permanent seeding shall be applied within 14 days after final grade has been reached, except during December through February. Permanent seeding shall also be applied on any areas that will not be disturbed again for a year even if final grades have not been reached. The use of mulch and erosion control blanket or turf reinforcement matting with permanent seeding shall be in accordance with applicable sections of this Specification. "Seed mats" may be used for permanent seeding in accordance with manufacturers' recommendations.

B. Permanent seeding shall be used on disturbed areas where permanent, long-lived vegetative cover is needed to stabilize the soil and on rough graded areas that will not be brought to final grade for one year or more.

C. The area to be seeded shall be protected from excess run-on and runoff as necessary with diversions, grassed waterways, terraces, or sediment ponds.

D. Contractor shall use the following Permanent Seed Mix, with the following exceptions:

a. If a property owner landscaping agreement differs from this specification, the property owner landscaping agreement shall be followed on that property, or

b. The area to be seeded is within 25 feet of a stream bank, in which case Contractor shall follow the seed mix provided in Section 02378, or

c. The Construction Drawings identify a different seed mix.

The Permanent Seed Mix shall consist of the following mix spread at a rate of 12.5 pounds/1,000 square feet:

Common Name	%	lbs per 1,000 sq. ft.
Tall Fescue (turf type)	75	3.75
Annual Rye	15	0.75
Bluegrass	10	0.50
TOTAL	100%	5

E. Vegetative cover alone shall not be used to provide erosion control cover and prevent soil slippage on a soil that is not stable due to its structure, water movement, or excessive slope.

F. Permanent seeding may be done at any time except December through February.

G. Soil material shall be capable of supporting permanent vegetation and have at least 25 percent silt and clay to provide an adequate amount of moisture holding capacity. An excessive amount of sand will not consistently provide sufficient moisture for good growth regardless of other soil factors.

H. Fertilizer shall be applied at a rate determined by a soil test obtained by the Contractor. Fertilizer shall not be applied within 50 feet of a stream or other waterbody. Lime shall be applied at a rate of 100 pounds per 1,000 square feet or two tons per acre of agricultural ground limestone unless soil test results indicate differently.

2.04 SOD

A. Sod shall be used for disturbed areas that require immediate vegetative cover, *e.g.*, the area surrounding a drop inlet in a grassed waterway, the design flow perimeter of a grassed waterway that will convey flow before vegetation can be established, and the inlet of a culvert. Sod may be installed throughout the year. "Seed mats" and seed with geotextiles may be used in place of sod when done in accordance with manufacturers' recommendations.

B. Contractor shall use tall fescue sod, unless another species is specified in the Construction Drawings or unless the property owner landscaping agreement differs from this specification.

C. Sod shall not be used to provide erosion control and prevent soil slippage on a soil that is not stable due to its structure, water movement, or excessive slope.

D. Sod shall be installed within 48 hours of digging and removal from the field. Sod should not be used on slopes steeper than 2H:1V. If it is to be mowed, installation should be on slopes no greater than 3H:1V.

E. Soil material shall be capable of supporting permanent vegetation and shall consist of at least 25 percent silt and clay to provide an adequate amount of moisture holding capacity. An excessive amount of sand will not consistently provide sufficient moisture for the sod regardless of other soil factors.

F. Fertilizer shall be applied at a rate determined by a soil test obtained by the Contractor. Fertilizer shall not be applied within 50 feet of a stream or other waterbody. Lime shall be applied at a rate of 100 pounds per 1,000 square feet or two tons per acre of agricultural ground limestone, unless soil test results indicate differently.

G. The sod shall consist of strips of live, vigorously growing grasses. The sod shall be free of noxious and secondary noxious weeds and shall be obtained from good, solid, thick-growing stands. The sod shall be cut and transferred to the

job in the largest continuous pieces that will hold together and are practical to handle.

H. The sod shall be cut with smooth clean edges and square ends to facilitate laying and fitting. The sod shall be cut to a uniform thickness of not less than three-fourth inch measured from the crown of the plants to the bottom of the sod strips for all grasses except bluegrass. Bluegrass sod shall be cut to a uniform thickness of not less than one and one-half inches.

I. The sod shall be mowed to a height of not less than two inches and no more than four inches prior to cutting.

J. The sod shall be kept moist and covered during hauling and preparation for placement on the sod bed.

K. Sod shall be kept watered after installation until the project is considered substantially complete.

2.05 ROAD/PARKING STABILIZATION

A. Gravel or paved material shall be used to stabilize permanent roads or parking areas or roads or parking areas used repeatedly by construction traffic. Stabilization shall be accomplished within 14 days of grading or initiation of use for construction traffic. Unstabilized roads are not acceptable except in instances where the road will be used less than one month.

B. Road/parking stabilization shall be used wherever roads or parking areas are constructed, whether permanent or temporary, for use by construction traffic.

C. Stabilization shall be accomplished with a minimum depth of six inches of crushed stone. Stabilized construction roadbeds shall be at least 14 feet wide for one-way traffic and at least 20 feet wide for two-way traffic.

D. Temporary roads shall follow the contour of the natural terrain to the extent possible. Slopes shall not exceed 10 percent.

E. Temporary parking areas shall be located on naturally flat areas to minimize grading. Grades shall be sufficient to provide drainage but shall not exceed 4 percent.

F. All cuts and fills shall be 2H:1V or flatter.

G. Drainage ditches shall be provided as needed.

H. Crushed stone shall be KYTC aggregate No. 2 (1.5 to 3 inches in diameter), or equivalent.

2.06 CONSTRUCTION ENTRANCE

A. A stabilized construction entrance shall be constructed wherever vehicles are leaving a construction site to enter a public road or at any unpaved entrance/exit location where there is a risk of transporting mud or sediment onto paved roads. A construction entrance shall be constructed at the beginning of the project before construction traffic begins to enter and exit the site.

B. A stabilized construction entrance shall be constructed of crushed stone a minimum of 6 inches thick laid over geotextile (filter fabric).

C. The width shall be at least 20 feet. At sites where traffic volume is high, the entrance shall be wide enough for two vehicles to pass safely. The length shall be at least 50 feet, and where practical, shall be extended to 100 feet. The entrance shall be flared where it meets the existing road to provide a turning radius.

D. Stormwater and wash water runoff from a stabilized construction entrance shall drain to a sediment trap or sediment pond. If conditions on the site are such that the majority of the mud is not removed by the vehicles traveling over the gravel, then the tires of the vehicles shall be washed before entering a public road.

E. Pipe placed under the entrance to handle runoff shall be protected with a mountable berm.

F. Dust control shall be provided in accordance with the applicable sections of this Specification.

G. Crushed stone shall be KYTC aggregate No. 2 (1.5 to 3 inches in diameter), or equivalent.

H. Geotextile filter fabric shall be KYTC Type III.

2.07 DUST CONTROL

A. Dust control measures shall be implemented on the site.

B. Construction activities shall be phased to minimize the total area unstabilized at any given time, thereby reducing erosion due to air and water movement.

C. Construction roads shall be watered as needed to minimize dust.

D. Existing trees, shrubs, and ground cover shall be retained as long as possible during the construction. Initial land clearing should be conducted only in those areas to be regraded or where construction is to occur. Areas to be cleared only

for new vegetation or landscaping shall be stabilized with seed and mulch immediately following clearing.

E. Vegetative cover is the most effective means of dust and erosion control, when appropriate. See sections on Temporary Seed, Permanent Seed, Mulch, and Sod of this Specification.

F. When areas have been regraded and brought to final grade, they shall be stabilized using temporary or permanent seed and mulch or other measures.

G. Mulch with mulch binders may be used as an interim dust control measure in areas where vegetation may not be appropriate.

H. See sections on Temporary Seed, Permanent Seed, Sod, Mulch, Road/Parking Stabilization, and Construction Entrance of this Specification.

2.08 EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MATS

A. Mulch netting, erosion control blankets (ECBs), or turf reinforcement matting (TRM) shall be used on sloping areas as indicated in the Construction Drawings. Mats or nets and permanent seeding may be used as an alternate to sod for culvert entrances and grassed waterways when selected and installed in accordance with manufacturer's recommendations. TRMs shall be used at the water line to control toe erosion along stream banks and wave action in wet ponds. Erosion control blankets may be used to stabilize small ditches and swales and on recently planted slopes to protect seedlings until they become established.

B. Effective ECB and TRM installation shall require firm, continuous contact between the materials and the soil. If there is no contact, the material will not hold the soil and erosion will occur underneath the material.

C. ECBs or TRMs shall be used in critical areas such as banks along waterways where concentrated flows are expected. Manufacturer's specifications shall be followed.

D. ECBs, TRMs, and netting shall be suitable for their intended purpose and shall be used as indicated in the Construction Drawings.

E. The ECB shall have a minimum useful life span of two (2) years. The material shall consist of interlocking, curled wood fibers and be capable of withstanding shear stresses up to 2.25 pounds per square foot and a velocity of nine (9) feet per second. The acceptable ECB shall be Curlex II as manufactured by American Excelsior Company or approved equal.

F. Product Documentation

The manufacturer shall provide the Engineer or other designated party with the QA/QC certifications for each shipment of ECB/TRM. The certification shall be signed by a responsible party employed by the manufacturer such as the QA/QC Manager, Production Manager, or Technical Services Manager. The QA/QC certifications shall include:

a. ECB/TRM lot and roll numbers (with corresponding shipping information)
b. Manufacturer's test data for raw materials used in the production
c. Manufacturer's test data for finished production.

G. Product Labeling

a. Prior to shipment, the Manufacturer shall affix a label to each roll identifying the following characteristics:
b. Product identification information (manufacturer name and address, brand name, product code)
c. Lot number and roll number
d. Roll length and width
e. Total roll weight.

H. Packaging

1. The ECB/TRM shall be wound around a cardboard core to facilitate handling. The core is not intended to support the roll for lifting but should be sufficiently strong to prevent collapse during transit.

2. All rolls shall be labeled and bagged in packaging that is resistant to photodegradation by ultraviolet light.

I. The Contractor shall furnish the following to the Engineer:

1. Manufacturer's quality assurance/quality control certifications for each shipment to verify that the materials supplied for the project are in accordance with the requirements of this specification.

2. Manufacturer's warranty covering materials and workmanship.

2.09 TEMPORARY DIVERSION DITCH

A. Temporary diversion ditches shall be used to collect sediment-laden runoff from disturbed areas and direct it to a sediment pond where applicable. Temporary ditches are those expected to be in use for less than one year. Temporary diversion and/or other ditches require stabilization, with seed, blankets, mats, or mulch.

B. Temporary diversion ditches shall have stable outlets. The combination of conditions of site, slopes, and soils should be so that the ditch can be maintained throughout its planned life.

C. Temporary diversion ditches shall not be constructed below high sediment-producing areas unless land treatment practices or structural measures, designed to prevent damaging accumulations of sediment in the channels, are installed with or before the diversion.

D. A typical diversion cross section consists of a channel and a supporting ridge. In the case of an excavated-type diversion, the natural ground serves as the diversion ridge. Diversion cross sections shall be adapted to the equipment that will be used for their construction and maintenance.

E. The channel may be parabolic or trapezoidal in shape. V-shaped ditches shall not be constructed.

F. Diversions shall be located so that water will empty onto an established area such as a stable watercourse, waterway, or structure.

G. Any high sediment-producing area above a diversion shall be controlled by good land use management or by structural measures to prevent excessive sediment accumulation in the diversion channel.

H. Temporary diversions above steep slopes or across graded rights-of-way shall have a berm with a minimum top width of 2 feet, side slopes of 2:1 or flatter and a minimum height of 18 inches measured from the channel bottom.

I. Diversions installed to intercept flow on graded rights-of-way shall be spaced 200 to 300 feet apart.

J. A level lip spreader shall be used at diversion outlets discharging onto areas already stabilized by vegetation.

2.10 LEVEL SPREADER

A. Level spreaders shall be constructed at the outlets of temporary diversion ditches if they discharge to landscaped areas. Level spreaders shall also be constructed at outlets of permanent constructed waterways where they terminate on undisturbed areas.

B. The length of the level spreader shall be constructed as shown on the Construction Drawings.

2.11 PERMANENT CONSTRUCTED WATERWAY

A. Permanent constructed waterways shall be used to divert stormwater runoff from upland undisturbed areas around or away from areas to be disturbed during construction. A waterway expected to be in place for at least one year shall be considered permanent. Permanent waterways shall be lined with sod or permanent seeding and nets, ECBs, or TRMs.

2.12 PIPE SLOPE DRAIN

A. Pipe slope drains shall be used whenever it is necessary to convey water down a steep slope, which is not stabilized or which is prone to erosion, unless a paved ditch (flume) is installed.

B. Contractor shall use a 10-inch diameter pipe or larger to convey runoff from areas up to one-third acre; 12-inch or larger pipe for up to half-acre drainage areas; and 18-inch pipe for areas up to one acre, unless otherwise specified in the Construction Drawings. Multiple pipes shall be required for large areas, spaced as shown on the Construction Drawings.

C. The pipe shall be heavy duty flexible tubing designed for this purpose, *e.g.*, non-perforated, corrugated plastic pipe, or specially designed flexible tubing.

D. A standard flared end section or a standard T-section fitting secured with a watertight fitting shall be used for the inlet.

E. Extension collars shall be 12-inch long sections of corrugated pipe. All fittings shall be watertight.

2.13 IMPACT STILLING BASIN

A. Impact stilling basins or armoring shall be used at the outlet of culverts and storm sewers with calculated exit velocities greater than 15 feet per second when flowing full.

2.14 CHECK DAM

A. Check dams shall be limited to use in small, open channels that drain 10 acres or less.

B. Check dams shall not be used in streams.

C. Check dams can be constructed of stones, coir logs, or wood fiber logs.

D. If used, check dams shall be constructed prior to the establishment of vegetation.

E. The maximum height at the center of a check dam shall be three feet above the ground on which the rock is placed.

F. The center of the portion of the check dam above the flat portion of the channel shall be at least 1 foot lower than the outer edges. The outer edges of the check dam shall extend up the side slopes of the channel to a point 3 feet in elevation above the center portion of the check dam or to the top of the side slopes.

G. The maximum spacing between rock check dams in a ditch should be such that the toe of the upstream dam is at the same elevation as the top of the next downstream dam.

H. The spacing of coir and wood fiber check dams is one log every 100 feet for velocities of 5 fps, 50 feet for velocities between 5 and 7.5 fps, and 25 feet for velocities greater than 10 fps, unless otherwise shown in the Construction Documents.

I. Stone check dams shall be constructed of KYTC Class II channel lining.

J. Coir log or wood fiber log check dams shall be constructed of a single log with a diameter of at least 20 inches.

2.15 SEDIMENT TRAP

A. Sediment traps shall be installed below all disturbed areas of less than 5 acres that do not drain to a sediment pond.

B. Erosion control practices such as seeding, mulching, sodding, diversion dikes, etc., shall be used in conjunction with sediment traps to reduce the amount of sediment flowing into the trap. The amount of sediment entering a trap can be reduced by the use of stabilized diversion dikes and ditches.

C. The trap shall not be located in a stream. It shall be located to trap sediment-laden runoff before it enters the stream.

D. Trap depth shall be at least 2 feet at the inlet and 4 feet at the outlet. Effective trap width shall be at least 10 feet and trap length shall be at least 30 feet. Containment berms of earth or rock may be used. High velocity areas (e.g., overflows) shall be armored with rock, TRMs, or other suitable material.

E. The Construction Drawings shall indicate the final disposition of the sediment trap after the upstream drainage area is stabilized. The Construction Drawings shall indicate methods for the removal of excess water lying over the sediment, stabilization of the pond site, and the disposal of any excess material.

2.16 SEDIMENT POND

A. A sediment pond shall be installed at the outlet of a disturbed area of 5 acres or more. The maximum drainage area for a single pond is 100 acres.

B. Design and construction shall comply with all federal, state, and local laws, ordinances, rules, and regulations regarding dams.

C. Erosion control practices such as seeding, mulching, sodding, diversion dikes, etc., shall be used in conjunction with sediment ponds to reduce the amount of sediment flowing into the pond.

D. The pond shall not be located in a stream. It shall be located to trap sediment-laden runoff before it enters the stream.

E. Contractor shall construct the sediment pond as shown on the Construction Drawings.

F. Permanent ponds designed for stormwater detention or water quality treatment may serve as temporary sediment ponds if site conditions make the use of these structures desirable. At the time of conversion from a sediment pond to a permanent stormwater management pond, excess sediment shall be cleaned from the pond. If the pond is converted to a water quality basin, the sand in the sand filter outlet shall be replaced with clean sand unless it is shown to be clean.

G. The Construction Drawings shall indicate the final disposition of the sediment pond after the upstream drainage area is stabilized. The Construction Drawings shall indicate methods for the removal of excess water lying over the sediment, stabilization of the pond site, and the disposal of any excess material.

H. Vegetation shall be established upon completion of construction of the embankment, emergency spillway and other areas disturbed by construction.

2.17 SILT FENCE

A. Silt fence shall be installed down-slope of areas to be disturbed prior to clearing and grading. Silt fence shall be situated such that the total area draining to the fence is not greater than one-fourth acre per 100 feet of fence. Silt fence shall be used for storm drain drop inlet protection and around soil stockpiles.

B. Under no circumstances shall silt fences be constructed in streams or in swales or ditch lines or any area of concentrated flow.

C. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, and polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

PHYSICAL PROPERTY	REQUIREMENTS
Filtering Efficiency	80% (minimum)
Tensile Strength at 20%	50 pounds/linear inch (minimum)
Flow Rate	0.3 gallons/square foot/minute (minimum)

D. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F to 120°F.

E. Posts for synthetic fabric silt fences shall be either 2-inch by 2-inch wood or 1.33 pounds per linear foot steel with a minimum length of 5 feet. Steel posts shall have projections for fastening wire to them. Posts shall be no more than 6 feet apart.

F. Wire fence reinforcement for silt fences shall be a minimum of 36 inches in height, a minimum of 14 gauge and shall have a mesh spacing of no greater than 6 inches.

2.18 STORM DRAIN INLET PROTECTION

A. Storm drain inlet protection shall be utilized on drop inlets and curb inlets that receive sediment-laden runoff from disturbed areas.

B. Storm drain inlet protection shall only be used around drop inlets when the up-slope area draining to the inlet has no other or inadequate sediment control.

C. The drainage area shall be no greater than 1 acre.

D. The inlet protection device shall be constructed in a manner that will facilitate cleanout and disposal of trapped sediment and minimize interference with construction activities.

E. Inlet protection devices shall be constructed in such a manner that any resultant ponding of stormwater will not cause flooding or excessive inconvenience or damage to adjacent areas, roadways, properties, or structures.

F. Inlet protection devices are low flow filter devices, and as such shall be constructed in such a manner as to allow for higher flows to bypass into the storm drain system to prevent flooding of the roadway or downstream properties.

2.19 FILTER STRIP

A. Filter strips shall be used on each side of permanent constructed channels.

B. Filter strips shall only be used to remove sediment from overland flow. Filter

strips are not effective in removing sediment from concentrated flows.

C. If vegetative filters are proposed as a sediment control device and they do not already exist, they shall be planted and established prior to initiating land disturbing activities.

D. The minimum filter strip width shall be 50 feet for streams, wetlands, and sinkholes. The minimum filter strip width shall be ten feet for constructed waterways.

E. Where a post development floodplain or wet weather conveyance is being protected, filter strips shall be provided on each side. When a wetland or sinkhole is being protected, filter strips shall be provided around the perimeter.

F. Contractor shall construct the filter strips as shown on the Construction Drawings.

G. Existing grass or grass/legume mixtures used as filter strips shall be dense and well established, with no bare spots. When establishing new seeding, consideration shall be given to wildlife needs and soil conditions on the site. The following chart provides a list of alternative grass and grass/legume mixtures:

SEEDING MIXTURE AND SITE SUITABILITY CHART

Seeding Mixture	Rate lbs/acre	Soil Suitability
Alfalfa *Or* Red Clover *Plus* Timothy *Or* Orchardgrass *Or* Bromegrass	10 10 4 6 6	Well-Drained
Ladino *Plus* Timothy *Or* Orchardgrass *Or* Bromegrass	0.5 4 6 8	Wet or Well-Drained

Notes:

1. All seeding shall be in accordance with the seeding sections of this Specification.

2. Well-drained sites include sites that are drained with tile as well as naturally well-drained and droughty sites. Wet sites include sites that are excessively wet only a portion of the growing season.

2.20 STREAM CROSSING

A. Stream crossings shall be used in cases where construction traffic, permanent traffic, or utilities must cross existing post development floodplains. If the drainage area exceeds 1 square mile and a structure is necessary, the structure shall be designed by a professional engineer licensed in Kentucky, and shall be considered a permanent structure. Stream crossings shall be as close to perpendicular to the stream flow as possible.

B. Temporary stream crossings are applicable to flowing streams with drainage areas less than one square mile. Temporary stream crossings shall be planned to be in service for the shortest practical period of time and to be removed as soon as their function is completed.

C. All such structures, whether temporary or permanent, are subject to the rules and regulations of the U.S. Army Corps of Engineers for in-stream modifications (404 Permitting) and the Kentucky Division of Water (401 Certification). No stream crossing shall be installed without first obtaining all applicable local, state, and federal permits.

D. Where culverts are to be installed, compacted soil or rock shall be used to form the crossing. The depth of soil or rock cover over the culvert shall be equal to one-half the diameter of the culvert or 12 inches, whichever is greater. The sides of the fill shall be protected from erosion using the mulching and seeding erosion control measures specified in this Specification.

E. All stream crossings shall be constructed in such a manner as to avoid flooding or excessive inconvenience or damage to adjacent areas, roadways, properties, or structures.

F. When using a culvert crossing, the top of the compacted earth fill shall be covered with at least six inches of KYTC No. 2 stone.

G. KYTC No. 2 stone shall also be used for the stone pads forming the crossing approaches.

2.21 PUMP-AROUND FLOW DIVERSION

A. A pump-around flow diversion shall be used to divert flow around construction activities occurring in a stream when those activities are reasonably expected to cause the erosion of sediment or deposition of sediment in the stream.

B. Check dams to form the diversion shall span the banks of the stream. Maintain 1-foot freeboard (minimum) on the upstream and downstream checks.

C. Check dams may be constructed of sandbags or may be a water-filled bladder such as an Aqua-Barrier.

D. The dewatering flow from the work area shall be treated in a sediment-trapping device prior to discharge to the stream.

E. Sandbags shall be woven polypropylene bags with approximate dimensions of 18-1/2 inches by 28 inches. Contractor shall tie the ends of filled bags closed using either draw strings or wire ties.

2.22 CONSTRUCTION DEWATERING

A. Sediment-laden water shall be pumped to a dewatering structure before it is discharged.

PART 3 – EXECUTION

3.01 GENERAL

A. Erosion and sediment control practices shall be consistent with the requirements of Chapter 11 of the LFUCG Stormwater Manual and other state and local regulatory agencies and in any case shall be adequate to minimize erosion of disturbed and/or regraded areas and discharge of sediment from the site.

B. Contractor is responsible for notifying and obtaining coverage from the Kentucky Division of Water concerning inclusion under the KPDES General Permit for Stormwater Discharges Associated with Construction Activities.

C. Gravity sewer lines, force mains, and water lines that cross streams shall be constructed by methods that maintain normal stream flow and allow for a dry excavation. Water pumped from the excavation shall be contained and allowed to settle prior to reentering the stream, or filtered through a sediment removal device. Excavation equipment and vehicles shall operate outside of the flowing portion of the stream. Spoil material from the line excavation shall not be allowed to enter the flowing portion of the stream. Clean Water Act Section 401 and 402 requirements enforced by the US Army Corps of Engineers and the

Kentucky Division of Water and the provisions of this condition shall apply to all types of utility line stream crossings.

D. Removal of riparian vegetation in the utility line right-of-way shall be limited to that necessary for equipment access. Effective erosion and sedimentation control measures shall be employed at all times during the project to prevent degradation of Waters of the Commonwealth. Site regrading and reseeding shall be accomplished with 14 days after disturbance.

3.02 MULCH

A. Seed shall be applied prior to mulching except where seed is to be applied as part of a hydroseeder slurry containing mulch.

B. Lime and fertilizer (where needed) shall be incorporated and surface roughening accomplished as needed prior to mulching in accordance with applicable sections of this Specification.

C. Mulch materials shall be spread uniformly by hand or mechanically so the soil surface is covered. During or immediately following application, the mulch shall be anchored or otherwise secured to the ground according to one of the following methods:

1. Mechanical – Use a disk, crimper, or similar type tool set straight to punch or anchor the mulch material into the soil.

2. Mulch Tackifiers/Nettings/Emulsions – Use according to the manufacturer's recommendations. This is a superior method in areas of water concentration to hold mulch in place.

3. Wood Fiber – Wood fiber hydroseeder slurries may be used to tack straw mulch. This combination treatment is well suited to steep slopes and critical areas, and severe climate conditions.

D. Mulch shall be anchored using a mulch anchoring tool, a liquid binder/tackifier, or mulch nettings. Nets and mats shall be installed to obtain firm, continuous contact between the material and the soil. Without such contact, the material is useless and erosion occurs.

E. A mulch anchoring tool is a tractor-drawn implement that is typically used for anchoring straw and is designed to punch mulch approximately two inches into the soil surface. Machinery shall be operated on the contour and shall not be used on slopes steeper than 3H:1V.

F. When using liquid mulch binders and tackifiers, application shall be heaviest around edges of areas and at crests of ridges and banks to prevent wind blow.

Remainder of area shall have binders/tackifiers spread uniformly in accordance with manufacturer's recommendations.

G. When using a mulch net, it shall be used in conjunction with an organic mulch and shall be installed immediately after the application and spreading of the mulch

H. Erosion control blankets and turf reinforcement mats are considered protective mulches and may be used alone on erodible soils and during all times of year. Blankets and mats shall be installed in accordance with manufacturer's recommendations.

I. Mulched areas shall be inspected at least weekly and after each rainfall of one-half inch or more. When mulch material is found to be loosened or removed, the mulch cover shall be replaced within 48 hours.

3.03 TEMPORARY SEED

A. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and anchoring.

B. The needed erosion control practices, such as diversions, temporary waterways for diversion outlets, and sediment ponds, shall be installed prior to seeding.

C. Prior to seeding, lime and fertilizer (if needed) shall be worked into the soil with a disk harrow, springtooth harrow, or similar tools to a depth of two inches. On sloping areas, the final operation shall be on the contour.

D. The seed shall be applied uniformly with a cyclone seeder, drill, cultipacker, seeder, or hydroseeder (slurry may include seed and fertilizer) preferably on a firm, moist seedbed. Seed shall be sown no deeper than one-fourth inch to one-half inch.

E. The seedbed shall be firmed following seeding operations with a cultipacker, roller, or light drag.

F. On sloping land, seeding operations shall be on the contour wherever possible.

G. Mulch shall be applied, in the amounts described in the mulch section of this Specification, to protect the soil and provide a better environment for plant growth.

H. New seed shall have adequate water for growth, through either natural means or irrigation, until plants are firmly established.

I. Seeded areas shall be inspected at least weekly after planting and after each rainfall of one-half inch or more. Areas requiring additional seed and mulch shall be repaired within 48 hours.

J. If vegetative cover is not established within 21 days, the area shall be reseeded.

3.04 PERMANENT SEED

A. During site preparation, topsoil shall be stockpiled for use in establishing permanent vegetation.

B. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and anchoring.

C. The needed erosion control practices, such as diversions, temporary waterways for diversion outlets, and sediment ponds, shall be installed prior to seeding.

D. Prior to seeding, lime and fertilizer shall be worked into the soil with a disk harrow, springtooth harrow, or similar tools to a depth of four inches. On sloping areas, the final operation shall be on the contour.

E. Where compacted soils occur, they shall be broken up sufficiently to create a favorable rooting depth of six to eight inches.

F. The seed shall be applied uniformly with a cyclone seeder, drill, cultipacker, seeder, or hydroseeder (slurry may include seed and fertilizer) preferably on a firm, moist seedbed. Seed shall be sown no deeper than one-fourth inch to one-half inch.

G. The seedbed shall be firmed following seeding operations with a cultipacker, roller, or light drag.

H. On sloping land, seeding operations shall be on the contour wherever possible.

I. Mulch shall be applied, in the amounts described in the mulch section of this Specification, to protect the soil and provide a better environment for plant growth.

J. New seed shall have adequate water for growth, through either natural means or irrigation, until plants are firmly established.

K. Seeded areas shall be inspected at least weekly after planting and after each rainfall of 0.5 inches or more. Areas requiring additional seed and mulch shall be repaired within 48 hours.

L. If vegetative cover is not established (>70%) within 21 days, the area shall be reseeded. If 40 to 70 percent groundcover is established, overseed and fertilize, using half of rates originally applied, and mulch. If less than 40 percent groundcover is established, follow original seedbed preparation methods, seeding and mulching specifications, and apply lime and fertilizer if needed according to soil tests.

3.05 SOD

A. The area to be sodded shall be protected from excess runoff, as necessary, with appropriate BMPs.

B. Prior to sodding, the soil surface shall be cleared of all trash, debris, and stones larger than one inch in diameter, and of all roots, brush, wire, and other objects that would interfere with the placing of the sod.

C. Compacted soils shall be broken up sufficiently to create a favorable rooting depth of six to eight inches.

D. Lime and fertilizer (if needed) shall be worked into the soil with a disk harrow, springtooth harrow, or other suitable field equipment to a depth of four inches.

E. After the lime and fertilizer have been applied and just prior to the laying of the sod, the soil in the area to be sodded shall be loosened to a depth of one inch. The soil shall be thoroughly dampened immediately after the sod is laid if it is not already in a moist condition.

F. No sod shall be placed when the temperature is below 32°F. No frozen sod shall be placed nor shall any sod be placed on frozen soil.

G. When sod is placed during the periods of June 15 to September 1 or October 15 to March 1, it shall be covered immediately with a uniform layer of straw mulch approximately one-half inch thick or so the green sod is barely visible through the mulch.

H. Sod shall be carefully placed and pressed together so it will be continuous without any voids between the pieces. Joints between the ends of strips shall be staggered.

I. On gutter and channel sodding, the sod should be carefully placed on rows or strips at right angles to the centerline of the channel (*i.e.*, at right angles to the direction of flow). The edge of the sod at the outer edges of all gutters shall be sufficiently deep so that surface water will flow over onto the top of the sod.

J. On steep graded channels, each strip of sod shall be staked with at least two stakes not more than 18 inches apart.

K. On slopes 3H:1V or steeper, or where drainage into a sod gutter or channel is one-half acre or larger, the sod shall be rolled or tamped and then chicken wire, jute, or other netting shall be pegged over the sod for protection in the critical areas. The netting and sod shall be staked with at least two stakes not more than 18 inches apart. The netting shall be stapled on the side of each stake within two inches of the top of the stake. The stake should then be driven flush with the top of the sod.

L. When stakes are required, the stakes shall be wood and shall be approximately ½ inch by ¾ inch by 12 inches. They shall be driven flush with the top of the sod with the flat side against the slope and on an angle toward the slope.

M. Sod shall be tamped or rolled after placing and then watered. Watering shall consist of a thorough soaking of the sod and of the sod bed to a depth of at least 4 inches. The sod should be maintained in a moist condition by watering for a period of 30 days.

N. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week to maintain moist soil to a depth of 4 inches. Watering shall be done during the heat of the day to prevent wilting. After the first week, sod shall be watered as necessary to maintain adequate moisture content.

O. The first mowing of sod shall not be attempted until the sod is firmly rooted. No more than one-third of the grass leaf shall be removed by the initial and subsequent cuttings. Grass height shall be maintained between 2 inches and 3 inches.

P. Where sod does not establish properly, the sod should be replaced immediately. Areas requiring resodding should be prepared in the same manner as the original installation.

3.06 ROAD/PARKING STABILIZATION

A. The roadbed or parking surface shall be cleared of all vegetation, roots, and other objectionable material.

B. All roadside ditches, cuts, fills, and disturbed areas adjacent to parking areas and roads shall be stabilized with appropriate temporary or permanent vegetation according to the applicable sections of this Specification.

C. Geotextile filter fabric shall be applied beneath the stone for additional stability in accordance with fabric manufacturer's specifications.

D. Both temporary and permanent roads and parking areas may require periodic top dressing with new gravel. Seeded areas adjacent to the roads and parking areas

shall be checked regularly to ensure that a vigorous stand of vegetation is maintained. Roadside ditches and other drainage structures shall be checked once each week to ensure that they do not have silt or other debris that reduces their effectiveness.

3.07 CONSTRUCTION ENTRANCE

A. Vegetation, roots, and all other obstructions shall be cleared in preparation for grading. Prior to placing geotextile (filter fabric), the entrance shall be graded and compacted to 80% of standard proctor density.

B. To reduce maintenance and loss of aggregate, the geotextile shall be placed over the existing ground before placing the stone for the entrance. Stone shall be placed to depth of 6 inches or greater for the entire width and length of the stabilized construction entrance.

C. If wash racks are used, they shall be installed according to manufacturer's specifications.

D. The stabilized construction entrance shall be inspected once each week and after there has been a high volume of traffic or a storm event greater than 0.2 inches.

E. The entrance shall be maintained in a condition that will prevent tracking or flow of sediments onto public rights-of-way. This may require periodic top dressing with additional stone, as conditions demand, and repair and/or cleanout of any structures used to trap sediment.

F. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains shall be removed immediately.

3.08 DUST CONTROL

A. See Articles on Temporary Seed, Permanent Seed, Sod, Mulch, Road/Parking Stabilization, and Construction Entrance of this Specification Section.

B. When construction is active on the site, dust control shall be implemented as needed.

C. When using tillage as a dust control measure, Contractor shall begin plowing on windward side of area. Chisel-type plows spaced about 12 inches apart, spring-toothed harrow, and similar plows are examples of equipment that may produce the desired effect.

D. The site shall be observed daily for evidence of windblown dust and reasonable steps shall be taken to reduce dust whenever possible. When construction on a site is inactive for a period, the site shall be inspected at least weekly for

evidence of dust emissions or previously windblown sediments. Dust control measures shall be implemented or upgraded if the site inspection shows evidence of wind erosion.

3.09 EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MATS

A. Blankets and mats shall be installed according to the manufacturer's recommendations. In the event that the manufacturer's recommendations conflict with any requirement of this Specification, the most conservative requirement, in terms of protection of public health and the environment, shall govern.

B. Placement

1. The blankets and mats shall be unrolled in the direction of surface water flow.

2. When using two blankets or mats side by side, the seams shall not be placed in the center of a channel but shall be offset by a minimum of one (1) foot.

3. Blankets and mats shall be stapled in place using U-shaped staples of the size, and at the prescribed intervals and arrangement, specified by the manufacturer.

4. When blankets or mats are laid side by side, they shall be stapled so as to anchor the edge of each roll.

5. The overlap of blankets and mats shall be in accordance with the manufacturer's recommendations.

6. If blanket/mat is unrolled along (parallel) to the contour installation must begin at the lower elevation and progress up slope with the upper blanket overlapping the lower as with roofing shingles.

C. Damage Repair

1. The patch material used for the repair of a hole or tear shall be the same type of material as the damaged blanket/mat.

2. The patch shall extend at least 12 inches beyond any portion of the damaged blanket/mat.

3. The repair patch shall be stapled in place as per manufacturer's recommendations.

3.10 TEMPORARY DIVERSION DITCH

A. All dead furrows, ditches or other depressions to be crossed shall be filled before construction begins, or as part of construction, and the earth fill used to fill the depressions shall be compacted using the treads of the construction equipment. All old terraces, fencerows, or other obstructions that will interfere with the successful operation of the diversion shall be removed.

B. The base for the diversion ridge shall be prepared so that a good bond is obtained between the original ground and the fill material. Vegetation shall be removed and the base shall be thoroughly disked prior to placement of fill.

C. The earth materials used to construct the earth fill portions of the diversions shall be obtained from the diversion channel or other approved source.

D. The earth fill materials used to construct diversions shall be compacted by running the construction equipment over the fill in such a manner that the entire surface of the fill will be traversed by not less than one tread track of the equipment.

E. When an excess of earth material results from cutting the channel cross section and grade, it shall be deposited adjacent to the supporting ridge unless otherwise directed.

F. The completed diversion shall conform to the cross section and grade shown on the Construction Drawings.

G. Temporary or permanent seeding and mulch (or blanket/mat) shall be applied to the berm or ditch immediately following its construction. Contractor shall triple-seed areas below the flow line, and shall use erosion control blankets or turf reinforcement mats as needed.

H. Bare and vegetated diversion channels shall be inspected regularly to check for points of scour or bank failure; rubbish or channel obstruction; rodent holes, breaching, or settling of the ridge; and excessive wear from pedestrian or construction traffic.

I. Damaged channels or ridges shall be repaired at the time damage is detected. Sediment deposits shall be removed from diversion channels and adjoining vegetative filter strips regularly.

J. Diversions shall be reseeded as needed to establish vegetative cover.

3.11 LEVEL SPREADER

A. The minimum acceptable width shall be 6 feet. The depth of the level spreader as measured from the lip shall be at least 6 inches and the depth shall be uniform across the entire length of the measure.

B. The grade of the channel for the last 15 feet entering the level spreader shall be less than or equal to 1%.

C. The level lip of the spreader shall be constructed on zero percent grade to ensure uniform conversion of channel flow to sheet flow.

D. Level spreaders shall be constructed on undisturbed soil.

E. The entrance to the spreader shall be graded in a manner to ensure that runoff enters directly onto the zero percent graded channel.

F. Storm runoff converted to sheet flow shall discharge onto undisturbed areas stabilized with vegetation.

G. All disturbed areas shall be stabilized immediately after construction is completed in accordance with the mulching and vegetation requirements of this Specification.

H. The level spreader shall be inspected after each storm event and at least once each week. Any observed damage shall be repaired immediately.

3.12 PERMANENT CONSTRUCTED WATERWAY

A. All ditches or other depressions to be crossed shall be filled before construction begins or as part of construction, and the earth fill used to fill the depressions shall be compacted using the treads of the construction equipment. All old terraces, fence rows, or other obstructions that will interfere with the successful operation of the channel shall be removed.

B. The earth materials used to construct the earth fill portions of the channel shall be obtained from the excavated portion of the channel or other approved source.

C. The earth fill materials used to construct the channel shall be compacted by running the construction equipment over the fill in such a manner that the entire surface of the fill will be traversed by at least one tread track of the equipment.

D. The completed channel shall conform to the cross section and grade shown on the Construction Drawings.

E. Channels shall be inspected regularly to check for points of scour or bank failure;

rubbish or channel obstruction; rodent holes; breaching; and excessive wear from pedestrian or construction traffic.

F. Channels shall be repaired at the time damage is detected. Sediment deposits shall be removed from adjoining vegetative filter strips when they are visible.

G. Channels shall be seeded and mulched as needed to establish vegetative cover. Blankets or mats may be used instead of mulch, according to manufacturer's specifications.

H. The subgrade of paved channels shall be constructed to the required elevations. All soft sections and unsuitable material shall be removed and replaced with suitable material. The subgrade shall be thoroughly compacted and shaped to a smooth, uniform surface. The subgrade shall be moist when pouring concrete.

I. Before permanent stabilization of the slope, the structure shall be inspected after each rainfall. Any damages to the paved channel or slope shall be repaired immediately.

3.13 PIPE SLOPE DRAIN

A. The pipe slope drain shall be placed on undisturbed or well-compacted soil.

B. Soil around and under the entrance section shall be hand-tamped in 4-inch to 8-inch lifts to the top of the dike to prevent piping failure around the inlet.

C. Filter fabric shall be placed under the inlet and extended 5 feet in front of the inlet and be keyed in 6 inches on all sides to prevent erosion.

D. Backfilling around and under the pipe with stable soil material hand compacted in lifts of 4 inches to 8 inches shall be done to ensure firm contact between the pipe and the soil at all points.

E. The pipe slope drain shall be secured to the slope using stakes at intervals of 10 feet or less.

F. All slope drain sections shall be securely fastened together and have watertight fittings.

G. The pipe shall be extended beyond the toe of the slope and discharged at a non-erosive velocity into a stabilized area or to a sediment trap or pond.

H. The pipe slope drain shall have a minimum slope of 3 percent or steeper.

I. The height at the centerline of the earth dike shall range from a minimum of 1.0 foot over the pipe to twice the diameter of the pipe measured from the invert of

the pipe. It shall also be at least 6 inches higher than the adjoining ridge on either side. At no point along the dike will the elevation of the top of the dike be less than 6 inches higher than the top of the pipe.

J. All areas disturbed by installation or removal of the pipe slope drain shall be immediately stabilized.

K. The pipe slope drain shall be inspected after every rainfall and at least weekly. Any necessary repairs shall be made immediately.

L. Contractor shall check to see that water is not bypassing the inlet and undercutting the inlet or pipe. If necessary, Contractor shall install headwall or sandbags.

M. Contractor shall check for erosion at the outlet point and shall check the pipe for breaks or clogs. Contractor shall install additional outlet protection if needed and immediately repair the breaks and clean any clogs.

N. Contractor shall not allow construction traffic to cross the pipe slope drain and shall not place any material on it.

O. If a sediment trap has been provided, it shall be cleaned out when the sediment level reaches 1/3 the design volume.

P. The pipe slope drain shall remain in place until the slope has been completely stabilized or up to 30 days after permanent slope stabilization.

3.14 IMPACT STILLING BASIN

A. Construction specifications for impact stilling basins are provided in the Construction Drawings.

3.15 CHECK DAM

A. Stone shall be placed by hand or mechanically as necessary to achieve complete coverage of the ditch and to ensure that the center of the dam is at least 1 foot lower than the outer edges. Stone shall also be placed to extend 3 feet in elevation above the center portion of the check dam or to the top of the channel side slopes.

B. Coir and wood fiber logs shall be laid on the channel bottom.

C. Check dams shall be removed when their useful life has been completed. In temporary ditches and swales, check dams shall be removed and the ditch filled in when it is no longer needed. In permanent channels, check dams shall be removed when a permanent lining can be installed. In the case of grass-lined

ditches, check dams shall be removed when the grass has matured sufficiently to protect the ditch or swale. The area beneath the check dams shall be seeded and mulched or sodded (depending upon velocity) immediately after check dams are removed.

D. If stone check dams are used in grass-lined channels that will be mowed, care shall be taken to remove all stone from the channel when the dam is removed. This shall include any stone that has washed downstream.

E. Regular inspections shall be made to ensure that the check dam is in good working order and the center of the dam is lower than the edges. Erosion caused by high flows around the edges of the dam shall be corrected immediately, and the dam shall be extended beyond the repaired area.

F. Check dams shall be checked for sediment accumulation after each rainfall. Sediment shall be removed before or when it reaches one-third of the original height.

G. Check dams shall remain in place and operational until the drainage area and channel are completely stabilized, or up to 30 days after the permanent site stabilization is achieved.

3.16 SEDIMENT TRAP

A. The area to be excavated shall be cleared of all trees, stumps, roots, brush boulders, sod, and debris. All channel banks and sharp breaks shall be sloped to no steeper than 1:1. All topsoil containing excessive amounts of organic matter shall be removed.

B. Seeding and mulching of the sediment trap berm and any material taken from the excavation shall comply with the applicable soil stabilization sections of this Specification.

C. Construction specifications for sediment traps are provided in the Construction Drawings.

D. Any material excavated from the trap shall be placed in one of the following ways so that it will not be washed back into the trap by rainfall:

1. uniformly spread to a depth not exceeding 3 feet and graded to a continuous slope away from the trap

2. uniformly placed or shaped reasonably well with side slopes assuming the natural angle of repose for the excavated material behind a berm width not less than 12 feet.

E. Sediment shall be removed from the trap when the capacity is reduced to one third of the design volume. Contractor shall follow the methods for disposing of sediment removed from the trap as shown in the Construction Drawings.

3.17 SEDIMENT POND

A. The foundation area shall be cleared of all trees, stumps, roots, brush boulders, sod, and debris. All channel banks and sharp breaks shall be sloped to no steeper than 1:1. All topsoil containing excessive amounts of organic matter shall be removed. The surface of the foundation area shall be thoroughly scarified before placement of the embankment material.

B. A cutoff trench shall be backfilled with suitable material. The trench shall be kept free of standing water during backfill operations.

C. The pipe conduit barrel shall be placed on a firm foundation. Selected backfill material shall be placed around the conduit in layers, and each layer shall be compacted to at least the same density as the adjacent embankment. All compaction within 2 feet of the pipe spillway shall be accomplished with hand-operated tamping equipment.

D. All borrow areas outside the pond and in the drainage area shall be graded and left in such a manner that water will not be ponded.

E. The material placed in the fill shall be free of all sod, roots, frozen soil, stones more than 6 inches in diameter, and other objectionable material. The placing and spreading of the fill material shall occur in approximately 6-inch horizontal layers or of such thickness that the required compaction can be obtained with the equipment used. Each layer shall be compacted in a way that will result in achieving 95 percent of the maximum standard dry density.

F. The distribution and gradation of materials throughout the fill shall be such that there will be no lenses, pockets, stakes, or layers of material differing substantially in texture or gradation from the surrounding material. Where it is necessary to use materials of varying texture and gradation, the more impervious material shall be placed in the upstream and center portions of the fill.

G. The moisture content of fill material shall be such that the required degree of compaction can be obtained with the equipment used.

H. Fill shall not be placed on frozen, slick, or saturated soil.

I. The topsoil material saved in the site preparation shall be placed as a top dressing on the surface of the emergency spillways, embankments, and borrow areas. It shall be evenly spread.

J. A protective cover of herbaceous vegetation shall be established on all exposed surfaces of the embankment, spillway, and borrow areas to the extent practical under prevailing soil and climatic conditions.

K. Seedbed preparation, seeding, fertilizing, and mulching shall comply with the applicable sections of this Specification.

L. Any material excavated from the pond shall be placed in one of the following ways so that its weight will not endanger the stability of the side slopes and where it will not be washed back into the pond by rainfall:

1. uniformly spread to a depth not exceeding 3 feet and graded to a continuous slope away from the pond.

2. uniformly placed or shaped reasonably well with side slopes assuming the natural angle of repose for the excavated material behind a berm width not less than 12 feet.

M. Sediment shall be removed from the pond when the capacity is reduced to one third of the design volume. Contractor shall follow the methods for disposing of sediment removed from the pond as shown in the Construction Drawings.

3.18 SILT FENCE

A. This Article provides construction specifications for silt fences using synthetic fabric. See the Construction Drawings for additional detail.

B. Posts shall be spaced a maximum of 6 feet apart at the barrier location and driven securely into the ground (minimum of 12 inches). When necessary because of rapid runoff, post spacing shall not exceed 6 feet.

C. A trench shall be excavated at least 6 inches wide and 6 inches deep along the line of posts and upslope from the barrier.

D. Where used, the wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy-duty wire staples at least 1 inch long, tie wires or hog rings. The wire shall extend into the trench a minimum of 2 inches and shall not extend more than 36 inches above the original ground surface.

E. The filter fabric shall be stapled or wired to the fence, and 12 inches of the fabric shall be extended into the trench. The fabric shall not extend more than 30 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.

F. At joints, filter fabric shall be lapped with terminating posts with a minimum overlap of 3 feet.

G. The trench shall be backfilled and soil compacted over the filter fabric.

H. Silt fences shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized.

I. Silt fences and filter barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately. Knocked down fences shall be repaired at the end of each day.

J. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and if the barrier is still necessary, the fabric shall be replaced promptly.

K. Sediment deposits shall be removed after each storm event or when deposits reach approximately one-third the height of the barrier.

L. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded.

M. Silt fences shall be replaced every 6 months.

N. Silt fence shall terminate in a "J" hook to prevent bypassing at the end of a row.

3.19 STORM DRAIN INLET PROTECTION

A. All storm drains receiving sediment-laden flows from disturbed areas shall be protected. Approved inlet protection methods include net or sand bags filled 2/3 with rock, geotextile filtration products, and Contractor-fabricated structures.

B. For a silt fence drop inlet protection structure, the following specifications apply:

1. For stakes, Contractor shall use 2 x 4-inch wood (preferred) or equivalent metal with a minimum length of 3 feet.

2. Stakes shall be evenly spaced around the perimeter of the inlet a maximum of 3 feet apart and securely driven into the ground, approximately 18 inches deep.

3. To provide needed stability to the installation, Contractor shall frame with 2 x 4-inch wood strips around the crest of the overflow area at a maximum of 1.5 feet above the drop inlet crest and shall brace diagonally.

4. Contractor shall place the bottom 12 inches of the fabric in a trench and backfill the trench with at least 4 inches of crushed stone or 12 inches of

compacted soil.

5. Contractor shall fasten fabric securely to the stakes and frame. Joints shall be overlapped to the next stake.

C. For sod drop inlet protection, sod shall be placed to form a turf mat covering the soil for a distance of 4 feet from each side of the inlet structure. Soil preparation and sod placement shall be in accordance with the section entitled Sod.

D. For gravel curb inlet protection, the following specifications apply:

1. Wire mesh with ½-inch openings shall be placed over the curb inlet opening so that at least 12 inches of wire extends across the concrete gutter from the inlet opening.

2. KYTC No. 2 Coarse Aggregate shall be piled against the wire so as to anchor it against the gutter and inlet cover and to cover the inlet opening completely.

3. This type of device shall never be used where overflow may endanger an exposed fill slope. Consideration shall also be given to the possible effects of ponding on traffic movement, nearby structures, working areas, and adjacent property.

E. For block and gravel curb inlet protection, the following specifications apply:

1. Two concrete blocks shall be placed on their sides abutting the curb at either side of the inlet opening to act as spacer blocks.

2. A 2-inch by 4-inch stud shall be cut and placed through the outer holes of each spacer block to help keep the front blocks in place.

3. Concrete blocks shall be placed on their sides across the front of the inlet and abutting the spacer blocks.

4. Wire mesh shall be placed over the outside of the concrete blocks to prevent stone from being washed through the holes in the blocks. Wire with ½-inch openings shall be used.

5. KYTC No. 2 Coarse Aggregate shall be piled against the wire to the top of the barrier.

F. For stone-filled corrugated pipe curb inlet protection, the following specifications apply:

1. Two concrete "L" blocks shall be placed on their sides, with one leg fitting into the mouth of the curb opening.

2. A 6-inch corrugated pipe shall be filled with stone and covered with a filter sock.

3. The stone-filled pipe will be placed in front of the two concrete "L" blocks, and extend a minimum of the width of the curb inlet opening on either side. The total length of the stone filled pipe shall be three times the width of the curb inlet opening.

G. The inlet protection structure shall be inspected after each rain, and repairs made as needed.

H. Sediment shall be removed and the device restored to its original dimensions when sediment has accumulated to one-third the design depth of the filter. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

I. If a stone filter becomes clogged with sediment so that it no longer adequately performs its function, the stone shall be pulled away from the blocks, cleaned, and replaced.

J. Structures shall be removed after the area draining to the inlet protection structure has been properly stabilized.

3.20 FILTER STRIP

A. When planting filter strips, Contractor shall prepare seedbed, incorporate fertilizer based on a soil test, and apply mulch consistent with the seeding sections of this Specification. Fertilizer shall not be applied within 50 feet of a stream or other waterbody. Filter strips using areas of existing vegetation shall be over seeded, as necessary, with the specified mixtures to obtain an equivalent density of vegetation. The over seeding shall be accomplished prior to any land disturbing activities.

B. Filter strips shall be inspected regularly to ensure that a healthy vegetative growth is maintained. Any bare spots or spots where sediment deposition could lead to the destruction of vegetation shall be repaired.

C. Filter strips shall be fertilized once each year in the fall.

D. Irrigation shall be used as necessary to maintain the growth of the vegetation in the filter strip.

E. Sediment shall be removed when it becomes visible in the filter.

F. Construction traffic shall not be driven on or over filter strips.

3.21 STREAM CROSSING

A. Clearing and excavation of the streambed and banks shall be kept to a minimum.

B. The structure shall be removed as soon as it is no longer necessary for project construction.

C. Upon removal of the structure, the stream shall immediately be reshaped to its original cross section and properly stabilized.

D. The approaches to the structure shall consist of stone pads with a minimum thickness of 6 inches, a minimum width equal to the width of the structure, and a minimum approach length of 25 feet on each side.

E. The structure shall be inspected after every rainfall and at least once a week and all damages repaired immediately.

3.22 PUMP-AROUND FLOW DIVERSION

A. Operations shall be scheduled such that diversion installation, in-stream excavation, in-stream construction, stream restoration, and diversion removal are completed during low-flow conditions and as quickly as possible. Contractor shall not construct in a stream when rainfall is expected during the time excavation will be occurring in the stream.

B. Check dams shall be installed across the stream during low flow conditions.

C. Stream flow shall be pumped around the check dams. Outlet protection shall be installed as required at the discharge point.

D. Contractor shall dewater the work area and pump into a sediment trapping device.

E. Contractor shall complete construction activities across the stream.

F. Contractor shall restore the streambed and banks.

G. Contractor shall remove sandbags and shut down pumping operation. (Salvage sandbags for future use if multiple stream crossings are required on the project.) Contractor shall remove all sandbags from the stream, including damaged and empty bags.

H. Pumps shall be manned around-the-clock when the pump-around diversion is in the stream.

I. This control provides short-term diversion of stream flow (typically 1 day to 3 days). Additional sandbags or pumps may be required to maintain 1-foot freeboard on the sandbag checks if flow conditions change.

J. Contractor shall add sandbags as required to seal leaks in check dams.

3.23 CONSTRUCTION DEWATERING

A. All dewatering discharges shall pass through a sediment removal device. Contractor shall follow the specifications for sediment traps and basins. The manufacturer's recommendations shall be followed for commercial products.

B. The dewatering structure shall be inspected frequently to ensure it is functioning properly and not overtopping. Accumulated sediment shall be spread out on site and stabilized or disposed of offsite.

3.24 KPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

A. The Contractor is responsible for electronically filing the appropriate state Notice of Intent (NOI-SWCA) letter at least seven (7) days prior to start of construction activity. The Notice of Intent (NOI) is a Kentucky Pollution Discharge Elimination System (KPDES) permit application as provided by the Kentucky Revised Statutes, Chapter 224. This application is required to be submitted for construction projects that disturb one or more acres of land.

B. The NOI requires the inclusion of the descriptions of (but is not limited to) the following items:

1. Names and designated uses of any receiving waters

2. Anticipated number and locations of discharge points

3. Identification of planned construction in or along a waterbody

C. A topographic map showing project boundaries, areas to be disturbed, locations of anticipated discharge points and receiving waters is also required to be submitted with the NOI.

D. If the construction site is near a designated "High Quality/Impaired Waters" or a "Cold Water Aquatic Habitat Waters, Exceptional Waters, Outstanding National/State Resource Waters," additional items and/or individual permits will be required.

E. The NOI form requires an SIC code. The link to the SIC codes is http://www.osha.gov/pls/imis/sicsearch.html. The following are the typical construction SIC codes utilized:

1542 – Building Construction, nonresidential, except industrial and warehouses
1623 – Water Main Construction, Sewer Construction
1629 – Water and Wastewater Treatment Plant Construction
1711 – Water Pump Installation
1781 – Drilling Water Wells

F. The Contractor is responsible for implementing the approved Stormwater Pollution Prevention Plan (SWPPP) prior to commencement of site disturbance. The SWPPP shall include erosion prevention measures and sediment and pollutant control measures which are installed and maintained to minimize discharges of sediments and other pollutants from a 2-year, 24-hour storm event. The SWPPP shall be kept at the site and available for review by LFUCG and state officials.

G. The Contractor is responsible for the description of procedures to maintain erosion and sediment control measures during the period of construction.

H. The Contractor is responsible for identifying each Contractor and Subcontractor who will install each SWPPP erosion and sediment control measure.

I. Each Contractor and Subcontractor shall sign a statement certifying the awareness of the requirements of the SWPPP-related documents. Certification is attached at the end of this section.

J. The Contractor shall not start land disturbing activities until written permit coverage is obtained from the Kentucky Division of Water.

K. The inspection by qualified personnel, provided by the Contractor, of the site as follows:

1. at least once every seven (7) calendar days, and

2. within 24 hours after any storm event of 0.5 inch or greater

L. The Contractor is responsible for completing and maintaining the required Self-Inspection Forms. A sample is included in this specification Section.

M. Amendments to the approved SWPPP shall be made and implemented as necessary through the course of the construction project if inspections or investigations by the Contractor's inspector, site staff, or by local, state, or federal officials determine that the existing sediment control measures, erosion control measures, or other site management practices are ineffective in

eliminating or significantly minimizing pollutants in stormwater discharges from the construction site. All plan amendments shall be noted on the copy of the SWPPP maintained at the project site. Plan amendments that involve engineering design shall be prepared by an engineer licensed in Kentucky.

N. The Contractor shall submit the Notice of Termination (NOT) form to the Kentucky Division of Water, the LFUCG Division of Water Quality, and the LFUCG Division of Engineering when final stabilization has been achieved on all portions of the site and the erosion/sediment controls have been removed.

O. All subcontractors shall be required to comply with the requirements of the state permit and the Stormwater Pollution Prevention Plan (SWPPP).

P. Where to submit:

1. Complete KPDES FORM NOI-SW at the following website: https://dep.gateway.ky.gov/eForms/default.aspx?FormID=7

2. Do not initiate work until receiving approval from the Kentucky Division of Water.

3. A complete copy of the NOI submittal shall also be provided to the following for approval/coverage verification:

Division of Water Quality
125 Lisle Industrial Avenue, Suite 180
Lexington, KY 40511

Division of Engineering
Lexington-Fayette Urban County Government
101 E. Vine St.
4th Floor
Lexington, KY 40507

3.25 LFUCG LAND DISTURBANCE PERMIT

A. The Contractor shall obtain a Land Disturbance Permit from the LFUCG Division of Engineering, after the LFUCG Division of Water Quality inspects the installation of the best management practices as required by the Stormwater Pollution Prevention Plan (SWPPP). The site grading plan shall show the original and finish grade contours. The grading plan shall be in conformance with the SWPPP and shall clearly show the initial phase of best management practices to be installed.

B. A Land Disturbance Permit checklist can be obtained from:

Division of Engineering
Lexington-Fayette Urban County Government
101 E. Vine St., 4th Floor
Lexington, KY 40507
(859) 258-3410
Attn: Land Disturbance Permit Section
https://www.lexingtonky.gov/new-development

C. All excess earthen/rock materials hauled off the site to a location in Fayette County shall be hauled to a site permitted by the Kentucky Division of Water and the LFUCG. The haul site shall be permitted in accordance with these specifications.

- END OF SECTION -

SECTION 02371

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

PART 1 - GENERAL

1.01 GENERAL

A. The Contract Documents include a preliminary Erosion and Sediment Control (ESC) Plan and a draft SWPPP. This ESC Plan/SWPPP may be used for establishing quantities and a lump sum price for providing the Erosion and Sediment Control Measures.

B. The Contractor may use this ESC Plan/SWPPP, modified as necessary by the Contractor, to obtain the required permits, e.g., Land Disturbance Permit. If Contractor chooses to use this ESC Plan/SWPPP, the Contractor takes sole responsibility for the content of the ESC Plan/SWPPP and the implementation of the ESC Plan/SWPPP during construction. The Contractor acknowledges that this ESC Plan/SWPPP may not fully address any and all Erosion and Sediment Control Measures needed to comply with state and local requirements during construction, and must be updated by the Contractor as appropriate. The Contractor acknowledges that he/she is responsible for addressing any Notices of Violation of the ESC Plan/SWPPP issued by any regulating authority. The Contractor shall be responsible for paying any fines or civil penalties for failure to comply with the ESC Plan/SWPPP or correcting deficiencies noted in Notice(s) of Violation.

C. Contractor may also choose to prepare its own ESC Plan/SWPPP and submit it to LFUCG Division of Water Quality for acceptance. No additional payment will be allowed for the ESC Plan/SWPPP development and conformance with said ESC Plan/SWPPP pay item.

D. Contractor is advised that compliance with LFUCG planning, permitting, and construction requirements does not imply compliance with Kentucky Division of Water requirements, which is also a condition of the Contract.

E. It is the Contractor's sole responsibility to meet all requirements of the Kentucky General Permit for Stormwater Discharges Associated with Construction Activities (KYR10) and the LFUCG Land Disturbance Permit.

F. The Contract Documents include a draft SWPPP and a preliminary Erosion and Sediment Control Plan, which shall be used for informational purposes only. The erosion control measures shown on the construction drawings and listed in the specifications herein are given as the minimum erosion control measures. It is the Contractor's sole responsibility to comply with KYR10 and the Land Disturbance Permit and to adapt the plan as necessary based on sequencing and construction means and methods.

G. The Contractor shall provide to the Engineer for review and approval a sequenced SWPPP. The sequenced SWPPP must align with the Contractor's construction activities. Erosion control measures in each area must be in place prior to any soil disturbance.

H. Any Erosion and Sediment Control measures required by Engineer or State and local agency inspections shall be provided by the Contractor at no additional cost to the Owner.

I. The Contractor shall submit an updated SWPPP and implementation schedule with each pay application for review by the Engineer.

The SWPPP is included in the following 22 pages.

CONSTRUCTION SITE STORMWATER POLLUTION PREVENTION AND EROSION AND SEDIMENT CONTROL PLAN

This Erosion and Sediment Control / Stormwater Pollution Prevention Plan (SWPPP) narrative and the attached plan sheets address requirements of the Kentucky Division of Water (KDOW) KPDES Construction General Permit and the Lexington-Fayette Urban County Government's (LFUCG) Erosion and Sediment Control (ESC) Plan, which is required by ordinance for certain projects and required to obtain an LFUCG Grading Permit.

Prepared by: Casey Mattingly, PE
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Date Prepared: May 25, 2021

LFUCG Checklist Attached: Yes _X_ No ___ (Appendix A)

KY DOW NOI Attached: Yes ___ No _X_

1) CONTACT INFORMATION AND SITE DESCRIPTION

a. Project Name and Location

Southland Park Stormwater Improvements
Southland Park, Yuma Court, and Tucson Drive
Lexington, Kentucky 40503

b. Site Owner Name and Contact Information

Lexington-Fayette Urban County Government (LFUCG)
Gregory Lubeck, Division of Water Quality
215 Lisle Industrial Avenue
Lexington, KY 40511
(859) 425.2400
glubeck@lexingtonky.gov

c. Construction Site SWPPP Manager and Contact Information

Contractor Name:_____

Address:_____

_____

Phone:_____

Email:_____

d. Project Start and End Dates

Projected Start: 11-01-21

Projected End: 04-30-22

e. Existing Site Conditions, Purpose, and Types of Soil Disturbing Activities

The project consists of construction of stormwater infrastructure and improvements to mitigate street flooding in the Southland Park area (streets include Yuma Ct. and Tucson Dr.) in Lexington. The area consists of open lawn space, athletic facilities, and single-family residences. Infrastructure being installed includes detention basins, new storm sewer pipes, new storm sewer inlets, and connection points for home sump pump discharges.

The outlet location(s) for the stormwater will be within Southland Park, property owned by LFUCG that is adjacent to Tucson Drive; this is the same general location stormwater runoff is currently routed. Green infrastructure will be installed within Southland Park to provide water quality benefits to a portion of the stormwater within the basins. Once all other infrastructure and improvements within the Southland Park area are completed and the impacted areas are stabilized, the green infrastructure portion of the project will be installed. The green infrastructure portion of the project will be included in the SWPPP documents.

Earth disturbance and excavation required to install storm sewer infrastructure and related project components will be limited to the boundaries identified on the project Drawings. Typically, the new stormwater pipes will be installed within existing roadways and trench excavation will be minimized.

The Southland Park area generally drains north and east to a perennial stream referred to as Spring Branch, which is an unnamed tributary to Wolf Run Creek. Following the project, most stormwater will flow through a storm sewer system and green infrastructure (constructed natural stream channel), then enter Spring Branch within Southland Park. According to the KDOW, Wolf Run is impaired downstream of the project site for primary and secondary contact recreation (nonsupport due to pathogens) and warmwater aquatic habitat (nonsupport due to specific conductance and nutrient/eutrophication biological indicators).

The dominant soils at the site are Donerail silt loam and Bluegrass-Maury silt loam (2 to 6 percent slopes). These soils are generally well drained and is non-hydric. Potential soil disturbing activities will include construction/installation of stabilized construction entrance, staging/stockpiling area, downgradient silt fence and other erosion and sediment controls, new storm sewer pipes, new storm sewer inlets, connection points for home sump pump discharges, detention basins, and preparation for final seeding of disturbed areas.

f. Runoff Coefficient

Current Runoff Coefficient = 0.25; Final Runoff Coefficient = 0.25

g. Site Area and Disturbed Acreage

The site is approximately 5 acres, of which 2.6 acres will be disturbed by construction activities.

h. Sequence of Major Activities

Construction Activity	**Schedule Considerations**
Work crew orientation	Pre-project briefing to review permits, plans, schedule, and staffing.
Site protection	This is the first land-disturbing activity. Minimal clearing/grading will be done to stabilized construction entrance, staging/stockpile area, and concrete washout. Downgradient silt fences will be installed below areas to be cleared or disturbed. Do-not-disturb areas, including tree protection and riparian area of Spring Branch, will be marked off. Initial construction routes and initial areas designated for vehicle parking shall be identified.
Silt fences	Identify locations and install silt fences as necessary prior to upgradient work and prevent clean water from running across construction entrance, staging/stockpile area, and concrete wash pit. Maintain as necessary. Silt fence shall be adjusted as necessary to prevent sediment from leaving the site until the site is finally stabilized.
Runoff and run-on controls – diversion ditches or berms, perimeter dikes	Install controls as needed to divert clean flows around or through site, particularly around material staging and stockpile areas. Additional runoff control measures may be installed during project.
Clearing and tree protection	Clearing and tree removal shall be the minimum necessary for infrastructure installation. Tree removal requires written approval from the Engineer or RPR. Any clearing or grading will begin after installation of principal sediment and runoff control measures, and additional control measures will be installed as grading continues.
Runoff conveyance system –storm drains	Stormwater inlets shall be protected prior to project disturbances. Inlet protection measures will be installed as needed as construction of project infrastructure progresses to protect every storm drain inlet, curb inlet, or similar drainage structure that may receive sediment-laden runoff.

Construction Activity	Schedule Considerations
Surface stabilization—temporary and permanent seeding, mulching, sodding	All disturbed areas will be graded and stabilized as soon as possible. Stabilization will begin within 14 days on areas of the site where construction has permanently or temporarily ceased. Temporary and permanent stabilization will comply with the Stormwater Manual. Erosion control blankets and turf reinforcement mats will be used on slopes in accordance with the Stormwater Manual.
Building construction—infrastructure installation	During construction, erosion and sedimentation control measures will be installed as needed, such as downgradient silt fences, or other silt barriers. Areas at final grade will be seeded/mulched as soon as possible. No excavation material from pipe trenches shall be placed between the trench and conveyances of runoff. Place material on the upgradient side of the excavation trench such at any sediment or excavated material is caught by the trench. If trench dewatering is required, water pumped from trenches shall be run through an appropriate, properly sized sediment treatment device, such as a filter bag, prior to discharge from the site.
Final stabilization—permanent seeding, mulching, sodding.	Permanent stabilization shall occur as the project progresses. At project completion, all remaining disturbed areas will be stabilized, including staging/stockpiling areas. Temporary control structures, including construction entrance, will be removed and the area will be seeded and mulched.

2) SITE DESCRIPTION, MAPS, AND DRAWINGS

See also project Drawings for Pre/Post Construction Topography, Construction, Drainage Features, and BMPs.

a. Name of Receiving Waters

The site will drain into Spring Branch, which is an unnamed tributary to Wolf Run Creek, within Southland Park adjacent to the site.

b. TMDLs and Pollutants of Concern in Receiving Waters

Wolf Run Creek, downstream of the project site, is listed on KDOW's impaired waters (303d) list for primary and secondary contact recreation (nonsupport due to pathogens) and warmwater aquatic habitat (nonsupport due to specific conductance and nutrient / eutrophication biological indicators). There is a pathogen TMDL for Wolf Run Creek's

impaired segments. Pathogens are not a pollutant of concern expected from this project.

c. Potential Pollutants of Concern

Sediment from disturbance within residential streets and yards; concrete washout water; oil/fuel/grease from equipment; trash/debris.

3) EROSION PREVENTION AND SEDIMENT CONTROL MEASURES

All erosion, sediment, stormwater, and housekeeping practices will be consistent with the LFUCG Stormwater Manual and KY Division of Water field and technical guidance, at a minimum.

a. Limits of Disturbance and Project Phasing

Land disturbance activities will be phased to minimize the amount of soil exposed and the length of exposure time. The overall objective will be to achieve final grades as quickly as possible, and to stabilize all areas with seed, mulch or blankets/mats within 14 days after final grade is achieved, or after grading work is suspended on that portion of the site.

Spring Branch, within the site will be protected (50 ft buffer) and remain undisturbed by the project.

Staging/stockpiling areas and construction entrance as shown on Drawings shall be used to minimize erosion, sediment transport, and disturbance to existing vegetation. All areas outside of the disturbance limits shall be protected from disturbance.

b. Stabilization Practices

Temporary Stabilization. Soil stockpiles and disturbed portions of the site where construction activity stops for 14 days or more will be stabilized with temporary seed or straw mulch no later than 14 days from the last construction activity in that area (portion) of the site. Seeding rates will be consistent with the KY EPSC Field Guide. Lime and fertilizer will be applied only when indicated by a soil test. After seeding, each area shall be covered by erosion blanket or mulched with at least two tons/acre of blown or hand-scattered straw. The straw will be netted down or crimped into place by a disk harrow with the blades set straight. Slopes will be covered with blankets or mats consistent with the LFUCG Stormwater Manual. Areas of the site which are to be paved will be temporarily stabilized by applying geotextile and stone sub-base until bituminous pavement can be applied. Dust will be controlled as needed in dry weather.

Permanent Stabilization. Disturbed portions of the site where construction activities are completed will be stabilized with permanent seed no later than 14 days after completion of grading in that area. Seed and mulch will be applied consistent with the KY EPSC

Field Guide. Lime and fertilizer will be applied only if needed. After seeding, each area will be mulched with 2 tons per acre of straw. The straw mulch will be netted down or crimped into place by a disk harrow with blades set straight. Slopes will be covered with erosion control blankets or turf reinforcement mats consistent with the LFUCG Stormwater Manual. Ditches will be triple-seeded and lined with erosion control blanket or turf reinforcement matting.

c. Structural Practices

Construction Entrance. Sediment shall be retained on-site through the use of stone-stabilized construction entrance at a location of ingress/egress to site (specifically to staging/stockpiling and concrete wash pit areas). The entrances will be constructed prior to any site disturbance. The construction entrance will be maintained in a condition that will prevent tracking or flow of soil, mud, or rock into public right-of-way, including periodic top dressing with fresh stone. The Contractor shall take necessary action to minimize the tracking of soil, mud, or rock onto all paved roadways leaving the site. The Contractor shall remove soil, mud, or rock from pavement at the end of each work day.

Silt Fence. Silt fence shall be placed on contours prior to clearing, excavation, excess material placement, and any other earth-disturbing activities. Silt fence shall be adjusted as necessary to prevent sediment from leaving the site until the site is finally stabilized.

Inlet Protection Measures. Temporary storm drain inlet protection shall be placed on every storm drain inlet, curb inlet, or similar drainage structure that may receive sediment-laden runoff (phased as project progresses). Inlet protection structures will consist of rock bags, #2 rock berms, trenched in silt fence on framing, or commercial devices. Caution shall be used to not install inlet protection where ponding could result and cause impacts to roads, streets, driveways, etc.

Outlet Protection Measures. Use where stormwater conveyances discharge to ditches or channels, and consist of turf reinforcement matting over triple seeding, erosion control blanket over triple seeding, or channel lining, depending on the scour flows and consistent with the KDOW's BMP Technical Specifications Manual.

Rock Check Dam. Temporary rock check dams shall be installed in the proposed channels according to channel slope as shown on the Drawings. The check dam shall consist of KYTC Class II Channel Lining and extend to the top of bank. Checks dams shall be adjusted as necessary to prevent sediment from leaving the site until the site is finally stabilized.

Construction Dewatering. Use to remove stormwater or groundwater from excavated trenches required for pipe installation. This water will be pumped to an appropriate, properly sized sediment treatment device, such as a filter bag, prior to discharge from the site.

d. Site Runoff Management

Sediment will be prevented from leaving the site to the maximum extent practicable.

Minimal clearing/grading will be done to stabilized construction entrance, staging/stockpile area, and concrete washout. Downgradient silt fences will be installed below areas to be cleared or disturbed. Do-not-disturb areas, including tree protection and riparian area of Wolf Run Creek, will be marked off., protected, and left undisturbed. Tree protection shall consist of 4-feet high, polyethylene mesh fence in the high-visibility color of orange, secured onto rigid wood or metal posts using wire or cable ties. Where individual trees are protected, tree protection fence shall be placed at the extent of tree canopy.

Clearing and tree removal shall be the minimum necessary for infrastructure installation. Tree removal requires written approval from the Engineer or RPR.

Existing stormwater inlets must be protected prior to project disturbances. Inlet protection measures will be installed as needed as construction of project infrastructure progresses Inlet protection measures will be installed as needed as construction of project infrastructure progresses to protect every storm drain inlet, curb inlet, or similar drainage structure that may receive sediment-laden runoff.

If needed, outlet protection measures will be used where stormwater conveyances discharge to ditches or channels within the project area.

Install controls as needed to divert clean flows around or through site, particularly around material staging and stockpile areas.

No excavation material from pipe trenches shall be placed between the trench and conveyances of runoff. Place material on the upgradient side of the excavation trench such at any sediment or excavated material is caught by the trench. If trench dewatering is required, water pumped from trenches shall be run through a sediment filter bag or other approved device prior to release.

Landscaped areas (i.e. residential yards) will be brought to grade and planted/seeded/mulched within 14 days. Permanent stabilization shall occur as the project progresses.

Upon project completion, temporary erosion and sediment control measures will be removed and all remaining areas of disturbance will be permanently stabilized.

4) OTHER CONTROL MEASURES

a. Offsite Vehicle Tracking

A stabilized construction entrance with KYTC No. 2 rock and geotextile underliner will be installed to help reduce vehicle tracking of sediments at connections to paved roads. The stabilized entrance will be 100 ft where possible, and at least 50 ft in length. The paved street adjacent to the site entrance will be swept/cleaned daily if necessary to remove any excess mud, dirt, or rock tracked from the site. The rock will be grubbed lightly or otherwise maintained as needed to clear (shake down) dry mud. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

b. Streams and Wetlands

A 50 ft natural vegetated buffer will be maintained adjacent to the top-of-bank of Spring Branch. Any work within the buffer will be completed as soon as possible and stabilized within 24 hours.

c. Waste Disposal

Waste Materials. All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in a covered metal dumpster. The dumpster will meet all Lexington and state solid waste management regulations. Construction debris and other wastes that do not leach pollutants will be recycled or deposited in a covered or open-topped dumpster. The dumpster will be emptied when full, and the contents will be hauled to an approved site. No construction waste materials will be buried or burned onsite. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted and the individual who manages the day-to-day site operations will be responsible for seeing that these procedures are followed.

Hazardous Waste. All waste materials will be disposed of in the manner specified by local or state regulation or by the manufacturer. Site personnel will be instructed in these practices and the individual who manages day-to-day site operations, will be responsible for seeing that these practices are followed.

Sanitary Waste. Portable toilets will be used on site for sanitary wastes. All sanitary waste will be collected from the portable units as needed to prevent excessive odors and overflows a licensed Lexington sanitary waste management contractor, as required by local regulation. Portable units will be placed away from storm drain inlets, ditches, creeks, and other water bodies.

d. Timing of Control Measures

As indicated in the Sequence of Major Activities, the stabilized construction entrance, staging/stockpiling area, concrete wash pit, and downgradient silt fences, and clean water diversions will be constructed prior to other infrastructure construction/installation.

Clearing and tree removal shall be the minimum necessary for infrastructure installation. Tree removal requires written approval from the Engineer or RPR. Any clearing or grading will begin after installation of principal sediment and runoff control measures, and additional control measures will be installed as grading continues.

Existing stormwater inlets must be protected prior to project disturbances. Inlet protection measures will be installed as needed as construction of project infrastructure progresses.

No excavation material from pipe trenches shall be placed between the trench and conveyances of runoff. Place material on the upgradient side of the excavation trench such at any sediment or excavated material is caught by the trench.

If trench dewatering is required, the water will be pumped to an appropriate, properly sized sediment treatment device, such as a filter bag, prior to discharge from the site.

Disturbed areas where construction activity temporarily ceases for more than 14 days will be stabilized with temporary seed and/or mulch within 14 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be seeded and mulched within 14 days. Temporary controls in permanently stabilized areas, such as silt fences, other sediment barriers, or inlet protection will be removed. Controls will remain in place until all vegetation is established and stable.

5) OTHER STATE AND LOCAL PLANS

This Stormwater Pollution Prevention Plan reflects KDOW and LFUCG requirements for stormwater management and erosion and sediment control, as established in LFUCG ordinances. To ensure compliance, this plan was prepared in accordance with the *Kentucky BMP Planning and Technical Specifications Manual* published by KDOW and the LFUCG *Stormwater Manual.* Other local, state, or federal permits (*e.g.,* Clean Water Act Section 404 dredge/fill permit, KDOW Section 401 Water Quality Certification, KDOW Floodplain Permit, etc.) may be needed for this project.

6) MAINTENANCE PROCEDURES

Maintenance of all BMPs at the site will be overseen by an individual who has been trained on construction site BMPs at a workshop sponsored by the Kentucky Erosion Protection and Sediment Control (KEPSC) Program or other approved training program. Other workers on-site will be trained in BMP installation, maintenance, and good housekeeping.

These are the inspection and maintenance practices that will be used to maintain erosion and sediment controls:

a. Stormwater infrastructure construction/installation shall be phased to minimize the amount of site disturbance at any one time; areas at final grade (*i.e.* within residential yards) will be seeded and mulched within 14 days.

b. All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported. This information will be logged in the SWPPP.

c. Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts. Bypasses will be repaired immediately. Torn silt fences will be repaired or replaced.

d. Built-up sediment will be removed from behind the silt fence when the sediment equals or exceeds 1/3 of the silt fence height.

e. Actions shall be taken to reduce the risk for concrete waste to contaminate stormwater runoff. The designated concrete wash pit shall be inspected and will be properly dewatered and sediment disposed of as needed.

f. Inlet protection filters shall be inspected and built-up sediment that equals or exceeds ⅓ of the height of the filter or has reached a level in which sediment clogs the filter and inhibits proper operation will be removed.

g. If trench dewatering is required, the water will be pumped to an appropriate, properly sized sediment treatment device, such as a filter bag, prior to discharge from the site. The area shall be inspected frequently to ensure that the capacity of the treatment device/filter bag in not exceeded. If the device is failing or has reach capacity it will be repaired, replaced, or maintained appropriately. Outflow from the treatment device/filter bag shall be inspected frequently to ensure that sediment-laden water is not leaving the site.

h. Any installed clean water diversions will be inspected, and any breaches promptly repaired. Areas that are croding or scouring will be repaired and re-seeded / mulched as needed.

i. Any installed outlet protection measures where stormwater conveyances discharge to ditches or channels within the project area will be inspected, and any areas of erosion/scour promptly repaired.

j. Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.

7) INSPECTION PROCEDURES

Inspection of all BMPs at the site will performed by certified inspector, trained through the KEPSC Program or other approved training program.

a. All erosion prevention and sediment control measures will be inspected BMPs shall be inspected weekly (at a minimum) and after any significant rain event (0.5" or more).

b. Inspections will include all disturbed areas, material storage areas, locations where vehicles enter or exit the site, outfall points, and protected natural features.

c. If any maintenance is required, corrective action shall occur within 24 hours and before the next rain event if possible, but no later than seven (7) days after the need is identified.

d. During the project, the Contractor shall keep a copy of all inspection forms, as well as an Inspection and Maintenance Log on site. The log shall be in a 3-ring binder and contain the date and intensity of significant rain events, how each BMP responded to each event, and the method used to maintain, clean out, repair, and/or replace impacted BMPs.

e. An example inspection form is included as **Appendix B**.

8) NON-STORMWATER DISCHARGES

The following non-storm water discharges could occur from the site during the construction period:

- Uncontaminated groundwater and rainwater from dewatering of pipe trenches.
- Uncontaminated landscape water from establishing temporary or permanent vegetation.
- Uncontaminated pavement or equipment wash water.
- Uncontaminated groundwater or rainwater from foundation drains.

All non-storm water discharges will be directed to sediment treatment device, such as a filter bag, prior to discharge from the site, to remove sediment and other contaminants.

The materials or substances listed below are expected to be present onsite during construction:

- Pipe
- Concrete
- Pipe / Joint Compounds
- Petroleum Based Products

The following material management practices will be used to reduce the risk of spills or other accidental exposure of materials and substances to exposure to the weather and/or runoff.

a. Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job.
- Products and materials will be stored away from the surface drainage system.
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of the product will be used up before disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The site superintendent will inspect daily to ensure proper used and disposal of materials onsite.
- Dust will be controlled by spraying water as needed during dry weather.

b. Hazardous Products

These following practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets (MSDS) will be reviewed and retained.
- If surplus product must be disposed of, manufacturer or state/local recommended methods for proper disposal will be followed.

c. Petroleum Products

All onsite vehicles will be fueled and maintained off-site, if possible. If vehicles must be fueled on-site, portable fuel tanks shall be located as far away from drainage features, surface water bodies, or inlets/outfalls as possible with all fuel tanks situated in a secondary containment vessel to prevent spillage associated with accidental leaks.

If vehicle and equipment maintenance must occur on-site, it shall be performed in an area as far away from surface water bodies or inlets/outfalls as possible.
All on-site equipment shall be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products stored shall be stored in clearly labeled tightly sealed containers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

d. Fertilizers

If used, fertilizers will only be applied in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to prevent and limit stormwater runoff. All fertilizer will be stored in a covered container.

e. Concrete Truck Washout

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a constructed wash pit lined with plastic sheeting will be installed away from ditches to receive the wash water. Washout locations will be field determined as necessary. Washouts will be constructed and maintained in accordance with the LFUCG Stormwater Manual.

f. Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup associated with vehicle and equipment maintenance (including fueling) shall be stored on-site.
- All spills will be cleaned up immediately after discovery.
- Dry methods shall be used to clean up spills; spills shall not be hosed down with water or buried.
- Personnel will wear appropriate protective clothing to prevent injury from a hazardous substance.

- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.

- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as follows:

  - ✓ Any release of a hazardous substance that may be a threat to human health must be reported first to emergency personnel at 911.

  - ✓ Any spill of gasoline greater than 25 gallons in a 24-hour period, or spill of diesel fuel greater than 75 gallons in a 24-hour period, must be reported to the Kentucky Environmental Response Team at (800) 928-2380.

  - ✓ Any spill of oil that a) violates water quality standards, b) produces a "sheen" on a water surface, or c) causes a sludge or emulsion must be reported to the Kentucky Environmental Response Team at (800) 928-2380.

  - ✓ Any spill of oil or hazardous substances into the waters of the Commonwealth must be reported to the Kentucky Environmental Response Team at (800) 928-2380.

9) ESC/SWPPP FILES, UPDATES, AND AMENDMENTS

This SWPPP and related documents (*e.g.* inspection reports) will be kept on file at the construction site. The SWPPP will be updated by the Owner and/or Contractor or site manager to reflect any and all significant changes in site conditions, selection of BMPs, the presence of any unlisted potential pollutants on site, or changes in the site manager, contractor, subcontractors, or other key information. Updates and amendments will be made in writing within 7 days and will be appended to the original plan and available for review.

All personnel actively involved in this project shall be notified of this SWPPP and shall be given the opportunity to review the SWPPP. The Contractor, before beginning work, shall formally review the SWPPP with site management staff, including the site manager, key foremen, safety officers, designated workmen, etc., as well as with any subsequent replacements. Failure to understand the details of the SWPPP will not be accepted as an excuse for violations.

10) CONTRACTOR AND SUBCONTRACTOR CERTIFICATION

"I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollution Discharge Elimination System (KPDES) permit that authorizes the storm water discharges associated with the construction site activity identified as part of this certification."

CONTRACTOR Name and Title	Signature
Company Name	Phone
Address	Email

SUBCONTRACTOR Name and Title	Signature
Company Name	Phone
Address	Email

SUBCONTRACTOR Name and Title	Signature
Company Name	Phone
Address	Email

APPENDIX A

LFUCG Land Disturbance Permit Application and Erosion and Sediment Control Plan

LFUCG Land Disturbance Permit Application & Erosion and Sediment Control Plan Checklist v23Feb2018

Permittee (Owner or Contractor):	Date:
Contact Person:	Contact Phone:
Site Address:	Zone:
Contractor Name: Reg #:	Contractor Phone:
Mailing Address:	Email:

Permitting Information and ESC Plan Narrative	Yes	No	N/A	Page#	Notes
KY DOW Construction NOI / KYR10 Permit					Required for disturbance ≥ 1 acre
US ACE Section 404 Permit					Required for stream crossings, wetland fills
KY DOW Stream Construction Permit / WQ Certif.					Required for stream crossings / encroachment
FEMA LOMR or CLOMR					If applicable
Project description and purpose					Brief summary
Land cover, soils, percent impervious area					Pre and post construction
Land cover / land use of adjacent property					Can designate on plan sheets
Work schedule with start/end dates					Sequencing, clearing, grading, revegetation
Phasing plan for large projects					25 acre limit on total disturbed area
BMP installation schedule					Can be included on plan sheets (see below)
Inspection and BMP maintenance schedule					Every 7 days, or every 14 days and after ½" rain
Material storage, waste & litter pollution prevention					Covered, away from drainage system, etc.
Fueling / vehicle maintenance pollution prevention					Conducted away from drainage system, etc.
Spill prevention, control, and countermeasures					If reportable quantities present at the site
Dust control plan					Consider if neighbors are present
Stabilized site exit inspection plan					For keeping offsite pavement clear of soil/debris
Stabilization plan and schedule for site areas					Seed/mulch/etc. within 14 days of inactivity
ESC Plan Site Map and Drawing Detail *(See LFUCG Stormwater Manual for BMP Design and Installation Information)*					
Plans stamped by a licensed professional					Required for engineered plan components
Location of the project; property lines					Include small locational map; street address
Limits of construction, disturbed area location/size					Flag off "no disturbance" areas
Topography and drainage patterns (pre and post)					1" = 50 ft; 2 ft contours
Buildings, utilities, paved areas, ditches, culverts					Show stormwater inlets within 100 ft of site
Retention ponds, detention basins, sediment traps					Stabilize immediately after construction
Access and haul roads					Consider dust control where neighbors present
Stabilized exit (50 ft #2 rock pad, shaker rack, etc.)					Must drain to a sediment control BMP
Silt fence or etc. at downslope perimeters					Super silt fence along critical areas
Diversion ditches/berms above disturbed areas					Stabilize immediately after construction
Protection for post-construction BMPs					Keep sediment out of post-construction BMPs
Slope stabilization (seed with mulch/blanket/mat)					See Figure 11-1 in Stormwater Manual
Inlet protection measures					Specify type(s) and location(s)
Outlet erosion protection measures					Specify type(s) and location(s)
Ditch stabilization (sod, or seed with blanket/mat)					Stabilize immediately after construction
Sediment basins (> 5 ac) and traps (< 5 ac)					Stabilize immediately after construction
Dewatering sites and methods					Must use sediment controls
50 ft natural vegetated buffer for all critical areas					Applies to streams, wetlands, sinkholes
Stream crossings					Crossing type, detail; USACE 404 permit req'd
Stockpile areas, equipment storage/fueling areas					Keep away from drainage system if possible
Waste and concrete wash water storage/disposal					Show initial area; can be moved as needed

LFUCG Use Only: *Review Date:* *Status – In Compliance: Yes No*	*Additional Info Needed: Yes No*
Reviewed By:	*Department: DOE DWQ DES*
Comments / Missing Items:	

APPENDIX B

Sample Construction Site Inspection Report

Storm Water, Erosion, and Sediment Control Inspection Report

Project Information		
Southland Park Stormwater Improvements	**Inspection Type**	**Inspection Date:**
Project Section Number:	☐ **24 hr (After a > 0.5" Event)**	**Date of Last Precipitation:**
County/State: **Fayette, Kentucky**	☐ **Weekly** ☐ **QA/QC**	**Amount of Last Precipitation:**

Areas Inspected					
Area Type	**Inspected ✓/NA**	**Area Type**	**Inspected ✓/NA**	**Area Type**	**Inspected ✓/NA**
Disturbed Areas		Areas where Water Leaves the Project Site		Erosion Controls	
Material Storage Areas		Other:		Sediment Controls	
How was inspection conducted? (check all that apply)		☐ Windshield		☐ Walking	☐ Other
Stationing Inspected ☐ Entire Project		☐ Select Stations:	Sta. to Sta.	Sta. to Sta.	Sta. to Sta.

Part A: Erosion and Sediment Control Best Management Practices (BMPs) Inspected

Except for the instances listed below, all sediment and erosion controls have been inspected and were found to be in working order and do not require maintenance or corrective actions.

BMP Type (see table on page 3)	**Approximate Station**		**Survey Line: Left, Right or centerline**	**BMP Maintenance or Corrective Action Needed** Describe required corrective actions, maintenance, additions, or directions. Along with description provide image filename here for any reference pictures provided.
	From	**To**		

Part B: Additional Quantities or Additional BMPs Needed

Any additional control quantities or new BMPs not shown on the SWPPP must be approved by the PE/PS. If multiple locations are involved, identify the exact location of each addition. Justification for the measure must be provided.

BMP Type (see table on page 3)	Approximate Station		Survey Line: Left, Right or centerline	Description/Justification for the additional BMPs Along with description provide image filename here for any reference pictures provided.
	From	To		

Part C: Temporarily or Permanently Suspended Construction Activities

Where construction activities (grading, excavating, embankment filling, or other land disturbing activities have been suspended either temporarily or permanently, describe why stabilization measures were not initiated within 14 days.

BMP Type (see table on page 3)	Approximate Station		Survey Line: Left, Right or centerline	Description Along with description provide image filename here for any reference pictures provided.
	From	To		

Part D: Compliance Evaluation (check only one)

☐ With the maintenance and improvement actions noted, the areas inspected will meet the intent of the Erosion and Sediment Control Plan and LFUCG contract documents and specifications related to temporary erosion and sediment control.

☐ The areas inspected are not meeting the intent and are in potential noncompliance with the Erosion and Sediment Control Plan and/or LFUCG contract documents and specifications related to temporary erosion and sediment control. There is off site sedimentation and/or a high potential for off-site sedimentation on this project. (If this box is checked, complete the following "Part E: Potential Noncompliance Issues" section of this form)

Part E: Potential Noncompliance Issues

BMP Type (see table on page 3)	Approximate Station		Survey Line: Left, Right or centerline	Describe the potential noncompliance issue(s) e.g. failure to adequately inspect the project, repeated failure of a BMP, failure to install a required BMP, a visible off-site discharge of material (silt, sand, oily water, etc.), or potential off-site discharges or potential failures.
	From	To		

Part F: Inspection Certification

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete.

Inspector Name Printed:	Company:	Title:	Date:

Inspector Signature: _____

If evaluating an inspection performed by another inspector, please check one of the following boxes:

☐ I concur with the inspector ☐ I do not concur with the inspector (please circle any findings that you do not agree with)

Owner Representative Name: Signature: _____

Date:

A permanent copy must be filed with the project records and be provided to KYTC or KDOW personnel according to requirements or upon request.

Table of Types of Erosion and Sediment Control Best Management Practices (BMPs)

1	Diversion Interceptor	8	Check Dam, Traversable	15	Filter Berm	22	Concrete Washout
2	Temporary Seeding	9	Slope Drain	16	Filter Sock	23	Secondary Spill Containment
3	Permanent Sod or Seed	10	Splash Pad	17	Turbidity Curtain	24	
4	Mulch (hydraulic or bonded fiber mulch)	11	Sediment Trap	18	Surface Roughening	25	
5	Straw Mulch (blown/laid)	12	Sediment Basin	19	Vegetative Filter Strip	26	
6	Manufactured Surface Protection Products	13	Retention Pond	20	Inlet Protection	27	
7	Check Dam	14	Silt Fence	21	Construction entrance/exit	28	

Additional Information for Part __				
BMP Type (see table on page 3)	Approximate Station		Left, Right or centerline	Description
	From	To		

SECTION 02376

CRUSHED STONE

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor shall furnish all labor, equipment, and materials necessary for the installation of the crushed stone in accordance with the Drawings and Specifications.

1.02 SUBMITTALS

A. There are no submittals required for this section.

PART 2 - PRODUCTS

2.01 CRUSHED STONE

The crushed stone shall meet the following requirements:

A. Crushed stone shall be clean, hard, durable limestone and meet the Specifications and gradations set forth in Division 800 of the Kentucky Transportation Cabinet *Standard Specifications for Road and Bridge Construction*, latest edition.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The crushed stone shall be placed in no greater than 6-inch lifts. Compaction shall be achieved by power equipment. The crushed stone shall be installed to the specified lines, grades, cross sections, and depths shown on the drawings.

- END OF SECTION -

SECTION 02378

STREAM CROSSINGS, STREAMBANK RESTORATION, AND STREAM BUFFER RESTORATION

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish all labor, materials, and equipment required for installing all structural and vegetative features associated with stream crossings, streambank restoration, and stream buffer restoration areas. Work in this section may include installation of Constructed Riffles, Temporary Stream Crossings, Streambank Restoration, and/or Stream Buffer Restoration.

B. The Contractor shall take all measures necessary to minimize the use of equipment within the banks of a stream.

1.02 PERMIT REQUIREMENTS

A. The Contractor is responsible to meet and follow all of the requirements and provisions in all project permits. A copy of applicable permits acquired by the Owner is included in Part VIII – Permits.

PART 2 - PRODUCTS

2.01 STREAM BUFFER PERMANENT SEEDING

A. Stream buffer seeding shall be used for permanent seeding where land disturbance has occurred within 50 feet of the stream bank, with the following exceptions:

1. If a property owner landscaping agreement differs from this specification, that has previously been approved by LFUCG, the property owner landscaping agreement shall be followed on that property, or

2. The Construction Drawings identify a different location and/or seed mix.

B. The Stream Buffer Permanent Seed Mix shall consist of the following mix spread at a rate of 20 lbs/acre:

Common Name	Scientific Name	%	Lbs/ac
Redtop	*Agrostis alba*	10%	2
Elm-leaved Goldenrod	*Solidago ulmifolia*	5%	1
Big Bluestem	*Andropodon gerardii*	20%	4
Virginia Wild Rye	*Elymus virginicus*	20%	4
Prairie Switchgrass	*Panicum virgatum*	15%	3
Cutleaf Coneflower	*Rudbeckia laciniata*	5%	1
Ox Eye Sunflower	*Heliopsis helianthoides*	5%	1
River Oats	*Chasmanthium latifolium*	15%	3
Black-eyed Susan	*Rudbeckia hirta*	5%	1
TOTAL		**100%**	**20**

2.02 TURF REINFORCEMENT MAT

A. Turf reinforcement mat (TRM) as specified on the construction drawings shall be used on stream and channel banks along and immediately above the waterline to armor against erosion caused by flowing water. The Contractor shall submit manufacturer's information or a shop drawing for the proposed TRM material for review and approval by the Owner's Engineer prior to placement.

B. Wooden stakes to fasten TRMs to the soil shall be hardwood stakes that are solid and free of rot, with the following approximate dimensions: 1" x 2" x 18" (tapered to a point). The Contractor may fabricate or purchase stakes.

C. Sod staples for anchoring void spaces of the TRM shall be bio-degradable wooden stakes.

D. Other stake types recommended by the TRM manufacturer may also be used if approved by the Owner's engineer.

2.03 CONTAINER PLANTS

A. Tree and shrub plant species and quantities shall be in accordance with those listed or shown on the Construction Drawings. All trees and shrubs shall be in containers grown with air-root pruned technique, spin-out containers, or equivalent.

B. Woody plants shall exhibit a fully developed fibrous root system that allows the root ball to remain intact after removal from the container. Roots shall not be pot-bound or spiraling in the container.

C. Double shredded hardwood mulch shall consist of the bark from hardwood trees which has been milled and screened to a maximum 4-inch particle size. Mulch shall provide a uniform texture free from sawdust, weed seeds, foreign materials and any artificially introduced chemical compounds detrimental to plant life. Mulch shall be well aged (a minimum age of 6 months).

D. Nursery stock material shall be identified with attached, durable, waterproof labels and weatherproof ink. Labels shall state the scientific name of the specified plants. Common names are not acceptable. The scientific names must match those in the project plans. Plants that are unlabeled or improperly labeled shall not be accepted. Plant material shall be protected during delivery to prevent desiccation and damage to branches, trunk, root system, or earth ball.

E. Plant material shall be checked for unauthorized substitution and to establish nursery grown status. Plant material showing desiccation, abrasion, sun-scald injury, disfigurement, or unauthorized substitution shall be rejected. Container-grown plant material shall show new fibrous roots and the root mass shall contain its shape when removed from the container. Plant material with broken containers shall be rejected. All rejected plant material shall be removed from the project site by the Contractor by the close of each working day.

F. Phosphorus based fertilizer shall not be used within the 50-foot stream buffer zone. Fertilizer for container plants shall be a non-phosphorus slow release mycorrhizal fertilizer tablet or equivalent.

2.04 LIVE STAKES

A. Live stake plant species shall be native Kentucky species (e.g., silky dogwood) suitable for stream bank planting unless otherwise denoted in the Construction Drawings. Cuttings shall be alive, but dormant, with side branches removed and bark intact.

B. Cuttings shall be ½ to 2-inch diameter stock and 3 feet in length.

C. The basal ends of the cuttings shall be cut on an angle to facilitate insertion into the soil. The top end shall be cut across at a 90-degree angle.

D. The materials may be collected or purchased.

E. No species shall be substituted without prior written approval from the Owner.

F. Cuttings shall be bagged and/or bundled by species and shall be identified with durable and waterproof labeling and/or weatherproof ink. Labels shall state the scientific name of the plant species grouping. Common names are not acceptable. The scientific names must match those in the specification. Plants that are unlabeled or improperly labeled shall not be accepted.

G. Plant material that is damaged, desiccated, or does not meet the material specifications shall not be accepted. All rejected plant material shall be removed from the project site by the Contractor by the close of the working day.

2.05 BRANCH PACKING

A. Material may consist of branches of silky dogwood species. Branches should be a minimum of 5 feet long and should be installed the same day that they are prepared, if harvested locally. Materials can be either harvested from existing living trees or purchased from a vendor. If immediate planting cannot be performed, the basal end of the plant shall be kept in water and the plant shall be refrigerated until planting occurs.

2.06 STONE

A. All stone shall consist of clean limestone of the specified size; hard, durable, and angular in shape, and resistant to weathering. Stone shall not contain deleterious amounts of shale, as determined by the Engineer. Porous or friable stone shall not be accepted.

B. Stone shall be of the size and quantity as shown on the Construction Drawings.

2.07 TOPSOIL

A. Topsoil shall consist of the upper portion of the soil profile and shall be loose, friable soil that is free of stones larger than one inch (1"), sub-soil, refuse and other debris including stumps, roots, brush, weeds, and non-organic materials. The acceptable soil texture classification for topsoil, in accordance with the U.S. Department of Agriculture is: clay (40% maximum), silt (70% maximum), and sand (60% maximum). Manure and/or partially composted materials are not acceptable. Topsoil (both salvaged and furnished) shall meet the following minimum standards through analytical testing, unless otherwise directed by LFUCG or the Owner's Engineer:

Organic Matter	> 3%
pH (range)	5.8 – 7.0
Soluble Salts	< 500 parts per million

The Owner's Engineer shall visually approve representative samples of topsoil. All operations involved in the placing, spreading, and rolling of the topsoil shall be

subject to the approval of the Owner. Selected topsoil shall be obtained from approved stockpiles of materials from excavation, from stripping, from borrow areas, or from other approved sources.

PART 3 – EXECUTION

3.01 GENERAL

A. All work within and along a stream shall be consistent with all federal, state, and local project permits.

B. The Contractor shall take care to prevent the deposition of sediment into the stream.

C. Stream diversion operations shall be scheduled such that work is completed during dry conditions and as quickly as possible. Contractor shall not construct in a stream when rainfall is expected during the time excavation will be occurring in the stream.

D. Gravity sewer lines, force mains, and water lines that cross streams shall be constructed by methods that maintain normal stream flow and allow for a dry excavation. Water pumped from the excavation shall be contained and allowed to settle prior to reentering the stream, or filtered through a sediment removal device. Excavation equipment and vehicles shall operate outside of the flowing portion of the stream. Spoil material from the line excavation shall not be allowed to enter the flowing portion of the stream. Clean Water Act Section 401 and 402 requirements enforced by the US Army Corps of Engineers and the Kentucky Division of Water and the provisions of this condition shall apply to all types of utility line stream crossings.

E. Removal of riparian vegetation in the stream buffer and on the stream banks shall be limited to that necessary for equipment access. Effective erosion and sedimentation control measures shall be employed at all times during the project to prevent degradation of Waters of the Commonwealth. Within 50 feet of a stream, site regrading and reseeding shall be accomplished within 24 hours after completion of work, and no later than 7 days after initial disturbance.

3.02 STREAM BUFFER PERMANENT SEEDING

A. Stream Buffer Permanent Seeding shall be conducted in accordance with the specifications of Section 02370, Article 3.04 - Permanent Seed using the seed mix listed in this Section 02378, Article 2.01 - Stream Buffer Permanent Seeding.

3.03 TURF REINFORCEMENT MAT

A. When placing TRM, the surface of the soil should be smooth and free of rocks, roots, and other obstructions.

B. Seed the prepared soil areas in accordance with Section 02370, Article 3.04 – Permanent Seed prior to the installation of the TRM.

C. TRM shall be trenched, placed, and staked according to the Construction Drawings.

D. Biodegradable wooden or other manufacturer approved stakes shall be inserted at space intervals specified by the manufacturer, within void spaces, and areas with puckers in the fabric.

3.04 CONTAINER PLANTS

A. Planting operations shall be performed only during periods when successful results are likely. To minimize stress or transplant shock, no plants shall be installed when ambient temperatures are forecasted to rise above 90°F at any point during a forty-eight (48) hour period following installation. In addition, no plants shall be installed when ambient temperatures are forecasted to drop below freezing. In general, trees and shrubs do best when planted in early spring or fall.

B. If trees and shrubs are not planted through erosion control blanket, then mulch in the form of hardwood mulch or mulch mats shall be used.

C. The Contractor shall mulch and fertilize.

D. All trees and shrubs within the 50-foot stream buffer should be fertilized with a non-phosphorus slow release mycorrhizal fertilizer tablet or equivalent. Each containerized plant should receive one 21-gram tablet. All fertilizer tablets are to be installed 4 inches below and 4 inches to the side of the plant roots.

E. All plants shall be watered thoroughly once unloaded and immediately after planting. Water until saturated once per week for the first four to six weeks and once every other week through the fall season. Water shall not contain elements toxic to plant life.

F. Prior to shipping to the site, the Contractor shall request approval of trees, shrubs, and fertilizer ordered. A delivery schedule shall be provided at least 10 calendar days prior to the first day of delivery of trees and shrubs.

G. If plants are not planted on the day of delivery, the plants shall be stored onsite in a shaded location and shall be kept moist and cool.

H. Each root ball from containerized woody stock shall be carefully removed from the container without damaging the root system or plant.

I. When digging a planting hole for containerized woody stock, the diameter of the planting hole shall be at least 30% greater than the diameter of the root ball.

J. Trees and shrubs shall be placed in the center of the hole with top of root ball 1 inch above finished grades.

K. Following planting, each hole shall be backfilled with soil removed from the hole when the hole was formed.

L. Where the removed soil is unacceptable, a soil amendment shall be required.

M. Each planted tree and shrub shall have a minimum cover depth of 6 inches of organic material.

N. Organic soil amendment may consist of composted wood chips, composted leaf mulch, or other suitable and available natural organic material.

O. If amending the planting areas with topsoil, acceptable topsoil shall meet the material requirements of this Section 02378, Article 3.08 - Topsoil.

P. Containerized trees and shrubs planted through erosion control blanket shall be planted through clean incisions in the blanket. Incisions shall be parallel to the direction of flow in the stream.

Q. Portions of the erosion control blanket shall not be removed.

R. The blanket incision shall be securely closed with wire staples or stakes.

S. Seeded areas shall be inspected at least weekly after planting and after each rainfall of one-half inch or more. Areas requiring additional seed and mulch shall be repaired within 48 hours.

T. If vegetative cover is not established within 21 days, the area shall be reseeded.

3.05 LIVE STAKES

A. Live stakes shall be installed at any time during their dormant period when the ground is not frozen. Live stakes shall not be installed after dormancy is broken or after sprouting. Stakes that begin sprouting before planting will be rejected.

B. Prior to shipping to the site, the Contractor shall request approval from the Owner's Engineer of live stakes ordered. A delivery schedule shall be provided at least 10 calendar days prior to the first day of delivery of live stakes.

C. Plants shall be stored in a continuously cool, covered, and moist state.

D. Live stakes shall be soaked for 24 hours prior to installation in clear water, with the basal end of the plant in the water and shall be removed from the water no more than 1 hour before planting.

E. Live stakes shall not be soaked for a length greater than ten (10) days.

F. The angled end of the live stakes shall be inserted into the soil manually or with the use of a dead blow hammer with the uncut end protruding for approximately 3/5 of the cutting length.

G. In rock toe, live stakes shall be inserted to one-half their length into soil below stone fill with a minimum of two buds exposed above the stone fill. An iron bar or a stinger attached to a backhoe bucket can be used to make a pilot hole in firm or rocky soil.

H. If a pilot hole is used, the diameter of the pilot hole shall be less than the diameter of the smallest live stake to ensure firm contact with the soil.

I. Each live stake shall be positioned perpendicular to the slope at a 45° angle facing downstream followed by foot compaction around each cutting.

J. Live stakes shall be installed in a random configuration.

K. Live stakes that become split or "mushroomed" during installation shall be replaced at the Contactor's expense.

3.06 BRANCH PACKING

A. Prior to shipping to the site, the Contractor shall request approval from the Owner's Engineer of branch packing or live branches/stakes ordered. A delivery schedule shall be provided at least 10 calendar days prior to the first day of delivery of the branches.

B. Plants shall be stored in a continuously cool, covered, and moist state.

C. Branches not planted the same day as they are harvested shall be soaked prior to installation in clear water, with the basal end of the plant in the water and shall be removed from the water no more than 1 hour before planting.

D. Branches shall not be soaked for a length greater than ten (10) days.

E. The live branches should be placed in a crisscross configuration with the growing tips generally oriented toward the slope face.

F. The density of the branches shall be 10-15 branches per linear foot.

G. After the live branches are configured, cover with a thin layer of soil approximately 1" thick.

3.07 STONE

A. Stone shall be of the size, quality, and quantity as shown on the Construction Drawings and shall be placed in the manner shown in the Construction Drawings.

3.08 TOPSOIL

A. All proposed planted areas, not including stream banks, are to be covered with a minimum of 6 inches of topsoil prior to seeding or planting. Do not place topsoil within a stream channel or on a stream bank where full bank flow could erode and remove the material.

B. Topsoil shall be evenly placed and spread over the graded area to a depth of 6 inches.

C. Minimize compaction during all operations by utilizing equipment having low unit pressure ground contact and by limiting repeat passes over the same areas.

3.09 PUMP AROUND FLOW DIVERSION FOR STREAM CROSSINGS

A. For stream crossings, the Contractor shall install, maintain, and operate all cofferdams, pumps, and protective works needed to divert stream flow and other surface water through and around the project work zone.

B. The Contractor is responsible to determine the number and sizes of pumps necessary for dewatering needs.

C. The Contractor shall inform the Owner's Engineer of a plan for diverting the stream flow. The dewatering plan must be approved by the Owner prior to the start of work and it shall include information on the type, sizes of pumps, dam construction techniques, discharge outfall protection, and other relevant information.

D. Operations shall be scheduled such that diversion installation, in-stream excavation, in-stream construction, stream restoration, and diversion removal are completed as quickly as possible.

E. The Contractor shall not construct in a stream when rainfall is expected during the time excavation will be occurring in the stream.

F. To capture or divert water flows, cofferdams can be used across the stream

channel and secondary drainageways above (up-slope from) the work side as follows:

1. Cofferdams shall be constructed of materials that will have a minimal impact on the stream system. Cofferdams constructed of soil or material from the site shall not be used unless specifically directed by the Owner's Engineer.

2. Acceptable materials shall include stone, water structures, plastic barriers, or sand bags filled with clean and washed sand.

3. Contractor shall add sandbags filled with clean and washed sand as required to seal leaks in rock cofferdams.

4. The Contractor is responsible to install all cofferdams/diversion structures in a safe and correct manner. Cofferdams must be installed so as to withstand the pressures exerted by the stream flow or ponded water against the cofferdam.

5. Commercial products used as cofferdams (i.e. water structures, plastic barriers) shall be installed in accordance with the manufacturer's specifications.

6. The Contractor is permitted to make only minor disturbances to the streambed or banks as may be required to properly install the cofferdam.

G. Stream flow shall be pumped around the cofferdams and discharged back into the same drainageway that the water was taken from.

H. The Contractor shall be responsible to provide all pumps, hoses, pipelines, fuel tanks, and other items required to pump the stream flow around the work site, and for providing supervision of the pumping operation during all hours the pumps are running.

1. The Contractor shall be responsible for calculating the required pump capacity to handle the average stream flow in the area of the work.

2. The Contractor shall provide pumps that are in good operating order and free of leaks. Pumps that are leaking fuel, lubricants, or other material, shall be immediately repaired or replaced as necessary. All pump equipment shall be properly equipped with mufflers and other noise suppression equipment to minimize noise impacts on the surrounding residences.

3. Discharge hoses shall be reasonably free of leaks at either the fittings or the discharge hose casing. No leaks from discharge lines shall be allowed to cause erosion.

4. The Contractor shall provide adequate suction hose length to allow the pumps to be placed back from the immediate edge of the stream. Electric sump type

pumps are exempt from this requirement.

5. Only clean water will be allowed to enter the storm system or stream. The pumping operation shall not allow for sediment from the stream bottom to be pulled into the pump.

I. Contractor shall dewater the work area and pump the work zone dewatering water into a sediment trapping device.

J. Outlet protection shall be installed as required at the discharge point to prevent erosion of soils and the streambed or bank.

K. Contractor shall complete construction activities across the stream.

L. Contractor shall restore the streambed and banks.

M. Contractor shall remove all materials placed for the cofferdam and outfall protection and shut down pumping operation. (Salvage sandbags for future use if multiple stream crossings are required on the project.) Contractor shall remove all sandbags from the stream, including damaged and empty bags.

3.10 TEMPORARY STREAM CROSSING

A. Clearing and excavation of the streambed and banks shall be kept to a minimum.

B. The structure shall be removed as soon as it is no longer necessary for project construction.

C. Upon removal of the structure, the stream shall immediately be reshaped to its original cross section and properly stabilized.

D. The approaches to the structure shall consist of stone pads with a minimum thickness of 6 inches, a minimum width equal to the width of the structure, and a minimum approach length of 25 feet on each side. The structure shall be covered with a minimum of 6 inches of No. 2 stone.

E. The structure shall be inspected after every rainfall and at least once a week and all damages repaired immediately.

- END OF SECTION -

SECTION 02410

ROCK REMOVAL

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor shall excavate rock, if encountered, as required to perform the required work, and shall dispose of the excavated material, and shall furnish acceptable material for backfill in place of the excavated rock.

B. In general, rock in pipe trenches shall be excavated so as to be not less than six (6) inches from the pipe after it has been laid.

C. Use of explosives for rock removal shall not be permitted. Rock shall be excavated by means of rock trencher, or by hoe ram in areas field approved by the Owner.

1.02 SAFETY

A. Conform to all federal, state, and local codes and regulations regarding safety.

1.03 RELATED SECTIONS

A. Section 02315 - Excavation

B. Section 02316 - Excavating, Backfilling, and Compacting for Utilities

PART 2 - PRODUCTS

2.01 MATERIALS

A. Rock Definition

Solid mineral material that cannot be removed with a power shovel.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. Trenching may be accomplished by means of a backhoe, trenching machine or by hand depending on the construction area. At the Contractor's option, trenching by a trenching machine or by backhoe is acceptable except as noted below:

1. Where the pipeline parallels a state highway and is being installed within the limits of the shoulder, a trenching machine must be used whenever

practicable.

2. Where the pipeline is being constructed close to other utilities, structures, building, or large trees, and it is reasonable to anticipate possible damage from the use of a backhoe, then trenching shall be made by hand methods.

- END OF SECTION -

SECTION 02631

MANHOLES

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, material, and equipment necessary to construct manholes for storm sewers, including steps, frames, and covers, together with all appurtenances as shown and detailed on the Drawings and specified herein. Manhole materials shall be precast concrete.

1.02 RELATED SECTIONS

A. Section 02316 - Excavating, Backfilling, and Compacting for Utilities

B. Section 02632 - Stormwater Pipe

D. Section 03300 - Cast-in-Place Concrete

1.03 DEFINITIONS

A. Standard Manhole

A standard manhole is defined as any manhole that is greater than four (4) feet in depth, as measured from the invert of the manhole base at its center to the top (rim) of the manhole cover.

B. Shallow Manhole

A shallow manhole is defined as any manhole that is four (4) feet or less in depth, as measured in the preceding sentence.

C. Drop Manhole

A drop manhole is defined as any manhole where an incoming pipe enters at an elevation greater than the base of the manhole.

PART 2 - PRODUCTS

2.01 CONCRETE MANHOLES – GENERAL

A. Manholes shall conform in shape, size, dimensions, materials, and other respects as shown on the Drawings or specified herein.

B. All concrete manholes shall have precast reinforced concrete developed bases. No other type of base will be allowed. Invert channels shall be factory

constructed when the base is made. Sloping invert channels shall be constructed whenever the difference between the inlet and outlet elevation is two (2) feet or less.

C. The concrete manhole walls (barrels and cones) shall be precast concrete sections. The top of the cone shall be built of reinforced concrete adjustment rings to permit adjustment of the frame to meet the finished surface. Minimum strength of the concrete for the precast sections shall be 4,000 psi at the time of shipment.

D. For concrete manholes, the inverts of the developed bases shall conform accurately to the size of the adjoining pipes. Side inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent, within the manhole, to the centerlines of adjoining pipelines.

E. For concrete manholes, the cast iron frames and covers shall be the standard frame and cover as indicated on the Drawings and specified herein.

F. Manholes shall be manufactured by Old Castle Concrete Products, or approved equal.

2.02 PRECAST CONCRETE SECTIONS

A. Precast concrete sections and appurtenances shall conform to the ASTM Standard Specifications for Precast Reinforced Concrete Manhole Sections, Designation C478, latest revision, with the following exceptions and additional requirements.

B. The base section shall be monolithic for 4-foot, 5-foot, and 6-foot diameter manholes. Manholes with diameter larger than 6-foot shall have base slab.

C. The wall sections shall be not less than five (5) inches thick.

D. Type II cement shall be used except as otherwise permitted.

E. Joints between sections shall be made watertight through the use of rubber 0-ring gaskets or rubber profile gaskets such as Forsheda 138. Gaskets shall conform to the ASTM Standard C-443, latest revision. Rope mastic or butyl mastic sealant will not be allowed except as noted in Article 2.02 F.

F. Butyl mastic sealant shall be installed between the concrete cone section, any cast iron adjusting sections or rings, and cast iron frame.

2.03 CONCRETE MANHOLE - FRAMES AND COVERS

A. The Contractor shall furnish all cast iron manhole frames and covers conforming to the Drawings or as specified herein.

B. The castings shall be of good quality, strong, tough, even-grained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined to prevent rocking of covers.

C. All casting shall be thoroughly cleaned and subject to a careful hammer inspection.

D. Castings shall be at least Class 25 conforming to the ASTM Standard Specifications for Gray Iron Casting, Designation A48, latest revision.

E. Unless otherwise specified, manhole covers shall be 22¾ inches in diameter, weighing not less than 350 pounds per frame and cover. Manhole covers shall set neatly in the rings, with contact edges machined for even bearings and tops flush with ring edge. They shall have sufficient corrugations to prevent slipperiness. The covers shall have two (2) pick holes about 1¼ inches wide and 1/2 inch deep with 3/8-inch undercut all around. Covers shall not be perforated. Frames and covers shall be J.R. Hoe and Sons, Mc-350, or approved equal.

F. All covers shall be marked in large letters "STORM SEWER" in the center.

2.04 MANHOLE STEPS (CONCRETE MANHOLES)

Manholes steps shall be the polypropylene plastic type reinforced with a 1/2-inch diameter deformed steel rod. The step shall be 10¾ inches wide and extend 5¾ inches from the manhole wall. Steps shall line up over the downstream invert of the manhole. The steps shall be embedded into the manhole wall a minimum of $3^3/_8$ inches. Steps shall be uniformly spaced at 12-inch to 16-inch intervals.

2.05 DROP CONNECTIONS

Drop connections shall be installed in the drop manholes as shown on the Drawings.

2.06 JUNCTION BOXES

Junction boxes shall be manufactured in accordance with referenced standards.

PART 3 - EXECUTION

3.01 FABRICATION - PRECAST SECTIONS

A. Manhole sections shall contain manhole steps accurately positioned and embedded in the concrete when the section is cast.

B. Sections shall be cured in an enclosed curing area and shall attain a strength of 4,000 psi prior to shipment.

C. No more than two (2) lift holes or inserts may be cast or drilled in each section.

D. Flat slab tops shall have a minimum thickness of 6 inches and reinforcement in accordance with ASTM C478.

E. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the precast sections.

F. Acceptance of the sections will be on the basis of material tests and inspection of the completed product and test cylinders if requested by the Engineer.

G. Cones shall be precast sections of similar construction.

3.03 ADJUSTING MANHOLE FRAMES AND COVERS TO GRADE

A. Except where shown on the Drawings, the top of the precast concrete eccentric cone of a standard manhole or the top of the flat slab of a shallow manhole shall terminate four (4) inches below existing grade in an unpaved non-traffic area except in a residential yard and 13 inches below existing grade in a paved or unpaved traffic area and in a residential yard. The remainder of the manhole shall be adjusted to the required grade as described hereinafter in paragraphs B and C of this article.

B. When a manhole is located in an unpaved non-traffic area other than in a residential yard, the frame and cover shall be adjusted to an elevation three (3) inches to five (5) inches above the existing grade at the center of the cover. If field changes have resulted in the installed manhole invert elevation to be lower than the invert elevation shown on the Drawings, the adjustment to an elevation of three (3) inches to five (5) inches above existing grade shall be accomplished by the use of precast concrete or cast iron adjusting rings. If field changes have resulted in the completed manhole invert to be greater than the invert shown on the Drawings and the cover higher than five (5) inches above existing grade, then the top of the eccentric cone, when used, or the top of the barrel section, when used, shall be trimmed down so that the manhole cover, after installation, is no greater than five (5) inches above existing grade at the center of the cover. The

area around the adjusted frame and cover shall be filled with the required material, sloping it away from the cover at a grade of one (1) inch per foot.

C. When a manhole is located in a bituminous, concrete, or crushed stone traffic area, or in a residential yard, the frame and cover shall be adjusted to the grade of the surrounding area by the use of precast concrete or cast iron adjusting rings. The adjusted cover shall conform to the elevation and slope of the surrounding area. If field changes have resulted in the installed manhole invert elevation to be so much higher than the invert elevation shown on the Drawings that the top of the eccentric cone, when used, or the top of the flat slab, when used, is less than the thickness of the frame and cover seven (7) inches from the grade of the surrounding area, then the top of the cone or barrel section shall be trimmed down enough to permit the cover, after installation, to conform to the elevation and slope of the surrounding area. After installation, the inside and outside surfaces shall receive a waterproofing bitumastic coating.

1. The Contractor shall coordinate elevations of manhole covers in paved streets with the Owner. If resurfacing of the street in which sewers are laid is expected within twelve (12) months, covers shall be set 1½ inches above the existing pavement surface in anticipation of the resurfacing operations.

3.04 ADJUSTING SECTIONS

Only clean adjusting sections shall be used. Each adjusting section shall be laid in a bead of butyl mastic sealant and shall be thoroughly bonded.

3.05 SETTING MANHOLE FRAMES AND COVERS

A. Manhole frames shall be set with the tops conforming to the required elevations set forth hereinbefore. Frames shall be set concentric with the top of the concrete and in a full bead of butyl mastic sealant so that the space between the top of the masonry and the bottom flange of the frame shall be completely watertight.

B. Manhole covers shall be left in place in the frames on completion of other work at the manholes.

- END OF SECTION -

SECTION 02632

STORMWATER PIPE

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor shall furnish all labor, material, and equipment necessary to install stormwater piping and appurtenances as shown on the drawings and specified herein.

B. This section describes several types of pipe which may or may not apply to the current project. Selected pipe materials will be identified either on the drawings or the bid form.

1.02 RELATED SECTIONS

A. Section 02315 - Excavation

B. Section 02316 - Excavating, Backfilling, and Compacting for Utilities

C. Section 02631 - Manholes

1.03 DELIVERY, STORAGE, AND HANDLING

A. Pipe and accessories shall be unloaded at the point of delivery, hauled to, and distributed at the site of the project by Contractor in such a manner to avoid damage to the materials. Whether moved by hand, skidways, or hoists, materials shall not be dropped or bumped against pipe or accessories already on the ground or against any other object.

B. In distributing material at the construction site, each piece shall be unloaded as near the installation point as possible.

C. Pipe shall be handled in such a manner as to avoid damage to the ends. When such damaged pipe cannot be repaired to the Engineer's satisfaction, it shall be replaced at the Contractor's expense. The interior of all pipe and accessories shall be kept free from dirt and foreign matter at all times. The interior of all pipe and accessories shall be checked for dirt and debris and, if necessary, thoroughly cleaned before use in the project.

PART 2 - PRODUCTS

2.01 PIPING MATERIALS

1. Reinforced Concrete Pipe (RCP)

Work under this Section shall include all labor, excavation, materials, equipment, bedding, backfilling and legal disposal of unneeded and unsatisfactory material at site obtained by CONTRACTOR in accordance to Lexington-Fayette Urban County Government Standard Drawings, and all incidentals necessary to construct Storm Sewer to the sizes and type indicated. Where the Standard Drawing requires a concrete cap, it shall be constructed according to KDOH Standard Specifications for consolidated, unfinished concrete.

All RCP is Class III unless noted otherwise.

The Contractor shall limit active pipe installation to assure clean up following such work. This Work includes new storm drainage lines and all connections to new and existing manholes, pipes and structures as necessary to maintain drainage flow.

A. Pipe strength classes shall be at a minimum Class III for each size of pipe unless indicated otherwise in the Drawings. Any pipe found defective, or otherwise not meeting the Specifications shall be rejected and replaced by pipe meeting these Specifications at no additional cost to the Owner.

B. The Contractor shall furnish three copies of the supplier's certification to the Engineer stating that pipe materials were manufactured, sampled, tested, and inspected in accordance with the standards listed in this Section and have been found to meet those requirements.

C. Circular reinforced concrete pipe shall meet the requirements of ASTM C76, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe. Unless shown otherwise on the Plans or in the Contract Documents, Class III pipe shall be used.

D. Rubber and plastic joints shall meet the requirements of AASHTO M198, Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets, for Type A (Rubber Gaskets), Type B (Flexible Plastic Gaskets) gaskets, or Forsheda Rubber Gaskets. Bituminous mastic joint sealing material shall meet the requirements of Kentucky Transportation Cabinet (KYTC) Standard Specifications Section 807.03.04, Joint Sealer for Rigid Pipe, except that asbestos fibers shall not be allowed as filler.

E. Bedding materials shall be provided as indicated on the Plans and LFUCG's Standard Drawings. When crushed stone is required it shall conform to

Section 805 of the KYTC Standard Specifications, current edition.

2. Corrugated Plastic (CPP, HDPE, or PP) Storm Sewer Pipe

This article covers the design and manufacture of corrugated plastic pipe (CPP) manufactured according to ASTM F2306 or ASTM 2562 for high density polyethylene pipe, or ASTM F2881 for polypropylene pipe.

CPP, HDPE, or PP shall be furnished, constructed of materials, and to the specifications of this section. The types of corrugate plastic pipe permitted for use on the project will be as noted on the drawings or bid form. The selected pipe will be designated and followed by an appropriate pressure rating or dimension ratio (DR or SDR).

A. CPP shall have a smooth inner liner and shall be manufactured according to ASTM F2306 for high density polyethylene pipe, or ASTM F2881 for polypropylene pipe.

B. CPP shall have an integral bell and spigot with an elastomeric seal meeting the requirements of ASTM F477 or ASTM F2648.

C. CPP may be used up to 36 inches in diameter in easements and public right-of-ways.

D. Manufacturers of CPP shall be qualified participants of the National Transportation Product Evaluation Program (NTPEP).

E. Rubber gasket joints shall provide adequate expansion to allow for a 50° change in temperature on one length of pipe. Lubrication for rubber connected couplings shall be water soluble, non-toxic, and have no deteriorating effect on the CPP or rubber gaskets and shall be as supplied by the pipe manufacturer.

F. All pipe and couplings shall bear identification markings that will remain legible during normal handling, storage, and installation, which have been applied in a manner what will not reduce the strength of the pipe or the coupling or otherwise damage them. Pipe and coupling markings shall include the nominal size and OD base, material code designation, dimension ratio number, and ASTM or AWWA Pressure Class. Each marking shall be applied at intervals of not more than five (5) feet for the pipe and shall be marked on each coupling.

PART 3 - EXECUTION

3.01 LAYING DEPTHS

Installation of CPP shall follow existing LFUCG standard drawing details and requirements. Additional manufacturer guidelines shall be followed if necessary.

The minimum cover shall be 18 inches. Maximum depth for CPP shall be 16 feet. All necessary precautions shall be taken to avoid operating heavy equipment on top of the pipe until the required cover is attained.

All other stormwater pipe shall be laid in accordance with Section 02316 – Excavation, Backfilling, and Compacting for Utilities.

3.02 PIPE INSTALLATION

Inspection and Handling

A. All pipe shall be inspected on delivery and pipe sections that do not conform to these Specifications and which are not suitable for use shall be rejected and immediately removed from the work site. Equipment used to handle, lay, and joint pipe shall be so used to prevent damage to the pipe and its jointing materials. All pipe and fittings shall be carefully handled and lowered into the trench. The pipe shall not be rolled, dropped, or thrown into the trench. Damaged pipe or jointing material shall not be installed.

Pipe Laying and Jointing

A. The laying of pipe shall begin at the lowest point and proceed upstream with the bell or groove ends pointing up-stream. When tying into existing pipe, installation may be from upstream down. Prior to making pipe joints, all joint surfaces shall be clean and dry and free from gravel or other extraneous materials. Comply with manufacturer's recommendations for assembly of joints. All necessary lubricants or adhesives shall be used as recommended by the pipe manufacturer. Suitable means shall be used to force the spigot or tongue end of the pipe the proper distance into the bell or groove end without damage to the pipe and its jointing materials and without disturbing previously laid pipe sections. Special care shall be taken to ensure that the pipe is solidly and uniformly cradled or encased in accordance with these Specifications. No section of pipe shall be brought into position for jointing until the preceding section has been bedded and secured in place.

Line and Grade

A. Each section of pipe shall be checked for vertical and horizontal alignment immediately after being laid. All adjustments to line and grade must be made by scraping away or filling in under the barrel of the pipe and not by wedging or blocking up any portion of the pipe or striking the pipe in an effort to drive it down.

Protection of Installed Pipe

A. As the work progresses, the interior of the pipe shall be protected from and cleaned of all dirt, cement, extruded joint materials, debris, and other extraneous material. Wherever pipe laying is stopped for any significant length of time, such as at the end of a workday, the unfinished end shall be protected from displacement, floatation, cave-in, and in-wash of soil or debris. A suitable temporary tight-fitting plug, stopper or bulkhead shall be placed in the exposed bell or groove end of the pipe.

B. Water shall not be allowed to rise in the excavation until the joint material and/or concrete cradle or encasement has hardened and cannot be damaged by the water. Particular care shall be used to prevent disturbance or damage to the pipe and the joints during backfilling or at any other time. No walking or working over the pipe, except as necessary for placing and compacting backfill, or operating compaction equipment directly over the pipe shall be allowed until a minimum of 24-inches of cover over the outside top of the pipe has been placed. Mechanical compaction in this zone shall be with manual pneumatic tampers or other hand-operated methods which will not damage the pipe.

3.03 JOINT ASSEMBLY

A. Push-On Joints

Push-on joints are to be assembled as follows:

1. Thoroughly clean the groove and bell socket and insert the gasket, making sure that it faces the proper direction and that it is correctly seated.

2. After cleaning dirt or foreign material from the plain end, apply lubricant in accordance with the pipe manufacturer's recommendations. The lubricant is supplied in sterile cans and every effort should be made to keep it sterile.

3. Be sure that the plain end is beveled; square or sharp edges may damage or dislodge the gasket and cause a leak. When pipe is cut in the field, bevel the plain end with a heavy file or grinder to remove all sharp edges. Push the plain end into the bell of the pipe. Keep the joint straight while pushing. Make deflection after the joint is assembled.

4. Small pipe can be pushed into the bell socket with a long bar. Large pipe requires additional power, such as a jack, lever puller, or backhoe. A timber header should be used between the pipe and jack or backhoe bucket to avoid damage to the pipe.

3.04 PIPE CUTTING

Cutting of pipe for the insertion of valves, fittings or closure pieces shall be done in a neat workmanlike manner without creating damage to the pipe, linings, or coatings and in strict accordance to manufacturer's recommendation.

3.05 TESTING

A. After the gravity piping system has been brought to completion, and prior to final inspection, including fine backfill, the Contractor shall rod out the entire system by pushing through each individual line in the system, from manhole to manhole, appropriate tools for the removal from the line of any and all dirt, debris, and trash. If necessary during the process of rodding the system, water shall be turned into the system in such quantities to carry off the dirt, debris, and trash.

B. Television Inspection

1. The Contractor shall furnish all necessary labor, materials, equipment, services and incidentals required to visually inspect by means of closed-circuit television (CCTV) all newly installed lines, including, but not limited to, recording and playback equipment, materials and supplies. The inspection shall be performed on one line section (i.e. manhole to manhole) at a time. The section being inspected shall be suitably isolated from the remainder of the system.

2. The television camera used for line inspection shall be one specifically designed and constructed for such inspection. Lighting for the camera shall be suitable to allow a clear picture for the entire periphery of the pipe. The camera, television monitor and other components of the video system shall be capable of producing a minimum 500-line resolution color video picture. Picture quality and definition shall be to the satisfaction of the Engineer and if unsatisfactory, inspection shall be performed again with the appropriate changes made as designated by the Engineer at no additional cost to the Owner. The television inspection equipment shall have an accurate footage counter that shall display on the monitor, the exact distance of the camera from the centerline of the starting manhole.

3. The camera shall be moved through the line in either direction at a uniform rate, stopping when necessary to ensure proper documentation of the line's condition but in no case will the television camera be pulled at a speed greater than 30 fpm. Manual winches, power winches, TV cable and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the conditions shall be used to move the camera through the line. If, during the inspection operation, the television camera will not pass through the entire line section, the equipment shall be removed and repositioned in a manner so that the inspection can be performed from the opposite manhole.

All set-up costs for the inspection shall be included in the prices bid. If, again, the camera fails to pass through the entire section, the Contractor shall perform point repairs as required, remove or cut protruding connections, or re-clean or further remove blockage at no additional cost to the Owner.

4. Whenever non-remote powered and controlled winches are used to pull the television camera through the line, telephones, radios, or other suitable means of communication shall be set up between the two manholes of the line being inspected to ensure that good communications exist between members of the crew.

5. Measurement for location of defects shall be above ground by means of a meter device. Marking on cable, or the like, which would require interpolation for depth of manhole, shall not be allowed. Measurement meters shall be accurate to two-tenths of a foot over the length of the line section being inspected. Accuracy of the measurement meters shall be checked daily by use of a walking meter, roll-a-tape, or other suitable device, and the accuracy shall be satisfactory to the Owner's representative.

6. The camera height shall be adjusted such that the camera lens is always centered (1/2 I.D. or higher) in the pipe being televised. Flow shall be controlled such that depth of flow shall not exceed 20% of pipe's diameter.

7. Lighting system shall be adequate for quality pictures.

8. Television inspection logs and printed location records shall be kept which shall clearly show the location, in relation to adjacent manholes, of each defect. In addition, other data of significance including the locations of joints, unusual conditions, roots, storm connections, cracked or collapsed sections, presence of scale and corrosion, line sections that the camera failed to pass through and reasons for the failure and other discernible features shall be recorded and annotated using the Pipeline Assessment Certification Program (PACP) system and a copy of such records shall be supplied to both the Owner and the Engineer.

9. Video recordings shall be made of the television inspections and copies of the recordings and printed inspection logs shall be supplied to the Owner and Engineer.

10. Digital Recordings

    a. The purpose of digital recording shall be to supply a visual and audio record of areas of interests of the pipe segments that may be replayed by the Owner. Digital recording playback shall be at the same speed that it was recorded and shall be made in color. The Contractor shall be required to have all digital media and

necessary playback equipment readily accessible for review by the Owner/Engineer during the project.

b. The Contractor shall perform CCTV inspection of each newly installed pipe segment (manhole to manhole). Each test shall be witnessed by the Engineer and/or Owner.

c. The Contractor shall record each CCTV inspection on a DVD and submit such recordings to the Engineer as a prerequisite for Partial Utilization/Substantial Completion.

d. CCTV inspections shall be performed after all backfill has been placed and final grades have been established (if in a paved area, prior to placement of asphalt or concrete pavement), and after all manhole and pipe testing has been performed and approved by the Engineer.

e. CCTV inspections shall be performed by a PACP certified and trained person.

f. Inspections shall include narration that notes the location and type of defects, if any.

g. At the completion of the project, the Contractor shall furnish all of the original digital recordings to the Owner. Each disc shall be labeled as to its contents. Labels shall include the disc number, date televised, segment reach designation, street location, and manhole numbers on the disc. The Contractor shall keep a copy of the discs for 30 days after the final payment for the project, at which time the discs may be erased at the Contractor's option.

C. Deflection Testing

1. Mandrel testing shall be required for all newly installed lines. The Contractor shall be responsible for providing all necessary equipment, materials, accessories, and labor to perform the test.

2. The testing shall be conducted in accordance with KYTC Kentucky Manual (KM) 64.114-14.

3. The testing shall be conducted 30 days after backfill has been placed and final grades achieved. (If in a paved area, prior to placement of asphalt or concrete pavement.)

4. The line shall be replaced, including all testing, at no additional cost to the Owner if the deflection is greater than 7.5%.

5. Allowable deflections on any axis are presented in the table below.

Base Pipe Diameter	AASHTO Nominal Diameter	Max Deflection Limit
(inches)	(inches)	7.5% (inches)
15	14.76	13.65
18	17.72	16.39
24	23.62	21.85
30	29.53	27.32
36	35.43	32.77

D. The Contractor shall furnish suitable test plugs, equipment, and appurtenances, and all labor required to properly conduct the tests. Suitable bulkheads shall be installed, as required, to permit the test of the line. The Contractor shall construct weirs or other means of measurements as may be necessary.

E. Should the sections under any test fail to meet the requirements, the Contractor shall do all work of locating and repairing the lines and retesting as the Engineer may require without additional compensation.

F. If, in the judgment of the Engineer, it is impracticable to follow the foregoing procedures for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

- END OF SECTION -

SECTION 02740

BITUMINOUS PAVEMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF THE WORK

A. Extent of bituminous pavement includes roads, sidewalks, and parking areas.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. This Work consists of the construction of a bituminous concrete surface in accordance with the Plans, Contract Documents and Specifications, and Lexington-Fayette Urban County Government (LFUCG) Standard Drawings, current edition. Work in this section shall also conform to the Kentucky Transportation Cabinet Standard Specifications, (KYTC) Latest Edition specially but not limited to: Sections 207, 601, 602, 801, 802, 803, 804, 805, 806, 807, 811, 812, 813, 823, 828, and 844 of the KYTC Standard Specifications, current edition and associated cross references, but only to the extent that these KYTC sections do not conflict with the content of these Plans, Contract Documents and Specifications, and LFUCG Standard Drawings.

1.03 QUALITY ASSURANCE

A. Performance: Bituminous seal coat that fails as the result of not meeting the requirements of these Specifications shall be corrected at the Contractor's expense.

B. The design plant mix shall be submitted to the Engineer for review and acceptance. The submittal shall include the last date the mixture was approved by the Kentucky Transportation Cabinet for use on a state road project; and the location where the mixture was recently used, and the name and address of the paving contractor.

PART 2 - PRODUCTS

2.01 BITUMINOUS CONCRETE SURFACE MATERIAL

A. Aggregates shall meet the applicable requirements of KYTC.

B. Bituminous materials shall meet the applicable requirements of KYTC.

C. Bituminous materials for tack coat shall be one of the following: SS-1, SS-1h, CSS-1, CSS-1h, AE-60, RS-1, CRS-1, RC-70 or RC-250.

D. Steel, wood or other suitable material shall be of size and strength necessary to resist movement during bituminous placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

2.02 BITUMINOUS SEAL COAT MATERIAL

A. Coarse aggregate shall be Kentucky Transportation Cabinet Standard Size No. 8, meeting applicable requirements of Section 805 of KYTC.

B. Bituminous materials shall meet applicable requirements of Section 806 of KYTC Standard Specifications.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

The road shall be swept with an approved mechanical sweeper and with wire hand brooms, when necessary. Special care shall be taken to clean the edges of the surface so that full width of the roadway to be treated shall be uniformly clean. Where any mud or earth exists, it shall be removed sufficiently in advance of application of bituminous material to allow the surface to become thoroughly dry.

3.02 BITUMINOUS CONCRETE PAVING

A. Composition of Mixtures: Surface pavement mixture, meeting requirements of the KYTC Standard Specifications shall be used as determined by local plant mix availability. The mixture shall have been approved recently by the Kentucky Transportation Cabinet, used recently on a state project, and conform to the requirements below when tested in accordance with ASTM D 1559-76:

Stability, minimum pounds.....1200

Flow, 0.01-inch .....Min. 6, Max. 16

Percent air voids.....Min. 4, Max. 8

Minimum voids in mineral aggregate, percent:
3/4 inch.....14
1 inch.....13

B. Construction Methods: Construction requirements shall conform to applicable requirements of KYTC Standard Specifications.

C. A tack coat shall be required to bond new paving to the surface of concrete or brick pavements and bases or existing bituminous surfaces. It shall be applied in accordance with Section 407 of KYTC Standard Specifications.

D. Where bituminous paving is placed against vertical surfaces such as curbs, gutters, manhole frames, valve boxes, etc., the vertical face shall be tack coated to seal the surface. Where these surfaces are inaccessible to pressure distributor, the tack coat may be brushed into place. The tack coat shall not be allowed to spill over onto any horizontal surface outside the area to be paved.

E. Unless otherwise indicated on the Drawings or in these Specifications, the compacted thickness of the bituminous concrete paving shall be a minimum of two (2) inches and the minimum ambient temperature for placing shall be 40° F. Mixing and laying temperatures shall be as follows:

Aggregates .....Min. 240° F; Max. 325° F

Asphalt Cement.....Min. 225° F; Max. 325° F

Mixture at Plant (measured in truck) .....Min. 240° F; Max. 325° F

Mixture when Placed (measured in truck when discharging).....275° $\pm$ 20° F**

**The 275° F + 20° F mixture placing temperature is based on 275° F being about the ideal temperature for obtaining optimum compaction under average conditions. However, when the distance between asphalt plant and the job is such that specified placing temperatures cannot be maintained even though maximum mixing temperatures are covered, insulated hauling equipment as described below are used, the minimum placing temperature shall be 225° F.

F. Trucks for hauling bituminous mixtures shall have tight, clean, and smooth metal beds that have been sprayed with a minimum amount of soap emulsion, paraffin oil, or other approved material that is not detrimental to the mixture to prevent the mixture from adhering to the beds. All trucks shall be equipped with covers of sufficient size to completely cover the located material and all covers shall be securely fastened in place before the truck leaves the plant. Truck beds shall be insulated, when necessary, to maintain the specified temperature to the point of delivery. Any truck causing excessive segregation of material by its spring suspension or other contributing factors shall be discharged from the work until such conditions are corrected.

G. The Contractor shall have an accurate thermometer on the job at all times for verifying all temperature requirements and for taking temperature measurements whenever requested by the Engineer or Owner. The Contractor shall closely control temperature and compaction requirements to achieve quality bituminous paving and related work.

H. Bituminous paving that fails as the result of not meeting the requirements of these Specifications shall be removed and replaced at the Contractor's expense.

- END OF SECTION -

SECTION 02751

PERMEABLE PAVERS

PART 1 – GENERAL

1.01 SUMMARY

A. The Contractor shall furnish all labor, material, and equipment necessary for the installation of interlocking concrete paver stones (pavers), including subgrade and permeability testing, as shown on the Drawings and specified herein.

1.02 RELATED SECTIONS

A. Section 02370 – Erosion and Sediment Control

1.03 SUBMITTALS

A. The Contractor shall submit a copy of the installer's certificate from the Interlocking Concrete Pavement Institute's (ICPCI) Concrete Paver Installer Certification program to the Owner.

B. The Contractor shall submit full-size samples of each paver type and color selection.

C. The Contractor shall provide test data for freezing and thawing in accordance with ASTM C67.

D. The Contractor shall submit samples of edge restraints.

E. The Contractor shall submit product data sheets for unit pavers, geotextiles, edge restraints, precast concrete curbs, and aggregate.

F. The manufacturer's drawings and details indicating layout, pattern, and details shall be provided.

G. Testing agency to perform service required in ASTM C936.

H. Laboratory tests

I. The Contractor shall submit the manufacturer's certification by ICPCI as having met ASTM standards.

1.04 QUALITY ASSURANCE

A. Contractor Qualifications: At least one certified technician by the ICPCI shall be on the installation crew.

B. Comply with ASTM C936, "Standard Specification for Solid Concrete Interlocking Paving Units"; including the following unless modified by the requirements of the Contract Documents.

1. General requirements including submittals, quality assurance, acceptance of structure, and protection of pavers
2. Handling, placing, and installation of pavers.

C. Conform to ACI 305R when concreting during hot weather.

D. Preinstallation Conference: Conduct conference at project site.

E. Reference Panel: Place a reference panel in accordance with the Specifications.

1. Notify the Engineer at least seven (7) days before installation.
2. Approved areas may remain as final installations at the discretion of the Engineer.

PART 2 – PRODUCTS

2.01 CONCRETE UNIT PAVERS

A. Source Limitations: Obtain each type of paver from single source that has resources to provide materials and products of consistent quality in appearance and physical properties.

B. Solid Concrete Pavers for Porous Paving: Solid interlocking paving units of shapes that provide openings between units, complying with ASTM C936, resistant to freezing and thawing when tested according to ASTM C67, and made from normal-weight aggregates.

1. Thickness: 3-1/2 inches, unless noted otherwise on Drawings.
2. Face Size and Shape: As selected by Owner/Engineer from manufacturer's full range.
3. Opening Percentage: As indicated by manufacturer's designations.
4. Color: As selected by Owner/Engineer from manufacturer's full range.

2.02 CURBS AND EDGE RESTRAINTS

A. Steel Edge Restraints: Painted steel edging, 3/16-inch thick by 4 inches high, with loops pressed from or welded to face to receive stakes at 36 inches o.c., and with steel stakes 15 inches long for each loop.

1. Color: As selected by Owner/Engineer from manufacturer's full range.

B. Aluminum Edge Restraints: Straight, 3/16-inch thick by 4 inches high, extruded-aluminum edging, with loops pressed from face to receive stakes at 12 inches o.c., and with aluminum stakes 12 inches long for each loop.

C. Precast Concrete Curbs: Made from normal-weight concrete with a compressive strength not less than 5000 psi and water absorption not more than 5 percent, in shapes and sizes indicated.

1. Color and Texture: As selected by Owner/Engineer from manufacturer's full range.

2.03 AGGREGATE SETTING-BED MATERIALS

A. Graded Aggregate for Subbase: Sound crushed stone or gravel complying with Commonwealth of Kentucky Transportation Cabinet's *Standard Specifications for Road and Bridge Construction* for Size No. 2.

B. Graded Aggregate for Base Course: Sound crushed stone or gravel complying with Commonwealth of Kentucky Transportation Cabinet's *Standard Specifications for Road and Bridge Construction* for Size No. 57.

C. Sand for Leveling Course: Sound, sharp, washed, natural sand or crushed stone complying with gradation requirements in ASTM C33 for fine aggregate.

D. Graded Aggregate for Leveling Course: Sound crushed stone or gravel complying with Commonwealth of Kentucky Transportation Cabinet's *Standard Specifications for Road and Bridge Construction* for Size No. 9.

E. Separation Geotextile between Subbase and Surrounding Soil: Woven geotextile fabric, manufactured for separation applications; made from polyolefins or polyesters, with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured according to test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Apparent Opening Size: No. 60 sieve, maximum; ASTM D4751.
3. Permittivity: 0.02 per second, minimum; ASTM D4491.
4. UV Stability: 50 percent after 500 hours' exposure; ASTM D4355.

F. Drainage Geotextile between Base and Subbase: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured according to test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Apparent Opening Size: No. 40 sieve, maximum; ASTM D4751.
3. Permittivity: 0.5 per second, minimum; ASTM D4491.
4. UV Stability: 50 percent after 500 hours' exposure; ASTM D4355.

2.04 FILL MATERIALS

A. Aggregate Fill for Porous Paving: Graded, sound, crushed stone or gravel complying with ASTM D448 for Size No. 9 or sand complying with gradation requirements in ASTM633 for fine aggregate.

1. Color: As selected by Owner/Engineer from manufacturer's full range.

PART 3 – EXECUTION

3.01 SUBGRADE

A. Prepare subgrade as specified on Plans.

B. The area draining to engineering pervious surfaces shall be free of loose dirt and grit. Stockpiled materials shall not be placed on or adjacent to the installation area.

C. Subgrade shall be graded as specified on the Plans and compacted to 95% of the maximum dry density per ASTM D698.

D. Excavation shall be in accordance with Section 02315 of these Specifications.

E. An underdrain shall be provided if the underlying soils have an infiltration rate less than 0.5 inches per hour. Subgrade soil infiltration rate testing shall be in accordance with ASTM D3385 or ASTM D5093. Underdrains shall freely discharge into a swale or be connected to a receiving storm drainage system.

F. Underdrains shall be as specified in Section 02621 of these Specifications.

G. Proof-roll prepared subgrade to identify soft pockets and areas of excess yielding. Proceed with porous paver installation only after deficient subgrades have been corrected and are ready to receive subbase and base course for porous paving.

3.02 INSTALLATION, GENERAL

A. Do not use unit pavers with chips, cracks, voids, discolorations, and other defects that might be structurally unsound or visible in finished work.

B. Mix pavers from several pallets or cubes, as they are placed, to produce uniform blend of colors and textures.

C. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.

D. Tolerances:

1. Variation in Plane between Adjacent Units (Lipping): Do not exceed 1/16-inch unit-to-unit offset from flush.
2. Variation from Level or Indicated Slope: Do not exceed 1/8 inch in 24 inches and 1/4 inch in 10 feet.

E. Provide edge restraints as indicated. Install edge restraints before placing unit pavers.

1. Install edge restraints to comply with manufacturer's written instructions. Install stakes at intervals required to hold edge restraints in place during and after porous paver installation.
2. For metal edge restraints with top edge exposed, drive stakes at least 1 inch below top edge.

F. Provide curbs as indicated. Install curbs before placing unit pavers.

1. Install precast concrete curbs on a bedding of compacted base-course material over compacted subgrade. Install curbs before placing base course for pavers. Set curbs at elevations indicated, accurately aligned, and place and compact base-course material behind curbs as indicated. First subparagraph below is for sloping curbs set below finished grade and covered with soil and grass or ground cover.

3.03 INSTALLATION OF SETTING-BED

A. Compact subgrade uniformly to at least 95 percent of ASTM D698 laboratory density.

B. Proof-roll prepared subgrade to identify soft pockets and areas of excess yielding. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

C. Place separation geotextile over prepared subgrade, overlapping ends and edges at least 12 inches.

D. Place aggregate subbase, compact by tamping with plate vibrator, and screed to depth indicated.

E. Place drainage geotextile over compacted subbase, overlapping ends and edges at least 12 inches.

F. Place aggregate base, compact by tamping with plate vibrator maximum laboratory density, and screed to depth indicated.

G. Place drainage geotextile over compacted base course, overlapping ends and edges at least 12 inches.

H. Place leveling course, and screed to a thickness of 1 to 1-1/2 inches, taking care that moisture content remains constant and density is loose and constant until pavers are set and compacted.

3.04 INSTALLATION OF PAVERS

A. Set unit pavers on leveling course, being careful not to disturb leveling base. If pavers have lugs or spacer bars to control spacing, place pavers hand tight against lugs or spacer bars. If pavers do not have lugs or spacer bars, place pavers with a 1/16-inch minimum and 1/8-inch maximum joint width. Use string lines to keep straight lines. Fill gaps between units that exceed 3/8 inch with pieces cut to fit from full-size pavers.

1. When installation is performed with mechanical equipment, use only unit pavers with lugs or spacer bars on sides of each unit.

B. Compact pavers into leveling course with a low-amplitude plate vibrator capable of a 3500- to 5000-lbf compaction force at 80 to 90 Hz. Use vibrator with neoprene mat on face of plate or other means as needed to prevent cracking and chipping of pavers. Perform at least three passes across paving with vibrator.

1. Compact pavers when there is sufficient surface to accommodate operation of vibrator, leaving at least 36 inches of uncompacted pavers adjacent to temporary edges.
2. Before ending each day's work, compact installed concrete pavers except for 36-inch width of uncompacted pavers adjacent to temporary edges (laying faces).
3. As work progresses to perimeter of installation, compact installed pavers that are adjacent to permanent edges unless they are within 36 inches of laying face.
4. Before ending each day's work and when rain interrupts work, cover pavers that have not been compacted and leveling course on which pavers have not been placed with non-staining plastic sheets to protect them from rain.

C. Place graded aggregate fill immediately after vibrating pavers into leveling course. Spread and screed aggregate fill level with tops of pavers.

1. Before ending each day's work, place aggregate fill in installed porous paving except for 42-inch width of unfilled paving adjacent to temporary edges (laying faces).

D. As work progresses, remove and replace pavers that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment and with no evidence of replacement.

3.05 TESTING

A. Infiltration testing shall be conducted by the Contractor after final cleaning in accordance with ASTM C1781. Three test locations per 10,000 square feet of pavers shall be selected.

a. The average result shall exceed 50 inches/hour.

b. No single test shall result in less than 25 inches/hour.

B. Pavers shall be visually inspected by the Contractor after installation to ensure no depressions or settlement exceeding 0.5 inches are present. Cracked or damaged paver units shall be replaced at the Contractor's expense.

- END OF SECTION -

SECTION 02820

CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Contractor shall furnish and erect the chain link fence and gates as indicated on the Drawings and as herein specified.

B. The chain link fence shall have a top rail and bottom tension wire.

C. The chain link fence materials and installation shall meet or exceed the standards of the Chain Link Fence Manufacturers Institute, except as otherwise specified in this section; also fence materials shall meet or exceed Fed. Spec. RR-F-191H/GEN for Fencing, Wire and Post Metal (and Gates, Chain Link Fence Fabric, and Accessories), and shall conform to the ASTM Standard Specifications hereinafter noted.

D. Fence framework, fabric, and accessories.

E. Excavation for post bases.

F. Concrete anchorage for posts.

G. Manual gates and related hardware.

1.02 RELATED SECTIONS

Section 03300 – Cast-in-Place Concrete

1.03 REFERENCES

A. ANSI/ASTM A123 - Zinc (Hot Galvanized) Coatings of Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strips

B. ANSI/ASTM F567 - Installation of Chain Link Fence

C. ASTM A120 - Pipe, Steel, Black and Hot-dipped Zinc-coated (Galvanized) Welded and Seamless, for Ordinary Uses

D. ASTM C94 - Ready-Mixed Concrete

E. FS RR-F-191 - Fencing, Wire and Post, Metal

1.04 QUALITY ASSURANCE

A. Manufacturer: Company specializing in commercial quality chain link fencing with two (2) years experience.

B. Installation: ANSI/ASTM F567

1.05 SUBMITTALS

A. Submit shop drawings and product data.

B. Include plan layout, grid, spacing of components, accessories, fittings, hardware, anchorages, and schedule of components.

C. Submit manufacturer's installation instructions.

D. Submit samples.

E. Submit the following samples illustrating each fence material and fabric finish.

1. A 2-inch length of each type of post.
2. A 2-inch length of each type of brace and railing.
3. A 2-inch length of framework for gates.
4. A 2-inch length of diagonal truss brace.
5. A 2-inch length of tension wire.
6. Each type of fitting used at terminal posts.
7. Fittings used at line posts.
8. Fittings for the gate leaf frame.
9. Gate hinge.
10. Gate latch.
11. Stretcher bar, 2-inch length.
12. Bolt and nut fastener.
13. Fence fabric, two (2) weaves, two (2) meshes long.
14. Tie.

F. Accompanying the samples, the Contractor shall submit two statements, one on his and one on his subcontractor's letterhead, that the samples submitted comply with the

requirements of these Contract Documents. Samples shall be submitted for review at least 30 days before fence erection.

PART 2 - PRODUCTS

2.01 MATERIALS

Framework: ASTM A120; Schedule 40 steel pipe, standard weight, one piece without joints.

2.02 CONCRETE MIX

A. Concrete: As specified in Section 03300.

B. Concrete: ASTM C94; Portland Cement; 2500 min. psi at 38 days; 3" slump/1" maximum sized aggregate.

2.03 MATERIALS

A. All ferrous metal fittings, posts, fence and gate framework, and all accessories shall be galvanized with a heavy coating of 1.8 oz. pure zinc spelter per square foot of surface area to be coated using the hot-dip process. Thinner zinc coatings and electro-galvanizing will not be used as a substitute for the specified hot-dip galvanized finish.

B. All fabrication and welding shall be done before hot-dip galvanizing. All welding shall conform to the American Welding Society standards.

C. The chain link fence fabric shall be galvanized steel chain link fabric conforming to ASTM Standard Specification for Zinc-Coated Steel Chain Link Fence Fabric, Designation A392-74, with Class 2 zinc coating (2.0 oz. of zinc per sq. ft. of uncoated wire surface). The fabric shall be woven in 2-inch mesh from No. 9 gage wire in a 7-foot width with barbed selvages top and bottom.

D. The barbed wire shall be galvanized steel barbed wire consisting of two strands of twisted No. 12 1/2-gage wires with 4-point barbs spaced three (3) inches apart and conforming to ASTM Standard Specification of Zinc-Coated (Galvanized) Steel Barbed Wire, Designation A121-77, with Class 3 zinc coating (minimum of 0.80 oz. of zinc per square foot of uncoated wire surface for No. 12 1/2-gage wire).

E. The tension wire shall be No. 7-gage coil spring steel wire with galvanized finish having minimum of 0.80 oz. of zinc coating per square foot of uncoated wire surface.

F. Tie wires for fastening fence fabric to line posts and rails shall be not less than No. 6 gage aluminum wire.

G. Line posts shall be $2^{3/8}$-inch outside diameter steel pipe weighing not less than 3.65 pounds per foot, or $1^{7/8}$-inch high carbon steel H-beams weighing not less than 2.70 pounds per foot.

H. End, corner, and pull posts shall be $2^{7/8}$-inch outside diameter steel pipe weighing not less than 5.79 pounds per foot, or 2½-inch square steel tube weighing not less than 5.14 pounds per foot, or 3½-inch by 3½-inch roll-formed, steel corner section weighing not less than 5.14 pounds per foot.

I. Gate posts for gate leaves, up to and including six (6) feet wide, shall be $2^{7/8}$-inch outside diameter steel pipe weighing not less than 5.79 pounds per foot, or 2½-inch square steel tube weighing not less than 5.14 pounds per foot, or 3½" by 3½" roll-formed, steel corner section weighing not less than 5.14 pounds per foot.

J. Gate posts for gate leaves over six (6) feet wide, and up to and including 13 feet wide, shall be 4-inch outside diameter steel pipe weighing not less than 9.10 pounds per foot.

K. Top railings and railings for top, middle, and bottom braces between terminal posts and adjacent line posts shall be $1^{5/8}$-inch outside diameter steel pipe weighing not less than 2.27 pounds per foot, or $1^{5/8}$-inch by 1¼-inch, 14-gage roll-form section.

L. Diagonal truss braces between terminal and adjacent line posts and for gate framework shall be 3/8" diameter steel rod.

M. Barbed wire support arms shall project outward from the top of the posts at 45 degrees and shall be capable of withstanding a 200 pounds downward pull on the outermost end of the arm, without failure. The arms shall have provision for the attachment of three strands of evenly spaced barbed wire. Arms shall be integral with post top weather caps having holes for the passage of the top rail at intermediate posts.

N. Fittings shall be heavy duty malleable iron or pressed steel of suitable size to produce strong construction.

O. Stretcher bars for attaching fabric to terminal posts, such as end, corner, pull, or gate posts and gate frames, shall be flat bars with minimum cross-section dimensions of not less than 1/4-inch by 3/4-inch. The stretcher bars shall be the full height of the fabric and shall be secured with bar bands of not less than 11-gage sheet steel, spaced approximately 15 inches on centers and bolted with 3/8-inch diameter bolts.

P. Gate leave framework shall be $1^{7/8}$-inch outside diameter steel pipe weighing not less than 2.72 pounds per foot.

Q. If bolted or riveted corner fittings are not used, the gate frame shall be hot-dip

galvanized after welding.

R. Gate hinges shall be of heavy pattern of adequate strength for the gate size with large bearing surfaces for clamping or bolting in position.

S. The gates shall be provided with a suitable latch accessible from both sides and with provision for padlocking.

T. Double leaf swing gates shall have a center bolt, center stop, and automatic backstops to hold leaves in open position.

U. Gate padlocks shall have solid brass cases, hardened steel shackles, removable core cylinders, and galvanized steel chains attached to the shackle by a clevis. Padlocks shall be manufactured by Eaton Corp. Lock & Hardware Div., of Emhart Corp., Berlin, Conn.; Best Universal Lock Co., Inc., Indianapolis, Ind.; or be an acceptable equivalent product. The padlocks shall be furnished with two keys each.

2.04 FINISHES

A. Galvanized: ANSI/ASTM A120; 1.8 oz./sq. ft. coating.

B. Accessories: Same finish as framing and fabric.

PART 3 - EXECUTION

3.01 INSTALLATION - ERECTION OF CHAIN LINK FENCE

A. The fence and gates shall be erected by skilled mechanics.

B. Post spacing shall be uniform with maximum spacing of 10 feet in fences erected along straight lines. All posts shall be placed plumb and centered in the concrete foundations.

C. Post foundations in earth shall be concrete cylinders with a minimum diameter of 12 inches, crowned at grade to shed water, and shall not be less than 36 inches deep in the ground. Posts shall be set in the full depth of the foundations except for three (3) inches of concrete under the posts.

D. If foundation holes are excavated in peat or other unstable soil, the Engineer shall be notified for determination of suitable construction precautions.

E. If solid ledge is encountered without overburden of soil, posts shall be set into the rock a minimum depth of 12 inches for line posts and 18 inches for terminal posts. Post holes shall be at least 1-inch greater in diameter than the post, and the grout

shall be thoroughly worked into the hole so as not to leave voids and shall be crowned at the top to shed water. Where solid rock is covered by an overburden, the total setting depths shall not exceed the depths required for setting in earth, and the posts shall be grouted into the rock as described.

F. Any change in direction of the fence line of 30 degrees or more shall be considered corners. Pull posts shall be used at any abrupt change in grade.

G. Maximum area of unbraced fence shall not exceed 1,500 square feet.

H. Terminal posts shall be braced to adjacent posts with horizontal brace rails and rods brought to proper tension so that posts are plumb.

I. There shall be no loose connections or sloppy fits in the fence framework. The fence framework shall withstand all wind and other forces due to the weather.

J. Fabric shall be stretched taut and tied to posts, rails and tension wires with the bottom edge following the finished grade not more than two (2) inches above the grade. The fabric shall be installed on the security side of the fence and shall be anchored to the framework so that the fabric remains in tension after pulling force is released. The fabric shall be attached to line posts with ties spaced at not more than 15-inch intervals and to rails and braces at not more than 24-inch intervals. The fabric shall be attached to the tension wire with hog ring ties on 24-inch centers.

K. Three strands of barbed wire shall be installed on each extension arm of the line fence and at the top of each gate. The wires shall be pulled taut and fastened at each support.

L. Gates shall be installed plumb, level, and secure for the full width of the opening and the hardware adjusted for smooth operation. Provide concrete center drop to foundation depth and drop rod retainers at center of double gate openings.

M. Chain link fence height shall be six (6) feet before adding barbed wire.

- END OF SECTION -

SECTION 02920

SEEDING AND SODDING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Landscape development work in this phase shall consist of the installation of ground cover and lawns. "Planting Area" means all areas to be planted with ground cover, erosion control plantings, and/or lawns.

1.02 RELATED WORK

A. Subgrade elevations, excavation, fillings, and grading required to establish elevations shown on Drawings are not specified in this Section.

1.03 SCOPE

A. Furnish all material, labor, transportation, and equipment to properly complete the landscaping and turfing of the planting areas, or reasonably implied to complete the construction. Included as a part of the work of this Section, but not necessarily limited by it, are the following items:

1. Clear and remove from the planting areas all debris, surface growth, or other undesirable material.

2. Fine grading of all turf and planting areas, including the addition of amended topsoil if required.

3. Topsoil shall be placed to a minimum compacted depth of 6 inches and on all disturbed areas.

4. Vinca and/or Vetch shall be planted on all slopes steeper than 4:1, or as otherwise shown on the Drawings.

5. Furnishing and installation of all lawns and ground covers.

6. Providing maintenance throughout establishment.

7. Cleanup and weeding of all landscaped areas.

8. Seed and mulch all disturbed areas with slopes shallower than 4:1 with grass seed.

9. Seed and mulch all disturbed areas with slopes steeper than 4:1 with crown vetch.

10. Sod areas shown on Drawings.

1.04 SPECIAL REQUIREMENTS

A. All scaled dimensions on the Drawing are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions, quantities and grade elevations, and shall immediately inform the Engineer of any discrepancies.

During the construction and maintenance period, the contractor shall take every precaution and avoid damage to any underground facilities. The Contractor shall be held responsible for any and all damage to such facilities and shall repair the same at no cost to the Owner.

B. When conditions are such, by reason of drought, high wind, excessive moisture, or other factors, that satisfactory results are not reasonably attainable, the work shall be stopped and shall be resumed only when conditions are again favorable.

Grading and soil preparation work shall be performed only during periods when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy the soil structure, spreading, grading and tilling operations shall be suspended until the moisture content reaches acceptable levels and the desired results are attainable.

PART 2 - MATERIALS

2.01 GENERAL

A. All materials shall be of standard, approved and first grade quality and shall be in prime condition when installed and accepted. Any commercially processed or packaged material shall be delivered to the site in the original unopened container bearing the manufacturer's guaranteed analysis.

2.02 TOPSOIL

A. Topsoil shall be existing on site topsoil, stockpiled during excavation, and redistributed over final excavated area.

2.03 SOIL CONDITIONERS AND FERTILIZERS

A. Soil conditioners may include any or all of the specific conditioners herein specified and shall be applied at rates indicated on the Drawings or in the Special Conditions.

B. Manure: Manure shall consist of ground, well composted steer manure as taken from feeding pens, which is screened to pass through a one inch screen and which is free of weed seeds, dirt, sawdust, shavings, straw, refuse, harmful chemicals and other foreign matter. The material shall be composted no less than 180 days and no more than one year. The manure shall be subject to inspection prior to delivery.

C. Lignin Based Soil Conditioners: Lignin based soil conditioners shall be an organic based soil conditioner manufactured under a process which by action of sulphuric acid and hot gases separates cellulose from wood, leaving long lasting lignin particles.

The material shall have the following analysis:

pH	5.5%
Moisture	15.5%
Ash	1.9%
Organic Matter	84.6%
Total Nitrogen	1.0%
Total Phosphoric Acid	0.05%
Total Potash	0.05%

As "Loamite Soil Amendment" or equal in quality.

D. Redwood Shavings: Redwood shavings shall be leached and nitrogen fortified with the residual nitrogen content of 1%.

E. Fertilizer: Fertilizer shall be a commercial grade pelleted or chip type, as "Agriform Blue Chip", or equal, uniform in composition, dry and free flowing, of the following analysis:

Nitrogen	24.0% minimum
Nitroform	14.0% minimum
Phosphoric Acid	24.0% minimum
Potash	8.0% minimum
Iron (metallic)	0.4% minimum

Particle size not less than 2% through a number 48 mesh.

And/or

Commercial fertilizers with an analysis of 1584 or approved substitute as required by the specifications.

Fertilizer shall be delivered to the site in the original unopened container bearing the manufacturer's guaranteed analysis. Any fertilizer that becomes caked or damaged, making it unsuitable for use, will not be accepted.

F. Peat Moss: Peat moss shall be a commercial baled Canadian sphagnum material

with a pH of 4.5 to 5.5. The moss shall be free of woody material and minerals or foreign matter harmful to plant life. As "Sunshine" brand or equal.

2.04 GRASS SEED

A. The seed mixture to be sown shall be in the following proportions:

Common Name	**%**	**lbs per 1,000 sq. ft.**
Bluegrass	24%	3
Perennial ryegrass (turf)	16%	2
+ bluegrass	20%	2.5
Tall fescue (turf type)	32%	4
+ bluegrass	8%	1
TOTAL	100%	12.5

B. All seed shall be fresh and clean and shall be delivered mixed, in unopened packages, bearing a guaranteed analysis of the seed and mixture.

C. Germination must be certified to conform to the following minimums: 90% pure and 85% germination.

2.05 CROWN VETCH (Crown vetch slopes of 3:1 or greater)

The seed mixture to be sown shall be in the following proportions:

Common Name	Proportion Botanical Name	Percent By Weight	Percent Of of Purity	Germination
Penngift Crown Vetch (inoculated)	Coronilla Vetchii "Penngift"	75%	90%	90%

2.06 SOD

A. Sod shall be well-rooted Kentucky Bluegrass (Poa pratensis) completely free of noxious weeds. It shall be mowed to a height not to exceed 3" before lifting, and shall be of uniform thickness, with not over 1-1/2" or less than 1" of soil.

B. Nursery sod shall meet applicable requirements set out above and shall be a variety or blend of Kentucky Bluegrass. It shall comply with nursery inspections and plant quarantine regulations of the states of origin and destination as well as with Federal regulations governing interstate movement of nursery stock. A valid copy of the certification of nursery inspection shall accompany each shipment.

PART 3 - EXECUTION

3.01 GRADING AND SOIL PREPARATION

A. Final Grades: After the foregoing specified deep watering, minor modifications to grade may be required to establish the final grade. These areas shall not be worked until the moisture content has been reduced to a point where working it will not destroy the soil structure.

1. Finish grading shall insure proper drainage of the site.

2. All areas shall be graded so that the final grades will be one inch below adjacent paved areas, sidewalks, valve boxes, headers, cleanouts, drains, manholes, etc.

3. Surface drainage shall be away from all building foundations.

4. Eliminate all erosion scars.

5. The Contractor shall request an inspection by the Engineer for approval of the final grades and elevations before planting operations shall begin.

B. Lawn: Lawns will be planted by sodding.

1. After preparation of soil in accordance with section on "Grading and Soil Preparation," the areas to be planted to lawn shall be rolled, raked, and floated to finish grade by any method acceptable to the Owner, with the finish grade being smooth and even, free of rocks and clods, and reasonably well firmed. Prior to planting, the surface of the area shall be sufficiently loose and friable to receive the seeds, or sod.

2. Pre-Fertilization

Just prior to the planting of turf, evenly broadcast 15 pounds per thousand square feet of commercial fertilizer, 24/24/8, as specified under materials.

3. Method

a. This work consists of furnishing all labor, equipment and materials and in performing all operations in connection with the fertilizing and seeding of all the finished graded areas not specified to be sodded or occupied by structures, roads, concrete slabs, sidewalks, walls, etc., and including grassed areas destroyed or damaged by the Contractor.

b. The areas to be seeded shall be thoroughly tilled to a depth of at least 4" by discing, harrowing, or other approved methods until the condition of the soil is acceptable to the Engineer. After harrowing or discing, the seed bed shall be dragged and/or hand raked to

finished grade.

c. Fertilizer shall be 25 lbs. of 10/20/10 or equivalent per 1,000 square feet. The incorporation of the fertilizer and the agricultural lime may be a part of the tillage operation and shall be applied to less than 24 hours nor more than 48 hours before the seed is to be sown.

d. Seed shall be broadcast either by hand or approved sowing equipment at the rate of six pounds per 1,000 square feet, uniformly distributed over the area. Broadcasting seeding during high winds will not be permitted. The seed shall be drilled or raked into a depth of approximately 1/2 inch and the seeded areas shall be lightly raked to cover the seed and rolled. Drill seeding shall be done with approved equipment with drills not more than 3 inches apart. All ridges shall be smoothed out, and all furrows and wheel tracks likely to develop into washes, shall be removed.

e. Seed may be sown during the following periods:

February 1 to April 15
August 15 to October 15

f. Seed may not be sown at any other time except with the written approval of the Engineer.

g. After the seed has been sown, the areas so seeded shall be mulched with clean straw at the rate of one (1) bale per 2,000 feet (approximately 1 inch loose depth). Mulch on slopes shall be held in place with binder twine staked down at approximately 18 inch centers or by other equally acceptable means.

h. Areas seeded shall be protected until a uniform stand develops, when it will be accepted and the Contractor relieved of further responsibility for maintenance. Displaced mulch shall be replaced or any damage to the seeded area shall be repaired promptly, both in a manner to cause minimum disturbance to the existing stand of grass. If necessary to obtain a uniform stand, the Contractor shall refertilize, reseed and remulch as needed. Scattered bare spots up to one (1) square yard in size will be allowed up to a maximum of 10 percent of any area.

i. Payment for seeding and mulching shall be included in the lump sum bid.

4. Top Dressing

Top dressing may be applied at the option of the Contractor.

5. Initial Watering

Immediately following planting or top dressing, if applied, apply a light, fine mist spray to anchor the seed, stolons, and/or dressing to the soil, forming a protective crust to prevent wind erosion and drying of the seed or stolons. The lawn areas shall be kept moist, but not glistening wet, until full germination.

6. Final Compaction

Fully germinated lawn areas shall be allowed to dry sufficiently to permit rolling with approximately two hundred to three hundred pound water weighted roller to satisfactorily compact the soil around the grass roots and to provide a firm, smooth mowing surface.

C. Sodding: Sod shall be placed as shown on the Drawings.

1. Edges of sod shall be cut cleanly, either by hand or machine, to a uniform thickness of 1-1/2 inches or more, depending on the nature of the sod, so that practically all of the dense root system of the grasses is retained. The roots shall be exposed in the sod strip to allow the sod to be handled without undue tearing or breaking. The sod strip shall be of a uniform width of no less than 16 inches and no less than 2 feet in length. Sod shall be free from all primary noxious weeds in accordance with Section 913.04 of IDOHSS. Acceptance in the field before cutting shall not preclude rejection when delivered to the site if such contamination is found.

3.03 ESTABLISHMENT AND MAINTENANCE PERIOD

A. The Contractor shall continuously maintain all areas involved in this contract during the progress of the work and during the establishment period until final acceptance of the work by the Owner.

B. The contractual establishment period shall be for no less than 30 continuous calendar days.

C. The contractual establishment period begins on the first day after all planting in this project is completed and accepted and the planted areas are brought to a neat, clean and weed free condition.

D. Any day upon which no work will be required, as determined by the Engineer will be credited as one of the plant establishment working days regardless of whether or not the Contractor performs plant establishment work.

E. Any day when the Contractor fails to adequately maintain plantings, replace unsuitable plants or do weed control or other work, as determined necessary by the Engineer, will not be credited as one of the plant establishment working days.

F. Improper maintenance or possible poor condition of any planting at the

termination of the scheduled establishment period may cause postponement of the final completion date of the contract. Maintenance shall be continued by the Contractor until all work is acceptable.

G. In order to carry out the plant establishment work, the Contractor shall furnish sufficient men and adequate equipment to perform the work during the plant establishment period.

H. Maintenance shall be according to the following standards:

1. All areas shall be kept free of debris and all planted areas shall be weeded and cultivated at intervals of not more than ten days. Watering, mowing, rolling, edging, trimming, fertilization, spraying and pest control, as may be required, shall be included in the establishment period.

2. The Contractor shall be responsible for maintaining adequate protection of the area. Damaged areas shall be repaired at the Contractor's expense.

3. Between the 15th day and the 20th day of the establishment period, the Contractor shall reseed or resod all spots or areas within the lawn where normal turf growth is not evident.

4. Post fertilize all lawns in planted areas at the end of 30 days of maintenance at the rate of 13 pounds per thousand square feet using fertilizer with the analysis 1584 evenly applied and thoroughly watered in.

3.04 GUARANTEE AND REPLACEMENT

Note: The following guarantees have no effect on the one year guarantee on labor and workmanship.

A. Any material found to be dead, missing, or in poor condition during the establishment period shall be replaced immediately. The Engineer shall be the sole judge as to the condition of material. Material found to be dead or in poor condition within the guarantee period shall be replaced by the Contractor within 15 days of written notification by the Owner.

B. Replacement shall be made to the same specifications required for original plantings.

C. Material and labor involved in the replacing of materials shall be supplied by the Contractor at no additional cost to the Owner.

3.05 INSPECTIONS

A. Normal progress inspections shall be requested from the Engineer at least 48 hours in advance of an anticipated inspection. An inspection will be made by the Engineer on each of the steps listed below. The Contractor will not be permitted to initiate the succeeding steps of work until he has received written approval to

proceed by the inspector.

1. Immediately prior to the commencement of work of this section.
2. Installation of all ground covers.
3. Planting of all lawn areas.
4. Final inspection.
5. Final acceptance of the project.

- END OF SECTION -

SECTION 02950

SITE RESTORATION

PART 1 - GENERAL

1.01 CLEAN-UP

A. Upon completion of the installation of the structures, equipment, and appurtenances, the Contractor shall remove all debris and surplus construction materials resulting from his work. The Contractor shall grade the ground along each side of the pipe trench and/or structure in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line.

PART 2 - PRODUCTS

2.01 SEEDING

A. All graded areas shall be seeded or sod as specified in Section 02920.

PART 3 – EXECUTION

3.01 SITE RESTORATION

A. After installation of lines, the construction site will be restored to its original condition or better. All paved streets, roads, sidewalks, curbs, etc. removed or disturbed during construction shall be replaced, and all materials and workmanship shall conform to standard practices and specifications of the Owner and/or to the Kentucky Transportation Cabinet requirements and specifications, whichever applies. Gravel, cinder or dirt streets, drives and shoulders shall be replaced and sufficiently compacted to provide a surface suitable for carrying the type of traffic normally imposed at that location.

B. All seeded areas shall be watered daily during the germination period, unless rain supplies the required moisture. The Contractor shall replace, at his own expense, trees, shrubs, etc. disturbed during construction.

C. The Contractor shall remove from the site all equipment, unused materials, and other items at his expense. The construction site shall be left in a neat, orderly condition, clear of all unsightly items, before the Work is finally accepted.

- END OF SECTION -

SECTION 31 05 20

COIR FABRIC FOR EARTHWORK

PART 1 – GENERAL

Contractor shall furnish all materials, equipment, and labor required to install coir fabric as detailed on the Drawings, required by the Technical Specifications or manufacturer's recommendations, or directed by the Engineer.

1.1 Submittals. Contractor shall furnish copies of delivery tickets or other acceptable receipts as evidence of coir fabric received and incorporated into the construction.

1.2 Protections. Contractor shall:

(A) Accept only specified coir fabric. All proposed substitutions must be approved by Engineer in writing prior to purchase installation.

(B) Wrap each coir fabric roll with a material that will protect the coir from damage due to shipment, water, sunlight, and contaminants.

(C) Elevate coir fabric rolls off the ground and adequately covered during storage to protect them from the following: site construction damage, precipitation, extended ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, flames including welding sparks, excess temperatures, and any other environmental conditions that may damage the physical property values of the coir fabric.

PART 2 – MATERIALS

2.1 Coir Fabric Type I shall be a semi-permanent (4-6 Year) woven coir matting made from 100 percent biodegradable coconut fiber strands (coir), uniformly twisted and woven into a flexible fabric. Use a fabric of no less than 26.5 ounces per square yard as determined by ASTM D3776 with an open area of no more than 40 percent. The following table provides the minimum properties for Coir Fabric Type I.

Coir Fabric Type I Property	Typical Value
Weight	26.5 oz/SY
Tensile Strength We MD X CD	1260 x 768 lbs/ft
Recommended Velocity	16 fps
Recommended Shear Stress	5 lb/ft^2
Open Area	<40 percent

Approved Manufacturer:
Coir Fabric Type I – Rolanka BioD - Mat 90 or equal
Rolanka International, Inc.
155 Andrew Drive, Stockbridge, GA 30281
1-800-760-3215 / 1-770-506-8211
www.rolanka.com

2.2 Coir Fabric Type II shall be a semi-permanent (4-6 Year) woven coir matting made from 100 percent biodegradable coconut fiber strands (coir), uniformly twisted and woven into a flexible fabric. Use a fabric of no less than 23 ounces per square yard as determined by ASTM D3776 with an open area of no more than 50 percent. The following table provides the minimum properties for Coir Fabric Type II.

Coir Fabric Type II Property	Typical Value
Weight	23 oz/SY
Tensile Strength We MD X CD	924 x 684 lbs/ft
Recommended Velocity	12 fps
Recommended Shear Stress	4.5 lb/ft^2
Open Area	<50 percent

Approved Manufacturer:
Coir Fabric Type II – Rolanka BioD - Mat 70 or equal
Rolanka International, Inc.
155 Andrew Drive, Stockbridge, GA 30281
1-800-760-3215 / 1-770-506-8211 www.rolanka.com

2.3 Coir Fabric Type III shall be a durable temporary (12-24 months) mattress coir, stitched between organic nets. Use a fabric of no less than eight and one-half (8.5) ounces per square yard as determined by ASTM D3776. Coir Fabric Type III shall be 100 percent bio-degradable. Photodegradable products will be rejected. Approved Manufacturer:

Coir Fabric Type III – Rolanka BioD – OCF30 or equal
Rolanka International, Inc.
155 Andrew Drive, Stockbridge, GA 30281
1-800-760-3215 / 1-770-506-8211 www.rolanka.com

2.4 Coir Fabric Type IV shall be a temporary (6 month) mat woven from spun jute and 100 percent bio-degradable. Photodegradable products will be rejected. Approved Manufacturer:

Coir Fabric Type IV – Rolanka Jute Mat or equal
Rolanka International, Inc,
155 Andrew Drive, Stockbridge, GA 30281
1-800-760-3215 / 1-770-506-8211 www.rolanka.com

2.5 Wooden Stake. Wooden stakes shall be hardwood, at least 18 inches in length, and with a cross-section of 1.5 inches by 0.75 inches or larger.

2.6 Metal Staples or plastic stakes shall not be used.

PART 3 – EXECUTION

3.1 Installation. Contractor shall:

(A) Prepare soil, including grading, topsoil, and/or media. The surface of the soil should be smooth and free of rocks, roots, and other obstructions.

(B) Roll the fabric up the slope (recommended for steep slopes) or across the slope and stake with wooden stakes per manufacturers recommendations. The middle of the fabric should be staked using hardwood stakes with an appropriate staking pattern for the slope as shown on Drawings. Lay fabric loosely on the ground allowing a good contact between soil and fabrics.

(C) When fabric splicing is necessary, use a 6 inch overlap. Use hardwood stakes to anchor fabric seams. The overlap shall always be with the upstream fabric overlapping the downstream fabric. If overlapping is necessary from top to bottom, the upslope fabric shall overlap the downslope fabric.

- END OF SECTION -

SECTION 31 23 50

BASIN FILTER MEDIA

PART 1 – GENERAL

Contractor shall furnish all materials, equipment, and labor required to construct basin areas using basin filter media as detailed on the Drawings, required by the Technical Specifications, or directed by the Engineer.

1.1 Restrictions

(A) Contractor shall stockpile all cleared topsoil material and use for basin area filter media. Locate topsoil stockpiles so that the material can be used readily for filter media or redistribution in adjacent disturbed areas, if needed.

(B) Material excavated that is unsuitable for use as topsoil or backfill, or exceeds required fill, shall be properly disposed of off-site.

1.2 Protections. Contractor shall:

(A) Protect the subgrade and repair all damage.

(B) Use equipment with low impact tires when hauling materials over the completed subgrade. Do not operate equipment of such weight as to cause rutting on the subgrade.

(C) Not store or stockpile materials on a completed subgrade.

(D) Limit soil compaction in the entire basin area footprint by limiting tracking over the area before, during, and after construction.

(E) Limit compaction of the filter media once it is placed.

PART 2 – MATERIALS

2.1 Topsoil per Section 02378.

2.2 Filter Media. Filter media shall be composed, by volume, of 70 percent sand, 15 percent compost, and 15 percent clean topsoil. Sand, compost, and clean topsoil shall be mixed to form a homogeneous media prior to placing in basin area. The mixing shall be witnessed by the Owner's representative on-site or shall be certified by the supplier.

(A) Topsoil testing and reporting must be as indicated by Section 02378.

(B) Sand shall be medium to coarse washed sand (AASHTO M-6 or ASTM C-33, or equivalent). Contractor to provide verification.

(C) Compost shall have an organic matter content of 4 to 8 percent. Contractor to provide verification.

PART 3 – EXECUTION

3.1 Contractor shall:

(A) Strip, stockpile, and test topsoil per Section 02387.

(B) Excavate and grade basin area in accordance with lines and levels established for the work in Drawings and Technical Specifications, including excavation required to meet specified filter media depths.

(C) Install filter media in 8 inch lifts to top elevation of basin area per Drawings. Allow media to settle before finalizing grades. May apply clean water to media to facilitate settling.

3.2 Tolerances. All elevations shall be within two tenths of one foot (0.2) of the Drawings for grading and media surface and within one tenth of one foot (0.1) for pipes.

- END OF SECTION -

SECTION 32 45 60

COIR FABRIC FOR BANK PROTECTION

PART 1 – GENERAL

Contractor shall furnish all materials, equipment, and labor required to install coir fabric bank protection as detailed on the Drawings, required by the Technical Specifications, or directed by Engineer.

1.1 Submittals. Contractor shall furnish copies of the delivery tickets or other acceptable receipts as evidence of materials received and used to install coir fabric bank protection.

PART 2 – MATERIALS

2.1 Coir Fabric. Coir fabric shall be Type I as specified in Section 31 05 20.

PART 3 – EXECUTION

3.1 Installation. Contractor shall:

(A) Prepare soil, including grading, topsoil, seed, and mulch. The surface of the soil should be smooth and free of rocks, roots, and other obstructions.

(B) Start on the bankfull bench by anchoring fabric in a 6 inch deep and 6 inch wide anchor trench. Note: The fabric trench shall be a minimum of 5 feet upslope the top break in slope of the bank. Place fabric, stake as specified in Section 31 05 20, backfill, and compact.

(C) Roll the fabric down the slope (recommended for steep slopes) or across the slope. Stake as specified in Section 31 05 20. Be sure to lay fabric loosely on the ground allowing a good contact between soil and fabrics.

(D) When fabric splicing is necessary, use a 6 inch overlap. The overlap shall always be with the upstream fabric overlapping the downstream fabric. If overlapping is necessary from top to bottom, the upslope fabric shall overlap the downslope fabric.

3.2 Tolerances. All elevations shall be within two-tenths of one foot (0.2) of the Drawings.

- END OF SECTION -

SECTION 35 49 75

ROCK A VANES

PART 1 – GENERAL

Contractor shall furnish all materials, equipment, and labor required to install rock A-vanes as detailed on the Drawings, required by the Technical Specifications, or directed by Engineer.

1.1 Submittals. Contractor shall furnish copies of delivery tickets or other acceptable receipts as evidence of materials received and used to install rock A-vanes.

1.2 Restrictions. Rock will be required as backfill where over-excavation has occurred or where necessary to secure contact between the irregular rock shapes and the existing earth material. Rock necessary to secure contact between irregular rock shapes and existing earth material shall be compacted consistent with the adjacent existing earth material.

PART 2 – MATERIALS

2.1 Rock. All rock shall consist of clean limestone of the specified size; hard, durable, and angular in shape, and resistant to weathering. Rock shall not contain deleterious amounts of shale, as determined by Engineer. Porous or friable rock shall be rejected. Slag or recycled aggregate shall be rejected. Refer to the Drawings for required rock dimensions.

2.2 Dense Graded Aggregate. Dense graded aggregate shall conform to KYTC Standard Specifications, Section 805.

2.3 Boulders. Boulders shall be angular, flat, or cubed durable sandstone, limestone, granite, or dolomite rock of sufficient hardness to resist weathering. Boulders shall be free of shale, cracks, and defects. Refer to the Drawings for required minimum median axis boulder dimensions. Boulder source must be submitted to Engineer for approval.

PART 3 – EXECUTION

3.1 Installation. Contractor shall:

(A) Construct rock A-vane structures by first shaping the bankfull channel to the grades specified. Excavate enough bed material to place the rocks.

(B) Mark the location of the rocks for rock A-vane structures. Excavate the pool per the lines and grades on the Drawings.

(C) Place footer rocks. Note the elevations required to set the grade for the surface rock. These rocks shall be placed tightly together and chinked to minimize gaps as indicated on the Drawings. The vane arms of the rock vane shall slope up to the bank at elevations and slopes indicated on the Drawings.

(D) Place surface rocks per lines and grades on the Drawings, starting from the invert and work toward both banks. These rocks shall be placed tightly together and chinked (between each other and between surface rocks and footer rocks) using dense graded aggregate to minimize gaps as indicated in Drawings. All surface boulders shall be offset upstream from the footer boulders to allow for a "splash pad" as specified on the Drawings. Fill the voids on the upstream side of surface rocks (and between surface and footer rocks) with dense graded aggregate material such that water will flow over the surface rocks rather than through gaps in the rocks. Hand placement of material may be necessary to adequately fill voids between boulders.

(E) Extend rocks into banks to create a sill as shown on Drawings. Sill rocks shall be buried just below the ground surface such that the top of the rock does not protrude from the ground and forms a smooth surface.

(F) Excavate the pool downstream of structure per lines and grades shown on Drawings.

(G) Backfill pools with material specified on Drawings.

(H) Restore stream banks to the lines and grades specified on the Drawings.

3.2 Tolerances. All stone shall be within two-tenths of one foot (0.2) of the Drawings.

- END OF SECTION -

SECTION 35 49 90

ROCK STEPS

PART 1 – GENERAL

Contractor shall furnish all materials, equipment, and labor required to install rock steps as detailed on the Drawings, required by the Technical Specifications, or directed by Engineer.

1.1 Submittals. Contractor shall furnish copies of delivery tickets or other acceptable receipts as evidence of materials received and used to install rock steps.

1.2 Restrictions. Rock will be required as backfill where over-excavation has occurred or where necessary to secure contact between the irregular rock shapes and the existing earth material. Rock necessary to secure contact between irregular rock shapes and existing earth material shall be compacted consistent with the adjacent existing earth material.

PART 2 – MATERIALS

2.1 Rock. All rock shall consist of clean limestone of the specified size; hard, durable, and angular in shape, and resistant to weathering. Rock shall not contain deleterious amounts of shale, as determined by Engineer. Porous or friable rock shall be rejected. Slag or recycled aggregate shall be rejected. Refer to the Drawings for required rock dimensions.

2.2 Dense Graded Aggregate. Dense graded aggregate shall conform to KYTC Standard Specifications, Section 805.

2.3 Boulders. Boulders shall be angular, flat, or cubed durable sandstone, limestone, granite, or dolomite rock of sufficient hardness to resist weathering. Boulders shall be free of shale, cracks, and defects. Refer to the Drawings for required minimum median axis boulder dimensions. Boulder source must be submitted to Engineer for approval.

PART 3 – EXECUTION

3.1 Installation. Contractor shall:

(A) Construct rock step structures by first shaping the bankfull channel to the grades specified.

(B) Excavate enough bed material to place the rocks.

(C) Mark the location of the rocks for rock step structures.

(D) Place footer rocks. Note the elevations required to set the grade for the surface rock. These rocks shall be placed tightly together and chinked to minimize gaps as indicated on the Drawings.

(E) Place surface rocks per lines and grades on the Drawings. Start from the invert and work toward both banks. All surface boulders shall be offset upstream from the footer boulders to allow for a "splash pad" as specified on the Drawings. These rocks shall be placed tightly together and chinked (between each other and between surface rocks and footer rocks) using dense graded aggregate to minimize gaps as indicated in Drawings. Fill the voids on the upstream side of surface rocks (and between surface and footer rocks) with dense graded aggregate material such that water will flow over the surface rocks rather than through gaps in the rocks. Hand placement of material may be necessary to adequately fill voids between boulders.

(F) Excavate the pool downstream of structure per lines and grades shown on Drawings.

(G) Restore stream banks to the lines and grades specified on the Drawings.

3.2 Tolerances. Rock step invert shall be within two-tenths of one foot (0.2) of the Drawings.

- END OF SECTION -

SECTION 35 49 92

ENERGY DISSIPATION POOLS

PART 1 – GENERAL

Contractor shall furnish all materials, equipment, and labor required to install energy dissipation pools as detailed on the Drawings, required by the Technical Specifications, or directed by Engineer.

1.1 Submittals. Contractor shall furnish copies of delivery tickets or other acceptable receipts as evidence of materials received and used to install energy dissipation pool.

1.2 Restrictions. Rock shall be required as backfill where over-excavation has occurred or where necessary to secure contact between the irregular rock shapes and the existing earth material. Rock necessary to secure contact between irregular rock shapes and existing earth material shall be compacted consistent with the adjacent existing earth material.

PART 2 – MATERIALS

2.1 Rock. All rock shall consist of clean limestone of the specified size; hard, durable, and angular in shape, and resistant to weathering. Rock shall not contain deleterious amounts of shale, as determined by Engineer. Porous or friable rock shall be rejected. Slag or recycled aggregate shall be rejected. Refer to the Drawings for required rock dimensions.

2.2 Boulders. Boulders shall be angular, flat, or cubed durable limestone rock of sufficient hardness to resist weathering. Boulders shall be free of shale, cracks, and defects. Refer to the Drawings for required minimum median axis boulder dimensions.

PART 3 – EXECUTION

3.1 Installation. Contractor shall:

(A) Construct energy dissipation pools by first shaping the channel to the grades specified.

(B) Excavate enough bed material to place the rocks.

(C) Mark the location of the rocks for weirs.

(D) Place footer rocks along toe of slopes of the bank and toe of slope of the head of the pool. Note the elevations required to set the grade for the surface rock. Footer rocks shall be secured into the bank. These rocks shall be placed tightly together and chinked to minimize gaps as indicated on the Drawings.

(E) Place surface rocks on the footer rocks per lines and grades on the Drawings. All surface rocks shall be offset towards the banks from the footer boulders to form a step-like rock formation as specified on the Drawings. These rocks shall be placed tightly together and chinked to minimize gaps as indicated in Drawings. Fill the voids on the upstream side of surface rocks (and between surface and footer rocks) with material specified on the drawings in a manner that water will flow over the surface rocks rather than through gaps in the rocks. Hand placement of material may be necessary to adequately fill voids between boulders. The top of the surface rocks shall be flush with the top of banks as detailed in the Drawings.

(F) Place another row of surface rock on the bank, overlapping with the first row of surface rocks as indicated on the Drawings. These rocks shall be placed tightly together and chinked to minimize gaps as indicated on the Drawings.

(G) Fill the pool with at least twelve (12) inches of substrate and back fill behind/between surface rocks and banks.

(H) At the termini of the energy dissipation pool, place the weir rock(s) in the center of the stream channel and in between surface rocks of both banks. Weir rock(s) should be secured in the stream bed and substrate. A maximum gap of one-third (1/3) times bottom width of bankfull shall be in between the bank surface rocks and the edges of the weir rock(s).

(I) Restore stream banks to the lines and grades specified on the Drawings.

3.2 Tolerances. Bank heights and elevation of surface rocks will be within two-tenths of one foot (0.2) of the Drawings.

- END OF SECTION -

SECTION 35 49 97

SMALL WOODY DEBRIS COMPLEX

PART 1 – GENERAL

Contractor shall furnish all materials, equipment, and labor required to install small woody debris complex as detailed on the Drawings, required by the Technical Specifications, or directed by Engineer.

PART 2 – MATERIALS

2.1 Woody Materials. The woody material shall consist of logs with diameter and length specified on the Drawings. Small branches and root wad can remain on the logs but be trimmed as specified on the Drawings. Limbs shall be removed as needed to achieve installation and comply with the Drawings.

PART 3 – EXECUTION

3.1 Installation. Contractor shall:

(A) Install small woody debris complex within the bed of a previously excavated channel in locations indicated on the Drawings.

(B) Header log shall be anchored across the head of the structure as indicated on the Drawings.

(C) Woody debris shall be pushed into the stream bed as indicated on the Drawings.

3.2 Tolerances. All logs and woody debris shall be within two-tenths of one foot (0.2) of the Drawings.

- END OF SECTION -

SECTION 35 49 98

HARDENED WOODY DEBRIS COMPLEX

PART 1 – GENERAL

Contractor shall furnish all materials, equipment, and labor required to install hardened woody debris complex as detailed on the Drawings, required by the Technical Specifications, or directed by Engineer.

PART 2 – MATERIALS

2.1 Woody Materials. The woody material shall consist of logs with diameter and length specified on the Drawings. Small branches and root wad can remain on the logs but be trimmed as specified on the Drawings. Limbs shall be removed as needed to achieve installation and comply with the Drawings.

2.2 Rock. All rock shall consist of clean limestone of the specified size; hard, durable, and angular in shape, and resistant to weathering. Rock shall not contain deleterious amounts of shale, as determined by Engineer. Porous or friable rock shall be rejected. Slag or recycled aggregate shall be rejected. Refer to the Drawings for required rock dimensions.

2.3 Dense Graded Aggregate. Dense graded aggregate shall conform to KYTC Standard Specifications, Section 805.

2.4 Boulders. Boulders shall be angular, flat, or cubed durable limestone rock of sufficient hardness to resist weathering. Boulders shall be free of shale, cracks, and defects. Refer to the Drawings for required minimum median axis boulder dimensions.

PART 3 – EXECUTION

3.1 Installation. Contractor shall:

(A) Construct header rock structures by first shaping the bankfull channel to the grades specified.

(B) Excavate enough bed material to place the rocks.

(C) Mark the location of the rocks for header rock structures.

(D) Place footer rocks. Note the elevations required to set the grade for the surface rock. These rocks shall be placed tightly together and chinked to minimize gaps as indicated on the Drawings.

(E) Place surface rocks per lines and grades on the Drawings. Start from the invert and work toward both banks. All surface boulders shall be offset upstream from the footer boulders to allow for a "splash pad" as specified on the Drawings. These rocks shall be placed tightly together and chinked (between each other and between surface rocks and footer rocks) using material to minimize gaps as indicated in Drawings. Fill the voids on the upstream side of surface rocks (and between surface and footer rocks) with aggregate material shown on the drawings in such a manner that water will flow over the surface rocks rather than through gaps in the rocks. Hand placement of material may be necessary to adequately fill voids between boulders.

(F) Install small woody debris complex within the bed of a previously excavated channel in locations indicated on the Drawings.

(G) Woody debris shall be buried into the stream bed as indicated on the Drawings.

3.2 Tolerances. All rocks and woody debris shall be within two-tenths of one foot (0.2) of the Drawings.

- END OF SECTION -

SECTION 03150

EXPANSION AND CONTRACTION JOINTS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Forming integral contraction and control joints in concrete.

B. Visually concealing expansion joints in concrete.

1.02 RELATED SECTIONS

A. Section 03300 – Cast-in-Place Concrete

PART 2 - PRODUCTS

2.01 INTEGRAL JOINT MATERIAL

A. Waterstop for Construction and Control Joints: Unless otherwise shown, waterstops shall be 6" wide, 3/16" minimum thickness, flat-ribbed; dumbbell; or multi-ribbed polyvinyl chloride (PVC), in accordance with Corps of Engineers Specifications CRD-C-572, latest revision, manufactured by Vinylex Corp, W. R. Grace Company, Greenstreak, or equal. Split-ribbed waterstops may be used where appropriate.

B. Waterstop for Expansion Joints: Unless otherwise shown, waterstops shall be 9" wide, 1/4" minimum thickness, ribbed with center bulb polyvinyl chloride (PVC) in accordance with Corps of Engineers Specifications CRD-C-572, latest revision as manufactured by Vinylex Corp, W. R. Grace Company, Greenstreak, or equal.

C. Self Expanding Waterstops:

1. Where indicated on the drawings the CONTRACTOR shall install a self-expanding waterstop impregnated with sodium bentonite similar to Volclay Waterstop-RX. The manufacturer's recommended installation procedures shall be followed.

2. Self Expanding Waterstops shall not be used at expansion joints.

D. Joint Filler: ANSI/ASTM D994, bituminous impregnated fiberboard; closed cell polyethylene; self-expanding cork; of the sizes detailed and in the locations indicated on the Drawings. Bituminous impregnated fiberboard shall

not be used to fill joints in liquid retaining structures. Where the application requires cementing the joint filler into place, a pressure sensitive adhesive shall be used in accordance with the recommendation of the filler manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Locate and form expansion joints.

B. Locate and saw cut or placed preformed control joints.

C. Waterstops shall be provided at all joints where indicated on the drawings. Waterstops shall also be provided in all joints, of water containment and subterranean structures. Install waterstops continuous without displacing reinforcement. All joints between adjacent continuing and intersecting sections of waterstop including butt joints, tee joints, and other angled joints shall be heat fused to form a watertight seal. Waterstops shall not be overlapped. Waterstops shall be securely wired in place to maintain proper positioning during placement of concrete.

D. Place formed construction joints in slabs or walls as detailed on the Drawings or as directed by ENGINEER. Set top screed to required elevations. Secure to resist movement of wet concrete.

E. Install joint fillers and sealants in accordance with manufacturer's instructions. Use primers of the type recommended by the manufacturer of the joint filler and sealant.

- END OF SECTION -

SECTION 03210

REINFORCING STEEL

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Reinforcing steel.

B. Shop Drawings.

1.02 RELATED SECTIONS

A. Section 03150 - Expansion and Contraction Joints

B. Section 03300 – Cast-in-Place Concrete

1.03 REFERENCES

A. ASTM A-615 - Deformed and Plain Billet - Steel Bars for Concrete Reinforcement.

B. ACI 315 - Details and Detailing of Concrete Reinforcement.

C. ACI 315R - Manual of Engineering and Placing Drawings for Reinforced Concrete Structures.

D. ASTM A-185 - Welded Steel Wire Fabric For Concrete Reinforcement.

E. ACI 301- Specifications For Structural Concrete

F. ACI 318 - Building Code Requirements for Reinforced Concrete.

G. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.

1.04 SUBMITTALS

Shop Drawings: The CONTRACTOR shall submit a complete set of shop drawings including schedules and bending drawings for all reinforcement used in the work in accordance with ACI 315, and ACI 315R. Review of drawings by the CONTRACTOR and the ENGINEER is required before shipment can be made.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The minimum yield strength of the reinforcement shall be 60,000 pounds per square inch. All steel bar reinforcement shall conform to the requirements of ASTM A-615, A-616, or A-617. All bar reinforcement shall be deformed.

B. Smooth dowels shall be plain steel bars conforming to ASTM A-615, Grade 40.

C. Welded wire fabric shall conform to ASTM 185, welded steel wire fabric for concrete reinforcement.

D. Reinforcement supports and other accessories in contact with the forms for members which will be exposed to view in the finished work shall have approved high density polyethylene tips so that the metal portion shall be at least one quarter of an inch from the form or surface. Clearance supports for reinforcement, when in contact with the ground or stone fill, shall be precast concrete blocks.

2.02 FABRICATION

A. Reinforcement shall be cold bent. It shall be bent accurately to the dimensions and shapes shown on the plans and to within tolerances specified in the CRSI Manual of Standard Practice.

B. Reinforcement shall be shipped with other bars of the same size and shape, fastened securely with wire and with metal identification tags using size and mark.

PART 3 - EXECUTION

3.01 PLACING AND FASTENING

A. Before being placed in position, all steel reinforcement shall be cleaned of loose mill and rust scale, oil, dirt and other coatings that deter the development of proper bond with the concrete.

B. Steel Reinforcement shall be accurately placed in positions shown on the drawings and firmly held in place during placement, curing, and hardening of concrete by using annealed wire ties. Steel Bars shall be securely tied as required to prevent displacement under foot traffic and during casting operations, and shall be placed within tolerances allowed in ACI 117.

C. Steel bar clearance from the forms shall be maintained by means of stays, concrete blocks, plastic chairs, ties, hangers or other approved supports. (See paragraph 2.01 D) Fabric reinforcement shall be supplied as flat sheets.

D. Before any concrete is placed, the ENGINEER or appointed representative shall have inspected the placing of the steel reinforcement and given permission to deposit the concrete. Concrete placed in violation of this provision will be rejected and thereupon shall be removed.

E. Unless otherwise specified, reinforcement shall be furnished in the full lengths indicated on the plans. Splicing of bars, except where shown on the plans, will not be permitted without the approval of the ENGINEER. Where splices are made, they shall be staggered insofar as possible.

F. Wire mesh reinforcement shall be continuous between expansion joints. Laps shall be at least one full mesh plus 2", staggered to avoid continuous lap in either direction and securely wired or clipped with standard clips.

G. Dowels shall be installed at right angles to construction joints and expansion joints. Dowels shall be accurately aligned parallel to the finished surface, and shall be rigidly held in place and supported during placing of the concrete. One end of dowels shall be oiled or greased or be coated with high density polyethylene with a minimum thickness of 14 mils.

- END OF SECTION -

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Provide all labor, material, equipment, and services to complete all cast-in-place concrete work stipulated by the project, shown on the Drawings, or as herein specified. Generally, the work is to include, but not limited to, the following:

1. Entire concrete work shown on the contract Drawings.
2. Steel reinforcement including welded wire fabric.
3. Exterior concrete pavements, walks, and concrete curbs.
4. Concrete accessories.
5. Openings, pockets, chases, blockouts required, or as shown on the Drawings.
6. Forming, finishing, curing, and patching.
7. Construction, control joints, and expansion joints.
8. Granular base course under all exterior pavements as indicated.
9. Sealing of construction joints, exterior concrete pavements, and walks.
10. Non-shrink grout, grout, and patching mortar.

B. All work shall be performed to provide monolithic concrete having the required compressive strength, durability, weather resistance, and watertight basins without any structural defects such as, but not limited to, planes of weakness, pronounced honeycombs, voids, air pockets or temperature cracks.

1.02 REFERENCES (Latest Editions)

A. ACI 211.1- Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete

B. ACI 301 – Standard Specifications for Structural Concrete

C. ACI 302 – Guide for Concrete Floor and Slab Construction

D. ACI 304 – Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete

E. ACI 305R – Hot Weather Concreting

F. ACI 306R – Cold Weather Concreting

G. ACI 308 – Standard Practice for Curing Concrete

H. ACI 311 – Recommended Practice for Concrete Inspection

I. ACI 315 – Details and Detailing of Concrete Reinforcement

J. ACI 318 – Building Code Requirements for Reinforced Concrete

K. ACI 350R – Environmental Engineering Concrete Structures

L. ASTM C33 – Concrete Aggregates

M. ASTM C94 - Ready-Mixed Concrete

N. ASTM C150 - Portland Cement

O. ASTM C260 - Air Entraining Admixtures for Concrete

P. ASTM C494 - Chemical Admixtures for Concrete

Q. ASTM C618 - Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

R. ASTM C948 - Test Method for Dry and Wet Bulk Density, Water Absorption and Apparent Porosity of Thin Sections of Glass-Fiber-Reinforced Concrete

S. ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type)

T. ASTM D1190 - Concrete Joint Sealer, Hot-Poured Elastic Type

U. ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)

V. ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

W. ASTM E1155 – Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers

1.03 SUBMITTALS

A. Product Data

For each manufactured material and product utilized under this section including, but not limited to, aggregates, admixtures, method of adding admixtures, materials and method of curing, method of developing bond at joints, joint materials, waterstops, and vapor barriers.

B. Design Mixes

For each concrete mix indicated.

C. Shop Drawings

Include details of steel reinforcement placement including material, grade, steel bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports. Shop drawings to include the proposed construction and control joint locations.

D. Material Certificates

E. Testing agency to perform service required in ACI 301.

F. Laboratory tests on concrete.

G. If ready-mixed concrete is used, provide the following:

1. Physical capacity of mixing plant.
2. Trucking facilities available.
3. Estimated average amount which can be produced and delivered to the site during a normal 8-hour day excluding the output to other customers.
4. Delivery Tickets: Furnish to Engineer copies of all delivery tickets for each load of concrete delivered to the site. Provide items of information as specified in ASTM C 94.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications

A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

B. Comply with ACI 301, "Specifications for Structural Concrete"; including the following unless modified by the requirements of the Contract Documents.

1. General requirements including submittals, quality assurance, acceptance of structure, and protection of in-place concrete.
2. Formwork and form accessories.
3. Steel reinforcement and supports.
4. Concrete mixtures.
5. Handling, placing, and constructing concrete.

C. Conform to ACI 305R when pouring concrete during hot weather.

D. Conform to ACI 306R when pouring concrete during cold weather.

E. Acquire cement and aggregate from same source for all work.

F. Preinstallation Conference

Conduct conference at project site.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Formwork

Furnish formwork and form accessories according to ACI 301.

B. Steel Reinforcement

1. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
2. Plain-Steel Tie Wire: ASTM A 82, as drawn.
3. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
4. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire-bar-type supports complying with CRSI specifications.
    a. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
    b. For exposed-to-view concrete surfaces where legs of support are in contact with forms, provide supports with legs that are

protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).

C. Concrete Materials

1. Portland Cement: ASTM C 150, Type I or II. Air-entrained Portland cements shall not be utilized.

2. Normal-Weight Aggregate: ASTM C 33, uniformly graded, not exceeding 1½-inch nominal size for foundation mats, and not exceeding 3/4-inch for others.

3. Water: Complying with ASTM C 94.

D. Admixtures

1. Air-Entraining Admixture: ASTM C 260.

2. Water-Reducing Admixture: ASTM C 494, Type A.

3. High-Range, Water-Reducing Admixture (Superplasticizers): ASTM C 494, Type F.

4. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.

5. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

6. Fly Ash: ASTM C 618, Type F.

7. General

a. Submit method of adding mixtures.

b. All admixtures shall be approved by the cement manufacturer.

c. Use water-reducing admixture or high-range water-reducing admixture (superplasticizers), (ASTM C 494, type F) in concrete, as required, for placement and workability.

d. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50°F.

e. Use high-range water-reducing admixture in pumped concrete, architectural concrete, and concrete required to be watertight, and concrete with water-cement ratios below 0.50.

f. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minimum 1.5 percent within the following limits:

(1) Concrete structures and concrete slabs exposed to freezing and thawing; deicers, chemicals, or hydraulic pressure:

(1a) 4.5 percent (moderate exposure); 5.5 percent (severe exposure) for 1½-inch maximum aggregate.

(1b) 4.5 percent (moderate exposure); 6.0 percent (severe exposure) for 1-inch maximum aggregate.

(1c) 5.0 percent (moderate exposure); 6.0 percent (severe exposure) for ¾-inch maximum aggregate.

(1d) 5.5 percent (moderate exposure); 7.0 percent (severe exposure) for ½-inch maximum aggregate.

(2) Other concrete not exposed to freezing, thawing, or hydraulic pressure, or to receive a surface hardener:

2 - 4 percent.

(3) Air content of trowel-finished interior concrete floor shall not exceed 3.0 percent.

g. Use admixtures for water reduction and set accelerating agent or retarding agent in strict compliance with manufacturer's directions.

E. Form Materials

1. Forms for Exposed Finish Concrete

Plywood, metal, metal framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on Drawings.

2. Forms for Unexposed Finish Concrete

Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.

3. Form Coatings

Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/L that will not bond with, stain, or adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

4. Form Ties

Factory-fabricated, adjustable length, removable, or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units that will leave no metal closer than 1½ inches to exposed surface.

F. Vapor Retarder

1. Multi-ply reinforced polyethylene sheet, ASTM E 1745, Class C, not less than 7.8 mils thick.

2. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a No. 4 sieve and 10 to 30 percent passing a No. 100 sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

G. Joint Filler Strip

ASTM D 1752; closed cell polyvinyl chloride or molded vinyl foam, resiliency recovery of 95 percent if not compressed more than 50 percent of original thickness. Asphalt impregnated fiberboard (ASTM D 1751) may be used with Engineer's approval.

H. Curing Materials

General curing and sealing compounds shall be clear such that the finished work maintain the concrete gray color without any noticeable discoloring.

1. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

2. Absorptive Cover: ASHTO M 182, Class 2, burlap cloth made from jute or kenaf.

3. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

4. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 209, Type 1, Class B, manufactured by Sonneborn, W.R. Meadow, The Euclid Chemical Company, or equal.

5. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound (Non-Yellowing): ASTM C 1315, Type 1- Class A, for concrete floors, manufactured by Sonneborn, W.R. Meadow, The Euclid Chemical Company, or equal.

I. Concrete Construction Joint Sealants

Two-component, non-sag, polyurethane base, elastomeric sealants shall be utilized at all construction joints. Sealants shall perform properly under water submersion with no adverse chemical reactions. Joint sealants shall be Sikaflex-2C NS, manufactured by Sika Corporation, or equal. Primer shall be utilized where the joints are subjected to water submersion after cure, and other locations as instructed by the manufacturer. Installation shall be in accordance with manufacturer's instructions.

J. Self-Leveling Floor, Deck, and Sidewalk Joint sealant

1. One-part self-leveling polyurethane sealant for concrete floors, decks, sidewalks, and other horizontal contraction and expansion joints shall be Sonolastic SL1, complying with Federal Specification TT-S-0023oC, Type 1, Class A and ASTM C 920. Sealant shall be manufactured by Sonneborn or W.R. Grace Company or equal.

2. Sealant color shall be limestone or gray as selected by the Engineer unless otherwise required.

K. Joint Sealants and Backing for Sealant

1. For sealing vertical exposed faces of joint fillers, use Sonneborn-Contech Sonolastic NP1 or NP2 (one or two component urethane) or equivalent W.R. Grace Co. products, or equal. For water immersion, prime with Sonneborn-Contech Primer No.733 for concrete and masonry or Primer No. 758 for glass and metals or as required by manufacturers of equivalent acceptable sealants.

2. For sealing horizontal exposed faces of joint fillers, use Sonneborn-Contech Sonolastic SL1, one-part, self-leveling compound, polyurethane sealant with Primer No. 733 or equivalent W.R. Grace Co. products, or equal.

3. Where additional sealant backing is needed to control the depth of sealant in relation to joint width, use Sonneborn-Contech Sonoflex "F" type foam expansion joint filler or Sonofoam Backer Rod (closed cell polyethylene foam) or equivalent W.R. Grace Co. products or equal.

L. Epoxy Bonding Agent

1. Provide an epoxy-resin bonding agent, two component, polysulfide type.

2. Product and Manufacturer - provide one of the following:

   a. Sikadur Hi-Mod LPL by Sika Corporation.

   b. Eucopoxy LPL by the Euclid Chemical Company, or equal.

M. Patching Mortar

Use free flowing, polymer modified cementitious mortar, "Euco Thin Coat, Concrete Coat" (horizontal repairs), "verticoat" (vertical and overhead repairs) by the Euclid Chemical Company or "Sikatop 121 or 122" (horizontal repairs), "Sikatop 123" (vertical and overhead repairs) by Sika Corp.

N. Waterstop for Construction Control Joints

1. Unless otherwise shown, watershops shall be four (4) inches wide, 3/16-inch minimum thickness, virgin polyvinyl chloride, in accordance with Corps of Engineers Specifications CRD-C-572, latest revision, as manufactured by Greenstreak, Inc., or equal. Where joint movements are desired, as shown on the Drawings, ribbed type with center bulb shall be utilized.

2. Waterstops shall be furnished in maximum full lengths available to reduce the number of joints to the minimum.

3. Provide factory fabrications for all intersections, transitions, and changes of direction, leaving only straight butt joint splices for the field.

O. Construction Joint Devices

Integral galvanized steel, formed to tongue and groove profile, with removable top strip exposing sealant trough, knockout holes spaced at six (6) inches, ribbed steel spikes with tongue to fit top screed edge.

P. Non-Shrink Grout

Premixed compound consisting of non-metallic aggregate, cement, water-reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.

Q. Chemical Adhesive and Expansion Anchors

Chemical adhesive and expansion anchors shall be manufactures by Hilt, Corporation, and installed per manufacturer's instructions.

2.02 CONCRETE PROPORTIONING AND DESIGNING MIXES

A. Comply with ACI 301 requirements for concrete mix design unless otherwise specified herein.

B. Prepare the mix design for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For

the trial batch method, use an independent testing agency acceptable to Engineer for preparing and reporting proposed mix design.

1. Do not use the same laboratory testing agency for field quality control testing.

2. Limit use of fly ash not to exceed 20 percent of cement content by weight.

C. Submit written reports to the Engineer for each proposed mix and class of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by Engineer.

D. Design mixes to provide normal weight concrete with the following properties as indicated on drawings and schedules:

1. 4000 psi, 28-day compressive strength; water-cement ratio, 0.44 maximum (non air-entrained), 0.35 maximum (air-entrained).

2. 3500 psi, 28-day compressive strength; water-cement ratio, 0.58 maximum (non air-entrained), 0.46 maximum (air-entrained).

E. Water-Cement Ratio

Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:

1. Subjected to freezing and thawing: W/C 0.45.

2. Subjected to de-icers/watertight: W/C 0.40.

3. Subjected to brackish water, salt spray, or de-icers: W/C 0.40.

F. Slump Limits

Proportion and design mixes to result in concrete slump at point of placement as follows:

1. Ramps, slabs, and sloping surfaces: Not more than three (3) inches.

2. Reinforced foundation system: Not less than one (1) inch and not more than three (3) inches.

3. Concrete containing high-range water-reducing admixture (superplasticizer): Not more than eight (8) inches after adding admixture to site-verified 2- to 3-inch slump concrete.

4. All other concrete type: Not more than four (4) inches.

G. Adjustment to Concrete Mixes

Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather condition, test results, or other circumstances warrant, as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in work.

H. Ready-Mixed Concrete (Comply with ASTM C 94)

When air temperature is between 85 and 95°F, reduce the mixing and delivery time from 1½ hours to 75 minutes; when air temperature is above 90°F, reduce the mixing and delivery time to 60 minutes.

I. Provide a ticket for each batch to be discharged and used on the project site, indicating; project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

A. Examination

1. Verify site conditions.
2. Verify requirements for concrete cover over reinforcement. Where not shown, use minimum as specified in ACI 318 and ACI 35 or whichever is deeper.
3. Verify that anchors, plates, reinforcements, and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

B. Formwork

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

C. Vapor Retarder

1. Install, protect, and repair vapor retarder sheets according to ASTM E 1643. Place sheets in position with longest dimensional parallel with direction of pour.
2. Lap joints six (6) inches and seal with manufacturer's recommended tape.

3. Cover vapor retarder with fine-graded granular material, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch or minimum 3/4-inch.

D. Steel Reinforcement

1. Comply with ACI 315 and CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

2. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

E. Joints

1. Construct joints true to line with faces perpendicular to surface plane of concrete.

2. Construction Joints: Locate and install so as not to impair strength or appearance of concrete at locations indicated on the reviewed shop drawings. Any deviation from the shop drawings shall be approved by Engineer.

3. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces such as column pedestals, foundation walls, and other locations as indicated.

   a. Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated or where joint sealants are specified. Keep top of joint filler ½ inch lower than with finished concrete surface.

4. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated unless otherwise is shown. Construct contraction joints, where shown, for a depth equal to at least one-fourth of the concrete thickness, as follows:

   a. Grooved Joints: 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.

   b. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into 1/4-inch depth of slab thickness when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

F. Tolerances

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

G. Preparation

1. Prepare previously placed concrete by cleaning with steel brush and applying epoxy bonding agent in accordance with manufacturer's instructions.

2. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

3.02 CONCRETE PLACEMENT

A. Comply with recommendations in ACI 304 R for measuring, mixing, transporting, and placing concrete.

B. Do not add water to concrete during delivery at project site or during placement.

C. Consolidate concrete with mechanical vibrating equipment.

D. Notify Engineer a minimum of 24 hours prior to commencement of operations.

E. Ensure reinforcement, inserts, embedded parts, and formed construction and contraction joints are not disturbed during concrete placement.

F. Separate slabs on grade from vertical surface with 1/4 to 3/8-inch joint filler unless otherwise indicated.

G. Extend joint filler from bottom of slab to within about 1/2 inch of finished slab surface.

H. Install preformed metal tongue and groove joint devices, if used, in accordance with manufacturer's instructions.

I. Apply sealants in joint devices.

J. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

K. Place concrete continuously between predetermined; expansion, control, and construction joints.

L. Do not interrupt successive placement; do not permit cold joints to occur.

M. Provide 3/4-inch chamfers edge at exposed edges of concrete.

N. Allow a minimum of three (3) days before placing concrete against a slab or wall already in place.

O. All embedded aluminum materials in concrete shall be coated as specified.

P. Screed floors in accordance to ASTM E 1155 with slab-on-grade floor utilizing flatness (F_F), SOV = 25, MLV = 17, and floor levelness (F_L), SOV = 20, MLV = 15. For elevated floor utilizing flatness (F_F), SOV = 30, MLV = 24, and floor levelness (F_L), SOV = 20, MLV = 15. Measuring the levelness of elevated floors shall be while the shoring are in place. ACI 302.1R includes a construction guide on how to achieve these flatness and levelness values.

3.03 FINISHING FORMED SURFACES

A. Rough-Formed Finish

1. As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4- inch in height rubbed down or chipped off.

2. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish

1. 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.

2. 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, dampproofing, veneer plaster, or painting. "Concrete surfaces exposed to public view" shall include inside walls and floors of water holding basins except for covered clearwells and covered pump station wet wells.

3. Apply smooth-rubbed finish, defined in ACI 301, to smooth-formed finished concrete.

C. Related Unformed Surfaces

At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.04 FINISHING UNFORMED SURFACES

A. General

Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Screed surfaces with a straight-edge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on the surface.

1. Do not further disturb surfaces before starting finishing operations.

C. Scratch Finish

Apply scratch finish to surfaces which receive concrete floor topping or mortar setting beds for ceramic or quarry tile, portland cement terrazzo, and other bonded cementitious floor finish unless other indicated.

D. Float Finish

Apply float finish to surfaces to receive trowel finish and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo, or any other surfaces not specified.

E. Trowel Finish

Apply a hard trowel finish to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.

F. Trowel and Fine-Broom Finish

Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set methods. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.

G. Nonslip Broom Finish

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

H. Floor Drains

In areas with floor drains, maintain floor elevations at walls; slope surfaces uniformly to drains at 1:100 minimum, but not less than shown on the Drawings.

3.05 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 occur 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 the placement of the concrete, but not before excessive free water has disappeared from concrete surface.

D. Cure formed and unformed finished concrete in accordance with ACI 301 and ACI 308, and for at least seven (7) days 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 (3) hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.06 FIELD QUALITY CONTROL

A. Testing Agency

Contractor shall engage a qualified independent testing and inspecting agency, acceptable to the Owner, to sample materials, perform tests, and submit test reports during concrete placement. All testing costs shall be borne by the Contractor. Tests will be performed according to ACI 301 except as modified

herein. Contractor shall provide testing services for qualification of proposed materials and establishment of design mixture.

B. Provide free access to work and cooperate with appointed testing agency.

C. Submit proposed mix design of each class of concrete to testing firm and Engineer for review prior to commencement of work.

D. Field Tests of cement and aggregates may be performed to ensure conformance with specified requirements.

E. Contractor shall have a minimum of four (4) concrete cylinders taken for every 25 c.y. of concrete or discreet concrete delivery should the amount be less than 25 c.y. even though placement may be at multiple locations. Cylinders shall be submitted to independent laboratory for compressive strength testing by breaking at 7 days, 14 days, and 28 days by the testing agency. Additional cylinders may be taken as deemed necessary by the Engineer and all costs shall be borne by Contractor. Cylinders shall be cured on-site in same condition as poured concrete.

F. One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.

G. One slump test will be taken for each set of test cylinders taken.

H. All concrete for liquid retaining structures, and all concrete in contact with earth, water, or exposed directly to the elements shall be watertight and shall be tested for leakage in accordance with ACI 3350R.

3.07 PATCHING

A. Allow Engineer to inspect concrete surfaces immediately upon removal of forms.

B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.

C. Patch imperfections in accordance with ACI 301.

3.08 DEFECTIVE CONCRETE

A. Defective Concrete

Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements.

B. Repair or replacement of defective concrete will be determined by the Engineer.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

3.09 SCHEDULE – CONCRETE TYPES

A. Below grade foundation footings: 4000 psi.

B. Thrust blocks: 3500 psi.

C. All other concrete: 4000 psi.

- END OF SECTION -

SECTION 03400

PRECAST CONCRETE

PART 1 -- GENERAL

1.01 REQUIREMENTS

A. The Contractor shall construct all precast concrete items as required in the Contract Documents, including all appurtenances necessary to make a complete installation.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02735 - Manholes

B. Section 03200 - Reinforcing Steel

C. Section 03300 - Cast-in-Place Concrete

D. Section 03350 - Concrete Finishes

E. Section 03370 - Concrete Curing

F. Section 03600 - Grout

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the end of the Bid.

1. Kentucky Building Code

2. ACI 318-Building Code Requirements for Structural Concrete

3. PCI Standard MNL-116 - Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products

4. PCI Design Handbook

1.04 SUBMITTALS

A. The Contractor shall submit the following for review in accordance with Section 01300, Submittals.

1. Shop drawings for all precast concrete items showing all dimensions, locations, and type of lifting inserts, and details of reinforcement and joints.

2. A list of the design criteria used by the manufacturer for all manufactured, precast items.

3. Design calculations, showing at least the design loads and stresses on the item, shall be submitted. Calculations shall be signed and sealed by a Professional Engineer registered in the Commonwealth of Kentucky.

4. Certified reports for all lifting inserts, indicating allowable design loads.

5. Information on lifting and erection procedures.

1.05 QUALITY ASSURANCE

A. All manufactured precast concrete units shall be produced by an experienced manufacturer regularly engaged in the production of such items. All manufactured precast concrete and site-cast units shall be free of defects, spalls, and cracks. Care shall be taken in the mixing of materials, casting, curing and shipping to avoid any of the above. The Engineer may elect to examine the units at the casting yard or upon arrival of the same at the site. The Engineer shall have the option of rejecting any or all of the precast work if it does not meet with the requirements specified herein or on the Drawings. All rejected work shall be replaced at no additional cost to the Owner.

B. Manufacturer Qualifications

The precast concrete manufacturing plant shall be certified by the Prestressed Concrete Institute, Plant Certification Program, prior to the start of production. Certification is only required for plants providing prestressed structural members such as hollow core planks, double-T members, etc.

C. Plant production and engineering must be under direct supervision and control of an Engineer who possesses a minimum of five years experience in precast concrete work.

PART 2 -- PRODUCTS

2.01 CONCRETE

A. Concrete materials including portland cement, aggregates, water, and admixtures shall conform to Section 03300, Cast-in-Place Concrete.

B. For prestressed concrete items, minimum compressive strength of concrete at 28 days shall be 5,000 psi unless otherwise specified. Minimum compressive strength of concrete at transfer of prestressing force shall be 3,500 psi unless otherwise specified.

C. For non-prestressed concrete items, minimum compressive strength of concrete at 28 days shall be 4000 psi unless otherwise specified.

2.02 GROUT

A. Grout for joints between panels shall be a cement grout in conformance with Section 03600, Grout.

B. Minimum compressive strength of grout at 7 days shall be 3,000 psi.

2.03 REINFORCING STEEL

A. Reinforcing steel used for precast concrete construction shall conform to Section 03200, Reinforcing Steel.

2.04 PRESTRESSING STRANDS

A. Prestressing strands shall be 7-wire, stress-relieved, high-strength strands Grade 250K or 270K.

2.05 STEEL INSERTS

A. All steel inserts protruding from or occurring at the surface of precast units shall be galvanized.

2.06 WELDING

A. Welding shall conform to Section 05050, Metal Fastening.

2.07 BEARING PADS

A. Neoprene bearing pads shall conform to Section 05830, Bearing Devices and Anchors.

B. Plastic bearing pads shall be multi-monomer plastic strips which are non-leaching and support construction loads with no visible overall expansion, manufactured specifically for the purpose of bearing precast concrete.

PART 3 -- EXECUTION

3.01 FABRICATION AND CASTING

A. All precast members shall be fabricated and cast to the shapes, dimensions and lengths shown on the Drawings and in compliance with PCI MNL-116. Precast members shall be straight, true and free from dimensional distortions, except for camber and tolerances permitted later in this clause. All integral appurtenances, reinforcing, openings, etc., shall be accurately located and secured in position with the form work system. Form materials shall be steel and the systems free from leakage during the casting operation.

B. All cover of reinforcing shall be the same as detailed on the Drawings.

C. Because of the critical nature of the bond development length in prestressed concrete panel construction, if the transfer of stress is by burning of the fully tensioned strands at the ends of the member, each strand shall first be burned at the ends of the bed and then at each end of each member before proceeding to the next strand in the burning pattern.

D. The Contractor shall coordinate the communication of all necessary information concerning openings, sleeves, or inserts to the manufacturer of the precast members.

E. Concrete shall be finished in accordance with Section 03350, Concrete Finishes. Grout all recesses due to cut tendons which will not otherwise be grouted during erection.

F. Curing of precast members shall be in accordance with Section 03370, Concrete Curing. Use of a membrane curing compound will not be allowed.

G. The manufacturer shall provide lifting inserts or other approved means of lifting members.

3.02 HANDLING, TRANSPORTING AND STORING

A. Precast members shall not be transported away from the casting yard until the concrete has reached the minimum required 28 day compressive strength and a period of at least 5 days has elapsed since casting, unless otherwise permitted by the Engineer.

B. No precast member shall be transported from the plant to the job site prior to approval of that member by the plant inspector. This approval will be stamped on the member by the plant inspector.

C. During handling, transporting, and storing, precast concrete members shall be lifted and supported only at the lifting or supporting points as indicated on the shop drawings.

D. All precast members shall be stored on solid, unyielding, storage blocks in a manner to prevent torsion, objectionable bending, and contact with the ground.

E. Precast concrete members shall not be used as storage areas for other materials or equipment.

F. Precast members damaged while being handled or transported will be rejected or shall be repaired in a manner approved by the Engineer.

3.03 ERECTION

A. Erection shall be carried out by the manufacturer or under his supervision using labor, equipment, tools and materials required for proper execution of the work.

B. Contractor shall prepare all bearing surfaces to a true and level line prior to erection. All supports of the precast members shall be accurately located and of required size and bearing materials.

C. Installation of the precast members shall be made by leveling the top surface of the assembled units keeping the units tight and at right angles to the bearing surface.

D. Grouting between adjacent precast members and along the edges of the assembled precast members shall be accomplished as indicated on the drawings, care being taken to solidly pack such spaces and to prevent leakage or droppings of grout through the assembled precast members. Any grout which seeps through the precast members shall be removed before it hardens.

E. In no case shall concentrated construction loads, or construction loads exceeding the design loads, be placed on the precast members. In no case shall loads be placed on the precast members prior to the welding operations associated with erection, and prior to placing of topping (if required).

F. No Contractor, Subcontractor or any of his employees shall arbitrarily cut, drill, punch or otherwise tamper with the precast members.

G. Precast members damaged while being erected will be rejected or shall be repaired in a manner approved by the Engineer.

END OF SECTION 03400

SECTION 03410

PRECAST MODULAR BLOCK RETAINING WALL

1 SCOPE

This Work consists of the design and construction of a precast modular block (PMB) retaining wall, with or without geosynthetic reinforcement, in accordance with the lines, grades, design, and dimensions shown in the project Site Plans, and in accordance with the Contract Documents and Specifications. Precast modular block retaining wall blocks under this section shall be cast utilizing a wet-cast concrete mix and exhibit a final handling weight in excess of 1,000 pounds (450 kilograms) per unit. The wall shall include top cap stones and be designed to accommodate handrail as shown in the plans.

The wall shall be Redi Rock International, Series R-28 (limestone texture) block, or approved equal.

Work for this section shall include all labor, materials equipment, excavation, and incidentals necessary to complete the Work, with the exception of handrails, geosynthetic materials and crushed stone. Work shall also include professional engineering services for the design and certification of the wall, including subcontracting and oversight of any geotechnical testing the manufacturer deems necessary.

Professional engineering services necessary to certify the design and construction of the retaining wall shall also be incidental to the Work. Geotechnical testing services as required by the design engineer shall also be incidental to the Work.

If unsuitable soils are encountered below the base of the retaining wall, the Engineer may direct to Contractor to furnish and place No. 2 stone. Accepted quantities of No. 2 stone will be will be paid for separately.

2 GENERAL

2.1 RETAINING WALL DESIGN

- The retaining wall shall be designed and certified by a professional engineer licensed in the State of Kentucky, who shall assume full responsibility for the geotechnical site investigation (determination of soil bearing capacity, soil shear strength, etc.), design calculations and shop drawing preparation. Design methodology shall be consistent with proven industry standards.
- The retaining wall design engineer shall provide the Owner with a certificate of professional liability insurance verifying the minimum coverage limits of $1 million per claim and $1 million aggregate.
- Design of the precast modular block retaining wall shall satisfy the requirements of this section. Where local design or building code requirements exceed these specifications, the local requirements shall also be satisfied..

- The Owner shall furnish the Retaining Wall Design Engineer a copy of the as-bid site plans in electronic format.

i. QUALITY ASSURANCE

A. In order to demonstrate basic competence in the design of precast modular block walls, the retaining wall design engineer shall be a professional engineer registered in the State of Kentucky with structural design training and experience, capable of performing all internal and external stability analyses, including those for seismic loading, compound stability, rapid draw-down, and deep-seated, global modes of failure; with a proven track record of successful modular retaining wall designs in the State of Kentucky.

B. In order to demonstrate basic competence in the manufacture of precast modular block walls, the retaining wall manufacturer shall have a proven track record of successful modular retaining wall installations in the State of Kentucky.

C. In order to demonstrate basic competence in the installation of precast modular block walls, the retaining wall installer shall have a proven track record of successful modular retaining wall installations in the State of Kentucky, and shall have satisfactorily completed a certified precast modular block retaining wall installation training program administered by the precast modular block manufacturer.

D. Unless otherwise specified in the Special Conditions, the General Contractor shall retain the services of an inspector who is experienced with the construction of precast modular block retaining wall structures. The cost of inspection shall be the responsibility of the General Contractor. Inspection shall be continuous throughout the construction of the retaining walls. The inspector shall inspect all construction materials related to the precast modular block walls to verify conformance with the plans and specifications, very subgrade conditions are suitable and oversee soil testing (to be paid by Owner), and verify the installation of the retaining wall and related materials are performed in accordance with the plans and specifications.

E. The Contractor shall receive, store and handle all materials in accordance with the manufacturer's recommendations as specified herein and in a manner that prevents deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breaking, chipping, UV exposure, or other causes. Damaged or discolored materials shall not be incorporated into the work.

2.3 SUBMITTALS

A. Product Data. The General Contractor shall submit a minimum of six (6) copies of the retaining wall product submittal package to the Owner's Representative for review and approval. The submittal package shall include technical specifications and product data from the manufacturer for the following:
   A. Precast Modular Block System brochure
   B. Precast Modular Block concrete test results:
      a. 28-day compressive strength
      b. Air content
      c. Slump or Slump Flow (as applicable)
   C. Drainage Pipe

D. Geotextile
E. Geosynthetic Soil Reinforcement (if required by the retaining wall design). The contractor shall provide certified manufacturer test reports for the geosynthetic soil reinforcement material in the manufactured roll width specified. The test report shall list the individual roll numbers for which the certified material properties are valid.

B. Installer Qualification Data. The General Contractor shall submit the qualifications of the business entity responsible for installation of the retaining wall, including a recent history of installations and proof of successful certification training from the manufacturer.

C. Retaining Wall Design Calculations and Construction Shop Drawings. The General Contractor shall furnish six (6) sets of construction shop drawings and six (6) copies of the supporting structural calculations report to the Owner for review and approval. This submittal shall include the following:
   1. Signed, sealed, and dated drawings and engineering calculations prepared in accordance with these specifications.
   2. Qualifications Statement of Experience of the Retaining Wall Design Engineer.
   3. Certificate of Insurance of the Retaining Wall Design Engineer.

D. Retaining Wall installation inspector's reports (if required).

3 MATERIALS

3.1 PRECAST MODULAR BLOCK RETAINING WALL UNITS

1. All units for the project shall be obtained from the same manufacturer. The manufacturer shall be licensed and authorized to produce the retaining wall units by the precast modular block system patent holder/licensor and shall document compliance with the published quality control standards of the proprietary precast modular block system licensor for the previous three (3) years.

2. Concrete used in the production of the precast modular block units shall be first-purpose, fresh concrete. It shall not consist of returned, reconstituted, surplus, or waste concrete. It shall be an original production mix meeting the requirements of ASTM C94 and exhibit the following:
   A. Minimum 28-day compressive strength of 4,000 psi (27.6 MPa).
   B. Shall be free of water soluble chlorides and chloride based accelerator admixtures.
   C. 6% ± 1½% air-entrainment in conformance ASTM C94.
   D. Maximum slump of 5 inches ± 1½ inches (127 millimeter ± 38 millimeter) per ASTM C143 for conventional concrete mix designs.
   E. Slump Flow for Self-Consolidating Concrete (SCC) mix designs shall be between 18 inches and 32 inches (457 millimeter and 813 millimeter) as tested in accordance with ASTM C1611.

3. Each concrete block shall be cast in a single continuous pour without cold joints. With the exception of half-block units, corner units, and other special application units, the precast modular block units shall conform to industry-standard dimensions with a ±

3/16" height tolerance and a ± 1/2" length and width tolerance (excluding variable face texture).

4. With the exception of half-block units, corner units, and other special application units, the precast modular block units shall be manufactured with integrally cast shear knobs that shall fully index into a continuous shear channel in the bottom of the block course above.
5. The precast modular block unit face texture shall be selected by the owner from the available range of textures available from the precast modular block manufacturer.
6. The block color shall be selected by the owner from the available range of colors available from the precast modular block manufacturer.
7. Where the wall is exposed on both sides, freestanding blocks with face texture on both sides shall be used, and the top course shall be capped. The face dimensions, face texture and color of freestanding blocks shall match that of retaining blocks in the same wall system.

3.2 GEOSYNTHETIC MATERIALS

Geosynthetic materials may include geogrid for foundation reinforcement and geotextile fabric for soil/stone interfaces. Materials shall be as specified by the precast modular block wall manufacturer.

3.3 DRAINAGE MATERIALS

Drainage collection pipe shall be at least a 4-inch (102-millimeter) diameter, 3-hole perforated, HDPE pipe with a minimum pipe stiffness of 22 psi (152 kPa) per ASTM D2412, and manufactured in accordance with ASTM D1248 for HDPE pipe and fittings. Transition to 4" ductile iron pipe prior to daylighting.

4 INSTALLATION

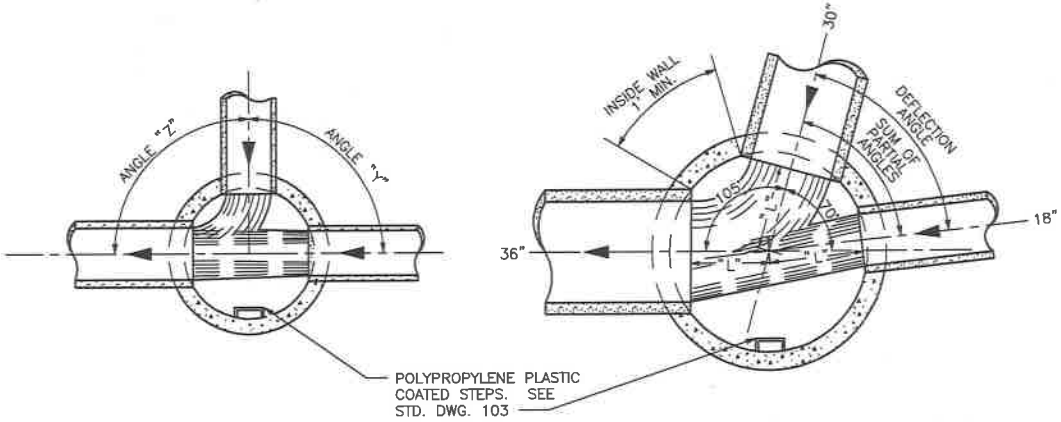
All site preparation, ancillary material installation and precast modular block wall erection and backfilling shall be installed in accordance with plans, specifications and the precast modular block manufacturer's installation instructions.

Southland Park Stormwater Improvements Project

Appendix A – Standard Drawings

TABLE I
OF
MINIMUM PARTIAL ANGLE

PIPE SIZE	MANHOLE SIZE 4'–0" P. ANGLE	4'–0" L. DIST.	5'–0" P. ANGLE	5'–0" L. DIST.	6'–0" P. ANGLE	6'–0" L. DIST.	7'–0" P. ANGLE	7'–0" L. DIST.	8'–0" P. ANGLE	8'–0" L. DIST.
15"	38°	1'–10"	30°	2'–4"	25°	2'–11"	22°	3'–5"	19°	3'–11"
18"	43°	1'–9"	34°	2'–4"	28°	2'–10"	24°	3'–4"	21°	3'–11"
24"	53°	1'–7"	41°	2'–2"	34°	2'–9"	29°	3'–3"	25°	3'–10"
27"	—	—	45°	2'–1"	37°	2'–8"	32°	3'–3"	28°	3'–9"
30"	—	—	49°	2'–0"	40°	2'–7"	34°	3'–2"	30°	3'–8"
33"	—	—	54°	1'–10"	44°	2'–6"	37°	3'–1"	37°	3'–8"
36"	—	—	—	—	47°	2'–4"	40°	3'–0"	34°	3'–7"
42"	—	—	—	—	55°	2'–1"	48°	2'–9"	39°	3'–5"
48"	—	—	—	—	63°	1'–9"	52°	2'–6"	44°	3'–2"
54"	—	—	—	—	—	—	59°	2'–3"	50°	2'–11"
60"	—	—	—	—	—	—	67°	1'–10"	56°	2'–8"



TYPE "A" MANHOLE – CIRCULAR WALLS
CAST–IN–PLACE OR PRECAST CONCRETE

NOTES:

1. PRECAST CONCRETE MANHOLE BARREL SHALL BE ASTM C–478, CLASS II PIPE TO 12' DEPTH AND C–76 CLASS III GREATER THAN 12' DEPTH.
2. BASE SECTION OF CIRCULAR MANHOLES MAY BE CAST–IN–PLACE CONCRETE, OR CUSTOM PRECAST CONCRETE WITH OPENINGS FOR PIPE.
3. BASE SECTIONS MAY BE SIMILAR TO SANITARY SEWER MANHOLE.
4. PROVIDE STEPS WITHIN 18" OF BENCH.

CIRCULAR MANHOLE NOTES:

1. THE ANGLE BETWEEN ANY TWO PIPES (e.g. ANGLE "Y" OR "Z") MUST BE GREATER THAN THE SUM OF THE PARTIAL ANGLES FROM TABLE I FOR THE MANHOLE SIZE SELECTED. FOR SMALLER ANGLES BETWEEN PIPES, LARGE MANHOLES MUST BE SELECTED. (SEE EXAMPLE BELOW)
2. THE MAXIMUM DEFLECTION ANGLE BETWEEN ANY INCOMING PIPE AND THE DISCHARGE PIPE SHALL BE NO MORE THAN 90° FOR PIPES UP TO 24" IN DIAMETER. THE MAXIMUM DEFLECTION ANGLE FOR 27" TO 42" PIPES SHALL BE 75° AND FOR PIPES LARGER THAN 42" THE MAXIMUM DEFLECTION ANGLE SHALL BE 60°.

EXAMPLE FOR MANHOLE SIZE SELECTION:

FOR MANHOLE SHOWN ABOVE, THE ANGLE BETWEEN 18" AND 30" PIPE IS 70° AND THE ANGLE BETWEEN 30" AND 36" PIPE IS 110°. THE TABLE INDICATES THAT FOR A 6'–0" DIAMETER MANHOLE THE MINIMUM PARTIAL ANGLE FOR AN 18" PIPE IS 28° AND FOR A 30" PIPE IS 40°. THE SUM OF THE PARTIAL ANGLES IS 68° THIS SUM IS LESS THAN THE 70°. THEREFORE, A 6'–0" MANHOLE DIAMETER IS ACCEPTABLE.

GENERAL NOTES:

1. ALL DIMENSIONS ARE BASED ON SIZE OF LARGEST PIPE IN MANHOLE.
2. MANHOLES FOR PIPE LARGER THAN 60" SHALL BE SPECIALLY DESIGNED.
3. IN CASES WHERE DEFLECTION ANGLES EXCEED MAXIMUM SHOWN IN TABLES, MANHOLE SHALL BE INCREASED IN SIZE OR SPECIALLY DESIGNED.
4. BOTTOM SLAB OF MANHOLES SHALL BE SPECIALLY DESIGNED WITH REGARD TO AREA, THICKNESS, AND REINFORCING IN SITUATIONS WHERE HIGH WATER TABLE OR UNSTABLE SOIL CONDITIONS EXIST.
5. MANHOLE BENCH SHALL SLOPE AT LEAST 1" PER FT. FROM WALLS TO CHANNELS AND SHALL HAVE SMOOTH FLOAT AND BRUSH FINISH.
6. ELEVATIONS OF PIPES IN MANHOLES SHALL BE SUCH THAT THE TOP OF ALL INFLUENT PIPES WILL BE AT AN ELEVATION EQUAL TO OR GREATER THAN THE TOP OF THE EFFLUENT PIPE.
7. INFLUENT PIPES MAY ENTER MANHOLES AT AN ELEVATION ABOVE THE CHANNELS AS REQUIRED TO AVOID CONFLICT WITH LARGER PIPES IN THE MANHOLE.

LEXINGTON

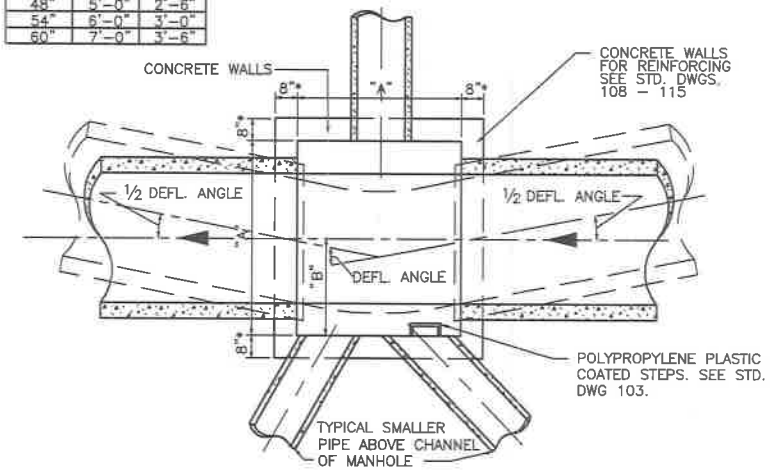
DIVISION OF ENGINEERING

STORM SEWER
MANHOLE TYPE "A"–
CIRCULAR WALLS

STANDARD DRAWING NO. 100

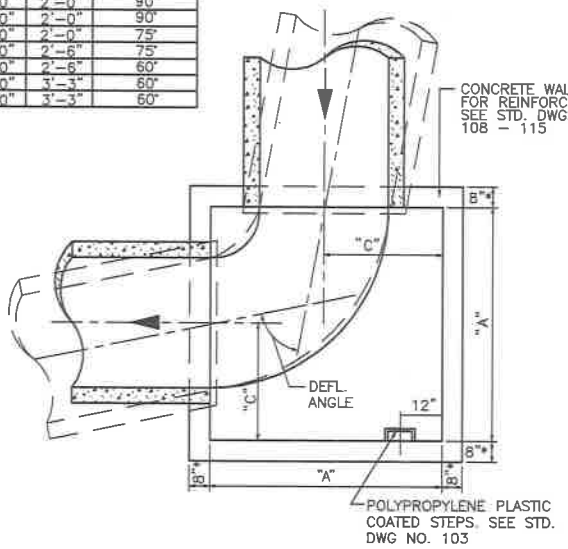
APPROVAL:
URBAN COUNTY ENGINEER — DATE 9/22/17
COMMISSIONER — DATE 9/22/17

PIPE SIZE	DIM. "A"	DIM. "B"
12"	5'-0"	2'-6"
15"-42"	5'-0"	2'-6"
48"	5'-0"	2'-6"
54"	6'-0"	3'-0"
60"	7'-0"	3'-6"



0°–22° DEFLECTION ANGLE

PIPE SIZE	DIM. "A"	DIM. "C"	MAXIMUM DEFL. ANGLE
12"	5'-0"	2'-0"	90°
15"-33"	5'-0"	2'-0"	90°
36"	5'-0"	2'-0"	75°
42"	6'-0"	2'-6"	75°
48"	6'-0"	2'-6"	60°
54"	7'-0"	3'-3"	60°
60"	7'-0"	3'-3"	60°



GREATER THAN 68° DEFLECTION ANGLE

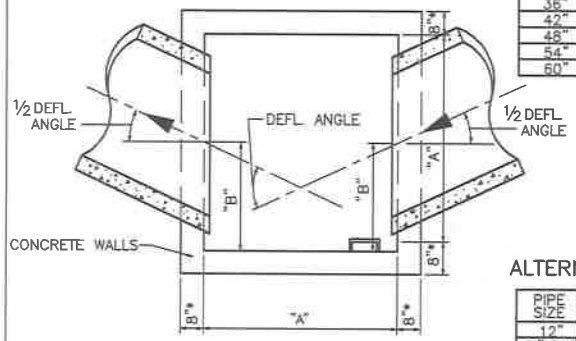
* WALL THICKNESS FOR MANHOLES

DEPTH TO INV.	A=5'-0"	A=6'-0"	A=7'-0"
UP TO 10'	8"	8"	8"
10' TO 15'	8"	8"	10"
15' TO 20'	8"	10"	10"

TYPE "B" MANHOLE – NON-CIRCULAR WALLS, CAST-IN-PLACE CONCRETE

ALTERNATE–22°–50°

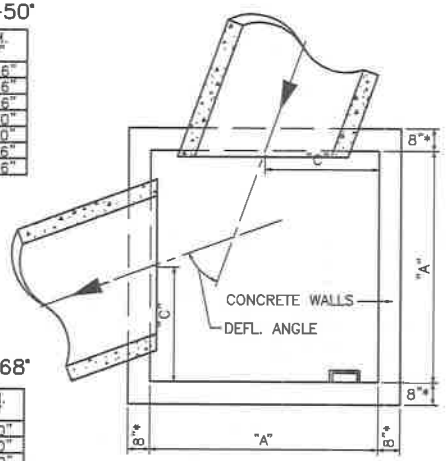
PIPE SIZE	DIM. "A"	DIM. "B"
12"	5'-0"	2'-6"
15"-33"	5'-0"	2'-6"
36"	5'-0"	2'-6"
42"	6'-0"	3'-0"
48"	6'-0"	3'-0"
54"	7'-0"	3'-6"
60"	7'-0"	3'-6"



22°–50° DEFLECTION ANGLE

ALTERNATE–50°–68°

PIPE SIZE	DIM. "A"	DIM. "C"
12"	5'-0"	2'-0"
15"-33"	5'-0"	2'-0"
36"	5'-0"	2'-0"
42"	6'-0"	2'-6"
48"	6'-0"	2'-6"
54"	7'-0"	3'-3"
60"	7'-0"	3'-3"



50°–90° DEFLECTION ANGLE

NOTES:

1. ALL DIMENSIONS ARE BASED ON SIZE OF LARGEST PIPE IN MANHOLE.
2. MANHOLES FOR PIPE LARGER THAN 60" SHALL BE SPECIALLY DESIGNED.
3. PIPES SHALL ENTER MANHOLE WALLS, NOT CORNERS. ALLOW 2" MINIMUM TO INSIDE CORNER FOR WALL CUT.
4. IN CASES WHERE DEFLECTION ANGLES EXCEED MAXIMUM SHOWN IN TABLES, MANHOLE SHALL BE SPECIALLY DESIGNED.
5. BOTTOM SLAB OF MANHOLES SHALL BE SPECIALLY DESIGNED WITH REGARD TO AREA, THICKNESS, AND REINFORCING IN SITUATIONS WHERE HIGH WATER TABLE OR UNSTABLE SOIL CONDITIONS EXIST.
6. MANHOLE BENCH SHALL SLOPE AT LEAST 1" PER FT. FROM WALLS TO CHANNELS AND SHALL HAVE SMOOTH FLOAT AND BRUSH FINISH.
7. THE TOP OF ALL INFLUENT PIPES WILL BE AT AN ELEVATION EQUAL TO THE TOP OF THE EFFLUENT PIPE.
8. INFLUENT PIPES MAY ENTER MANHOLES AT AN ELEVATION ABOVE THE CHANNELS AS REQUIRED TO AVOID CONFLICT WITH LARGER PIPES IN THE MANHOLE.
9. THE MAXIMUM DEFLECTION ANGLE BETWEEN ANY INCOMING PIPE AND OUT GOING PIPE SHALL BE NO MORE THAN 90° FOR PIPES UP TO 24" IN DIAMETER. THE MAXIMUM DEFLECTION ANGLE FOR 27" TO 42" PIPES SHALL BE 75° AND FOR PIPES LARGER THAN 42" THE MAX. DEFLECTION ANGLE SHALL BE 60°.
10. FOR REINFORCING SEE STD. DWGS. 108 – 115.

TYPE "B" MANHOLE FOR DEFLECTION ANGLES BETWEEN 22° & 90°

LEXINGTON – FAYETTE URBAN COUNTY GOVERNMENT

LEXINGTON

DIVISION OF ENGINEERING

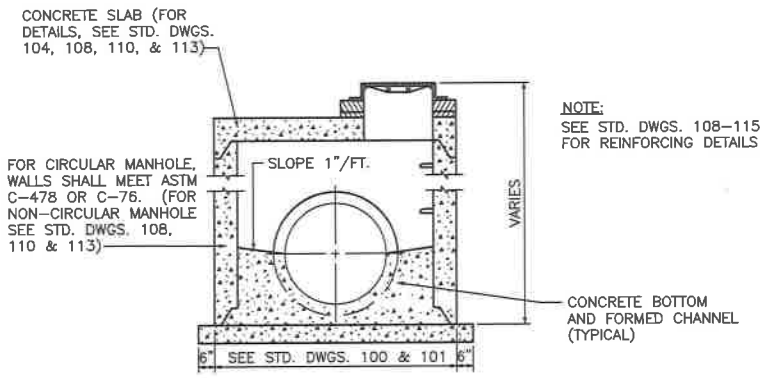
STORM SEWER MANHOLE TYPE "B"– NON-CIRCULAR WALLS

STANDARD DRAWING NO. 101

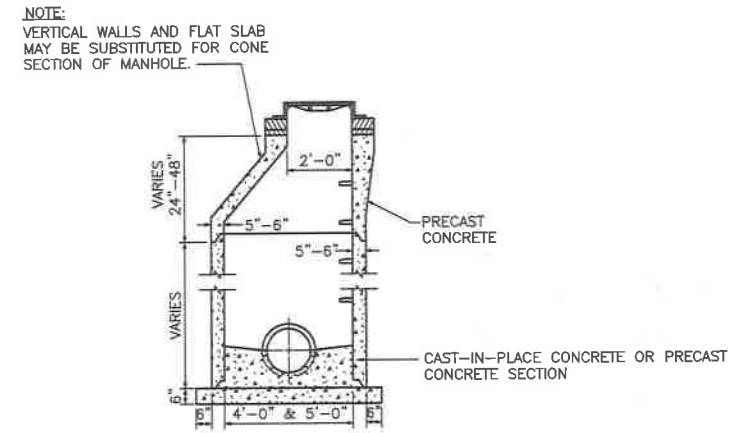
APPROVAL:

URBAN COUNTY ENGINEER — DATE: 9/22/17

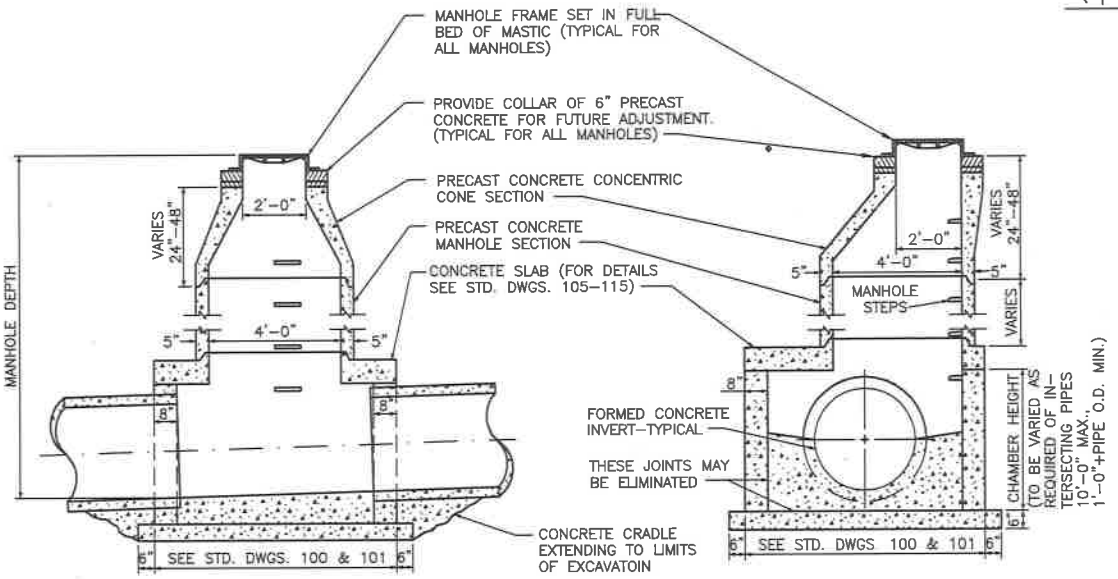
COMMISSIONER — DATE



CIRCULAR AND NON-CIRCULAR WALLS (TYPE "A" & TYPE "B")



STANDARD 4'-0" DIA. & 5'-0" CIRCULAR WALLS (TYPE "A")



NOTES:

1. BASE SECTION OF CIRCULAR MANHOLES MAY BE CAST-IN-PLACE CONCRETE OR CUSTOM PRECAST CONCRETE WITH OPENINGS FOR PIPE.
2. 6" OVERHANG IN BOTTOM SLAB IS NOT REQUIRED IF PRECAST MANHOLES ARE USED.
3. FLAT SLABS IN PAVED AREAS SHALL BE USED ONLY AS APPROVED BY ENGINEER.

NO.	DATE	REVISION DESCRIPTION	BY
01	04/13/18	UPDATE MANHOLE FRAME NOTE	TAL

LEXINGTON

DIVISION OF ENGINEERING

STORM SEWER MANHOLE DETAILS

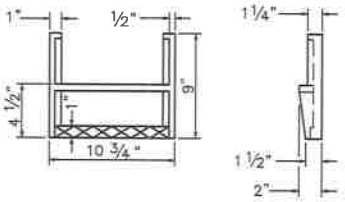
STANDARD DRAWING NO. 102

APPROVAL:

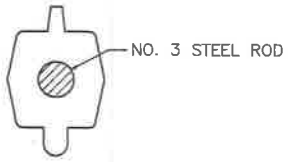
URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/22/17

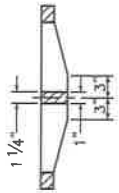
STANDARD CIRCULAR MANHOLE – 6'-0" DIAMETER & LARGER TYPE "A" AND NON-CIRCULAR WALL MANHOLE – ALL SIZES TYPE "B"



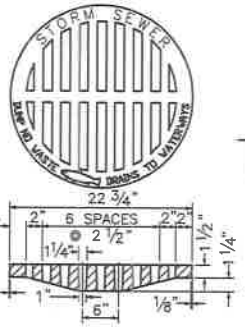
STEP TYPE NO. 1



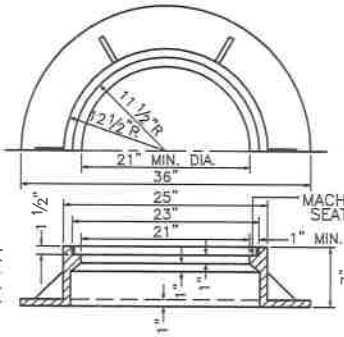
SECTION B–B



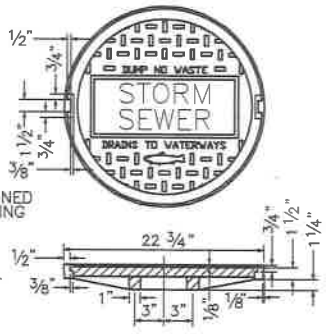
SECTION



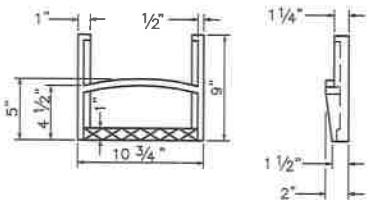
GRATING COVER



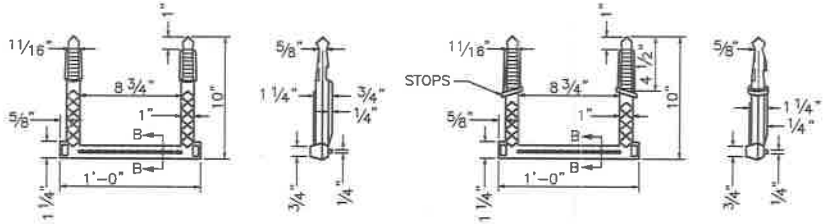
FRAME



SOLID COVER



STEP TYPE NO. 2



STEP TYPE NO. 3

STEP TYPE NO. 4

MANHOLE STEPS

MANHOLE FRAME AND COVERS

NOTES:

1. MINIMUM WEIGHT FOR THE 7" FRAME SHALL BE 185 LBS.
2. MINIMUM WEIGHT FOR THE SOLID COVER SHALL BE 120 LBS.
3. CASTINGS TO MEET ASTM A–48 CLASS 35.

NOTES:

1. STEPS SHALL BE POLYPROPYLENE PLASTIC COATED STEEL ROD OR OF A TYPE AND SIZE APPROVED BY THE ENGINEER.
2. STEPS SHALL BE SPACED 12" TO 16" O.C. VERTICALLY SO AS TO FORM A CONTINUOUS LADDER.
3. STEPS SHALL BE REQUIRED IN MANHOLES WHEN THE STRUCTURE IS 4 FEET AND GREATER IN DEPTH. (MEASURE FROM FLOWLINE OF LOWEST PIPE TO TOP OF STRUCTURE.)
4. THE TREADS OF ALL STEPS SHALL HAVE ANTI–SKID PROPERTIES FOR HAND AND FOOT GRIPS.
5. MANHOLE STEPS SHALL BE INSTALLED IN A VERTICAL LINE AND SHALL COMPLY WITH OSHA STANDARDS IN ALL RESPECTS.
6. FOR CAST–IN–PLACE OR PRECAST CIRCULAR AND NON–CIRCULAR MANHOLES.
7. FIRST STEP SHALL BE 12" – 18" FROM TOP OF PRECAST CONE SECTION, AND SHALL BE VERTICALLY LOCATED TO MAXIMIZE THE DISTANCE OF ANY STEP FROM THE JOINT OF A MANHOLE SECTION.

NO.	DATE	REVISION DESCRIPTION	BY
01	04/13/18	UPDATE NOTE 2	TAL

LEXINGTON

DIVISION OF ENGINEERING

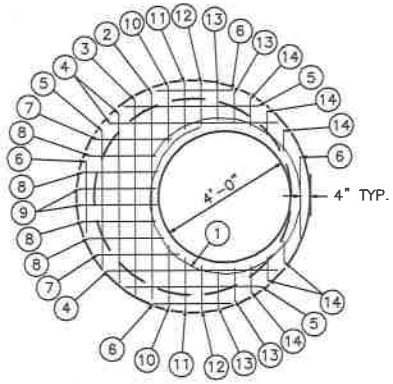
MANHOLE FRAMES, COVERS, & STEPS

STANDARD DRAWING NO. 103

APPROVAL:

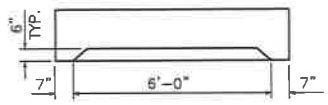
URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/22/17



MARK	NO.	SIZE	LENGTH	TYPE
1	1	6	15'-10"	A
2	1	6	6'-6"	STR.
3	1	"	5'-11"	"
4	3	"	5'-3"	"
5	3	"	4'-3"	"
6	4	"	2'-6"	"
7	2	"	2'-7"	"
8	4	"	2'-3"	"
9	2	"	2'-2"	"
10	2	"	1'-10"	"
11	2	"	1'-6"	"
12	2	"	1'-3"	"
13	4	"	1'-0"	"
14	6	"	0'-10"	"

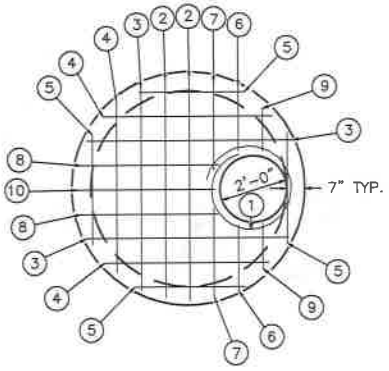
6'-0" DIA. STANDARD MANHOLES



SIDE VIEW

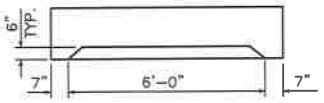
NOTES:

1. FOR PIPE SIZES 15" TO 48".
2. 6" O.C. SPACING EACH WAY.
3. 12" THICK SLAB.
4. 7'-2" O.D.
5. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.



MARK	NO.	SIZE	LENGTH	TYPE
1	1	6	9'-6"	A_1
2	2	5	6'-9"	STR.
3	3	"	6'-3"	"
4	3	"	5'-3"	"
5	4	"	3'-3"	"
6	2	"	1'-10"	"
7	2	"	2'-9"	"
8	2	"	4'-4"	"
9	2	"	1'-5"	"
10	1	"	4'-3"	"

6'-0" DIA. SHALLOW MANHOLES

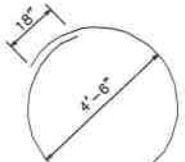


SIDE VIEW

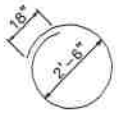
NOTES:

1. FOR PIPE SIZES 15" TO 36".
2. 9" O.C. SPACING EACH WAY.
3. 8" THICK SLAB.
4. 7'-2" O.D.
5. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

SPECIAL BAR BENDS



TYPE A



TYPE A_1

NOTE:
SLAB OUTER DIAMETER TO VARY WITH MANHOLE WALL THICKNESS, TO COMPLETELY COVER MANHOLE WALLS.

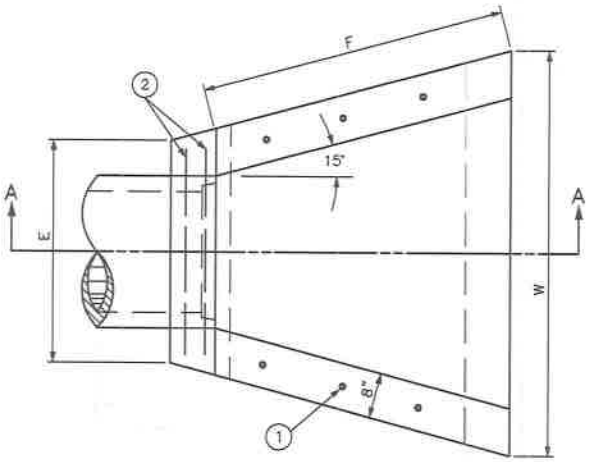
LEXINGTON

DIVISION OF ENGINEERING

STORM SEWER
MANHOLE CIRCULAR SLABS
6'-0" DIAMETER

STANDARD DRAWING NO. 105

APPROVAL:
URBAN COUNTY ENGINEER — DATE 9/25/17
COMMISSIONER — DATE 9/25/17



PLAN VIEW

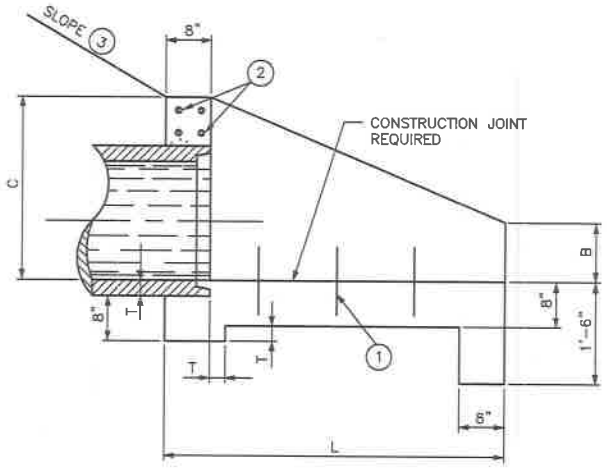
PIPE DIA.	DIMENSIONS							CLASS "A" CONC.	REINF. STEEL
	B	C	E	F	L	W	T	C.Y.	LBS.
15"	0'-7½"	2'-0"	2'-9"	3'-5⅜"	4'-0"	4'-10¾"	2¼"	0.90	10
18"	0'-9"	2'-3"	3'-0"	3'-11 9/16"	4'-6"	5'-4 15/16"	2½"	0.97	11
21"	0'-10½"	2'-6"	3'-3"	4'-5 13/16"	5'-0"	5'-11⅛"	2¾"	1.17	12
24"	1'-0"	2'-9"	3'-6"	5'-0"	5'-6"	6'-5⅜"	3"	1.38	12
27"	1'-1½"	3'-0"	3'-9"	5'-6 3/16"	6'-0"	6'-11 9/16"	3 ¼"	1.62	13

SHEET NOTES:

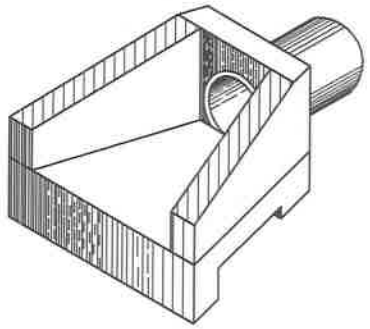
1. 6 #4 x 1'-0" DOWELS
2. 4 #4 x ("E" DIMENSION MINUS 4")
3. SLOPE SHALL BE WARPED TO FIT HEADWALL WHEN PIPE IS SKEWED AND / OR NORMAL SLOPE VARIES FROM 2:1.

NOTES:

1. REINFORCING STEEL MINIMUM GRADE 40, EVENLY SPACED (MIN. SPACING 12" O.C.)
2. VOLUME DISPLACED BY PIPE COMPUTED USING INSIDE DIAMETER OF PIPE.
3. WING ANGLES AND / OR DIMENSIONS MAY BE ALTERED DURING CONSTRUCTION TO ACCOMMODATE FLOW OF WATER.
4. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE, BUT NOT TO EXCEED 5%. FRONT FACE OF HEADWALL SHALL REMAIN VERTICAL.
5. CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN VERTICAL FACE "C" IS GREATER THAN 30".
6. ALL EXPOSED EDGES ARE TO HAVE ¾" CHAMFER.
7. SKEWED PIPE REQUIRES SPECIAL DESIGN.



SECTION A–A



ISOMETRIC VIEW

LEXINGTON

DIVISION OF ENGINEERING

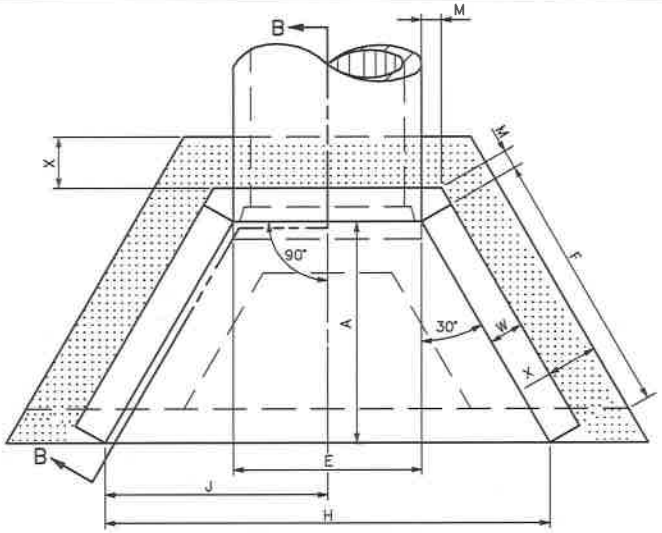
PIPE CULVERT HEADWALLS
0° SKEW
15"–27" CIRCULAR PIPE

STANDARD DRAWING NO. 153

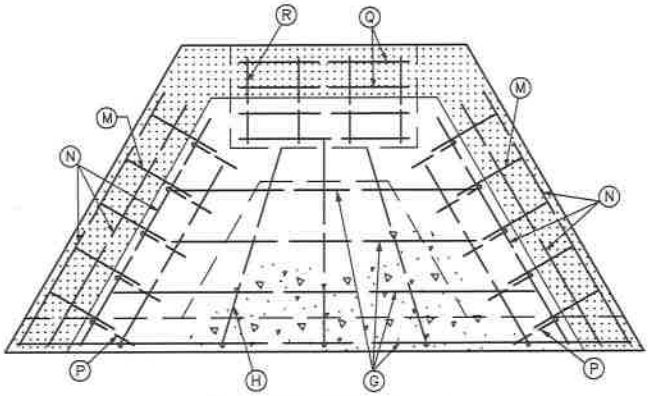
APPROVAL:

URBAN COUNTY ENGINEER — DATE 9/22/17

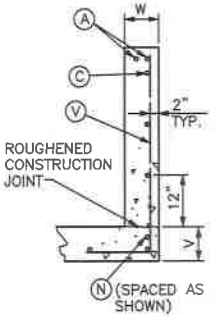
COMMISSIONER — DATE 9/22/17



PLAN VIEW

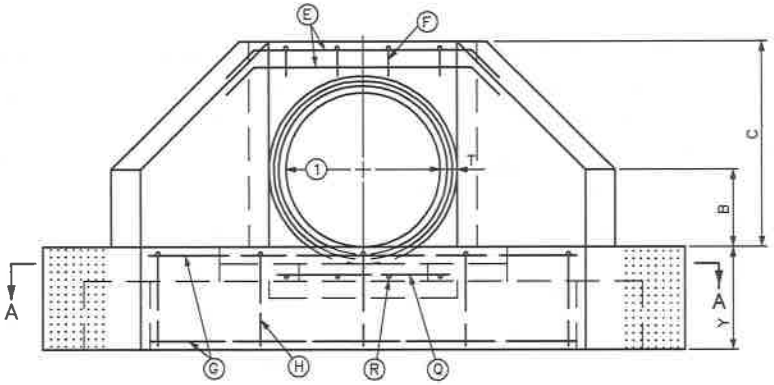


SECTION A–A

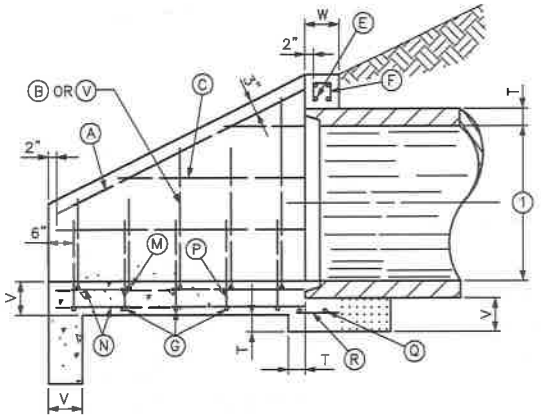


WING SECTION

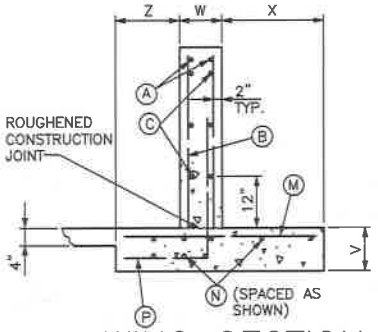
30"–60" CIRCULAR PIPE



FRONT ELEVATION



SECTION B–B



WING SECTION

66"–108" CIRCULAR PIPE

SHEET 1 OF 4

SHEET NOTE: ◯

① DIAMETER OF PIPE

NOTES:

1. ⋯⋯ APPLIES TO 66" DIAMETER AND GREATER. (CIRCULAR PIPE)
2. SEE SHEETS 2, 3, AND 4 OF CURRENT STD. DWG. 154 FOR DIMENSIONS, QUANTITIES, AND BILL OF REINFORCEMENT.
3. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 2" CLEAR DISTANCE UNLESS OTHERWISE NOTED.
4. ENCIRCLED LETTERS, ◯, INDICATE STEEL BAR LOCATIONS.
5. BARS Ⓑ, Ⓒ, Ⓖ, Ⓟ, Ⓜ, Ⓥ ARE SPACED 1'–0" O.C. ALL OTHER BARS SHALL BE EVENLY SPACED.
6. BARS Ⓑ AND Ⓥ ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE END OF EACH WING.
7. BARS Ⓒ ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT TOP OF EACH WING.
8. HEADWALLS LOCATED AT EDGE OF SHOULDER SHALL BE PARALLEL TO CENTERLINE OF THE ROAD.
9. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE, NOT TO EXCEED 5%.
10. FRONT OF HEADWALL AND ENDS OF WINGS SHALL REMAIN VERTICAL.
11. FENCE AND / OR HANDRAIL IS REQUIRED FOR ALL HEADWALLS, SEE STD. DWG. 308.
12. ALL EXPOSED EDGES ARE TO HAVE ¾" CHAMFER.

LEXINGTON

DIVISION OF ENGINEERING

PIPE CULVERT HEADWALLS
0° SKEW
30"–108" PIPE

STANDARD DRAWING NO. 154–1

APPROVAL:

URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/22/17

DIMENSION	DIAMETER OF PIPE														DIMENSION
	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	
A	3'–9"	4'–4"	4'–11"	5'–6"	6'–1"	6'–8"	7'–5"	8'–0"	8'–7"	9'–2"	9'–9"	10'–4"	10'–11"	11'–6"	A
B	1'–3"	1'–6"	1'–9"	2'–0"	2'–3"	2'–6"	2'–9"	3'–0"	3'–3"	3'–6"	3'–9"	4'–0"	4'–3"	4'–6"	B
C	3'–6"	4'–0"	4'–7"	5'–1"	5'–8"	6'–2"	7'–0"	7'–5"	8'–0"	8'–6"	9'–1"	9'–7"	10'–2"	10'–8"	C
E	3'–1"	3'–8"	4'–3"	4'–10"	5'–5"	6'–0"	6'–7"	7'–2'	7'–9"	8'–4"	8'–11"	9'–6"	10'–1"	10'–8"	E
F	4'–4"	5'–0"	5'–8"	6'–4"	7'–0"	7'–8"	8'–7"	9'–3"	9'–11"	10'–7"	11'–3"	11'–11"	12'–7"	13'–3"	F
H	7'–6"	8'–8"	10'–0"	11'–2"	12'–6"	13'–8"	15'–2"	16'–6"	17'–8"	19'–0"	20'–2"	21'–6"	22'–8"	24'–0"	H
J	3'–9"	4'–4"	5'–0"	5'–7"	6'–3"	6'–10"	7'–7"	8'–3"	8'–10"	9'–6"	10'–1"	10'–9"	11'–4"	12'–0"	J
M	0'–5"						0'–6"								M
T	0'–3.5"	0'–4.0"	0'–4.5"	0'–5.0"	0'–5.5"	0'–6.0"	0'–6.5"	0'–7.0"	0'–7.5"	0'–8.0"	0'–8.5"	0'–9.0"	0'–9.5"	0'–10.0"	T
V	0'–8"						1'–0"								V
W	0'–8"						0'–10"								W
X	–						2'–0"				2'–6"				X
Y	2'–0"						2'–6"				3'–0"				Y
Z	–						1'–3"				1'–9"				Z
CU.YDS.CONC. 2 HEADWALLS	3.36	4.30	5.35	6.53	7.82	9.22	18.76	20.95	23.25	25.67	31.48	34.31	37.25	40.32	CU.YDS.CONC. 2 HEADWALLS
LBS.STEEL 2 HEADWALLS	281	363	430	496	583	687	1320	1571	1815	2043	2451	2753	3050	3379	LBS.STEEL 2 HEADWALLS

LEXINGTON

DIVISION OF ENGINEERING

DIMENSIONS AND QUANTITIES
30"–108" HEADWALLS
CIRCULAR PIPE
0° SKEW

STANDARD DRAWING NO: 154–2

APPROVAL:
URBAN COUNTY ENGINEER — DATE 9/22/17
COMMISSIONER — DATE 9/22/17

30"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	4	8		
C1	4	2	2	4		
C2	4	2	4	2		
E1	5	2	6	4	3	4
E2	5	2	6	8	3	8
F	4	3	1	3	0	4
G1	4	2	3	10		
G2	4	3	6	2		
H	4	4	5	1	3	5
N	4	6	4	2		
Q	4	2	2	9		
R	4	3	0	8		
V1	5	4	3	1	1	10
V2	5	4	4	1	2	10

36"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	5	5		
C1	4	2	1	7		
C2	4	2	3	8		
C3	4	2	4	10		
E1	5	2	6	11	3	11
E2	5	2	7	3	4	3
F	4	4	1	3	0	4
G1	4	3	5	0		
G2	4	3	7	4		
H	4	5	5	8	4	0
N	4	6	4	10		
Q	4	2	3	4		
R	4	4	0	8		
V1	5	4	3	4	2	1
V2	5	4	4	4	3	1
V3	5	2	5	4	4	1

42"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	6	2		
C1	4	2	2	9		
C2	4	2	4	9		
C3	4	2	5	6		
E1	5	2	7	6	4	6
E2	5	2	7	10	4	10
F	4	4	1	3	0	4
G1	4	3	6	4		
G2	4	3	8	7		

42" (CONTINUED)

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
H	4	5	6	3	4	7
N	4	6	5	6		
Q	4	2	3	11		
R	4	4	0	9		
V1	5	4	3	6	2	3
V2	5	4	4	6	3	3
V3	5	4	5	6	4	3

48"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	6	11		
C1	4	2	1	10		
C2	4	2	3	10		
C3	4	2	5	10		
C4	4	2	6	2		
E1	5	2	8	1	5	1
E2	5	2	8	5	5	5
F	4	5	1	3	0	4
G1	4	1	4	0		
G2	4	3	7	5		
G3	4	3	9	9		
H	4	6	6	10	5	2
N	4	6	6	2		
Q	4	2	4	6		
R	4	5	0	9		
V1	5	4	3	9	2	6
V2	5	4	4	9	3	6
V3	5	4	5	9	4	6

54"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	7	7		
C1	4	2	0	11		
C2	4	2	3	0		
C3	4	2	5	1		
C4	4	4	6	10		
E1	5	2	8	8	5	8
E2	5	2	9	0	6	0
F	4	6	1	3	0	4
G1	4	1	5	3		
G2	4	3	8	9		
G3	4	3	11	0		
H	4	6	7	5	5	9
N	4	6	6	10		
Q	4	2	5	1		
R	4	6	0	10		
V1	5	4	4	0	2	9

54" (CONTINUED)

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
V2	5	4	5	0	3	9
V3	5	4	6	0	4	9
V4	5	2	7	0	5	9

60"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	8	4		
C1	4	2	2	1		
C2	4	2	4	2		
C3	4	2	6	3		
C4	4	4	7	7		
E1	5	2	9	3	6	3
E2	5	2	9	7	6	7
F	4	6	1	3	0	4
G1	4	2	6	6		
G2	4	3	10	0		
G3	4	3	12	4		
H	4	7	8	0	6	4
N	4	6	7	7		
Q	4	2	5	8		
R	4	6	0	10		
V1	5	4	4	3	3	0
V2	5	4	5	3	4	0
V3	5	4	6	2	4	11
V4	5	4	7	2	5	11

66"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	9	4		
B1	5	8	2	10		
B2	5	8	3	10		
B3	5	8	4	9		
B4	5	8	5	9		
C1	4	4	1	5		
C2	4	4	3	5		
C3	4	4	5	6		
C4	4	4	7	7		
C5	4	8	8	4		
E1	5	2	11	9	6	10
E2	5	2	12	3	7	4
F	4	7	1	9	0	6
G1	4	3	8	0		
G2	4	3	11	4		
G3	4	3	13	10		
H	4	7	9	3	7	1
M	4	16	3	9		
N	4	14	8	4		

66" (CONTINUED)

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
P	5	16	5	0	3	3
Q	5	3	6	2		
R	5	7	2	7		

72"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	10	1		
B1	5	8	3	0		
B2	5	8	4	0		
B3	5	8	4	11		
B4	5	8	5	11		
B5	5	4	6	10		
C1	4	4	2	7		
C2	4	4	4	8		
C3	4	4	6	9		
C4	4	4	8	10		
C5	4	8	9	1		
E1	5	2	12	5	7	5
E2	5	2	12	11	7	11
F	4	8	1	9	0	6
G1	4	3	9	2		
G2	4	3	12	6		
G3	4	3	14	10		
H	4	9	9	10	7	8
M	4	18	3	9		
N	4	14	9	1		
P	5	18	5	3	3	6
Q	5	3	6	10		
R	5	7	2	7		

78"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	10	10		
B1	5	8	3	4		
B2	5	8	4	3		
B3	5	8	5	3		
B4	5	8	6	2		
B5	5	8	7	2		
C1	4	4	1	7		
C2	4	4	3	8		
C3	4	4	5	10		
C4	4	4	7	11		
C5	4	12	9	9		
E1	5	2	13	0	8	0
E2	5	2	13	6	8	6
F	4	8	1	9	0	6
G1	4	1	7	1		

78" (CONTINUED)

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
G2	4	3	10	6		
G3	4	3	14	0		
G4	4	3	16	4		
H	4	9	10	5	8	3
M	4	20	3	9		
N	4	14	9	9		
P	5	20	5	6	3	9
Q	5	3	7	5		
R	5	8	2	8		

84"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	11	7		
B1	5	8	3	6		
B2	5	8	4	6		
B3	5	8	5	5		
B4	5	8	6	5		
B5	5	8	7	4		
B6	5	4	8	4		
C1	4	4	2	10		
C2	4	4	4	11		
C3	4	4	7	0		
C4	4	4	9	1		
C5	4	12	10	5		
E1	5	2	13	7	8	7
E2	5	2	14	2	9	2
F	4	9	1	9	0	6
G1	4	1	9	6		
G2	4	3	11	10		
G3	4	3	15	2		
G4	4	3	17	6		
H	4	9	11	0	8	10
M	4	22	3	9		
N	4	14	10	5		
P	5	22	5	9	4	0
Q	5	3	8	0		
R	5	9	2	8		

90"

MARK	SIZE	NO ①	LGTH FT	LGTH IN	K FT	K IN
A	5	4	12	3		
B1	5	8	3	10		
B2	5	8	4	9		
B3	5	8	5	9		
B4	5	8	6	8		
B5	5	8	7	7		
B6	5	4	8	6		
C1	4	4	1	11		
C2	4	4	4	0		
C3	4	4	6	1		
C4	4	4	8	3		
C5	4	4	10	4		
C6	4	12	11	1		
E1	5	2	14	2	9	2
E2	5	2	14	8	9	8
F	4	9	1	9	0	6
G1	4	2	9	6		
G2	4	3	13	0		
G3	4	3	16	5		
G4	4	3	18	9		
H	4	10	12	1	9	5
M	4	22	4	9		
N	4	16	11	1		
P	6	22	6	6	4	3
Q	5	4	8	7		
R	5	9	3	3		

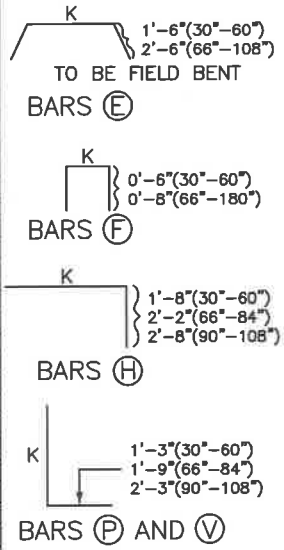
NOTES:

① NUMBER OF BARS IN ONE HEADWALL.

2. DIMENSIONS ARE OUT TO OUT OF BARS.

3. ALL BARS ARE STRAIGHT EXCEPT THOSE SHOWN BELOW.

BENT BAR SHAPES



SHEET 3 OF 4

LEXINGTON

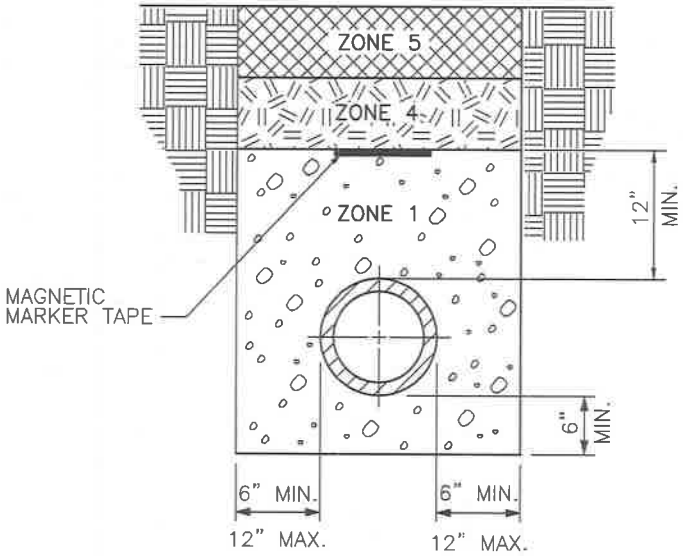
DIVISION OF ENGINEERING

BILL OF REINFORCEMENT
30"-90" DIAMETER
CIRCULAR PIPE HEADWALLS
0° SKEW

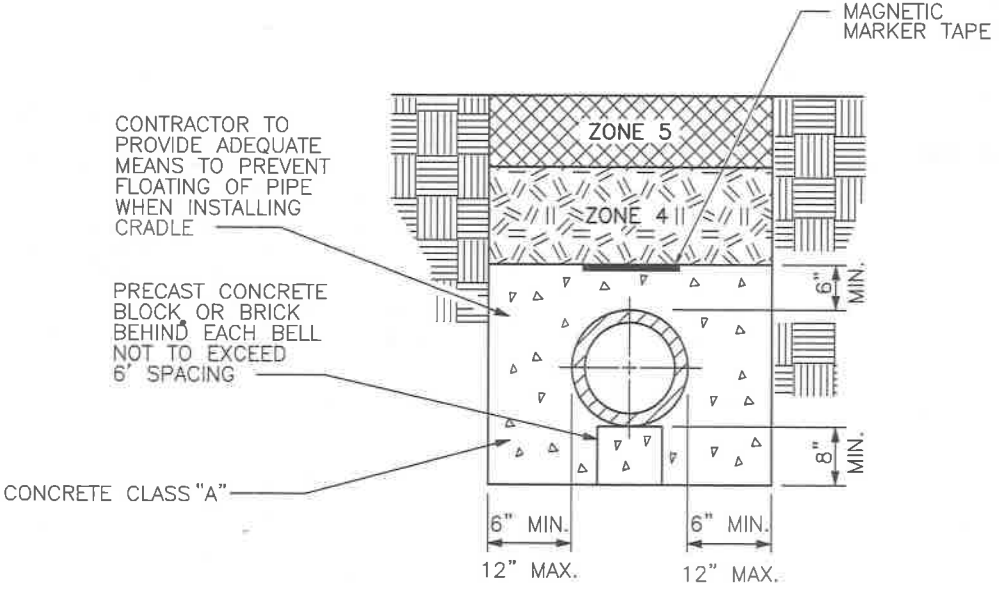
STANDARD DRAWING NO. 154-3

APPROVAL: URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/22/17



PIPE LAID IN ROCK OR SOIL TRENCH



STANDARD CONCRETE ENCASEMENT (NOTE: AS REQUIRED BY DESIGN)

PIPE BACKFILL DESCRIPTIONS	
ZONE 1	NO. 9 STONE
ZONE 2	NO. 9 OR NO. 57 STONE
ZONE 3	COMPACTED DGA
ZONE 4	CONSOLIDATED SOIL (NO ROCK GREATER THAN 6" DIAMETER) NO. 9, OR NO. 57 STONE
ZONE 5	12" MAX. TOPSOIL, NO ROCK ALLOWED

NOTES:

1. COVER, UP TO AND INCLUDING ZONE 4 SHALL BE ESTABLISHED BEFORE TRENCH EXCAVATION.
2. ALL SANITARY SEWER LINES CONSTRUCTED FROM NON-METALLIC MATERIALS SHALL HAVE MAGNETIC MARKER TAPE INSTALLED IN THE TRENCH ABOVE THE SANITARY SEWER LINE.
3. MAGNETIC MARKER TAPE FOR SANITARY SEWER ONLY.

LEXINGTON

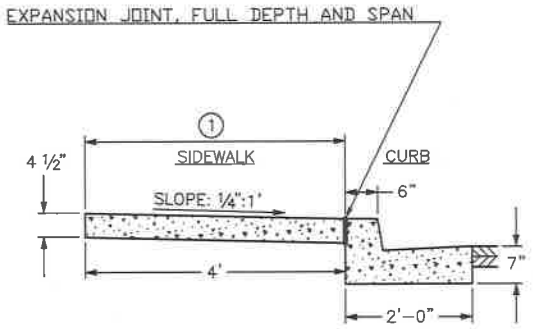
DIVISION OF ENGINEERING

TRENCHING, LAYING, BACKFILLING AND BEDDING OUTSIDE R/W LIMITS

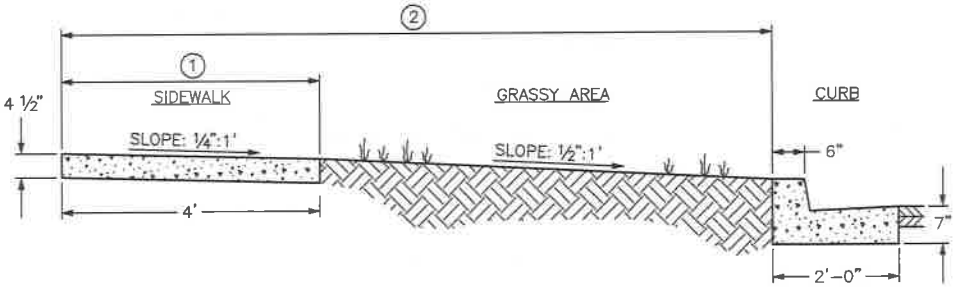
STANDARD DRAWING NO. 200

APPROVAL: URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/22/17



SIDEWALK/CURB AND GUTTER



SIDEWALK/CURB AND GUTTER WITH GRASS UTILITY STRIP

NOTES:

1. CONCRETE SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED ON A THOROUGHLY COMPACTED SUB-GRADE AND SHALL BE FOUR AND ONE HALF (4 ½) INCHES IN THICKNESS AND A MINIMUM WIDTH OF FOUR (4) FEET. CONCRETE SHALL MEET THE REQUIREMENTS FOR CLASS "A" AND SHALL BE COATED WITH WHITE PIGMENTED CURING COMPOUND TYPE 2, ALL AS SPECIFIED IN KYTC SPECIFICATION, SECTION 823.02.

2. FULL DEPTH EXPANSION JOINTS SHALL BE PLACED AT CONTACT WITH NEW OR EXISTING CONCRETE, EXISTING CONCRETE, AT ABUTTING RIGID STRUCTURES OR FEATURES SUCH AS BUILDINGS, DRIVEWAYS, UTILITY POLES FIRE HYDRANTS, ECT. AND NOT TO EXCEED 200' MAXIMUM SPACING FOR SLIP FORM APPLICATION AND 32' FOR HAND PLACED. EXPANSION MATERIAL SHALL BE 1/2" ASPHALTIC MATERIAL OR APPROVED EQUAL MEETING KYTC 807.04.03.

3. CONTROL JOINTS SHALL BE PLACED AT INTERVALS EQUILAVENT TO THE SIDEWALK WIDTH, WITH A DEPTH OF 1/4 THE SIDEWALK THICKNESS.

4. THE SIDEWALKS SHALL BE PLACED ADJACENT TO THE STREET RIGHT-OF-WAY LINE. SLOPE TOWARD CURB SHALL BE ONE QUARTER (¼) OF AN INCH TO THE FOOT. CONSTRUCTION IN EXISTING NEIGHBORHOODS SHALL REQUIRE THE CONTRACTOR TO MATCH EXISTING GRADE AND SIDEWALK WIDTH UNLESS SPECIFIED OTHERWISE BY THE DIVISION OF ENGINEERING.

5. SIDEWALK REPAIR FOR ANY CUTS MADE FOR UTILITY WORK REPLACEMENT SHALL BE FULL PANEL MATCHING THE ORIGINAL DIMENSIONS.

SHEET NOTES:

(1) NORMAL SIDEWALK WIDTH SHALL BE 4' UNLESS CHANGE IS AUTHORIZED BY URBAN COUNTY ENGINEER'S OFFICE.

(2) DISTANCE WILL VARY WITH ROAD CROSS-SECTION.

LEXINGTON

DIVISION OF ENGINEERING

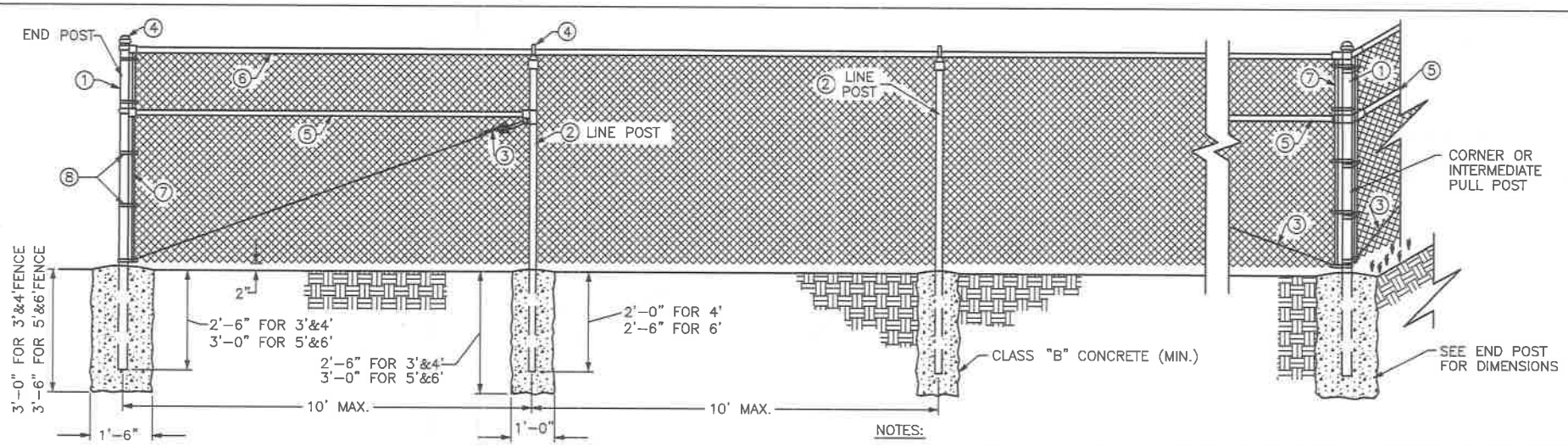
SIDEWALK CONSTRUCTION SPECIFICATIONS

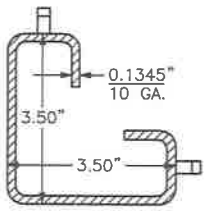
STANDARD DRAWING NO. 303

APPROVAL:

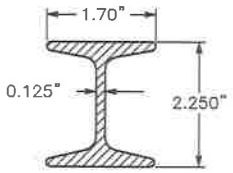
URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/22/17

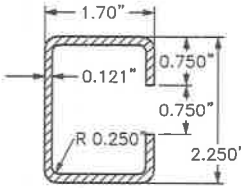




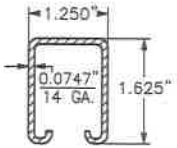
TERMINAL POST & CORNER POST



LINE POST H-COLUMN



LINE POST HEAVY "C" ROLL FORM



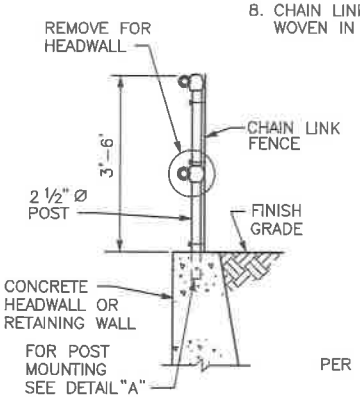
TOP & BRACE RAIL

NOTES:

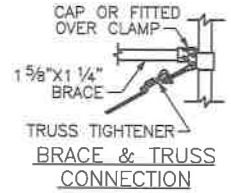
1. ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWING.
2. 3' HIGH FENCE SHALL HAVE 3' FABRIC HEIGHT. 4' HIGH FENCE SHALL HAVE 4' FABRIC HEIGHT. 5' HIGH FENCE SHALL HAVE 5' FABRIC HEIGHT. 6' HIGH FENCE SHALL HAVE 6' FABRIC HEIGHT.
3. BRACE BANDS SHALL BE 7/8"X 1/8" GALVANIZED STEEL 5/16"X1 1/4" CARRIAGE BOLT.
4. POST CAPS AND SOCKET TYPE BRACE END CONNECTIONS SHALL BE GALVANIZED MALLEABLE IRON OR OTHER TYPE AS APPROVED BY THE ENGINEER. THEY SHALL BE DESIGNED IN A MANNER TO EXCLUDE MOISTURE FROM INSIDE POSTS AND RAILS.
5. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL-ASTM A-120 SHALL GOVERN.
6. STRUCTURAL SHAPES SHALL CONFORM TO STD. SPEC. 816.07.01 EXCEPT YIELD SHALL BE A MIN. 45,000 P.S.I.
7. INDISCRIMINATE MIXING OF POSTS WILL NOT BE PERMITTED.
8. CHAIN LINK FENCE FABRIC SHALL BE 0.148 INCH NOMINAL DIAMETER (NO. 9 GAGE) WIRE WOVEN IN 2 INCH MESH.

LEGEND-(ALTERNATES)

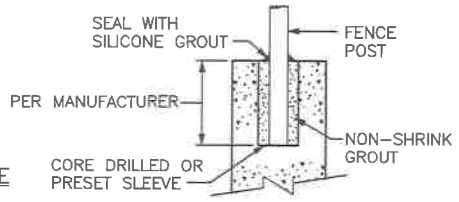
	TUBULAR	ROLL FORMED
①	2 1/2" O.D. @ 3.65#/L.F.	3.5"X3.5" @ 5.14#/L.F.
②	2" O.D. @ 2.72#/L.F.	2.250" H-COL.@ 3.26#/L.F. OR 2.250" C-COL.@ 2.64#/L.F.
③	3/8" Ø TRUSS ROD & TIGHTENER	0.375"Ø TRUSS ROD & TIGHTENER
④	APPROVED CAPS	NOT REQUIRED
⑤	1 5/8" BRACE @ 2.27#/L.F.	1.250"X1.625" @ 1.35#/L.F.
⑥	1 5/8" O.D. @ 2.27#/L.F.	1.250"X1.625" @ 1.35#/L.F.
⑦	3/16"X3/4" FLAT STRETCHER BAR	NOT REQUIRED
⑧	BRACE BAND & TENSION BAND	NOT REQUIRED



CHAIN LINK FENCE MOUNTED TO CONCRETE HEADWALL OR RETAINING WALL



BRACE & TRUSS CONNECTION



DETAIL "A"

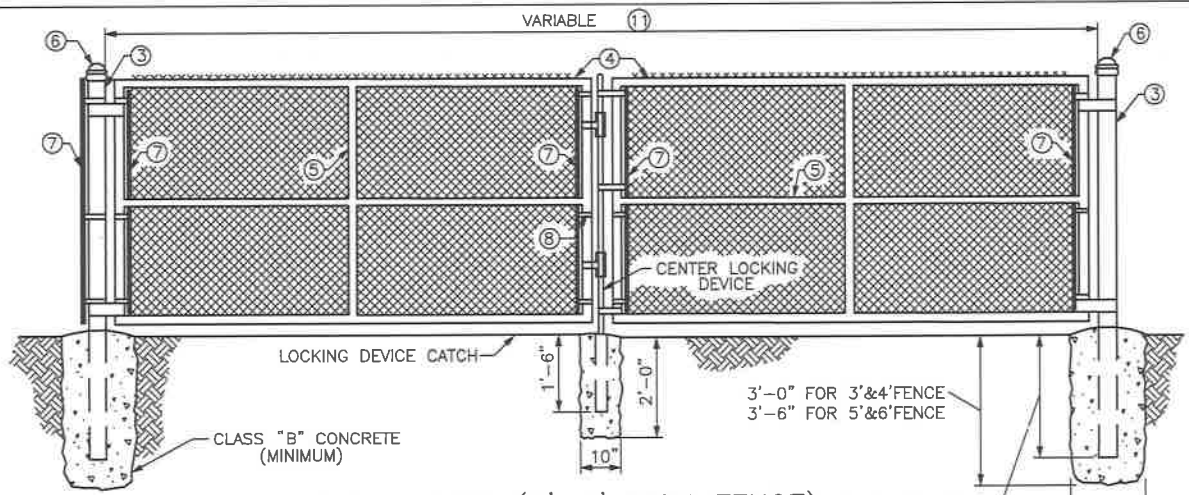
LEXINGTON

DIVISION OF ENGINEERING

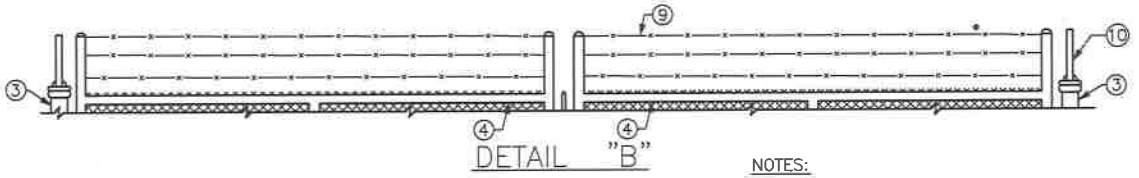
CHAIN LINK FENCE
3'-6'

STANDARD DRAWING NO. 308

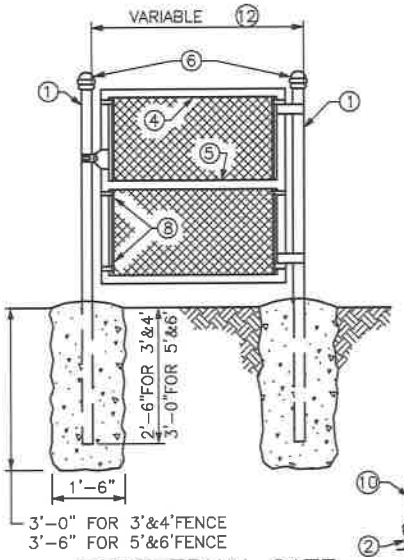
APPROVAL:
URBAN COUNTY ENGINEER — DATE 9/20/17
COMMISSIONER — DATE 9/22/17



VEHICULAR GATE (3'-6' HIGH FENCE)

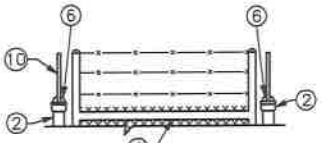


DETAIL "B"



PEDESTRIAN GATE (3'-6' HIGH FENCE)

HINGE DETAIL



DETAIL " A"

LEGEND – (ALTERNATES)

	TUBULAR	ROLL FORMED
①	END POST 2½" O.D. @ 3.65#L.F.	3½"X3½" @ 5.14#/L.F.
②	END POST 3" O.D. @ 3.65#/L.F.	3½"X3½" @ 5.14#/L.F.
③	4" O.D. @ 9.1#/L.F. GATE POST	NO ALTERNATE
④	2" O.D. @ 2.72#/L.F. GATE FRAME	NO ALTERNATE
⑤	1⅝" O.D. @ 2.27#/L.F.	NO ALTERNATE
⑥	APPROVED CAPS	NOT REQUIRED
⑦	3/16"X⅝" FLAT STRETCHER BAR	NOT REQUIRED
⑧	BRACE BAND & TENSION BAND	NOT REQUIRED
⑨	BARBED WIRE	BARBED WIRE
⑩	BARBED WIRE ARMS	BARBED WIRE ARMS

NOTES:

1. ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWING.
2. VEHICULAR AND PEDESTRIAN GATES SHALL HAVE HEAVY PRESSED STEEL CORNERS SECURELY RIVETED OR SHALL BE MACHINE NOTCHED, AND ELECTRICALLY WELDED SO AS TO BE RIGID AND WATER TIGHT; AND EQUIPPED WITH PADLOCKING DEVICE AND GROUND STOP.
3. ALL WELDED JOINTS SHALL BE CLEANED AND PAINTED WITH TWO (2) COATS OF ALUMINUM PAINT.
4. 3' HIGH GATES SHALL HAVE 3' FABRIC HEIGHT. 4' HIGH GATES SHALL HAVE 4' FABRIC HEIGHT. 5' HIGH GATES SHALL HAVE 5' FABRIC HEIGHT. 6' HIGH GATES SHALL HAVE 6' FABRIC HEIGHT. 8' HIGH GATES SHALL HAVE 7' FABRIC HEIGHT. 9' HIGH GATES SHALL HAVE 8' FABRIC HEIGHT. 10' HIGH GATES SHALL HAVE 9' FABRIC HEIGHT. 11' HIGH GATES SHALL HAVE 10' FABRIC HEIGHT. 12' HIGH GATES SHALL HAVE 11' FABRIC HEIGHT.
5. SEE DETAIL "A" FOR BARBED WIRE INSTALLATION ON 8' TO 12' HIGH PEDESTRIAN GATES.
6. SEE DETAIL "B" FOR BARBED WIRE INSTALLATION ON 8' TO 12' HIGH VEHICULAR GATES.
7. THE CONTRACTOR IS NOT TO ORDER GATES UNTIL THEIR NECESSITY AND LOCATION HAVE BEEN CERTIFIED BY THE ENGINEER.
8. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL – ASTM A-120 SHALL GOVERN.
9. CHAIN LINK FENCE FABRIC SHALL BE 0.148 INCH NOMINAL DIAMETER (NO.9 GAGE) WIRE WOVEN 2 INCH MESH.

⑪ 6' TO 13' WIDTH FOR SINGLE GATE OR 12' TO 26' WIDTH FOR DOUBLE GATE.

⑫ 4' TO 6' WIDTH

LEXINGTON

DIVISION OF ENGINEERING

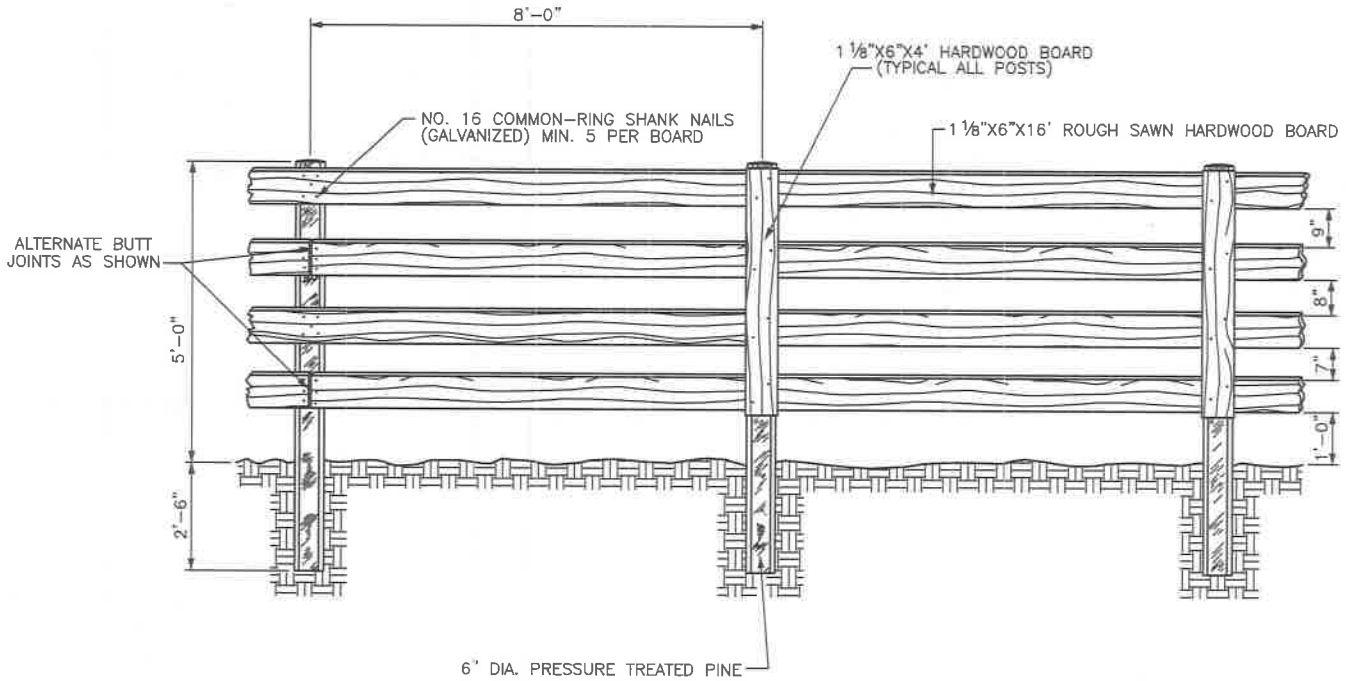
CHAIN LINK GATE

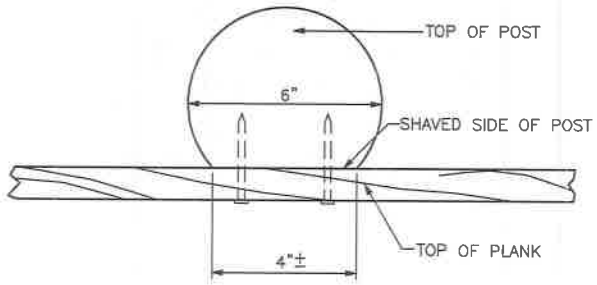
STANDARD DRAWING NO. 310

APPROVAL:

URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/22/17





NOTES:

1. POSTS ARE TO BE DRIVEN 2'-6" INTO GROUND AND TOPS CUT AT AN ANGLE TO DRAIN WATER.
2. FENCE SHALL BE PAINTED BLACK OR WHITE WITH PAINT AND APPLICATION RATE AS APPROVED BY THE ENGINEER.
3. HARDWOODS APPROVED ARE RED OAK, WHITE OAK, AND POPLAR.

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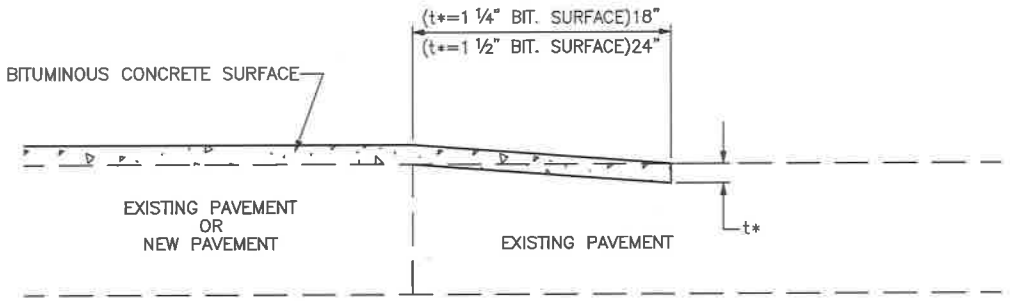
PLANK FENCE

STANDARD DRAWING NO: 311

APPROVAL:

URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/22/17



EDGE KEY

LEXINGTON

DIVISION OF ENGINEERING

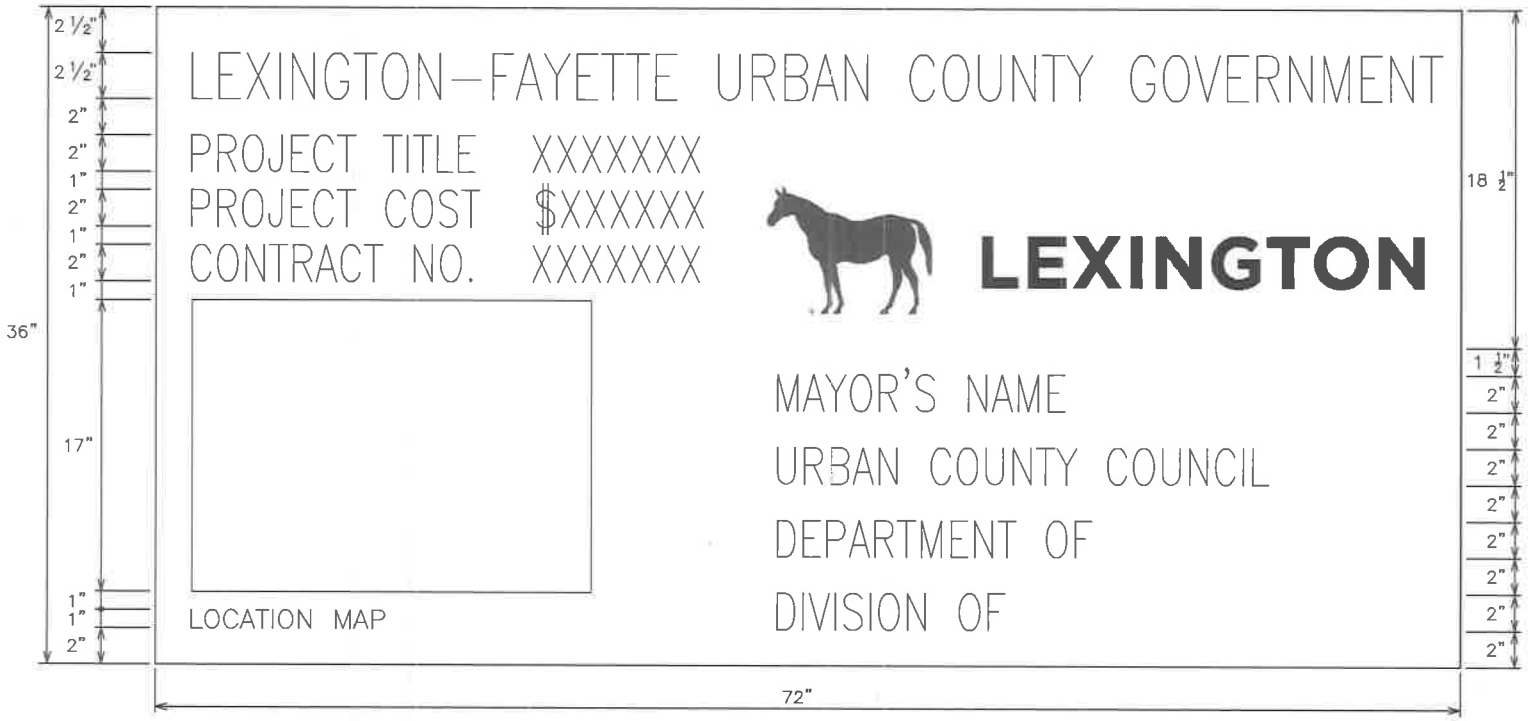
TYPICAL EDGE KEY
FOR
MINIMUM OVERLAYS,
SHORT PROJECTS,
LOW SPEED

STANDARD DRAWING NO. 319

APPROVAL:

URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/22/17



NOTES:

THIS SIGN SHALL BE:

1. FURNISHED AND ERECTED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE, IN ADDITION TO THE NORMAL WARNING AND REGULATORY SIGNS.
2. OF GOOD QUALITY EXTERIOR PLYWOOD OR OTHER APPROVED MATERIAL.
3. PAINTED WITH SOLID BLUE LETTERS ON A WHITE BACKGROUND.
4. UPDATED AS NEEDED TO INDICATE THE APPROPRIATE MAYOR'S NAME.
5. FRAMED AND BRACED SO AS TO REMAIN VERTICAL AND PLAINLY VISIBLE TO THE TRAVELING PUBLIC.
6. ERECTED PRIOR TO STARTING CONSTRUCTION WORK.
7. ERECTED AT EACH END OF THE PROJECT AT LOCATIONS DIRECTED BY THE ENGINEER AND AT OTHER LOCATIONS SPECIFIED ON THE PLANS OR IN THE PROPOSAL.
8. KEPT CLEAN AND IN GOOD CONDITION FOR THE DURATION OF THE CONSTRUCTION AS DIRECTED BY THE ENGINEER.
9. THE COST SHOWN APPLIES ONLY TO THE PORTION OF PROJECT UNDER CONSTRUCTION IN A CONTINUOUS SECTION. IN THE EVENT THE PROJECT CONSISTS OF MORE THAN ONE CONTINUOUS SECTION THE COST SHOWN SHALL BE FOR THE PARTICULAR SECTION WHERE WORK IS IN PROGRESS.
10. NOT TO BE USED ON FEDERAL AID TRANSPORTATION PROJECTS

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DIVISION OF ENGINEERING

PUBLIC IMPROVEMENT SIGN

STANDARD DRAWING NO. 323

APPROVAL:

URBAN COUNTY ENGINEER — DATE 9/22/17

COMMISSIONER — DATE 9/25/17